



[Alvin W. Boese Papers.](#)

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GENERAL OFFICES • 2501 HUDSON ROAD • ST. PAUL 19, MINNESOTA • TEL: 733-1110

Interoffice Correspondence March 23, 1964

Subject: Face Mask Patent

TO: R. I. COULTER - PATENT COUNSEL - 220-12W

FROM: P. H. CAREY - TECHNICAL MANAGER - NEW PRODUCTS - 27-1

I would appreciate the opportunity to discuss a rejected application S. N. 91,367 on Filter Face Masks.

I do not believe that the Patent Office Board of Appeals has a true appreciation of the unique and unusual properties of our Filter Face Mask.

I would like to review with you the history of our development, and particularly, the fact that our Mask fits under the chin. This, we feel, is a very vital aspect of our invention and one which makes our Mask function effectively on all faces.

I would also like to discuss with you the developments on our Cold Weather Mask and review with you a proposed application for a patent.


PHC:seg

cc: R. J. Barghini - 27-1
A. W. Boese - 220-8W
H. R. Courtney - 27-1
K. H. Tuggle - 220-8W
W. M. Westberg - 27-1



GENERAL OFFICES • 2501 HUDSON ROAD • ST. PAUL 19, MINNESOTA • TEL: 733-1110

Interoffice Correspondence

Subject: "Color Print" Patent Search

March 26, 1964

TO: P. H. CAREY - TECHNICAL MANAGER - NEW PRODUCTS - 27-1

FROM: W. M. WESTBERG - GIFT WRAP & FABRIC LABORATORY - 27-1

I draw your attention to the recent communication from Mr. T. E. Stribling, Jr. of Werner Textile Consultants concerning the licensing and patent situation on the "Sark" and "Orbis" processes for printing textiles. Inasmuch as my request to the International Division for further information on the "Orbis" process in Holland may not produce results for some time, I suggest that we initiate a patent search at this time covering the art practiced in our "Color Print" development.

I believe the search is justified because, as noted above, we already have evidence that patents exist in this field. Also the patent information would help us make judgments about the most profitable directions to pursue in our development program.

W.M.
WMW:bcf

cc: A. W. Boese - 220-8W
H. R. Courtney - 27-1
R. I. Coulter - 220-12W
R. R. Martin - 220-8W
O. M. Wiste - 27-1

cc: A. W. Boese 220-8W
H. R. Courtney 27-1
R. Hastie U of M
R. R. Martin 220-8W
O. M. Wiste 27-1

Proposed "Color Print"
Evaluation Program

March 19, 1964

TO: P. H. CAREY - TECHNICAL MANAGER - NEW PRODUCTS - 27-1
FROM: W. M. WESTBERG - GIFT WRAP & FABRIC LABORATORY - 27-1

The following is a summary of our recent conversation on the above subject.

After our recent, very interesting and valuable exposure of "Color Print" to Mr. Reid Hastie's Art Class (art majors with a minor in education) at the University of Minnesota, Mr. Hastie suggested that next steps should include evaluating the material in a (1) Junior High School class, (2) Elementary School class, and (3) College class of students preparing to teach in the Elementary school.

We recommend the following initial program:

- I. Objective: To determine how children in Junior High respond to this method of art and to the materials
Location: Dorothy Williamson's Junior High class, Richfield, Minnesota
Time: Shortly after Easter vacation

We feel that only Class B "Color Print" material (flexible, unmounted) should be presented since it seems to be the most versatile. An initial meeting will be set up with Mr. Hastie and Miss Williamson to acquaint her with the product techniques and with the type of information which we desire to obtain. Mr. Hastie's suggestion is that Miss Williamson expose the "Color Print" to her class as a lesson, rather than incorporating demonstrations, etc., by 3M Company.

We will propose the material be used for making 8" x 10" prints, posters and decorative wrapping paper. We will demonstrate to her the following techniques for making mono or multi-colored prints:

1. Placing wetted paper on printing plate or placing printing plate on wetted paper which is lying on table
2. Use of cut sections of material
3. Use of torn sections
4. Linear designs

In the interests of restricting techniques to those most likely to be used for this product, it will be suggested that the students refrain from painting with the material by wetting a piece and using it like a brush, dipping the material in water, or painting water on the material and making prints.

An important corollary of the above objective is to get as much product definition information as possible. We hope to find if the product (a) can be cut and gouged satisfactorily, (b) can be easily and controllably torn (Mr. Hastie's class showed that good, natural effects could be obtained by tearing rough-edged pieces for placement on a printing block), (c) prints uniform colors of satisfactory intensity and hue, (d) can be used satisfactorily, technically and artistically for multiple-color lay-up, and (e) can make a number of copies.

Also, if possible, we would like to examine the preceding for two varieties of the product; namely, two calipers, 25 mils and 40 mils. The use of tools and what type will be discussed with Miss Williamson and Mr. Hastie.

- II. A second objective: To determine how elementary children respond to this method of art and to the materials. A detailed program for this second objective will await the results of the first test to be better able to make suitable plans.

cc: A. W. Boese - 220-8W
H. R. Courtney - 27-1
O. M. Wiste - 27-1

Color-Print Patent Search

March 17, 1964 - -

TO: P. H. CAREY - TECHNICAL MANAGER - NEW PRODUCTS - 27-1

FROM: W. M. WESTBERG - GIFT WRAP & FABRIC LABORATORY - 27-1

I wrote the Daily News Record initially to inquire about the use in this country of the "Orbis" textile printing process as described in their July 24, 1963 issue. Mr. K. A. Harvey of that publication wrote me saying that he was not aware of any U.S. concern using the process but that a Canadian concern was using a similar technique, called the "Stark" process. He suggested writing for further information to Werner Textile Consultants, Larchmont, New York. This I have done.

I have also attempted to inquire more directly into the "Orbis" process which, as reported by the Daily News Record, is employed by the Van Heek textile firm of Holland. I wrote, at Mr. Paul Ristau's suggestion, to Mr. H. L. Hatch of the International Division to ask him to seek licensing and patent information on the process.

Meanwhile, I have made a preliminary search in our patent department files. The following classifications were examined for the years 1955 through 1962. (The index for 1963 was not available.)

117 - 35.6	Coating: Processes and Misc. Products Hectograph or copying surface
106 - 14.5	Coating on plastic compositions Hectograph or copying
106 - 217	Coating on plastic compositions Carbohydrate containing with filler, dye or pigment
8 - 62+	Textile printing only
101 - 135	Planographic, Multi-color
101 - 389	Printing-member block
101 - 134	Planographic copying apparatus Multi-color ink block

I turned up about 80 patents in the above classifications and located them in the patent abstract files. Only two seemed worth ordering and the prior art here seemed only remotely connected with the subject of my search.

I talked briefly with Mr. Gilbert Gehrenbeck who suggested a patent search in Washington. A fairly good search costs about \$200. He said that an expert searcher can pick out the classifications better and turn up pertinent information faster.

I believe that we should wait for responses to my letters about the textile printing techniques and then order a patent search made for our own protection and to guide us in our product development.

WMW:bcf

Patents

CARPENTER, ABBOTT, COULTER & KINNEY

PATENT AND TRADE-MARK CAUSERS

2501 HUDSON ROAD

SAINT PAUL 19, MINNESOTA

March 30, 1964

**Mr. P. H. Carey
Minnesota Mining and Manufacturing Company
Saint Paul, Minnesota**

**Re: Carey and Westberg S.N. 91,367
Filter Face Mask**

Dear Mr. Carey:

In Mr. Coulter's absence, I reviewed with you over the telephone the further steps which might be taken to gain allowable claims in the subject application. This was in response to your letter of March 23, 1964.

The conclusion reached with you was that about the only practical thing to do at this time would be to file a complaint and thereby carry the case to the District Court for the District of Columbia; but I cautioned that this would only be an interim act inasmuch as the planning of Mr. Coulter with respect to this case and its relationship to others is not definitively known.

After covering the foregoing with you early Friday, March 27, 1964, I received a telephone call from Mr. LaBuda, reviewed the matter with him, and it was left that he would promptly get in touch with me if he wished to have a complaint filed. Later in the day Friday, I again talked with you, advised that Mr. LaBuda had not called again as of that time, and that nothing would be done unless we received further instructions.

I have not received any instructions; and therefore, no complaint is being filed in the District Court.

Incidentally, I should point out that the points raised in your letter about the mask fitting under the chin is covered in the prior art Schwartz patent No. 1,292,095 cited against the subject application and used in combination with other patents by the Examiner to reject your claim. The Board sustained the Examiner's combination rejection. And as we covered in our telephone conversation, the claims of the subject case must be written so that the point of invention is not the same as in the issued Westberg and Carey patent No. 3,064,329; therefore, the claims must be relatively broad to

Mr. P. H. Carey

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March 30, 1964

a face mask structure as distinguished from the fiber or filament content thereof.

Again, as I mentioned in our telephone conversations, today is the last day for taking any action to gain claims in the subject application.

Very truly yours,

ROBERT C. BAKER

RCB:O

cc.: Messrs. L. W. Lehr
J. J. LaBuda
W. M. Westberg
H. R. Courtney
A. W. Boese
H. W. Wilcox
R. J. Barghini
K. H. Tuggle

CARPENTER, ABBOTT, COULTER & KINNEY

PATENT AND TRADE-MARK CAUSES

8801 HUDSON ROAD

SAINT PAUL 19, MINNESOTA

April 17, 1964

*Comment
5/12/64*

Mr. A. H. Redpath
Minnesota Mining and Manufacturing Company
Saint Paul 19, Minnesota

Re: Kravig et al patent No. 2,933,223
granted April 19, 1960;
Kravig et al patent No. 3,112,240
granted November 26, 1963; and
Henderson v. Kravig Interference 92,874

Dear Mr. Redpath:

This will follow up your letters of April 3 and 7, 1964, addressed jointly to Mr. Kinney and me, and Mr. Kinney's letter to you of April 6th, concerning the Kravig and Johnson patents on bow tying machines and decorative ribbon bows.

This week we received a decision of the Patent Office on reconsideration of the earlier decision (dated May 20, 1963) by which the interference had been dissolved. The reconsideration, you will recall, had been directed by the First Assistant Commissioner. The decision, which bears the date of April 8, 1964, reverses the earlier decision and reinstates the interference in respect to the counts to the bow tying machine. The earlier decision dissolving the interference as to counts directed to methods of making bows is adhered to.

It is emphasized that the recent decision merely holds that Henderson is not barred from taking testimony in an attempt to prove that he is prior to 3M's Kravig and Johnson in inventing the bow tying machine. The only disappointment, therefore, is the further delay the decision causes. So far as I am aware of the facts, I know of no reason for assuming that Henderson can prove priority, and, inasmuch as he filed his application several months after the Kravig et al patent issued, he assumes a very heavy burden of proof under the controlling decision law. However, we must recommend some further delay before instituting any infringement action on either of the Kravig and Johnson patents.

We, as you, are extremely interested in the extent of the further delay the recent decision will cause. I have

Mr. A. H. Redpath

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April 17, 1964

been in touch by long distance telephone with the person in the Interference Division who would now be charged with setting the interference down for taking testimony. After I explained the unusual history of this interference, he agreed (assuming neither party seeks further review of the present decision at this time) to send out during the week of May 4th the notice setting times for taking testimony. He explained that he must wait until that week before sending out the notice unless the parties can stipulate that neither will seek any review of the present decision at this time. I am going to attempt to arrive at such a stipulation with opposing counsel, but I am not overly optimistic that we can obtain his cooperation.

Under the notice to be sent out the junior party Henderson will be given 60 days within which to complete his testimony, we will be given 30 days thereafter within which to complete our testimony, and Henderson will be given 15 additional days thereafter within which to complete rebuttal testimony. These times also can be shortened by stipulation if the other side will cooperate.

By the time testimony on behalf of Henderson has been completed (hopefully no later than about the first week in July), we will be in a good position to appraise whether Henderson has any real chance to prove priority. At that time our view may well be that the Patent Office proceeding need not longer delay your plans in respect to possible infringement of the Kravig et al patents.

While this turn of events is disappointing because of the fact that the interference will not now be terminated as early as we had hoped, in matters of substance the decision is not bad. The interference will now be terminated with an award of priority. In the long run a favorable award of priority over Henderson will leave us in a better position (except in point of time) than had the interference remained dissolved. For example, had the interference been dissolved on the ground that Henderson was barred from making the counts in view of 3M's South African publication, a defendant (such as Chicago Printed String) in a patent infringement suit would not be precluded from urging that the Kravig et al patent is invalid because Henderson and not Kravig et al is the prior inventor (even though Henderson himself was barred from getting a patent). The very priority issue we now face could thus have been tried before a court.

Mr. A. H. Redpath

- 3 -

April 17, 1964

On the other hand, now that testimony will be taken, an award of priority in our favor in the interference proceeding will effectively put an end for all time to any real issue as regards priority over Henderson.

As noted above we could attempt to obtain a review of the recent decision by way of petition to the Commissioner. In view of the history, our chances of having the decision upset and the interference dissolved without going to the testimony stage are probably less than 50:50, while at the same time delaying the interference even longer. Hence, we do not recommend this procedure.

Shortly I will be in touch with Mr. Boese and Mr. Johnson in respect to preparing for the testimony to be taken in the interference.

Very truly yours,

Stanley G. DeLahunt

SGD:mer

cc - Messrs. C. B. Sampair
R. W. Mueller
A. W. Boese ✓
A. E. Johnson
R. S. Kravig

CARPENTER, ABBOTT, COULTER & KINNEY

PATENT AND TRADE-MARK CAUSES

2501 HUDSON ROAD

SAINT PAUL 19, MINNESOTA

May 18, 1964

Mr. A. H. Redpath
Minnesota Mining and Manufacturing Company
Saint Paul, Minnesota 55119

Re: Henderson v. Kravig
Interference No. 92,874

Dear Mr. Redpath:

We are now in receipt of the notice from the Patent Office setting this interference down for testimony. Under the present schedule, times set are as follows:

Testimony in chief of Henderson to close July 14, 1964;
Testimony of Kravig et al to close August 14, 1964;
Rebuttal testimony of Henderson to close August 31, 1964.

In accordance with the enclosed letter to Mr. Hart, I have suggested that the times for taking testimony be advanced so that Henderson's testimony in chief would be taken by June 15th, Kravig et al testimony to be taken by July 1st, with Henderson's rebuttal testimony to be taken by July 14th. Under this schedule all of the testimony would be taken within the time now set just for Henderson to complete his testimony in chief.

I am doubtful that Henderson's attorney is going to be very cooperative in this suggestion. But it does put Henderson on notice of our anxiety to move matters along as quickly as possible. It also puts us in a good position to oppose any extension sought for by Henderson or his attorney.

With reference to my letter to you of April 17, 1964, we will know much more about Henderson's position in this interference by the time his testimony in chief is taken, now set by the Patent Office to be completed by July 14th.

Very truly yours,

Stanley G. DeLaHunt

SGD:mer

Encl.

cc - Messrs. R. J. May
E. B. Moffet

A. W. Boese ✓
A. E. Johnson

R. S. Kravig

ROBERT I. COULTER
HAROLD J. KINNEY
CRUZAN ALEXANDER
MARK W. GEHAN
FRANK A. STELDT
ERNST A. JAFFRAY
ROBERT C. BAKER
ROBERT E. GRANRUD
DONALD M. SELL
STANLEY G. DELAHUNT

JAMES A. SMITH
RICHARD E. BRINK
CHARLES H. LAUDER
DONALD C. GIPPLE
DAVID A. RODEN
JOHN W. KLOOSTER
EDWARD T. OKUBO
JOHN C. BARNES
ROBERT L. HARRINGTON
ROGER R. TAMTE
DANIEL J. MEANEY

CARPENTER, KINNEY & COULTER

ATTORNEYS AT LAW

PATENT AND TRADEMARK CAUSES

2501 HUDSON ROAD

SAINT PAUL, MINNESOTA 55101

May 4, 1965

AREA CODE 612
733-1500

CABLE ADDRESS
PATENTS

PAUL CARPENTER,
1908-1941

E. C. CARPENTER
OF COUNSEL

G. B. GEHREBECK
TEMPLE CLAYTON
PATENT AGENTS

Mr. Patrick H. Carey, Jr.
Retail Tape and Gift Wrap Lab. - 230 - B
Minnesota Mining and Manufacturing Company
Saint Paul, Minnesota

Re: Dr. L. Virginia Holland
and Her Teaching Aids System

Dear Pat:

You informed me today of the contacts you have had with Dr. Virginia Holland, of Saint Louis, Missouri, in respect to her system for teaching language. Dr. Holland is a teacher in the public school system, and her system involves "keying" particular parts of speech with particular colors; that is, nouns would be black in color, verbs would be red in color, etc.

In some usages of the system a series of squares of different colors is put before a school child, and he is asked to fill in each square with a particular part of speech which is proper to that square and thus construct a sentence. Apparently, the system is quite successful in teaching children how to more easily identify parts of speech.

You asked what sort of legal protection Dr. Holland might be able to obtain on her idea. You have had a meeting with her and her lawyers (a firm in Saint Louis), and the lawyers at that time seemed to put considerable stress on copyright and trademark protection, with less reference to patent protection.

Dr. Holland has prepared: --

1. A teaching manual -- This is the book the teacher uses to explain the parts of speech and which contains sentences to be used by the student.
2. The student work book -- This is the book used by the student which contains the same sentences as are in the teacher's manual. The words are printed in the book, and the student is expected to apply the proper colors to the words.

Mr. Patrick H. Carey, Jr. -2-

May 4, 1965

3. Plastic and cardboard pieces of colors, corresponding to the colors which have been selected for the parts of speech. The child is instructed to place these over the part of speech which corresponds to the color he has in hand.

Dr. Holland's two books above referred to would undoubtedly be copyrightable. Unfortunately, mere copyright would not give her, or 3M Co., any protection on the basic concept which she perhaps has originated. Copyright gives protection only against unauthorized copying. By copyright Dr. Holland could obtain fairly good protection against piracy of her layouts or designs or arrangements, but someone who cared to start from scratch (utilizing her concept) to develop new and original manuals or books, could do so without violating Dr. Holland's copyright.

Trademark protection could also be obtained, just as 3M Co. obtains important protection through registration of such terms as "SCOTCH", "THERMO-FAX", etc. Trademark registration or usage, of course, does not protect one against copying of the product sold under the trademark. In other words, neither copyright nor trademark protection will give Dr. Holland anything basic, although they might be important.

Perhaps Dr. Holland would want to have her attorneys write to me and give me their evaluation of what kind of protection they think is possible here. I certainly do not rule out completely the possibility of patent protection, but there are two hurdles to overcome. First, is Dr. Holland's concept really new, even in the language teaching field? Secondly, if it is new, the question still remains whether it is patentable. There is nothing tangible involved, as there is in the normal thing sought to be patented. There are, of course, some "tools" for putting the concept into use, but what protection is sought on is the concept apart from the particular tools; and there are probably a great number of ways in which Dr. Holland's idea could be put into use.

I suggest that you write to Dr. Holland inquiring whether she would care to have her attorneys write me directly, telling me: --

1. What, if anything, has already been done to obtain patent, trademark, or copyright protection for Dr. Holland?

Mr. Patrick H. Carey, Jr. -3-

May 4, 1965

2. What is contemplated?

3. What theories on protection do they have?

In general, we would like to find out just what it is that Dr. Holland really has to "sell".

If you would like us to, we can also have a patent search made immediately, or whenever you want it made, to find out for ourselves what previously has been done in this field of "keying" words to colors.

Yours very truly,

Mark W. Gehan

MWG:sa

cc: A. W. Boese ✓
A. H. Redpath

egf
MINNESOTA MINING AND MANUFACTURING COMPANY

SAINT PAUL MINNESOTA
INTEROFFICE CORRESPONDENCE
SUBJECT: Mr. William S. Edmondson

May 12, 1965

TO: A. W. BOESE - RETAIL TAPE & GIFT WRAP DIVISION - 220-8W

FROM: P. H. CAREY - ART AND EDUCATION PRODUCTS LABORATORY - 230-B(33)

Attached is a dry copy of a letter I received from Mr. R. Merchant of Merchant, Merchant & Gould Patent Attornies. Mr. Edmondson's claim had been allowed by the patent office on April 20. Mr. Edmondson is interested in having 3M fabricate and market his invention. The products produced under Mr. Edmondson's inventions would fit into the craft area and could logically be sold by the art material dealers. We would have to develop designs and kits employing these designs for sale to the retail craft market.

I would like to discuss this further with you and Bob Martin, and if agreeable, begin negotiating with Mr. Edmondson for the license rights.



PHC:bcf

cc: R. R. Martin - 220-8W

AW Boese-220-8W

LAW OFFICES
MERCHANT, MERCHANT & GOULD
PATENTS AND TRADEMARKS
TWENTY-THIRD FLOOR
RAND TOWER
MINNEAPOLIS, MINNESOTA 55402

May 5, 1965

Mr. William S. Edmondson
4100 Abbott Ave. So.
Minneapolis, Minnesota

Re: M & M 9907 "Embossing Process"

Dear Mr. Edmondson:

Confirming our telephone conversation of today, the allowed claim in the above-identified application, formerly allowed as of April 20, 1965, reads as follows:

"The process of embossing flexible sheet material to create the impression of antiquity, said process consisting of the steps of

- (a) providing an embossing die having design-forming ribs with flat surfaces between said ribs,
- (b) forming an impression sheet by applying fluid adhesive between a ply of relatively thin metal foil and a ply of paper backing material which permits sliding movement between the plies and
- (c) finally forcing said impression sheet with the layer of metal foil in direct engagement with said embossing die by applying pressure by a generally flat compressible pad element having a working face at least as great as that of said die and while said adhesive is in a semi-plastic state."

You mentioned that in practice the pressure would be applied by a roller which, in effect, is its mechanical equivalent. Nevertheless, it would be desirable to remove this possible limitation to the claim and I am writing to our associate as per enclosed copy.

-2-

In the interim, awaiting his reply, I enclose a Xerox copy of his statement for services, together with our invoice for copies, postage and phone calls.

Yours very truly,

MERCHANT, MERCHANT & GOULD

RPM VE
enc.

Ralph F. Merchant

LAW OFFICES
MERCHANT, MERCHANT & GOULD
PATENTS AND TRADEMARKS
TWENTY-THIRD FLOOR
RAND TOWER
MINNEAPOLIS, MINNESOTA 55402

May 5, 1965

Mr. Everett G. Clements
552 Pennsylvania Bldg.
Washington, D. C. 20004

Re: M & M 9907 Edmondson "Embossing
Process"

Dear Everett:

I am in receipt of yours of May 4th together with file copies.

In talking with the inventor he informs me that if this goes into commercial practice the pressure would be applied by a roller. In light of this, the word "flat" in paragraph (c) is apparently an objectionable limitation, although it could be argued that the roller is the mechanical equivalent. In any event, what is your opinion as to our chances of removing this limitation by amendment under Rule 312? Possibly this could be done by changing the word "generally" before --flat-- to "generated" or "developed".

Yours very truly,

MERCHANT, MERCHANT & GOULD

RFH VB

Ralph F. Merchant



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Interoffice Correspondence

File

3M CONFIDENTIAL

Subject: Tape Patent Committee Meeting #101

August 11, 1965

Medical - Tuesday, August 3, 1965

J.J. LaBuda, H.W. Wilcox, J.O. Hendricks, G.B. Rathmann, A.D. Pearson, R.W. Lundbohm and D.V. Greblich.

Retail, Mutual & Industrial - Wednesday, August 4, 1965

J.O. Hendricks, R.D. MacDonald, C.J. Calabrese, G.W. Engdahl, G.B. Rathmann, H.G. Nachtsheim, G.R. Rabuse, E.L. Rzepecki, R.W. Lundbohm, D.V. Greblich.

Art Products - Thursday, August 5, 1965

A.W. Boese, P.H. Carey, O.M. Wiste, R.W. Lundbohm and D.V. Greblich.

CASE NO. ESTABLISHED CASES

M-54 Antistatic Backsize

M.M. Olson is still waiting for a sample of glycidyl trimethyl-ammonium chloride from Shell. He was not able to make it himself but has made glycidyl diethyl amine but has not converted it to the quaternary ammonium salt. Work will continue on the antistatic LAB when the sample arrives since data obtained on the first attempt looked promising.

Action: February review.

S-126 Gas Sterilization of Surgical Products

A.D. Pearson reports that we are no closer now to something patentable than we were earlier. "In vitro" tests (zone of inhibition) are being run in the laboratory and "in vivo" tests are in process on the prisoners in Stillwater Prison. G.B. Rathmann suggested a chemical/analytical approach to this problem in the course of which something can be learned of the mechanism and as a result, patentability can be determined. Perhaps our novelty could be in fastening a bacteriostat to the polymer. A re-examination of what 3M could cover in this area is recommended.

Action: November review.

S-150 Biological Adhesives

K. Harrington and E. Banitt, a new man working with Harrington in Central Research, will be writing a patent proposal soon. Mr. G.P. Hollingsworth, Patent Liaison, AC & S Division, should be contacted for information for this case.

Action: February review.

M-157* Polyolefins in Adhesives

Mr. Coulter will be approached on the two versions of this case, pressure-sensitive and temporary tack adhesives, after he has completed more pressing items.

Action: November review.

I-164 Foamed PSA Systems

D. Gini reports that nothing has been done to date on foaming stereoregular polymers as suggested by the patent committee in meeting #99. Most stereoregular polymers are in the rubber series and do not have the functionality, after foaming, to hold the structure by curing with heat, crosslinking, etc.

Action: February review.

M-239 PVC Extrusion

At the patent committee's recommendation, the lab personnel have been accumulating data and samples which should help define the invention to Mr. Coulter when he is approached. However, at the last lab review meeting, held 7/21/65, it was decided that there is still a great deal of work that must be done before approaching Patent Counsel. Another review will be scheduled in 5 or 6 weeks.

Action: November review.

M-244 Stereoregular Polymers for Adhesives

J.F. Abere is writing a patent memo covering our work with Terpol in adhesives. An issued South African patent of Shell's covers Terpol in adhesives and tapes. This patent claims at least 5% hydrocarbon oil as a plasticizer. Dr. Abere hopes to show the deleterious effect of even 5% oil on high temperature holding power as a possible area for 3M to have patent protection. C.I. Sauer has found that a Phillip's rubber is very compatible with Terpol and studies are under way to determine the effect of small amounts of Terpol with the Phillip's rubber on shear. Our blends with other rubbers might be important. T.E. Wollner has made block polymers of lower molecular weight that have good tensile strength but do not even approach the strength of Terpol. A copy of the Shell South African patent was sent to Patent Counsel, Mr. Coulter, for his comments. See Case 323.

Action: November review.

I-249* Welding Back-Up Tape

This patent application was filed on 5/26/65 in the name of L.W. Cornell, S.N. 458,908, F.N. 22,757.

I-266* Special Slitting of Film Tapes

At a meeting held 7/23/65, Mr. Coulter agreed to write a patent application. Mr. G.W. Engdahl wrote the Letter of Authorization July 26, 1965.

Action: November review.

S-271 Glove Continuity Monitor

H.W. Wilcox recommends closing this case because of low interest.

Action: Closed - Low Interest.

S-273 Pocket Tape Dispenser

Medical recommends closing this case because of low interest.

Action: Closed - Low interest.

S-274 Conductive Adhesive

The Cox Memorial Institute has been removed from the testing program since they did not report back to 3M. Two more batches of the adhesive have been made up and sent out for evaluation but no reports have been received. It is felt that the novelty of our adhesive is its ability to remain conductive over a long period of time. G.B. Rathmann recommends exposing Patent Counsel, Mr. Coulter, to this adhesive and would like to see us file an application on this idea in general. Additional development is needed to determine alternatives.

Action: November review.

A-278 Fusing Inks and Paints

A.L. Fry has had no time to work on this project because of the press of other immediate work. Mr. Brink was ready to write a patent application on this but needed further information. P.H. Carey will check with A. Fry on the amount of information Patent Counsel needed and see if we can get this application moving if the amount of work necessary is not too great.

Action: November review.

I-281 Textile Splicing Tape

W.R. Brochman reports that the garment label tape (copolymer of ethylene/vinyl acetate extruded onto a cotton cloth backing) is still in development stages. The question of novelty still exists since they are using a copolymer advertised as a heat sealing adhesive on a cloth for its obvious purpose.

Using a suggestion of Dr. Rathmann's, Brochman is working on an improvement on the flecked polypropylene webbed splicing tape by sealing blackened flecks with infrared heat as described in U.S. patent #3,189,702 (Medical's Blackline Heat Sealing). As a result, Brochman discovered a way to print on cloth by this technique, using a Thermo-Fax machine.

Daddario reports that the idea of using a sealer has been abandoned. Other approaches will be tried such as incorporating iron oxide in the polypropylene flecks and using dielectric heat to seal them. If this approach works, they will melt the resin with iron oxide on the spinnerette ribbon equipment and produce a lacelike web to avoid the shrinkage problem found in solid films.

Another new product in this area is a carpet sealing tape that is glass cloth backing with Loktac adhesive. This new tape has been well received in the carpet industry. V.T. Mattison suggested discussing this product at the next New Products meeting.

Action: November review.

M-285 Easy Tear Polypropylene Backing

A large quantity of polypropylene film was irradiated at the High Voltage lab in March. Film has been tested and some tape made. This was a scale-up and was successful. There has also been some small scale irradiation of film in jumbo form at Central Research. A.N. Schaffhausen is waiting for aging data from this test. Dr. Hendricks has requested a meeting be called by Schaffhausen to present his data about September 9th.

The embossed polypropylene tape with cloth-like tearing properties has been dropped after poor acceptance in the field because it was too thin for the specific application in pipe protection. 3M has switched to a plastic coated cloth tape which is cheaper than the thicker polypropylene film.

Action: November review.

M-286 FDA Tape

This case was opened in 1962 with the hopes that something patentable might develop in the construction of Y-9072. The case was left open to accept any other constructions that might be novel. A.G. Smith informs us that the basic FDA tape still is Y-9072 which is a polyester tape with a rubber/resin adhesive and certainly nothing

novel. Patent Liaison recommended that this case be closed because of no invention.

Action: Closed - No invention.

M-292

Polyurethane Emulsion Saturant

J. Snell will be working on this program to make a cheaper paper backing via beater treatment. He will be evaluating some of the Chemical Division's polyurethane emulsions for tape backing. To date Chemical Div. hasn't been able to deliver an emulsion that doesn't coagulate after six hours consequently Snell will emulsify the urethanes himself.

Action: February review.

I-297

Molded Shoe Sole and Last

This project has been discontinued because of a major technical difficulty - the polyurethane buckles under sole application with 60 pounds of pressure. A new last, "Korkplastic", by Western Last Co. is the ultimate in lightweight plastic lasts. It is made of polypropylene/polyethylene copolymer possible made by Eastman Kodak.

Action: Closed - Economics.

I-298

Miscellaneous Acoustical Products

Three recent Records of Invention of D.B. Caldwell's have been placed in this file: R.I. 235 - Tuned Damping, R.I. 239 - Wide Temperature Damping, and R.I. 240 - Shock and Vibration Isolator Pad. Dr. Rathmann suggested that Caldwell reduce the ideas to practice and produce working models.

Action: February review.

R-300*

Spray Starch

There has been no activity lately in the patent area because E. McCue has had to solve a profit problem. He has been working on methods of reducing production expenses so that Spray Starch can be competitive. R.W. Lundbohm reminded Mr. Corbin, via memo of 7/29/65, that 9/25/65 is the deadline for filing an application determined by a first sale invoice to Foodland, Seattle, Wash. dated 9/25/64. Dr. Rathmann recommended broadening Guenther and LaZerte's fluorochemical application to include spray starch. A meeting will be held very soon to discuss with Mr. C. Alexander the possibility of refiling Guenther and LaZerte fluorocarbon application or filing spray starch separately.

Action: November review.

I-302* Film Liner

This application was filed in the name of J.L. Evans on 6/25/65, S.N. 467,127, F.N. 21,281.

Action: Filed

S-303 Dental Therapeutic Agents

N.G. Carlson, Central Research, has written a patent proposal and a meeting with Patent Counsel will be called by R. Chang within a couple of weeks. A patent proposal #895 "Tooth Coatings as Barriers and Carriers" has been co-authored by R. Chang and R.A. Hatch. Medical Products feels it should have more direction in three months but probably still not enough information to file an application.

Action: November review.

S-304 Improved Porous Backing

Medical has just received additional Latex 204 from Wyandotte. Wyandotte had to change their formulation to prevent coagulation during shipment. This backing material might still be too high priced to make a competitive first aid dressing. Patent Liaison will check to be sure that T. Raymond's pending patent application is broad enough to cover our needs.

Action: November review.

M-305 Polyurethane Adhesives

Because of the press of other work, G.L. Goken has had no time to work on this project.

Action: February review.

I-307* Synthetic Leather

This case is being followed closely by the Tape Lab and Patent Counsel. A.O. Maki made a thorough search in Washington recently of synthetic leather prior art and reports "no new bombshells". At a meeting on 7/19/65, it was determined that W.C. Tingerthal is free to use his topcoat. As a result of this search, an additional 50-60 patents were ordered by Patent Liaison and a KWIC indexing program of the numerous leather patents is under way. Mr. Maki's letter of 8/3/65 to E.L. Rzepecki gives a legal opinion of the most pertinent prior art.

Action: November Review.

I-308* Embossable Tapes

Wallner's version of the embossable tape (silver soap) has not had much activity but it is still not dead. A small amount of work is still going on in the lab and marketing. We should have a better idea of its potential in six months.

Action: February review.

M-309* Epoxidized Cis-Polybutadiene

This application has been filed in the name of M.M. Olson on 7/6/65, S.N. 469,902, F.N. 22,763.

Action: Filed.

I-310* Fibers from Coagulation

J.A. Smith reports that he will be getting data soon from the Chemical Division on the characterization of T. Raymond's polymers. Although the invention is still not defined, an application will be on file shortly because it is felt that much is going on in the field by competitors and also there has been too much disclosure even though of a confidential nature. A refiling might be necessary later. A.O. Maki will be writing this application and is aiming for the end of August.

Wyandotte has a British patent #880,665 on their Latex 207. Patent Counsel is sending a copy to Patent Liaison. They also have ten or twelve Wyandotte British patents on other latexes and these will be studied in relation to the Tape Synthetic Leather program.

Action: November review.

I-314* Mechanical Fasteners

Two recently issued patents are of interest in our process patent application and our fastener concept. U.S. #3,191,255, 6/29/65, to R.N. Nealis on a Plastic Zipper, reveals free forming head process in the specifications but claims only a plastic zipper. U.S. #3,192,589, 7/6/65, to R.C. Pearson on a Separable Fastener, pertains to stems with enlarged heads but on a deformable base sheet. It discloses, too, a process but with a header die very similar to our written but not filed process application. Gipple has ordered brief histories of both patents as well as the history of the parent Nealis application.

At a meeting on 8/4/65, it was decided that Mr. Pearson should be contacted as soon as possible by a third party to try to obtain the rights to this patent. However, since this meeting, Mr. Carpenter recommends waiting until the brief history can be studied.

Action: November review.

I-316* Double Action Tab

M.O. Kalleberg has learned from Mr. Frye that although he has obtained the rights to the patent application on the alligator clip version of the fastener from his former partner, Mr. Mitsu, Mitsu apparently doesn't understand this agreement and is continuing to make this type fastener. Patent Counsel has informed us that nothing can be done to stop Mitsu until the patent issues.

Action: November review.

R-317* Stabilized Unwind

Mr. Corbin has informed Mr. Coulter that Retail Management has decided not to file an application in this case because we would have to disclose technology which is worth more than the right to practice the invention exclusively with patent protection.

Closed: Trade Secret

I-320* Acrylate Vibration Damping

R.L. Elton has not yet written a patent memo on this product although the Letter of Authorization was written on 11/5/64. The Patent Committee recommended going to Granrud soon with the data he needs to write an application. However, since the meeting, it was learned from C.A. Dahlquist that it is premature to go to Patent Counsel because our requirements have changed since our initial contacts with Chrysler. Chrysler no longer feels it is necessary to have the damping material serve the dual purpose of a structural member and vibration damping, but the temperature range has been extended to higher regions which will require some reformulation and additional data. Dahlquist, Elton, and Caldwell plan to co-author a Research Report under Problem #250841 and this will serve as the patent memo.

Action: November review.

A-322* Multicolor Printing Plate

Mr. Gehrenbeck has reviewed Westberg's comments on the prior art and a meeting with Patent Counsel has been set up for August 17, 1965.

Action: November review.

I-323* Can Sealing Tape

See Case 244 for comments on Terpol (Kraton 101) in PSA covered in a memo written by C. Sauer in December 1964. Shell's South African Adhesive patent 64/3013 based on their Kraton 101 has altered our thinking.

J.F. Abere and G.L. Goken are writing the patent memo covering the broader concept of block polymers in PSA which will include new block polymers synthesized by Ramsies Gobran of Central Research.

Libby, MacNeill, Libby have filed a patent application on a can that includes a closure utilizing our can sealing tape constructed of 2 mil, vapor-coated Mylar, Chemilox primed, with an ethylene/vinyl acetate copolymer thermoplastic adhesive with a corona treating of the surface which improves the bonding. The Libby claims would not duplicate a possible 3M application for they claim a can and closure whereas ours would emphasize the tape and its utility in other applications as well as can sealing.

Action: November review.

I-325

Improved Dosimeter Tape

A lab lot of tape has been made up and instruction sheets are being compiled. Samples have been sent out to various customers for testing and field reaction. It is recommended that we wait until the results from this sampling are known before we proceed toward an application. The indicator system is well covered in the Central Research applications of Stillo and Ney-Wiese. If Tape will want protection on a dosimeter tape, we will have to meet with Central Research again to discuss this concept.

The few responses that have been received from the field have not been too encouraging. The consensus seems to be that the tape is ahead of its time. Dr. Rathmann reported that he just received a call from EG & G for a dosimeter tape in the 0.5 to 6 megarad range for electronic readout.

Action: November review.

R-326

Toxic Dust Mask

The laboratory personnel concerned with this project, Barghini, Clayton, and Nachtsheim, have reviewed the patents found in a preliminary search made by Patent Liaison. Having received Retail's decision to proceed with this case, a meeting with Patent Counsel will be arranged.

Action: November review.

S-327

Paper Fiber Surgical Mask

Medical has run into problems with this mask. On initial testing it is very good but under continuous use moisture build up stops the filtering action. Mayhew is attempting to waterproof the fibers with a silicone treatment but has not been successful so far. It is theorized that the moisture build up either swells the sub-fibrils or collapses them. Glass fibers work well but are not desirable because of the possible health hazard.

Action: November review.

I-328* Photographic Items

Patent proposals have been presented to J.A. Smith but he has received no authorization as yet from Photographic Products to proceed with any applications. These proposals will be reviewed at the September meeting of the Photographic Patent Committee.

Action: November review.

I-329 Scotchcling Tape

M.O. Kalleberg has run into problems of roll stability. A new liner, however, looks promising. The liner is a H.P. Smith, 80 lb. paper, coated with polyethylene on both sides, one side matte finish and the other shiny, and both sides silicone release coated. It is suggested that we wait for Brodie's field evaluation before we proceed patentwise with this tape.

Action: November review.

S-330* Elastic Bandage

P. Hansen, Central Research, states that the patent activity will depend on Medical Products evaluation. This evaluation should be completed by September 1st, according to T. Dahl, and a decision should be made at that time as to whether to continue with this product and with the patent effort. This product is well defined and should be on the market by the end of the year with a potential of \$6,000,000. Converting is the main problem.

Action: November review.

I-331* Control of Corona Treatment

This case was filed quickly because it was learned that Consolidated Plastics personnel planned to file on what we believe to be 3M invention. Our application was filed in the name of A.W. Morgan on 6/15/65, S.N. 464,775, F.N. 22,975.

The Rexall Co. has been contacted by Patent Counsel and Rexall suggested a non-exclusive, royalty-free license agreement between themselves and 3M. However, Tape lab recommends that Maki inform Rexall that we have an application on file and when it issues, we can resolve licensing question at that time. It is felt that this invention will have broader use than in the application at Chippewa Falls.

Action: Filed.

I-332* Gold Heat Reflective Tape

This application was filed in the name of L. Espelien and M.O. Kalleberg on 6/28/65, S.N. 467,355, F.N. 22,977.

Action: Filed.

CASE NO. NEW CASES

R-333* Polypropylene Ribbon

This pre-case file was opened as an active case since GW & F contacted Patent Counsel on 7/26/65 to authorize a patent search of prior art. There are two approaches to obtaining a polypropylene ribbon that is satiny and opaque. One, is a foamed and oriented polypropylene, as manufactured by Sun Chemical and Firestone, and the other approach is mixing an incompatible resin with the polypropylene, work done by A.N. Schaffhausen, and believed to be unique.

Action: November review.

M-334 Patterned Coatings

R.R. Hannula's and J.K. Lindgren's RI #233 on Segmented Coating of LAB opened this case. It will be put off for a six month review until more laboratory work has been done.

Action: February review.

M-335* Primer for Polyester Tapes

Based on Mr. Jaffrey's recommendation this case should be filed before taking the primer to Ferrania in Italy.

Action: November review.

A-336 WaterColor Paper

O.M. Wiste's RI #238 opened this case. An appointment will be made the week of August 16th with Mr. G.B. Gehrenbeck to introduce him to this new paper.

Action: November review.

CASE NO. ACTIVITY RELATING TO CASES ON FILE

21 Organo Polysiloxane

G.W. Engdahl is to write a letter to Patent Counsel recommending that 3M withdraw from the interference with Dow because, as junior party to the interference, we must bear the considerable expenses involved in taking testimony, but more particularly because Tape Division can find no utility for this epoxy-silicone product. The last hope for utility disappeared when Electrical Products found no advantage over commercially available silicones in certain corona resistant coatings.

95B Scotchpak Packaging Films

Issued on 6/8/65 as U.S. 3,188,265 to Charbonneau and Abern.

- 95C Chemilox Interfacial UV Bonding
Issued on 6/8/65 as U.S. 3,188,266 to Charbonneau and Abere.
- 109A Gas Sterilization Indicator Tape
Division of Case 109 filed 4/6/65, S.N. 461,570, F.N. 22,869.
- 123 Glare Reducing Tape
A final rejection on the CIP (which includes the present Scotchtint formulation) was made by the Patent Office on 5/26/65. A Response is due from Patent Counsel on 9/26/65.
- 185 Surgical Mask Bacterial Filter
Appealed 6/17/65.
- 213 Blackline Heat Sealing
Issued on 6/15/65 as U.S. 3,189,702 to Wall and Pearson.
- 260A Slip Ring Core
Division of Case 260, filed 2/24/65, S.N. 448,223, F.N. 22,754.
- NO. RECORDS OF INVENTION
- 229 Sealing of Flexible Packaging T.H. Wall 5/10/65
Placed in pre-case file Autoclavable Flexible Packaging.
- 230 Cuffed PSA Masking Apron J.N. Brown 5/11/65
M.O. Kalleberg
Placed in hold file until some tape can be made up in roll form for evaluation and a recommendation is received from C.J. Calabrese.
- 231 Automatic Formation of Pompon Bow H.R. Courtney 5/11/65
G.A. Seiler
Placed in hold file.
- 232 Controlled Frictional Path D.B. Caldwell 5/26/65
Placed in hold file.
- 233 Segment Coating of LAB R.R. Hannula 6/14/65
J.K. Lindgren
Placed in new case #334, Patterned Coating
- 234 Vacuum Holding Device J.F. Dyrud 6/18/65
Placed in hold file.

- 235 Tuned Damping D.B. Caldwell 6/29/65
Placed in case #298, Miscellaneous Acoustical Products. This concept has been reduced to prototype stage only. This should be reviewed in the next quarterly meeting with Central Research.
- 236 Primer for Polyester Tapes A.W. Morgan 7/6/65
Placed in new case #335 of same name.
- 237 Improved Filament Tape G.R. Rabuse 7/7/65
According to a letter of R.C. Brown to R.W. Lundbohm, 7/19/65, this basic principle was used in our Ammunition Container Sealing Tape #874 and some other constructions. Rabuse's idea was pertaining more to the recoverable nature of a PVC backing and the filaments were incorporated merely to strengthen the backing for more stretch. Industrial will look into this construction for another evaluation.
- 238 Water Color Paper O.M. Wiste 7/14/65
Placed in new case #336 of the same name.
- 239 Wide Temperature Damping D.B. Caldwell 7/15/65
Placed in case #298, Miscellaneous Acoustical Products.
- 240 Shock and Vibration Isolator Pad D.B. Caldwell 7/15/65
Placed in case #298, Miscellaneous Acoustical Products.

DISCUSSION

Six pre-case files were opened. The first three were for Medical Products, one for Tape Research and the last two for Art Products.

1. Baby Footprinter to follow a suggestion made by Paul Mallak of Central Research Pilot Plant. H.W. Wilcox should be contacted for information.
2. Diagnostic Imaging to follow a suggestion made by Roger Swanson of Central Research Pilot Plant. H.W. Wilcox should be contacted for information.
3. Diagnostic Kits to follow the work of Paul Guehler. H.W. Wilcox should be contacted for information.
4. Low MW Elastomers for Saturants to follow the work of R. Hannula and J. Snell on making paper saturants with low molecular weight rubbers. This work is being done in cooperation with the Chemical Division.
5. Utility Art Board to include the work of Wiste, Fry and Carey on the idea of a backing panel for oil paints that consist of glass beads in a matrix. A rough draft of a Record of Invention has been written.

6. Color Blending System to cover the work of Wiste's on formulating a color blending system consisting of three primary colors. It was found that all colors of the spectrum could be blended from a basic blue, yellow and surprisingly magenta, a blue red, rather than a true red. These paints were mixed with the 3M Multi-Art Paints as licensed under Dietrich's patent #2,790,726. Patent Liaison is to check the latitude of the patent for Art Products would like to add a binder and would like to determine the broadness of Dietrich's claims. Photographic and Reflective Products should also be checked for prior art.

D.V. Greblich

/rap

- * Cases in progress with Patent Counsel for an application - discussed at each meeting.

R: Retail Items
S: Medical Items

M: Mutual Items
I: Industrial Items
A: Art Product

cc: J.F. Abere 230-11
G.A. Berger 230-5
~~A.W. Boese 220-8W~~
C.J. Calabrese 230-2
P.H. Carey 230-33
J.E. Corbin 220-8W
H.R. Courtney 230-33
C.A. Dahlquist 230-11
G.W. Engdahl 220-8E
J.O. Hendricks 230-10
E.W. Kellgren 230-3
J.J. LaBuda 230-23
L.W. Lehr 220-7W
R.W. Lundbohm 230-14
R.D. MacDonald 230-24
V.T. Mattison 230-3
C.E. Myers 230-22
H.G. Nachtsheim 230-24
A.D. Pearson 230-21
G.R. Rabuse 230-24
G.B. Rathmann 230-23
R.P. Rivard 230-6
E.L. Rzepecki 230-4
A.F. Schmelzle 230-12
H.W. Wilcox 230-21A

Patents

CARPENTER, KINNEY & COULTER
ATTORNEYS AT LAW
PATENT AND TRADEMARK CAUSES
2501 HUDSON ROAD
SAINT PAUL, MINNESOTA 55101

September 29, 1965

(Revision of letter)
(dated July 2, 1965)

To: All members of the
3M Technical Council

Gentlemen:

In accordance with the suggestion of Dr. L. C. Krogh, and to update our July 2, 1965 letter, we have prepared the following revised list to indicate the lawyer whom each of the members of the Technical Council may contact in any United States patent matter, if he does not know the particular man who is already handling it:

Cruzan Alexander:

Dr. R. M. Adams, Chemical Div. -- DMS, JAS.*
Dr. M. R. Hatfield, Microfilm Prod. Div. -- GBG.
Mr. C. A. Kuhrmeyer, Dupl. Prod. Div.+ -- GBG.
Dr. J. W. Shepard, C.R. Imaging Res. Lab. -- GBG, FAS.

Robert I. Coulter:

Mr. J. E. Corbin, Ret. Tape & Gift Wrap -- DMS, RCB, SGD (Gift wrap).
Mr. G. W. Engdahl, Ind. Tape Div. -- DMS, RCB.
Mr. J. J. LaBuda, Med. Prod. Div. -- DMS, FAS.
Dr. G. B. Rathmann, Tape Research -- DMS, FAS.

Stanley G. DeLaHunt:

Mr. A. H. Ahlbrecht, Coated Abr. Div.
Mr. M. L. Gebhard, Printing Prod. -- RCB.
Dr. N. P. Klaas, "Scotch-Brite" Prod. Dept.
Mr. W. C. O'Leary, AC&S Div.
Mr. A. W. Boese, Art & Educ. Prod. -- GBG.

* The initials to the right of a technical director's name and division indicate another lawyer or patent agent in this office who is especially active in the work of the division.

+ On heat-sensitive copy paper, machines, etc., it is best to contact Mr. Gehrenbeck in the first instance.

Frank A. Steldt:

Dr. J. W. Copenhaver, Director, C.R. Labs. -- CA.
Dr. A. M. Borders, C.R. Chem. Res. Lab. -- DMS.
Dr. W. S. Friedlander, C.R. Contract Res. Lab. -- DMS.
Dr. J. R. Johnson, C.R. Physical Sciences Lab. -- RCB.
Dr. T. S. Reid, C.R. Biochem. Res. Lab. -- DMS.
Dr. J. E. Johnston, Sola Blok.
Dr. J. P. Ryan, Nuclear Products -- RCB.

Donald M. Sell:

Mr. A. C. Boyden, Staff Mfg. -- CA.
Mr. A. L. Frye, Paper Products Div.
Mr. R. B. Kirby, Engineering Res. -- CA.
Mr. D. J. MacDonald, Elec. Prod. Div. -- RCB (re "Scotchkote"
Products), GBG, SGD, REG.
Mr. M. G. Malmquist, Ind. Finishing Dept.
Dr. J. R. Sjolander, Film & Allied Prod. Div. -- REG.
Mr. L. L. Solyntjes, Recreation and Athletic Prod.

Robert C. Baker:

Mr. M. J. Mayfield, American Lava Corp.
Mr. P. V. Palmquist, Refl. Prod. Div. -- RIC.
Dr. H. L. Weisbecker, Roofing Gran. Div. -- SGD, DMS.
Mr. H. M. Merrill, Elec. Insulating Resins -- REG, GBG.
Mr. R. J. McNaughton, Engineering Instr. Div. -- DJM.
Mr. G. H. Gaynor, Engineering Instr. Div. -- DJM.

Robert E. Granrud:

Dr. R. S. Bradford, Mincom Div.
Mr. A. H. Persoon, Magnetic Prod. Div.
Mr. J. N. Schurb, Reinforced Plastics.
Mr. R. A. von Behren, Revere-Mincom Div.
Dr. R. W. Fritts, Thermo-Electric -- FAS.

James A. Smith:

Mr. R. B. Collins, Photographic Film
Mr. W. J. Brown, Dynacolor -- CA.
Dr. G. F. Duffin, Harlow Laboratories -- CA.

Gilbert B. Gehrenbeck:

Mr. H. L. Anderson, New Products Div. -- DMS, FAS.
Mr. J. V. Erwin, Decorative Prod. Dept. -- RCB, SGD.
Dr. E. W. Grieshaber, Visual Prod. Dept. -- REG.
Mr. E. W. Bollmeier, Electro-Mechanical
Mr. Jerry Heibel, Instrument Dept., Calif. -- DJM.

Sept. 29, 1965

Mr. Gehrenbeck is a Patent Agent, but not a lawyer. He is one of the most valuable men in this office. However, where your question to him is a legal question, you can depend on him to check with me or with some one of those listed above, each of whom is a lawyer; or you can contact me directly.

In respect to trademark matters, employee agreements, labeling of merchandise, and such like, and also in respect to questions or legal problems of Dr. F. G. Miller, National Advertising Company, I refer you to Mr. Mark W. Gehan; or, if he is unavailable, Mr. Charles H. Lauder.

In respect to foreign matters, in addition to the men listed above, you may feel free to talk to Mr Ernst A. Jaffray; or, if he is not available, to Mr. David A. Roden or Mr. Edward T. Okubo.

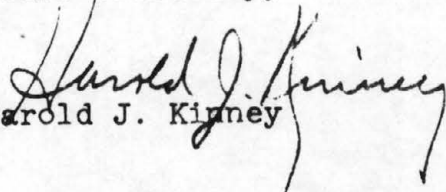
If there is any member of the Technical Council who should have been listed under one or another of the attorneys in the above schedule, but was not, and if he is in doubt as to whom he should contact, I will endeavor to clarify this.

Please understand that the above list is in no sense a direction that you should deal through the men listed. Where you are already satisfied with your contacts in this office, and are handling matters through a particular attorney, please continue to do so.

I have no thought of either inaugurating or approving one-man representation for each Division. Each of the members of our firm, and associates, shall continue to have concern for the work done for each and every Division.

I assume that everyone knows that I am glad to try to help where I can, and would like to be advised of matters of sufficient importance, or where difficult or troublesome decisions must necessarily be made.

Yours sincerely,


Harold J. Kinney

HJK:L



Subject: MULTI-ART PAINT PATENT

October 29, 1965

TO: M. W. GEHAN - PATENT COUNSEL - 220-12W

FROM: P. H. CAREY - LABORATORY MANAGER - ART AND EDUCATION PRODUCTS LAB - 230-B(33)

The Kaylor Color Company, Inc., Los Angeles, California, manufactures a liquid tempera (Kaylor liquid tempera) and a tempera mixer (thixit tempera mixer). They recommend that liquid tempera be added to "Thixit" to prepare a liquid tempera for silk screen printing and finger painting.

An analytical report (copy attached) shows that "Thixit" is a bentonite clay dispersed in water. The clay used is of the same composition as the material we use to manufacture 3M Brand Multi-Art Paint. "Thixit" contains a slight amount of glycerine, as a humectant, and starch; Multi-Art Paint does not.

The Kaylor liquid tempera is a pigmented solution of starch. The combination of the two materials (tempera and bentonite dispersion) produce a material that is very similar to 3M Multi-Art Paint but which has, in addition to pigments, bentonite and water, a slight amount of glycerine and starch. Between 6 and 10 parts by weight of the "Thixit" can be added to 1 part of the Kaylor Tempera to give a finger and screen paint that has the required degree of pigmentation and working properties.

	Kaylor Tempera	Thixit	6 - 1 Blend	10 - 1 Blend	3M Multi-Art Paint
Water	60	80	77.2	78.2	87
Pigments and Fillers	25	0	3.5	2.3	2
Starch	15	9	9.8	9.5	0
Bentonite	0	11	9.5	10.0	11
Glycerine	Trace	Trace	Trace	Trace	0

The desirable properties of the final Kaylor paint, smoothness, lubricity and thixatropy, are functions of the addition of the bentonite dispersion. It seems to me that the blended paint is equivalent to our product and infringes on the Dietrich Patent, #2,790,726.

I would appreciate your opinion on the question of infringement and your recommendations of suitable action.

PHC:bct

Attachments (2)

cc: A. W. Boese - 220-8W
L. E. Larson - 220-8W
O. M. Wiste - 230-B(33)

TAPE PATENT COMMITTEE MEETING

4TH QUARTER 1965

MEETING #102

MEDICAL PRODUCTS PATENT CASES:

Time & Place: Monday, October 25, 1965 -- S-202 in 230-2.

Present: C.E. Myers, A.D. Pearson, H.W. Wilcox, G.B. Rathmann,
J.O. Hendricks, R.W. Lundbohm, D.V. Greblich, R.B. Ericson.

INDUSTRIAL TAPE PATENT CASES:

Time & Place: Tuesday, October 26, 1965 -- S-114 in 230-1.

Present: G.W. Engdahl, C.J. Calabrese, G.A. Berger, V.T. Mattison,
E.L. Rzepecki, J.O. Hendricks, R.W. Lundbohm, D.V. Greblich,
R.B. Ericson.

ART PRODUCTS PATENT CASES:

Time & Place: Wednesday, October 27, 1965 -- S-76 in 230-B.

Present: P.H. Carey, O.M. Wiste, R.W. Lundbohm, D.V. Greblich,
R.B. Ericson.

RETAIL TAPE PATENT CASES:

Time & Place: Wednesday, October 27, 1965 -- S-208 in 230-2

Present: J.E. Corbin, H.R. Courtney, R.D. MacDonald, H.G. Nachtsheim,
H.J. Revoir, J.O. Hendricks, R.W. Lundbohm, R.B. Ericson.

===== "ESTABLISHED PATENT CASES" =====

CASE NO.

S-126

GAS STERILIZATION OF SURGICAL PRODUCTS:

A.D. Pearson reports that a combination bacteriostat, one of which is active before gas sterilization while the other becomes active during and continues, has been investigated. This "dual" bacteriostat was included "in vivo" tests on the prisoners in Stillwater Prison. A.D. Pearson also reports that a double checking of the results is now in progress.

Action: February review.

ESTABLISHED CASES:CASE NO.

M-157

POLYOLEFINS IN ADHESIVES:

Tape Patent Liaison will arrange a meeting with R.I. Coulter to formally present, for the first time, samples and demonstrations of the alpha-polyolefins as PSA components. These alpha-polyolefins are long-aging, non-degrading materials which would be good for tapes requiring long aging without adhesion build-up. It was recommended to get some of this adhesive in a product for evaluation.

Action: February review.

M-239

PVC EXTRUSION:

The Pilot Plant work is being directed away from the use of sucrose benzoate, which was the novel feature, because of feeding problems. Previously, we didn't have a screw to fit the extruder and extrude film without the sucrose benzoate. The cost is decreased without the sucrose benzoate. W.P. Nitardy and W.L. Krueger at present, are trying to distinguish this extruded PVC from calendered PVC and from Luvitherm PVC.

G.A. Berger indicated that he has still to see good material from the Pilot Plant extruder. When the new 16" die arrives, films, with and without sucrose benzoate, will be evaluated for die-burning.

Action: February review.

M-244

BLOCK POLYMERS FOR ADHESIVES:

R.I. Coulter suggested that Tape Research direct its efforts toward a Can Sealing Tape. J.F. Abernethy and G.L. Goken will write a patent memo along these lines. This memo will be submitted to Mr. Coulter when completed. R.D. MacDonald suggested that the adhesive could be tried in Produce Tape because the inherent strength of these elastomers can contribute to the backing strength of the relatively weak paper tape. The adhesive plays a "Dual Role".

Action: February review.

I-266

SPECIAL SLITTING OF FILM TAPES:

H.W. Viker is obtaining additional data on newly sandblasted knives. R.C. Brown is coating a 9" roll of easy-tear polyester film made according to the "allowed" "Easy-Tear" non-linear polyester patent of Lockwood-Agre. This is to show that even this film which has built into it "easy-tear" for normal dispensability, still requires the "slitter technique" for "hand tearing". G.W. Engdahl mentioned that this technique seems to impart a dry edge to the tape which might result in wafer elimination. This wafer elimination could result in a substantial savings. Patent Liaison indicated that this case should be ready

ESTABLISHED CASES:CASE NO.

I-266

SPECIAL SLITTING OF FILM TAPES: (Continued)

to file in four to six weeks.

Action: February review.

S-274

CONDUCTIVE ADHESIVE:

M.F. Johansen has written a record of invention on this product. A patent search, done in cooperation with the Technical Communication Center, found no pertinent patents on the electrode attaching means-just the electrodes themselves. H.W. Wilcox reports that several people have been sent samples for evaluation but only one reply, a negative one, has been received to date. This product is meant for long term monitoring. R.W. Lundbohm suggested that ultimately a surgical tape with conductive adhesive might be the desired form of this product. He also mentioned that PEG should maintain conductivity while reducing the excessive tackiness. H.W. Wilcox suggested that possibly we could manufacture a prepackaged electrode.

Action: February review.

A-278

FUSING INKS AND PAINTS:

P.H. Carey reports that there is no commercial interest in this product as far as Art Products is concerned. He recommended holding in abeyance until May, 1965. Tape Patent Liaison will contact R.E. Brink of Patent Counsel to inform him on the commercial aspects and then will check with the other divisions to determine any possible interest.

Action: May review.

I-279

NON-BLOCKING BONDING FILM:

The Y-9079 Nameplate Bonding Film has the formulation, 50:50 PVC/AC:Ethyl methacrylate. More recently, ethylene vinyl acetate copolymers with Corona Treatment have been made in the Pilot Plant. Data on this construction and the Corona Treatment are incomplete at present. G.L. Goken is spending a small proportion of his time on this project.

Action: February review.

ESTABLISHED CASES:CASE NO.

I-281

TEXTILE SPLICING TAPE:

The Garment Label Tape, Elvax on cotton cloth backing, is at a standstill. The novelty is still questioned. J.M. Daddario reports that the idea of using iron oxide in the polypropylene flecks did not work out as expected. This approach has been abandoned. J.H. Koelling has written a record of invention for the Carpet Splicing Tape. The inventive part of this tape is the combination of the tape with the carpet to form an "invisible splice". J.O. Hendricks mentioned that the adhesive should not be restricted to Loctac. G.A. Berger said that a variety of thermoplastics will work.

Action: February review.

M-285

EASY TEAR POLYPROPYLENE BACKING:

At a laboratory meeting 10/13/65, it was recommended to hold this case open for study of the aging data. Retail reports that if we could obtain a 1.6 mil film with low elongation, interest would definitely be greater. The following questions were posed: how would one police product; is there truly an invention; and how do you overcome the problem of continuous degradation. Tape Patent Liaison will consult with Mr. Coulter just to inform him of its existence, especially in light of other easy tear patent applications on file or allowed.

Action: February review.

I-290

LATENT CURING ADHESIVES AND BARRIER FILMS:

Nothing has been done recently because of the many problems connected with this concept. The major problem is the release of catalyst at the cut edge. Everything looked at so far still is not latent enough. This case will be held open for six months.

Action: May review.

R-300

SPRAY STARCH:

This patent application was filed on 9/21/65 in the names of D.M. Pryor and E.C. McCue S.N. 489,070, F.N. 23,646.

Action: Filed 65/09/21.

ESTABLISHED CASES:CASE NO.

S-303

DENTAL THERAPEUTIC AGENTS:

Dr. R.A. Nelson reports that Burnil, in conjunction with a high (1400 ppm) fluoride content, showed some beneficial effects but also some evidence of fluorosis. Burnil, with a low (less than 1 ppm) fluoride content, showed up the same as a control group without any added compound. The compounds under study were administered either in the diet or applied topically. C.E. Myers reports that a solution of fluoride works as well as does fluoride plus Burnil. It does not seem that the Burnil enhances the fluoride. In other words, a sheathing of the teeth does not seem necessary. Future work is planned with hamsters as well as with rats.

Action: May review.

S-304

IMPROVED POROUS BACKING:

Since the Wyandotte E-204 Urethane is quite expensive, Dr. W.E. Lundquist of Internal Chemicals optimistically hopes to make urethane lattices internally that will bring the price of tape down to a competitive level. Union Carbide has furnished Medical Products with some foamed ethylene copolymers that look interesting. Foamed polypropylene which is then electronically perforated may be a future low cost porous backing. Glass beads were tried unsuccessfully to reduce cost, give positioning feature, and to prevent blocking.

Action: February review.

I-307

SYNTHETIC LEATHER:

"KWIC" indexing of the synthetic leather patents is underway. Several "Brief Histories" have been received and studied. E.L. Rzepecki inquired about the status of Samuel Smith's polyurea polymer.

Action: February review.

I-310

FIBERS FROM COAGULATION:

This application was filed 9/16/65, S.N. 487,890; F.N. 19,844 in the names of T. Raymond, W.J. Fraser and F. Swedish.

Action: Filed 65/09/16

ESTABLISHED CASES:CASE NO.

I-314

MECHANICAL FASTENERS:

The patent examiner appears willing to allow claims broad enough to make the Nealis and Pearson patents of less concern to us unless they should get process patents. Because of the Nealis and Pearson process applications, supposedly on file, the header die application will be temporarily held in abeyance. Tape Patent Liaison has been asked to accept the responsibility for bringing Kayser and Flanagan together to co-author and sign a patent memo relating to the "deformed element" concept. This memo would be presented to Patent Counsel in a form satisfactory for the filing of the "continuation" of the Flanagan filing.

Action: February review.

S-315

DENTAL ADHESIVES:

This case is being reopened as a general area for any improvements in the Dental Adhesives. Three applications are on file and have been given the numbers 315-A, 315-B, and 315-C. The 315-A has been refiled with a F.N. 23,476; 315-B has been abandoned; 315-C remains status quo. There is work being supported in Central Research toward new systems such as ceramic whiskers for reinforcement, new rapid curing resins, chelating agents that will bond to teeth, or even possibly an entirely new polymer for the matrix.

Action: February review.

I-316

DOUBLE ACTION TAB:

F.A. Steldt reports that two of Bruce Frye's applications have been allowed. They are Double Action Tab S.N. 378,294 in which all the claims in the amended form were allowed; and Double Action Tab Clip S.N. 354,703. The Hallmark deal didn't materialize as expected. Jack Brodie is making a marketing evaluation of the Chicago and Twin Cities areas but yet has to issue a Field Report. T.L. Joseph reports a flattened press operation is required for the desired degree of smoothness.

Action: February review.

R-319

DESIGN-A-BOW KIT:

H.R. Courtney recommends closing this case because of low interest.

Action: Closed -- Low Interest.

ESTABLISHED CASES:CASE NO.

I-320

ACRYLATE VIBRATION DAMPING:

Data is still being accumulated but a Research Report under Problem #250841 hasn't been issued as yet. We depend upon feedback from Chrysler Corporation to orient our progress and development.

Action: February review.

R-321

EMBASSY BOW:

H.R. Courtney reports there is no commercial interest in this project. This case will be held in abeyance.

Action: May review.

A-322

MULTICOLOR PRINTING PLATE:

P.H. Carey wants more explicit language in the specification, broader claims, and in some cases, additional and better defined examples. Tape Patent Liaison will write a letter to G.B. Gehrenbeck of Patent Counsel concerning the aforementioned items.

Action: February review.

I-323

CAN SEALING TAPE:

A meeting was held with R.I. Coulter on 10/8/65 in which Shell's Kraton 101 South African patent was discussed. J.F. Abere indicated his group will try to present Mr. Coulter with performance data and a number of compositions which meet the end use requirements of some very critical can sealing tape applications. J.F. Abere is furnishing an adhesive formula to Libby-MacNeill for their patent application.

Action: February review.

I-325

IMPROVED DOSIMETER TAPE:

A.N. Schaffhausen reports that samples are being field evaluated but that results are still forthcoming. There does not appear to be much interest in the field at this time.

Action: May review.

ESTABLISHED CASES:CASE NO.

R-326

TOXIC DUST MASK:

H.G. Nachtsheim reports that Engineering has come up with estimates on the equipment which would be needed. R.J. Barghini took the estimate to Cost Accounting last week and a \$3-\$4 projected price appears attainable. H.G. Nachtsheim reports that 50 samples will be sent out for field evaluation by the end of this year. It was recommended that the field evaluation be completed before approaching Patent Counsel. R.W. Lundbohm suggested the possibility of using Central Research Pilot Plant's fiber mat of thermoplastic bulky fibers intermeshed with finer thermostable fibers for the filtering mat. This "filtering mat" is the subject of 3M's Wall-Hansen patent application on file.

Action: February review.

S-327

PAPER FIBER SURGICAL MASK

A.D. Pearson reports that we cannot overcome loss of efficiency with moisture buildup on prolonged wearing. All effort, at the present time, is going into spun fiber approach using 3M polyester fibers. This case should continue as "Fiber Surgical Mask".

Action: May review.

I-328

PHOTOGRAPHIC ITEMS:

A.W. Morgan has met with R.E. Brink of Patent Counsel (Case M-335). Tape Patent Liaison will arrange a meeting with R.E. Brink and J.A. Smith of Patent Counsel to discuss A.W. Morgan's and R. Fisch's patent application. G.W. Engdahl suggested Tape Patent Liaison find out what the Film Products Laboratory is doing for Photo Products Group.

Action: February review.

I-329

SCOTCHCLING TAPE:

At a meeting 10/13/65 with R.I. Coulter, it was pointed out that it would be desirable to have physical functional properties which would meaningfully describe the "peculiar adhesion" that is observed in "Scotchcling." D.R. Beresford has been requested to run contact angle measurements to help in distinguishing the "Scotchcling" type of adhesion. W.E. Northrup will compare shear test of "Scotchcling" against our best adhesives. Other polyurethanes should possibly be looked at to see if the one used is actually the best available. The following suggestions were from Messrs. Engdahl, Calabrese, and Berger: protective tape on waxed wood finishes, oily surfaces such as steel, on Rohm & Haas methacrylates, for use as price labels on automobiles, urethane film in easy removal of plastic masking tape, Scotchtint shades on automobile windows, exterior protection of windows,

ESTABLISHED CASES:CASE NO.I-329 SCOTCHCLING TAPE: (Continued)

temporary privacy on windows, reclosable packages, Christmas decorations, banding material in postal or paper articles, magazine and paper bundling, band-aid or gauze bandage replacement. D.V. Greblich suggested use as a blood pressure cuff. V.T. Mattison recommended that T.L. Joseph coordinate this program. G.W. Engdahl mentioned that the broad field of non-pressure sensitive adhesives be continually followed.

Action: February review.

S-330 ELASTIC BANDAGE:

This product continues to be evaluated and is finding wide acceptance in areas other than as an elastic bandage to compete with the Ace-Type bandage. Because of its cohesive properties, people will have to be reeducated in its use and since the yarn is prestretched (now 30% instead of 100% as previously) the users tend to wrap the bandage too tight. Some of the other uses have been for restraining hands, pressure bandages on extremities, etc. C.E. Myers reports that this product will not be sold until after January 1, 1966 and does not require FDA approval. Aging and loss of cohesion are the two major problems. G.B. Rathmann thinks that if Block copolymers could contribute the necessary strength, it might displace the Spandex fibers. G.B. Rathmann also felt that this product should be getting more attention.

Action: February review.

M-333 FIBROUS FILMS:

R.I. Coulter indicated that we could have a more basic patent position if we could formulate specific types of tapes having novel backings and having, in each case, a specific combination of numerically definable properties that adapt the tape to a particular field use. Our use of polyallomers or fibrids in a viscoelastic matrix is a novel area. H.J. Revoir strongly objected to recent letter (R.W.L. Oct. 7th) which indicated that much of the novelty appears to be inherent in films "shown" by resin producers. Patent Liaison requested that Mr. Revoir describe in a patent memo, what "novel" contributions we are making -- this would be extremely helpful in developing a patent position!

Action: February review.

ESTABLISHED CASES:CASE NO.

M-334

PATTERNED COATINGS:

On 9/30/65, a meeting was held with R.I. Coulter. After this meeting, he was shown the Sola Blok here in the laboratory. R.I. Coulter mentioned that the "striped" appearance of the tape might be a bonus feature and suggested several items to be included in the Record of Invention. R.R. Hannula and J.K. Lindgren are preparing a supplement to their Record of Invention. When this supplement is ready, Tape Patent Liaison will arrange another meeting with Mr. Coulter.

Action: February review.

M-335

PRIMER FOR POLYESTER TAPES:

The meeting with R.E. Brink of Patent Counsel on 10/21/65 was very productive. Sufficient information was presented at this meeting to enable Mr. Brink to indicate that with additional data, he ought to be able to file quickly! The necessary additional information will be given Mr. Brink as soon as possible. It is very desirable to get this application on file because it is basic to many polyester priming needs and has spawned the more specific primer for Photographic Products.

Action: February review.

A-336

WATER COLOR PAPER:

O.M. Wiste reports that he has some of the items requested by G.B. Gehrenbeck. A tentative laboratory meeting for December 1, 1965, has been scheduled to review the data and examples which are to be completed by then. A meeting with Patent Counsel will be arranged for or around December 15, 1965.

Action: February review.

 "NEW CASES"

CASE NO.

R-337

LEACHABLE URETHANE SPONGE:

D.M. Pryor reports that initial studies show that the leachable component need not necessarily be in sphere form. Fibers appear to work just as well. It will be at least three to six months before there will be much information available.

Action: May review.

NEW CASES:CASE NO.

R-338

CARNIVAL BOW:

A Record of Invention has been written by R.M. Schmidt. Also a letter of authorization from J.E. Corbin to R.L. Harrington of Patent Counsel was written. H.R. Courtney made similar structures in 1958. None of these were ever sold. H.R. Courtney mentioned that this product would most likely be sold in roll form first. J.E. Corbin suggested a converter could possibly sell the bow.

Action: February review.

R-339

CORRUGATED RIBBON BOW:

This case was established to follow the work of R.M. Schmidt. He will write a Record of Invention on this bow design.

Action: February review.

I-340

CORONA TREATMENT OF THERMOPLASTIC ADHESIVES:

This case is being opened as a rather encompassing one at the suggestion of G.W. Engdahl.

Action: February review.

===== "ACTIVITY RELATED TO CASES ON FILE" =====

CASE NO.

21

ORGANOPOLYSILOXANE:

3M is going to attempt to negotiate with Dow to obtain, if possible, some kind of royalty arrangement or actual outright sale of the Olson application if sufficient compensation to 3M could be realized this way.

185

SURGICAL MASK BACTERIAL FILTER:

The Patent Office has replied to A.O. Maki's Appeal Brief of August 17, 1965. D.M. Sell indicates that he will probably withdraw all methods claims but that he will insist on breadth in the article claims. This breadth is to permit the latitude in the dimensions of both the thermoplastic fibers and the thermostable fibers to cover the commercial filtering web of today as well as future constructions. These future constructions could have fiber lengths infinitely greater than the claimed upper limits in our present application. This application also will now be directed mainly to a filtering web with little or no mention of face mask shapes, etc.

ACTIVITY RELATED TO CASES ON FILE:CASE NO.

243

D.C. FOAM TAPE:

With Scotchmount sales at a million dollar level, it has been requested by G.B. Rathmann that C.A. Dahlquist and V.T. Mattison study and review the physical limits in the broad claim. If these do not adequately cover current commercial product, they should be corrected. Patent Liaison has directed a request to Messrs. Dahlquist and Mattison (letter of October 29, 1965) and will follow up.

250

POLYURETHANE SATURATED BACKINGS:

Allowed 9/20/65.

289

MECHANICAL FASTENERS - M-CULES:

Mr. Gipple will be filing an amendment to the claims of the Flanagan continuation before October 24. The broad language of the claim already tentatively agreed to by the examiner will give coverage which makes it possible for 3M to disregard the Pearson and Nealis patents for the moment. If Pearson and Nealis were ever to get their process patent applications allowed then there might be a desire on the part of 3M to obtain the right to these. Before the Flanagan patent issues, a "Continuation" will be filed directed to a fastener in which the stems are permanently deformed in the engagement and the spaces between the stems no longer require as many vacant areas.

904

OVEN LINER:

The patent position Retail hoped to develop, wherein a combination of clays, etc., as well as "Burnil", 3M's synthetic mica, would produce a satisfactory Oven Liner, has not developed. The various clays tested by C. Sterling had three serious shortcomings: low abrasion resistance, high grease penetration, poor water removal. However, T. Clayton recommends that with an early filing date established, we should continue the case. If the case is allowed, the decision to abandon can be made! In his opinion, learning that the other clays do not work is good in that competitors could not use a cheap clay to compete with our superior oven liner made with "Burnil". Also, we do not know that there isn't another application on file in the Patent Office using "Burnil" itself so therefore, we should protect our composition.

 "DISCUSSION"

COLOR BLENDING SYSTEM: This was the only pre-case discussed. Kaylor Tempera Paints, according to Tape Analytical Report A.R. 5888, 10/7/65, appears to have bentonite in it. Although their system is sold unpigmented, the recommendation that it be the base for mixing with Kaylor Tempera, produces a composition which appears could infringe the Dietrich patent. This patent is U.S. 2,790,726 and is licensed exclusively by 3M for its Multi-Art Paint. It was recommended that Pat Carey who has a copy of the Dietrich license should contact Mr. Gehan of Patent Counsel concerning calling this possible infringement to the attention of the Kaylor firm.

R.B. Ericson

R.B. Ericson,
 Tape Patent Liaison
 11-1-65

/rap

R: Retail Items

M: Mutual Items

S: Medical Items

I: Industrial Items

A: Art Product Items

cc: J.F. Abere	230-11
R.W. Adam	220-8E
G.A. Berger	230-5
A.W. Boese	220-8W
C.J. Calabrese	230-2
P.H. Carey	230-33
J.E. Corbin	220-8W
H.R. Courtney	230-33
C.A. Dahlquist	230-11
G.W. Engdahl	220-8E
J.O. Hendricks	230-10
E.W. Kellgren	230-3
J.J. LaBuda	230-23
L.W. Lehr	220-7W
R.W. Lundbohm	230-14
R.D. MacDonald	230-24
V.T. Mattison	230-3
R.W. Mueller	220-14W
C.E. Myers	230-22
H.G. Nachtsheim	230-24
A.D. Pearson	230-21
G.R. Rabuse	230-24
G.B. Rathmann	230-15A
A.H. Redpath	220-8W
R.P. Rivard	230-6
E.L. Rzepecki	230-4
A.F. Schmelzle	230-12
H.W. Wilcox	230-21A

**NEW TRADE NAMES FOR ART AND
EDUCATION PRODUCTS**

NOVEMBER 29, 1965

**CC: R. F. HOW
J. J. BELISLE
A. W. BOESEV**

TO: C. H. LAUDER - PATENT COUNSEL - 220-12W

FROM: L. E. LARSON - ART & EDUCATION PRODUCTS - MERCHANDISING MANAGER - 220-8W

DEAR CHARLIE:

**WE HAVE THREE NEW NAMES THAT WE WOULD LIKE TO USE TO REPLACE NAMES PRESENTLY
BEING USED ON ART AND EDUCATION PRODUCTS. THEY ARE AS FOLLOWS:**

- 1. 3M BRAND UNI-PAINT WHICH WOULD REPLACE OUR PRESENT NAME FOR
OUR PAINT WHICH IS MULTI-ART PAINT.**
- 2. 3M BRAND CHROM-MAT WHICH WOULD REPLACE THE NAME PRESENTLY
BEING USED FOR OUR MULTI-COLOR PLATE.**
- 3. 3M BRAND FLEXA-PLATE WHICH WOULD REPLACE THE PRESENT NAME
OF PRINTMAKER'S PLATE.**

**ALL THREE OF THESE WOULD BE PRECEDED BY 3M BRAND. WE WOULD VERY MUCH
APPRECIATE AS QUICK A SEARCH AS POSSIBLE ON THESE NEW NAMES, AS WE WOULD
LIKE TO ANNOUNCE THE CHANGES TO OUR SALES FORCE ON JANUARY 1. WE ARE
ANXIOUS TO GET THE WORD ON ALL THREE BUT THE UNI-PAINT IS THE MOST IMPORTANT
AS WE ARE PRESENTLY RUNNING OUT OF SUPPLIES, ETC..**

**MAY WE HEAR FROM YOU AS SOON AS POSSIBLE. IF YOU HAVE ANY QUESTIONS ON
THIS, PLEASE LET ME KNOW.**

LEL:SAJ

ATTACHMENTS (3)

CARPENTER, ABBOTT, COULTER & KINNEY

WILLIAM H. ABBOTT
E. G. CARPENTER
ROBERT I. COULTER
HAROLD J. KINNEY

MARK SEVERANCE
CRUZAN ALEXANDER
MARK W. GEHAN
FRANK A. STELDT
ERNST A. JAFFRAY
ROBERT C. BAKER
ROBERT E. GRANRUD
DONALD M. SELL
STANLEY G. DELAHUNT
JAMES A. SMITH
RICHARD E. BRINK
CHARLES H. LAUDER
DONALD C. GIPPLE
DAVID A. RODEN
EDWARD T. OKUBO
JOHN C. BARNES

PATENT AND TRADE-MARK CAUSES

2501 HUDSON ROAD
SAINT PAUL 19, MINNESOTA

TELEPHONE
733-1500

CABLE ADDRESS
PATENTS

G. B. GEHRENBECK
TEMPLE CLAYTON
PATENT AGENTS

January 22, 1965

Mr. Robert Charbonneau
Building 207-1NC
3M Company
Saint Paul, Minnesota

Dear Mr. Charbonneau:

Enclosed is a rough draft of appellant's brief to the Board of Appeals which must be mailed to reach the Patent Office no later than January 29. Also enclosed is a copy of Piccard II 2,676,128 on which the final rejection is primarily based.

I wrote to D. J. MacDonald on August 6, 1964 to explain the situation with which we are faced in this appeal, pointing out that the present rejection on prior art is the same as that on which the Board of Appeals based its adverse decision in S.N. 532,369, of which the present case is a continuation-in-part. Further, the present rejection is based on res judicata, the Examiner taking the position that the previous decision by the Board controls the present claims. We feel that the Examiner is altogether wrong, both because the present claims and the evidence which have been presented in the new case should entitle Boese to a fresh decision and also because the prior art simply does not anticipate the claims now on appeal in light of the evidence.

We would much appreciate any comments that you and others on the copy list may have concerning the enclosed Appeal Brief so that we can make sure that we are presenting the appeal in the light most favorable to the invention without making any technical errors or unwise allegations.

Very truly yours,

REG:et
Encl.

cc: R. D. MacDonald
A. W. Boese
R. I. Coulter

Robert E. Granrud

Fidelity Onion Skin

Piccard II

Patented Apr. 20, 1954

2,676,128

UNITED STATES PATENT OFFICE

2,676,128

PROCESS OF PREPARING NONWOVEN
FABRIC AND PRODUCTJohn Augustus Piccard, Swarthmore, Pa., assignor
to E. I. du Pont de Nemours & Company, Wil-
mington, Del., a corporation of DelawareNo Drawing. Application June 18, 1951,
Serial No. 232,245

17 Claims. (Cl. 154-101)

1

This invention relates to the production of non-woven fabrics, particularly to such fabrics which are adapted for use where high strength and absence of a weave pattern are desired.

Filaments have been made from a large variety of materials, such as, e. g. cellulose acetate, viscose, copolymers of vinyl chloride and vinyl acetate, polyvinylidene chloride, copolymers of vinylidene chloride and acrylonitrile, nylon, glass, acrylic polymers and many others. These synthetic polymers have been mixed with each other and various natural fibers, such as cotton, wool and silk to produce both woven and non-woven fabrics for a great many uses.

When woven fabrics are used for certain applications such as a base or substrate for flexible coatings in the manufacture of upholstery, pocketbooks, and artificial leather in general the fabric weave pattern shows through the surface coatings and is generally undesirable. Many attempts have been made to overcome this undesirable characteristic of coated woven fabrics. The use of felts or non-woven fabrics made from various fibers and fiber combinations has been tried many times as a substrate for flexible coatings in the manufacture of various artificial leather products. The non-woven fabrics produced heretofore for this purpose have lacked sufficient tensile and tear strength or are too stiff and boardy to be of any appreciable value. Also the felts or non-woven fabrics available heretofore for this purpose have resulted in a very uneven coated surface such as an exaggerated orange peel effect.

An object of this invention is the production of non-woven fabrics which have greatly improved physical properties. A further object is the production of a non-woven fabric having improved tensile and tear strength. These and other important objects will be readily apparent as the description of the invention proceeds.

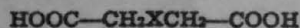
These and other important objects are accomplished according to the present invention by the provision of a non-woven fabric comprising non-fusible or relatively non-fusible fibers, which form the fabric structure, bonded together by means of certain fusible elastic polyesters defined more fully hereinafter. The relatively non-fusible fibers may consist of cotton, nylon, viscose rayon, cellulose acetate, polyethylene terephthalate, polymers of acrylonitrile, copolymers containing at least 85% acrylonitrile, wool, glass and mixtures thereof.

The term "non-fusible" or "relatively non-fusible" as used throughout the specification and appended claims refers to a structural fiber having a fusion temperature higher than the fusible polyester, referred to hereinafter as the binder. The differential in the temperature at which the structural fiber and the binder develop adhesive

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properties should preferably be about 50° F. for commercial operations. Under certain controlled conditions this temperature differential may be less than about 50° F.

The copolyesters employed for the fusible or binding material are similar to those prepared by copolymerizing under melt polymerization conditions and within certain composition limits hereinafter set forth, at least one acyclic dicarboxylic acid of the formula



wherein X is a linear chain composed of 4 to 9 atoms, in the chain of which not more than three may be oxygen atoms and the remaining are hydrocarbon carbon atoms, any two such oxygen atoms being separated by at least two such carbon atoms, the hydrocarbon carbon atoms being saturated and containing a total of not more than three hydrocarbon carbon atoms as side chain substituents, with at least one symmetrical aromatic dibasic acid from the group consisting of terephthalic acid, bibenzoic acid, ethylene bis p-oxybenzoic acid, tetramethylene bis p-oxybenzoic acid, and 2,6-naphthalic acid and with a polymethylene glycol of the formula



wherein n is a whole number from 2 to 6 inclusive. Fibers prepared from these copolyesters by the conventional melt or solvent spinning technique exhibit an elastic recovery, after orientation by cold drawing, of the order of 90% or better within one minute after an extension of 100%. The copolymers per se are the invention of Mark D. Snyder and are disclosed and claimed in copending application Serial No. 150,811 filed March 20, 1950, now U. S. Patent 2,623,033.

The relative amounts of aliphatic and aromatic acids to be used are critical in preparing copolyesters for the purpose of this invention, since if too much of either one is used the copolyester tends to be too crystalline to produce highly elastic polymers. Therefore, to make the elastic copolyester for the purpose of this invention, it is necessary that the aromatic acid comprise at least 30% and not more than 70% by weight of the total acid component of final polymer. A preferred range is 55-65% of the aromatic acid. It is a simple matter to obtain any desired ratio of acid components in any one copolyester. The acids will be present in the final polymer in the same ratio as they were present in the initial reactants provided an excess of glycol is used. It should be understood, of course, that many combinations of these aliphatic and aromatic acids may be used. Thus, two or more aliphatic and/or two or more aromatic acids may be used to form the copolyester. It is also to be understood that

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the ester-forming derivatives of these acids can be used in place of, and are the full equivalents of the acids described above as is generally the case in the manufacture of linear polyesters.

In addition to the copolyesters described above and disclosed in copending application Serial No. 150,811, now U. S. Patent 2,623,033, the melt mixtures of polyesters and copolyesters described in copending Serial No. 150,812 filed March 20, 1950, by M. D. Snyder, now U. S. Patent 2,623,031, may also be used as the binding medium for the non-fusible structural fibers. The melt-blends are prepared by first preparing the copolyester described above and thereafter melt-blending the copolyester thus formed with an aromatic polyester prepared by melt polymerizing a symmetrical aromatic dibasic acid from the group consisting of terephthalic acid, dibenzoic acid, tetramethylene bis p-oxybenzoic acid, and 2,6-naphthalic acid, and a polymethylene glycol of the formula $\text{HO}(\text{CH}_2)_n\text{OH}$, n being a whole number from 2 to 6 inclusive. Preferably, the same aromatic dibasic acid used in the copolyester is used in the polyester. As in the case of the copolyester, the aromatic acid component of the melt-blend of the polyester and copolyester should be at least 30% and not more than 70% on a weight basis.

A preferred embodiment of this invention is carried out by preparing non-woven fabrics by intermingling non-fusible structural fibers such as cotton, viscose rayon, cellulose acetate, nylon, polyethylene glycol terephthalate, polymers of acrylonitrile, copolymers containing at least 85% acrylonitrile, wool, and glass, with the polyester fibers described above. The blending of the fibers is carried out mechanically or manually in accordance with well established procedures in the textile art. An alternate method is to introduce the copolyester binder in the form of a solution into a preformed mat of structural fibers which permeates the fibers and binds them together upon evaporation of the solvent. Another alternate method is to distribute the polyester binder throughout the assembly of preformed bats of structural fiber in the form of finely divided particles and then activating the adhesive properties of the polyester by subjecting the assembly to heat and pressure and/or by treatment with a solvent for the polyester. Still another alternate method is to introduce the binder throughout the structural fiber mat in the form of an aqueous suspension which may be fused or dissolved after drying by subjecting the impregnated mat to heat and pressure and/or a solvent for the binder.

In the preferred practice a plurality of the loosely bound webs from the card or other mat forming equipment are superposed in parallel arrangement or they may be crosslapped at right or acute angles. The superposed webs are then

subjected to heat and pressure by passing between heated calender rolls under pressure or pressed between heated plates. The heat required must be sufficient to render the polyester fiber adhesive and have no appreciable effect on the relatively non-fusible or structural fibers. In actual practice a plurality of single webs from the card are superposed in parallel arrangement or alternately crosslapped in a manner well known in the art of felt making.

For the purpose of direct comparison the following specific examples were carried out using substantially the same length staples at constant denier.

EXAMPLE I

Monofilaments were prepared by melt spinning a copolyester consisting of 40 parts ethylene glycol sebacate per 60 parts of ethylene glycol terephthalate. The copolyester had a fusion temperature of approximately 320° F. The copolyester fiber was cut into staple of approximately 1½ inch length. After this staple was opened it was thoroughly mixed with an equal quantity of long staple cotton fibers of approximately 1½ inch length. This mixture was then carded in the form of a web weighing approximately .66 ounce per square yard in a fashion usually employed in the manufacture of non-woven fabrics. Twelve separate webs were superposed in such a manner that alternate webs were crosslapped at substantially right angles. The entire assembly was pressed for one minute between the platens of a hydraulic press at a temperature of 365° F. and at a pressure of 400 p. s. i. The felt produced was 15 to 20 mils thick and weighed approximately 8.0 ounces/square yard. It was suitable for the applications mentioned hereinafter.

The copolyester in this example may be prepared in accordance with the disclosure in copending application Serial No. 150,811 filed March 20, 1950, now U. S. Patent 2,623,033.

EXAMPLE II

Another felt was made in the same manner as described in Example I except the ratio of copolyester fibers to cotton fibers was 1 to 2.

EXAMPLE III

Another felt was produced in the same manner as described in Example I except the ratio of copolyester fibers to cotton fibers was 1 to 3.

EXAMPLE IV

Another felt was produced in the same manner as described in Example I except the ratio of copolyester fibers to cotton fibers was 1 to 4.

The following table is a summary of the physical properties of the felts described in Examples I to IV.

Table I

Example	Ratio of Structural Fiber to Binder Fiber	Pressing Temperature, ° F.	Tensile ¹ (1" Strip) (lbs.)		Tear ¹ (lbs.)		Percent Elongation ¹ to Breaking Point (1" Strip), W/F	Hand
			W/F ²	W plus F	W/F	W plus F		
I.....	1 to 1.....	365	50/63	113	3.3/3.5	6.8	12/7	Boardy.
II.....	3 to 1.....	365	25/43	68	3.7/4.7	8.4	10/13	Sl. Board.
III.....	3 to 1.....	365	33/22	65	3.5/3.2	6.7	8.5/8.5	Soft.
IV.....	4 to 1.....	365	8/18	26	3.0/2.7	8.7	4/10	Loosely bound and low tensile strength.

¹ The tensile strength, tongue tear and elongation tests were carried out in accordance with the procedures described in ASTM, D39-49.

² The letters "W" and "F" refer to the conventional warp and filler direction of woven fabrics. In this instance and hereinafter the "W" refers to the machine direction of the non-woven fabric and the "F" refers to the cross-machine direction.

all together

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EXAMPLE V

A non-woven fabric was prepared in the same manner as described in Example I in which the structural fiber (non-binding) was 3.0 denier Nylon monofilament staple approximately 1½ inches long. Three parts by weight of this staple were mixed with one part of the copolyester staple fiber referred to in Example I. The mixed staples were carded and formed into a web. Twelve separate webs were crosslapped, and compacted by passing between calender rolls heated to 265° F. at a rate of 6 ft. per minute, with the calender rolls opened to 4 mils. The resulting felt was approximately 8.0 oz./sq. yd. and 16 mils thick. It was smooth and exhibited unusually high tensile and tear strength as shown in Table II.

The nylon polymer in the above example is a synthetic linear polyamide resulting from the reaction of hexamethylene diamine and adipic acid and may be produced in accordance with the teachings in U. S. Patents 2,071,250 and 2,071,251.

EXAMPLE VI

A non-woven fabric was produced in the same manner as described in Example V except the relatively non-fusible structural fiber was a polyester of ethylene glycol and terephthalic acid and the binding fiber was the copolyester referred to in Example I and nine separate webs were employed in crosslapped relation. Three parts of the polyester fiber were blended with one part of copolyester fiber. The compacting was carried out by calendaring in the same manner as described in Example V. The non-woven fabric weighed approximately 8.0 ounces/square yard and was soft and flexible.

The polyethylene terephthalate may be produced in accordance with the disclosure in U. S. Patent 2,465,319.

EXAMPLE VII

A non-woven fabric was prepared in the same manner as described in Example V except viscose rayon 3.0 denier, 1½ inch staple monofilaments were used as the structural fiber.

EXAMPLE VIII

Example V was repeated using 1½ inch long staple cotton fiber in place of the nylon as the structural fiber.

The following Table II summarizes the physical properties of the non-woven fabrics referred to in Examples V to VIII.

Table II

Example	Structural Fiber	Binding Fiber	Properties of Non-Woven Fabric					Hand
			Tensile (lbs. per 1" Strip)		Tongue Tear (lbs.)		Percent Elongation to Breaking Point (1" Strip), W/F	
			W/F	W plus F	W/F	W plus F		
V	Nylon	Copolyester, Same as in Example I.	67/88	155	27/31	58	75/90	Soft and Flexible.
VI	Polyester of Ethylene Glycol and Terephthalic Acid.	do.	20/52	72	8.5/10.5	19	63/63	Do.
VII	Viscose Rayon	do.	18/34	52	1/5	6	20/16	Do.
VIII	Cotton	do.	14/17	31	3.7/4	7.7	22/22	Do.

EXAMPLE IX

A non-woven felt-like fabric was produced by carding the nylon fiber referred to in Example V into the form of a web weighing approximately 7.5

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ounce per square yard. Eight separate webs were superposed and then placed between two sheets of 80 mesh wire screen. The assembly was subjected to moderate pressure by hand to compact the superposed plies. The entire assembly was then dipped into a 5% solution of a copolymer of 60 parts of ethylene glycol terephthalate and 40 parts of ethylene glycol sebacate dissolved in chloroform. The assembly was then removed from the solution and the excess solution was allowed to drain off. To facilitate saturation of the superposed webs the assembly was subjected to the action of a hand roller on each side. The assembly was then dried at 250° F. until the chloroform was evaporated. The wire screens were then removed from the web and the dried web further condensed by passing between pressure rolls heated to about 265° F. A soft, high strength unitary non-woven felt was obtained.

EXAMPLE X

A non-woven felt-like fabric is produced by forming a web of long staple (1½ inch cotton fibers) and superposing eight separate webs to form a bat. Finely divided copolyester of 60 parts ethylene glycol terephthalic acid and 40 parts ethylene glycol sebacate is distributed throughout the assembly. The entire assembly consists of about 75% cotton fibers and 25% copolyester on a weight basis. The finely divided copolyester is distributed on the surface and at least to some extent throughout each individual web. The entire assembly is next pressed between heated platens at a temperature of about 350° F. for a period of 1 minute. The resultant product is a soft high strength non-woven fabric suitable for use as substrate for flexible coatings and other uses where high strength non-woven fabrics are required.

EXAMPLE XI

A non-woven felt-like fabric was produced by blending the following fibers:

	Parts by weight
Nylon (1½" staple, 3.0 denier)	1
Polyester of ethylene glycol and terephthalic acid (1½" staple, 3.0 denier)	1
Copolyester of 60 ethylene glycol terephthalate and 40 ethylene glycol sebacate (1½" staple, 3.0 denier)	1

The blended fibers were carded in the form of a web weighing about ¾ ounce per square yard. Twelve separate webs were superposed, the first four webs in parallel arrangement, the second four in parallel arrangement and at right

angles to the first four and the third four were in parallel arrangement and at right angles to the second four. The composite assembly was compacted by passing between even speed high

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pressure rolls heated to about 265° F. and set about 4 mils apart.

The assembly was compacted to approximately 15 mils thick and weighed approximately 8.0 ounces per square yard. The felt-like material had the following physical properties:

	W/F
Tongue tear	lbs. 31/31
Tensile—1" strip	lbs. 74/50
Per cent elongation to breaking point	75/57

EXAMPLE XII

A non-woven felt-like fabric was made in the same manner as described in Example XI except the following blend of fibers was employed:

	Parts by weight
Polyacrylonitrile (1½" staple, 3.0 denier)	3
Copolyester of 60 ethylene glycol terephthalate and 40 ethylene glycol sebacate (1½" staple, 3.0 denier)	1

Twelve carded webs were superposed with alternate sets of four webs crosslapped and the assembly compacted by passing between heated (265° F.) pressure rolls set 4 mils apart. The resulting product weighing 8.1 ounces per square yard was suitable as a substrate for flexible coatings. It had the following physical properties:

	W/F
Tensile strength—1" strip	lbs. 33/45
Tongue tear	lbs. 8/13
Per cent elongation to the breaking point	45/50

EXAMPLE XIII

A non-woven felt-like fabric was produced by carding the following blend of fibers on a hand card:

	G.
Cellulose acetate—3.0 denier, 1½" staple	10.0
Copolyester (same as Example I)—3.0 denier, 1½" staple	3.0
Melt-blend of polyethylene glycol terephthalate and a copolymer of 40 parts of ethylene glycol terephthalate and 60 parts of ethylene glycol sebacate—3.0 denier, 1½" staple	5.0

The polyethylene glycol terephthalate and the copolymer were blended in a ratio so that the aromatic acid component was 70% by weight of the total acid component of the blend. Two separate bats about 10" square were produced from a blend of the above fibers. The two separate bats were superposed and trimmed to about 8" square. The superposed bats were pressed at about 320° F. and approximately 500 p. s. i. The assembly was firmly bonded and was a flexible felt-like fabric.

The melt-blended fibers, in the above formula, develop adhesiveness at about 350-390° F. In the above example they serve as structural fibers. When higher melting structural fibers are employed, such as, e. g. nylon, this melt-blend may be used as binding fibers.

For the purpose of this invention it is important that the structural fibers not develop any adhesiveness at the temperature at which the binder is rendered adhesive. The copolyesters described above have a fusion temperature of 300-400° F. They do not have a true melting point in the ordinary sense of the word. The temperature at which adhesiveness develops depends more or less on the degree of crystallinity of the polymer and is lower than the fusion temperature. The preferred polyester binder containing 60 parts of ethylene glycol terephtha-

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late and 40 parts ethylene glycol sebacate has a fusion temperature, approximately 320° F. although adhesiveness develops at a lower temperature. The invention is not to be limited to the particular temperature range mentioned above for the fusion temperature of the copolyester binder. The important thing is that the binder develop adhesiveness at about 50° F. lower than the structural fiber. The fusion temperature is not to be confused with the temperature at which adhesiveness develops. When a thermoplastic fiber is used as the structural fiber it must not lose its identity as a fiber during the processing. Nylon is particularly preferred as the structural fiber in view of its relatively high melting point (approximately 482° F.) and high tensile and tear strength. The wide difference in temperature at which adhesiveness is developed in the nylon polymer and the copolyesters provides a safe operating range for the practice of this invention.

It is also possible to improve the adhesiveness of the binding fiber by treating the matted felt after the compacting operation with a volatile liquid which renders the binding fiber cementitious.

The copolyesters and melt-blend of polyesters and copolyesters described above are particularly useful for the purpose of this invention in view of their elastic recovery when elongated. Conventional non-woven fabrics and papers tear relatively easily when a strip is cut on one edge and the cut edges are subjected to opposing forces since the fibers are broken one at a time as the entire stress is applied to a relatively few fibers. When the non-woven fabrics employing the elastic copolyesters and melt-blended polyesters and copolyesters as the binding medium are cut on one edge and the cut edges are subjected to opposing forces the elastic fibers stretch and the stress is distributed over a greater number of fibers than in the case of conventional non-woven fabrics.

A commercial grade of felt weighing about 8 ounces/square yard comprising a blend of viscose rayon, cotton, and a binding fiber consisting of copolymer of 85 parts of vinyl chloride and 15 parts of vinyl acetate was subjected to the same tests as shown in Tables I and II with the following results:

	Commercial Felt, 8 oz./sq. yd.
Tensile Strength 1" Strip (WXF)	9×13 lbs.
Tear Strength (Tongue)	3.2×5.2 lbs.

A comparison of the above data with Tables I and II illustrates the advantages of the products of this invention over prior art material of equal weight.

The copolyesters and melt-blended copolyesters and polyesters described in copending application Serial No. 150,811 and Serial No. 150,812 both filed March 20, 1950, U. S. Patents 2,623,033 and 2,623,031, respectively, when used in this invention in the form of fibers may be cold drawn, that is, permanently elongated by tensile stress in order to orient them since the oriented filaments have greater strength and elasticity. The unoriented or but slightly oriented filaments obtained by spinning under little or no stress are, however, also useful in the practice of this invention.

The various copolyesters described above used

must not be too crystalline to do this

to form the non-woven fabric may be plasticized or unplasticized. If a softer binding fiber or one which develops adhesiveness at a lower temperature is desired it may be plasticized with an aryl sulfonamide, such as toluene sulfonamide or amylbenzene sulfonamide.

The proportion of thermoadhesive binder to the non-thermoadhesive fiber used in the examples illustrate the preferred proportions. Where very soft fluffy felts are desired the binder may represent as little as 10% of the total and when very stiff and boardy felts are desired the binder may represent as high as 65% of the total.

The time, temperature and pressure used in the specific examples may vary depending upon the nature of the thermoadhesive or binding fiber, particularly its softening point, and on the nature of the structural or non-thermoadhesive fibers present. For example, if a high melting filament is used as the binding fiber a relatively higher temperature and pressure will be required than if a low melting filament is used. Likewise, if a soft fabric is desired a lower pressure and/or temperature will be used than if a hard fabric is desired. Also, at higher pressures lower temperatures may be employed.

The fabrics produced in accordance with this invention can be dyed by the usual methods either by application of the dye to the formed felt or to the fibers before carding.

The physical properties of the fabric such as, e. g., its feel and tackiness may be altered, if desired, by subjecting the fabric to fluffing and steaming treatments.

The denier of the filaments which may be used in carrying out this invention may vary depending on the type and appearance of the non-woven fabric desired. While the three denier filament is preferred, filaments having a denier of one or less may be used. Fibers having a denier of 50 to 70 produce useful non-woven fabrics and where extremely coarse felt is desired, even coarser filaments having a denier of 100 to 150 may be used. The thermoadhesive binding filament and the non-thermoadhesive structural fiber may be straight or crimped.

The non-woven fabrics of this invention, depending upon the particular fibers used and upon the conditions of treatment, possess a wide range of properties which adapt the product for the different purposes for which non-woven fabrics and felts are now used. As examples of some of these uses may be mentioned the use of soft felt in wadding, slightly harder felt in coat and shoe linings, upholstery, millinery, filtering media and insulation.

The products of this invention are particularly useful as substrates for flexible coatings such as plasticized cellulose derivatives, including ethyl cellulose, cellulose nitrate, cellulose acetate, cellulose acetobutyrate, and cellulose acetopropionate. The non-woven fabrics herein described are also useful as a base for flexible synthetic resin coatings comprising polyvinyl acetals, polyvinyl halides, polymethacrylic acid esters, amino aldehyde resins and alkyd resins. The present invention is particularly adapted to the production of high strength substrates for plasticized polyvinyl chloride coatings used as upholstery fabrics. The flexible coatings may be applied from solutions or deposited from suspensions in which the film former of the coating is suspended in a non-solvent for said film former, and the film formed by heating after it is applied to the substrate. Where the film former is sus-

ended in a plasticizer, such compositions are referred to as "plastisols." Where the suspending medium is an organic volatile liquid such compositions are referred to as "organosols."

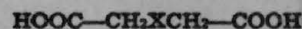
Also the flexible coatings may be applied by the well known calendering methods. The flexible coatings may be applied to either or both sides of the non-woven fabric. The absence of a weave pattern in the non-woven fabric makes it particularly useful as a substrate for flexible coatings where a fabric weave pattern is objectionable.

The coated products referred to above are disclosed and claimed in a copending application S. N. 232,247, filed June 18, 1951, by E. A. Rodman.

It is apparent that many widely different embodiments of this invention may be made without departing from the spirit and scope thereof and, therefore, it is not intended to be limited except as indicated in the appended claims.

I claim:

1. A non-woven fabric comprising compacted structural staple fibers selected from the group consisting of cotton, nylon, viscose rayon, cellulose acetate, polyethylene terephthalate, polymers of acrylonitrile, wool and glass, bound together by a binding material comprising a linear copolyester of (a) at least one polymethylene glycol ester of an acyclic dicarboxylic acid of the formula



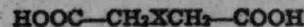
wherein X is a linear chain composed of 4 to 9 atoms, in the chain of which not more than 3 may be oxygen atoms and the remaining are hydrocarbon carbon atoms, any two such oxygen atoms being separated by at least two such carbon atoms, the hydrocarbon carbon atoms being saturated and containing a total of not more than three hydrocarbon carbon atoms as side chain substituents, with (b) at least one polymethylene glycol ester of a symmetrical aromatic dibasic acid from the group consisting of terephthalic acid, bibenzoic acid, ethylene bis-p-oxy-benzoic acid, tetramethylene bis-p-oxy-benzoic acid and 2,6-naphthalic acid, the aromatic acid comprising from 30% to 70% by weight of the acid components of the copolyester and the polymethylene glycol component of (a) and (b) having from 2 to 6 carbon atoms, the binding material being present in amount between 10% and 65%, based on the combined weight of the binding material and the structural fibers.

2. The product of claim 1 in which the aromatic acid component of the copolyester represents 55-65% of the acid components of the copolyester.

3. The product of claim 1 in which the binder is a copolyester of 40 parts of ethylene glycol sebacate and 60 parts of ethylene glycol terephthalate.

4. The product of claim 1 in which the structural fiber is nylon and the binder is a copolyester of 40 parts of ethylene glycol sebacate and 60 parts of ethylene glycol terephthalate.

5. The process of preparing non-woven fabrics which comprises matting staple fibers selected from the group consisting of cotton, nylon, viscose rayon, cellulose acetate, polyethylene terephthalate, polymers of acrylonitrile, wool and glass, mixing a dry binder with said matted staple fibers, said binder comprising a linear copolyester of (a) at least one polymethylene glycol ester of an acyclic dicarboxylic acid of the formula



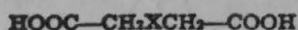
wherein X is a linear chain composed of 4 to 9 atoms, in the chain of which not more than 3 may be oxygen atoms and the remaining are hydrocarbon carbon atoms, any two such oxygen atoms being separated by at least two such carbon atoms, the hydrocarbon carbon atoms being saturated and containing a total of not more than three hydrocarbon carbon atoms as side chain substituents, with (b) at least one polymethylene glycol ester of a symmetrical aromatic dibasic acid from the group consisting of terephthalic acid, bibenzoic acid, ethylene bis p-oxy-benzoic acid, tetramethylene bis p-oxy-benzoic acid and 2,6-naphthalic acid, the aromatic acid comprising from 30% to 70% by weight of the acid components of the copolyester and the polymethylene glycol component of (a) and (b) having from 2 to 6 carbon atoms, and subjecting the mat and binder to heat and pressure sufficient to activate the adhesiveness of the copolyester, the binding material being present in amount between 10% and 65%, based on the combined weight of the binding material and the structural fibers.

6. The process of claim 5 in which the aromatic acid component of the copolyester represents 55-65% of the acid component of the copolyester.

7. The process of claim 5 in which the binder is a copolyester of 40 parts of ethylene glycol sebacate and 60 parts of ethylene glycol terephthalate.

8. The process of claim 5 in which the structural fiber is nylon and the binder is a copolyester of 40 parts of ethylene glycol sebacate and 60 parts of ethylene glycol terephthalate.

9. The process of preparing non-woven fabrics which comprises matting a mixture of structural fibers and dry binding fibers, said structural fibers selected from the group consisting of cotton, nylon, viscose rayon, cellulose acetate, polyethylene terephthalate, polymers of acrylonitrile, wool and glass, said binder fibers comprising a linear copolyester of (a) at least one polymethylene glycol ester of an acyclic dicarboxylic acid of the formula



wherein X is a linear chain composed of 4 to 9 atoms, in the chain of which not more than 3 may be oxygen atoms and the remaining are hydrocarbon carbon atoms, any two such oxygen atoms being separated by at least two such carbon atoms, the hydrocarbon carbon atoms being saturated and containing a total of not more than three hydrocarbon carbon atoms as side chain substituents, with (b) at least one polymethylene glycol ester of a symmetrical aromatic dibasic acid from the group consisting of terephthalic acid, bibenzoic acid, ethylene bis p-oxy-benzoic acid, tetramethylene bis p-oxy-benzoic acid and 2,6-naphthalic acid, the aromatic acid comprising from 30% to 70% by weight of the acid components of the copolyester and the polymethylene glycol component of (a) and (b) having from 2 to 6 carbon atoms, and subjecting the matted mixture to heat and pressure sufficient to activate the adhesiveness of the copolyester, the binding fibers being present in amount between 10% and 65% based on the combined weight of the binding fibers and the structural fibers.

10. The process of claim 9 in which the aromatic acid component of the copolyester represents 55-65% of the acid component of the copolyester.

11. The process of claim 9 in which the binder fiber is a copolyester of 40 parts of ethylene glycol

sebacate and 60 parts of ethylene glycol terephthalate.

12. The process of claim 9 in which the structural fiber is nylon and the binder fiber is a copolyester of 40 parts of ethylene glycol sebacate and 60 parts of ethylene glycol terephthalate.

13. A non-woven fabric comprising compacted structural staple fibers selected from the group consisting of cotton, nylon, viscose rayon, cellulose acetate, polyethylene terephthalate, polymers of acrylonitrile, wool and glass bound together by a melt blend of (1) a linear copolyester of (a) at least one polymethylene glycol ester of an acyclic dicarboxylic acid of the formula



wherein X is a linear chain composed of 4 to 9 atoms, in the chain of which not more than 3 may be oxygen atoms and the remaining are hydrocarbon carbon atoms, the hydrocarbon carbon atoms being saturated and containing a total of not more than three hydrocarbon carbon atoms as side chain substituents, with (b) at least one polymethylene glycol ester of a symmetrical aromatic dibasic acid from the group consisting of terephthalic acid, bibenzoic acid, ethylene bis p-oxy-benzoic acid, tetramethylene bis p-oxy-benzoic acid and 2,6-naphthalic acid, the aromatic acid comprising from 30% to 70% by weight of the acid components of the copolyester and (2) a linear polyester of at least one linear polymethylene glycol ester of a symmetrical aromatic dibasic acid from the group consisting of terephthalic acid, bibenzoic acid, tetramethylene bis p-oxy-benzoic acid, and 2,6-naphthalic acid, the polymethylene glycol component of (1) and (2) having 2 to 6 carbon atoms, the total aromatic acid content of the blend being from 30% to 70% by weight of the acid components of the blend, the binding material being present in amount between 10% and 65%, based on the combined weight of the binding material and the structural fibers.

14. A non-woven fabric comprising staple nylon fibers bound together by a linear copolyester of ethylene glycol sebacate and ethylene glycol terephthalate.

15. The product of claim 14 in which the binder comprises 40 parts of the ethylene glycol sebacate and 60 parts of the ethylene glycol terephthalate.

16. The process of preparing non-woven fabrics which comprises matting staple nylon fibers, mixing therewith a dry linear copolyester of ethylene glycol sebacate and ethylene glycol terephthalate, and subjecting the assembly to heat and pressure sufficient to render the copolyester adhesive.

17. The process of claim 16 in which the copolyester is introduced as dry particles.

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Number	Name	Date
2,277,049	Reed	Mar. 24, 1942
2,357,392	Francis	Sept. 5, 1944
2,476,282	Castellan	July 19, 1949
2,543,101	Francis	Feb. 27, 1951
2,544,019	Heritage	Mar. 6, 1951
2,569,169	Heritage	Sept. 25, 1951

FOREIGN PATENTS

Number	Country	Date
623,309	Great Britain	May 16, 1949

IN THE UNITED STATES PATENT OFFICE
BEFORE THE BOARD OF APPEALS

In re Application of

ALVIN W. BOESE

Serial No. 9,674

Filed: February 19, 1960

For: COMPOSITE FILM-FABRIC ELECTRICAL
INSULATING SHEET AND METHOD OF
MAKING THE SAME

Group 160

Appeal No. 38912

APPELLANT'S APPEAL BRIEF

This is an appeal from the final rejection of claims 38 and 40-55, all of the claims in the application. The claims on appeal are reproduced in the Appendix.

REQUEST FOR ORAL HEARING

An oral hearing is requested. Two extra copies of this brief are submitted in accordance with Rule 192.

BACKGROUND TO APPELLANT'S INVENTION

Prior to the present invention, varnished bias cotton tape or varnished cambric was widely used as electrical insulating material and still is for noncritical applications. However, it tends to fail in uses involving adverse conditions, especially where the tape was stretched to conform it to compound shapes such as spliced electrical cables. Although considerable work had been directed toward improved electrical insulating sheet materials prior to the present invention, no really significant advance over varnished cambric had resulted.

APPELLANT'S INVENTION

The present invention primarily concerns a composite film-fabric sheet comprising two types of staple polyester fibers randomly intermingled and heat-pressed into a fabric to which a film of electrical insulating resin is inseparably united. The two types of fibers are formed of the same polyester, one type being drawn fibers whereas the other fibers are undrawn and are in an initial relatively low softening amorphous state. However, the claims to the composite film-fabric sheet define the fabric as heat-pressed, said undrawn fibers having thus been converted to a crystalline state affording substantially the same softening temperature range as that of the drawn fibers. Since drawn polyester fibers such as drawn polyethylene terephthalate fibers called for in claim 53 have a softening temperature range well above temperatures to which electrical insulation is normally subjected, this coupled with the good electrical insulating values of polyesters, affords extraordinarily good electrical insulating performance by the composite film-fabric of the present invention.

In addition to claims to the composite film-fabric sheet, claims here on appeal define the method of making the composite sheet including steps of forming an interlaced web of the two types of fibers, heat-pressing to interbond the undrawn fibers and to convert them to a crystalline, high-melting state, and applying a film of electrical insulating resin (claims 48-50). The other method claims define the manufacture of multi-ply fabrics wherein a first heat-pressed fabric is

prepared, after which more of the two types of fibers are interlaced into a second web which is then heat-pressed against the first fabric to interbond and convert its undrawn fibers and simultaneously bond those fibers to the fibers of the first fabric (claims 51-52). Evidence of record discussed hereinbelow points up the practical necessity of forming heavy fabrics in multiple plies. Claims 44 and 45 define the products which are obtained in the process of claims 51 and 52, respectively. Product claim is similar to claim 44 but defines the two types of polyester fibers as consisting of polyethylene terephthalate which is disclosed in the specification as the preferred polyester.

REFERENCES

References applied in the final rejection are:

Homan, 2,234,252	March 11, 1941
Fuller, 2,388,319	November 6, 1945
Swallow, et al, 2,497,376	February 14, 1950
Boese, et al, 2,503,024	April 4, 1950
Piccard II, 2,676,128	April 20, 1954

THE REJECTION

Claims 38, 40-43, 53 and 54 have been "rejected on the ground of res judicata" on the basis of a decision by the Board of Appeals dated December 22, 1959 in Serial No. 532,369, now abandoned, of which the present case is a continuation-in-part. Claims 44, 45 and 55 have been "rejected on the ground of res judicata in view of Boese et al" and claims 46 and 47 have been "rejected on the ground of res judicata in view of Piccard II" on the same basis.

Claims 38, 42, 46, 48, 50, 53 and 54 have been "rejected as unpatentable over Piccard II in view of Boese et al." on grounds that Piccard II discloses a non-woven fabric of a mixture of non-fusible structural fibers and fusible binder fibers, the latter being autogenously interbonded at their crossing points, whereas Boese et al. disclose a non-woven fibrous fabric of the ream weight and fiber-proportion of claims on appeal.

Claims 41, 43 and 49 have been "rejected as unpatentable over Piccard II in view of Boese et al. for the same reasons and further in view of Swallow et al." which discloses that preformed oriented polyethylene terephthalate film is particularly useful for electrical insulation.

Claims 40 and 47 have been "rejected as unpatentable over Piccard II in view of Boese et al. and further in view of Homan" who teaches "an insulating varnish for electrical purposes" which could be substituted for the resinous coating in Piccard.

Claims 44, 51 and 55 stand "rejected as unpatentable over Boese et al. in view of Piccard II" on the theory that "No invention would be involved for Piccard to bond together superposed webs in the manner disclosed by Boese et al."

Claims 45 and 52 are rejected as unpatentable over Boese et al. in view of Piccard II for the reasons set forth above and further in view of Fuller" on the theory that "The coating material of Fuller could be used as the coating material in the process of Piccard II without invention."

PICCARD II

Piccard patent No. 2,676,128 discloses nonwoven fabrics of randomly intermingled structural fibers which are bonded together by a fusible, noncrystalline, elastic copolyester binder. A great many diverse structural fibers are said to be useful including "cotton, nylon, viscose rayon, cellulose acetate, polyethylene terephthalate, polymers of acrylonitrile copolymers containing at least 85% acrylonitrile, wool, glass and mixtures thereof" (col. 1, lines 49-53). The fusible binder said to be useful comprises a narrow class of copolyesters within a critical range of proportion between aromatic and aliphatic acid (col. 2, lines 40-50). Four alternative methods are given for introducing the binder: as fibers, as a solution, as finely divided particles or as an aqueous suspension (col. 3, lines 29-55). Only the first of these is pertinent here.

Example VI, which is the closest example to the present invention, discloses a nonwoven fabric of drawn polyethylene terephthalate structural fibers bonded together with binder fibers of a copolyester of 40 parts ethylene glycol sebacate and 60 parts of ethylene glycol terephthalate. Reference to other examples indicates that the structural fibers were 3.0 denier and $1\frac{1}{2}$ inches long and that the binder fibers may have been the same denier and length. Insofar as Piccard II discloses a nonwoven fabric of two types of fibers (structural and binder) and suitable fiber ratios, denier and length, appellant concedes its pertinence to the present invention. Further, one of the many and varied classes of structural fibers disclosed by Piccard is the same as the structural fibers employed in the present invention. The significant difference

is in the binder fibers. Disclosure in Piccard II relating to that difference is found, for example, at col. 2, lines 40-50 (teaching of criticality that the copolyester not "be too crystalline to produce highly elastic polymers"); at col. 8, lines 27-43 (teaching of criticality that the copolyester binder fibers be elastic so that they will stretch when the fabric is stressed); and in the paragraph bridging columns 7 and 8 (the copolyester binder has a fusion temperature of 300-400°F, necessarily more than about 50°F lower than the structural fiber).

Piccard II also discloses that his fabric may be treated with coatings, some of which are electrical insulating resins (see paragraph bridging columns 9 and 10). Those coated fabrics are disclosed and claimed in Rodman patent No. 2,725,309 (see col. 10, lines 13-15 of Piccard II). Accordingly, evidence in the file of the present application directed to the Rodman patent applies equally to Piccard II.

BOESE ET AL.

Boese et al. patent No. 2,503,024 discloses nonwoven fabric of heterogeneously interlaced fibers of two types, i.e., low melting cellulose acetate fibers and relatively high melting viscose fibers. The acetate fibers are autogenously interbonded at their crossing points to form a network within which the viscose fibers are distributed in a manner similar to the fabric of the present invention. The ratio of the two types of fibers and the ream weight of the fabric are in the same ranges as in the fabric of the present invention.

SWALLOW ET AL.

Swallow et al. patent No. 2,497,376 discloses preformed oriented polyethylene terephthalate film and suggests its use for electrical insulation.

HOMAN

Homan patent No. 2,234,252 discloses a varnished cotton cloth of the varnished cambric type.

FULLER

Fuller patent No. 2,388,319 discloses cotton braid impregnated with cross-linked polyester polymer for electrical insulating coverings.

ARGUMENT

All of the product claims, but none of the method claims 48-52, are under rejection based on res judicata. All of the claims of the case are rejected on prior art.

Res Judicata

Of the three claims of appellant's parent application S.N. 532,369 wherein the Board of Appeals on December 22, 1959 rendered a decision adverse to appellant, claim 1 defined a nonwoven fabric of stated ream weight consisting essentially of a unified compacted carded mixture of drawn and undrawn fibers of the same polyester at a stated fiber ratio wherein the undrawn fibers are interbonded at their crossing points to form a network within which the drawn fibers are interlaced. Dependent claim 2 called for the fabric of claim 1 impregnated with electric insulating varnish, and dependent claim 3 called for a preformed polyester film autogenously laminated to the fabric of claim 1. The composite film-fabric sheet claims here on appeal are similar to the claims of the parent case except that the appealed claims call for undrawn fibers in a crystalline state affording substantially the same softening temperature range as that of the drawn fibers. To the opposite effect, the claims of the parent case said nothing of the crystalline nature of the undrawn fibers and

defined the undrawn fibers as "having a softening temperature range which is below the temperature range within which said drawn fibers soften and melt". That is to say, the fibers of the fabric as defined in the claims of appellant's parent case had different softening points (just as the fibers of the fabric of Piccard II have different softening points) whereas the two types of fibers in the composite film-fabric sheet defined in the present claims have substantially the same softening temperature range. This difference is crucial, because the presence of the sizeable proportion of relatively low melting fibers in the finished fabric (as in Piccard II) simply does not permit the achievement of the heat-resistant, high-voltage electrical insulating qualities by which the products of the present invention are characterized.

The three claims of the parent application S.N. 532,369 were different in this respect, in taking no cognizance of the importance of the same softening point for both the drawn and undrawn fibers. There was no evidence of criticality in the file of the parent case concerning such differences from the prior art such as the conversion of the undrawn fibers to a crystalline state affording substantially the same softening temperature range of that of the drawn fibers and the use of drawn and undrawn fibers of the same polyester. Such evidence is here of record as demonstrated especially by the Supplemental Affidavit of Robert R. Charbonneau filed herein March 20, 1964 which establishes marked electrical insulating superiority and importantly improved strength at high temperature possessed by products of the present invention as compared to products disclosed in the Piccard II patent

which are based on fabric made of two types of fibers which differ chemically and have very different softening points. The electrical insulating superiority has resulted in actual commercial success, verified by the Affidavit of Roy J. Gavin filed herein August 19, 1963.

The whole tenor of the decision of the Board of Appeals in the parent case is based on the failure to prove "unexpected or certain advantage over Piccard's more general disclosure" or "definite improvement in the product itself from the identity of chemical composition". The attempt at showing commercial success in that application was brushed aside as being based only on "anticipated" production and not being "definite as to the extent of the actual production of the exact product to which it refers". Unlike the mere inference of the advantage over the art and showing of potential commercial success there before the Board of Appeals, the claims now on appeal are backed by solid evidence of important and unexpected advances over the prior art and actual commercial success in the truest sense.

The differences between the present claims and those of the parent case stand in marked contrast to the fact situation in In re Lundberg and Zuschlag, 47 CCPA 1142, 126 USPA 412, on which the final rejection rests. There claim 1 defined the same combination as the previously adjudicated claim 54 except for a change in the preamble, which the court found merely stated the object or purpose of the apparatus, and the other claims were correspondingly comparable. The fact situation of the present case is much different by virtue of the above-discussed changes in the claims coupled with significant new evidence, so that principles more recently enunciated by the

Court of Customs and Patent Appeals in In re Fried, 50 CCPA 954, 136 USPQ 429, and by the Board of Appeals in Ex parte Schott, 136 USPQ 383, control. As in the Fried case, the present claims are narrower in scope than were the prior claims by defining the undrawn fibers as having been converted to a crystalline state affording the same softening temperature, etc. (see the last sentence of footnote 3 at 136 USPQ 432).

The Rejection on Prior Art

The final rejection of claims on prior art is prefaced (in the paragraph bridging pages 3 and 4 of the Office Action dated July 30, 1964 by a finding by the Examiner that appellant's specification teaches mere preference in the use of the same polyester for both drawn and undrawn fibers. The Examiner's finding is based on a single sentence bridging pages 2 and 3 of the specification without regard to the teaching of the specification. Unfortunately, that sentence standing by itself invites different interpretations, but the Examiner has rebuffed appellant's effort at clarification. As it stands, the sentence might indicate to one skilled in the art that it is preferred that all of the fibers of the improved fabric be formed of the same identical chemical composition as opposed to being formed of two types of fibers which are only substantially the same chemical composition but wherein the undrawn fibers crystallize to provide substantially the same softening temperature range of that of the drawn fibers. Read in this sense, the sentence is precise and needs no amendment. On the other hand, the preference indicated in that sentence may extend to polyethylene terephthalate fibers as the preferred polyester fibers. In any event, it is clear from appellant's specification as a whole that the sentence does not teach that the two types of fibers may be so different that the undrawn fibers do not provide substantially the same softening temperature range of that of the drawn fibers.

The Combination of Piccard II and Boese Et Al.
(Claims 38, 42, 46, 48, 50, 53 and 54)

Piccard II discloses a fabric made up of a carded mixture of nonfusible structural fibers and fusible binder fibers, and all that Boese et al. adds to Piccard II is that the proportion of the two types of fibers and the ream weight of the nonwoven fabric may be the same as defined in the claims here on appeal. The Supplemental Affidavit of Robert R. Charbonneau filed herein March 20, 1964 compares the performance of a Fabric A' of the present invention to Fabrics I, II, and III and I', II' and III' which are representative of varnish-coated fabrics of Piccard II at the ream weight of the Boese et al. patent. That affidavit establishes both the surprising electrical superiority in the varnish-coated fabric A' as electrical insulation as well as superior high-temperature tensile strength which permits Fabric A' to be coated with electrical insulating varnish using conventional production equipment as compared to the insufficient strength of the fabrics representative of "Piccard II in view of Boese et al." Because of this unexpected and important advance over the prior art to which the Supplemental Affidavit of Robert R. Charbonneau attests, it is submitted that the rejection of claims 38, 42, 46, 48, 50, 53 and 54 "as unpatentable over Piccard II in view of Boese et al." should be reversed.

Claims 41, 43 and 49

As for the rejection of claims 41, 43 and 49 "as unpatentable over Piccard II in view of Boese et al. for the same reasons given in rejecting claims 38, 42, 46, 48, 50, 53 and 54 and further in view of Swallow et al.", some note should be

taken of the difficulty of adhering materials to oriented polyester films. It is especially interesting that it would be impossible to develop good adhesion between a preformed fabric of the present invention and a preformed oriented polyester film without using a separate adhesive, which could involve considerable difficulty in electrical insulating performance. Instead, it is critical to the formation of a good bond that a web of intermingled undrawn amorphous polyester fibers and drawn fibers of the same polyester be laminated to the polyester film simultaneously with the heat-pressing operation wherein the undrawn fibers are interbonded and converted to a crystalline state.

We do not understand how the addition of the Swallow et al. reference adds anything to the combination of Piccard II and Boese et al. that would lead one skilled in the art to effect lamination between the fabric and preformed film by such a procedure. In this connection, please note that claim 46 calls for a structure including a preformed oriented polyester film and presumably should be classified in the rejection along with claims 41, 43 and 49 rather than with the claims in which Swallow et al. is not applied as a reference.

Claims 40 and 47

Claims 40 and 47 stand "rejected as unpatentable over Piccard II in view of Boese et al. for the same reasons given in rejecting claims 38, 42, 46, 48, 50, 53 and 54 and further in view of Homan" who shows a varnished cotton cloth of the varnished cambric type. Claims 40 and 47 differ from claims 38 and 46 from which they respectively depend only by calling for an electrical insulating varnish. We concede that it is not surprising to apply electrical insulating varnish to the film fabric of claims 38 or 46 and believe that rejection of claims 40 and 47 ought to be considered along with the independent claims.

Claims 44, 51, 55

Claims 44, 51 and 55 stand "rejected as unpatentable over Boese et al. in view of Piccard II" on the theory that Boese discloses web forming and heat-pressing steps similar to those claimed here. The Affidavit of Jesse J. Charpentier as filed herein August 19, 1963 is of particular interest to this rejection. That affidavit points out that it is not commercially feasible to attempt in a single heat-pressing operation to form fabrics in the practice of the present invention at ream weights much greater than about 60 pounds. To obtain heavy fabrics, it is necessary for practical purposes to follow a series of steps as defined in method claim 51 wherein the fabric is built up from successive webs, each of which is individually heat-pressed and simultaneously bonded to the previously heat-pressed web. Such procedure stands in marked contrast to Example VI of Piccard II wherein (by reference to Example V) 12 separate webs were crosslapped and heat-pressed at one time. The resulting fabric weighed approximately 8.0 oz./sq.yd. which corresponds to a ream weight of about _____ pounds, substantially above the approximate upper limit which can be obtained in the practice of the present invention in a single heat-pressing operation on present commercial equipment.

Claims 45 and 52

Claims 45 and 52 stand "rejected as unpatentable over Boese et al. in view of Piccard II ... and further in view of Fuller" who employs a polyester coating material. We fail to appreciate what Fuller adds to the combination of Boese et al. in view of Piccard II. In any event, we believe that

if claims 44, 51 and 55 do not define invention over the first two references, neither do claims 45 and 52, regardless of what Fuller teaches. On the other hand, we earnestly submit that all five claims should be patentable over any combination of these references.

CONCLUSION

(to be added)

Group 160

Paper No. 24

Appeal No. 389-12

MAILED

hdc

Hearing:
March 7, 1966

MAY 26 1966

U. S. PATENT OFFICE
BOARD OF APPEALS

IN THE UNITED STATES PATENT OFFICE

BEFORE THE BOARD OF APPEALS

Ex parte Alvin W. Boese

- - - - -

Application for Patent filed February 19, 1960,
Serial No. 9,674. Composite Film-Fabric Electrical
Insulating Sheet and Method of Making the Same.

Carpenter, Kinney and Coulter for appellant.

Before Federico, Rosa and Behrens, Examiners-in-Chief.

Behrens, Examiner-in-Chief.

This is an appeal from the decision of the Examiner
finally rejecting claims 38 and 40 to 55.

The following references were relied on:

Homan	2,234,252	Mar. 11, 1941
Fuller	2,388,319	Nov. 6, 1945
Swallow et al.	2,497,376	Feb. 14, 1950

Appeal No. 389-12

Boese et al.	2,503,024	Apr. 4, 1950
Piccard	2,676,128	Apr. 20, 1954

Claims 38, 41, 42, 43, 53 and 54 were rejected on the ground of res judicata in view of our decision in appellant's application Serial No. 532,369, filed September 2, 1955. The Boese et al. and Piccard patents were variously relied on in supporting this rejection. We do not believe that the indicated claims present the same issue as the claims previously presented in the parent application because the rejected product claims call for the drawn fibers of the fibrous web being in a state which is neither explicitly called for in the claims of the prior application, implicit in these claims, nor supported by the specification thereof.

This difference in the undrawn binding fibers of the web, as claimed, is of such a character as to require reversal of the rejection on the ground of res judicata.

This difference also moves us to reverse, in addition, the rejection of product claims 38, 40 to 47, 53, 54 and 55. The Piccard patent is an essential reference in the rejection of each of these claims. This patent does not include, or suggest, the concept of a web product in which the fusible polyester in the web product has substantially the same softening temperature range as that of the infusible or drawn fibers in the web. As the Examiner rules, the process limitations in the claims may be regarded as superfluous.

We will sustain, though, the rejection of claims 48 and 50 on Piccard in view of Boese et al., the rejection of claim 49 on these references with the addition of Swallow et

Appeal No. 389-12

al., the rejection of claim 51 as being unpatentable over Boese et al. in view of Piccard, and the rejection of claim 52 as being unpatentable over Boese et al. in view of Piccard and Fuller. The basic procedure of the Piccard patent for preparing the web of "fusible" and "infusible" fibers is not changed by having both the originally fusible and the unmelted fibers of the same composition. Appellant does not make the process claims patentable anew by specifying that a certain result is desired when the recited process steps as applied to fusible polyester fibers in general do not necessarily require that result. Appellant's own arguments as to the properties of Piccard's fusible polyester suggest that appellant's claims 48 and 52 define no patentable distinction over the basic process of Piccard, since these arguments indicate that it does not necessarily follow that the heating of the fusible polyester, whether this polyester is the same as the infusible polyester or not, will produce the change from an amorphous, to a crystalline stage, on which appellant predicates patentability. In the circumstances, the allegations in the affidavit of Roy J. Gavin with regard to the commercial success of the invention in the period of 1957 to 1962, could be given little weight even if they were specifically applied to the claimed invention.

The decision of the Examiner is affirmed as to claims 48 to 52, and is reversed as to claims 38, 40 to 47, 53, 54, and 55.

AFFIRMED-IN-PART

Carpenter, Kinney and Coulter
900 Bush Avenue
St. Paul 6, Minnesota



PATENT PHILOSOPHY AND PROCEDURES

Subject: Patent Brochure

December 6, 1965

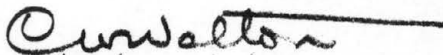
TO: MEMBERS OF THE TECHNICAL STAFF

FROM: C.W. WALTON

During the past year a committee composed of representatives from the Technical Council and the Patent Counsel have written this brochure which covers many aspects on patent matters relating to research and development activities. The brochure reflects our company's philosophy and internal procedures, both of which have been developed and refined from actual experience gained over many decades. Much of this has been heretofore passed on in a very informal manner - a process which will be continued and is to be encouraged. However, there is also much merit in having the essence in actual printed form in order that new members of our staff, those members who only occasionally become concerned with patent matters and older members of our staff have at all times this valuable information at hand for study, review and reference purposes.

I strongly recommend that you make a diligent effort to become thoroughly familiar with the contents of this brochure. Additional benefit would accrue from taking a further step of voluntarily going beyond that which is presented here through discussion with persons whose prime interest and day to day activities are concerned with patents and our patent systems as well as reading some of the much more detailed publications available.

Because this phase of industrial research and development activity is so important to our company's economic health, and thus to your own personal benefit, the teaching with respect to 3M patent philosophy and procedure is to be emphasized, understood and integrated at all times with your undertakings.



CWW/je

3M PATENT BROCHURE

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INTRODUCTION

The founding fathers of our country recognized the importance of a strong patent system and provided for it in the Constitution. This brochure is intended to help you understand what patents are, why patents are important to 3M, and how to make the best use of the patent system.

I. PATENT FUNDAMENTALS

A. THE PATENT SYSTEM

The Constitutional basis for the United States Patent System (as well as for the registration of copyrights) is in Article 1, Section 8 of the Constitution and provides:

"Congress shall have power---to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries."

The patent system has been set up to promote the public interest by encouraging technological development. It works in two ways: (1) by making available to the public (i.e. to other workers in the same field) information which would otherwise be kept secret, and (2) by providing inventors with an environment favorable to developing their inventions (i.e. a 17 year monopoly). The main reason for the Patent Office examination of patent applications is to make sure that, in accord with (1), they actually do teach new and otherwise unavailable information.

The breadth of protection afforded an inventor by his patent depends upon how much he teaches the art. I.e., he gets what he pays for, the medium of exchange being information. If you as the inventor teach the particular art a great deal that was previously unavailable, you should get broad claims. Conversely, if you teach the public only what it already knew, then you are entitled to no protection.

The patent system is utility oriented. A patent is a contribution to the market place or to the production line, as distinguished from a contribution to pure science. You may feel that a contribution to science is philosophically greater than a contribution to the market place or to the production line, but if you are to obtain patents, you must work in the context of utility rather than the context of pure understanding. Thus, in *O'Rourke v. McMullen* (160 F. 938) the Court asked the following questions in determining whether the inventor has actually established patentability:

"Has the patentee added anything of value to the sum of human knowledge, has he made the world's work easier, cheaper and safer, would a return to the prior art be a retrogression?"

Although new concepts or theories cannot be patented, they often lead to patentable results. Further, a broad concept is needed to make broad patent coverage possible. The difference between the man who says:

"I have prepared three new compounds."

and the one who says:

"I have prepared three new compounds which are representative of the broad class _____ which (unlike the surrounding prior art) is of great value in the field of _____."

is concept.

A strong theoretical background led Wallace H. Carruthers (the inventor of Nylon) to define his invention as:

"A synthetic polymer in the form of a useful pliable artificial fiber showing by characteristic X-ray patterns orientation along the fiber axis."

This concept covered the entire synthetic fiber field instead of only certain polyamides or even polyhexamethylene adipate itself.

B. PRIOR ART - the foundation upon which the inventor builds

In general the prior art includes any published information available to the public anywhere in the world (patents, text books, periodicals, newspapers, magazines, trade literature, etc.). In some cases published information and hence the prior art or information may include manuscripts in an obscure library, in an unusual language or unindexed.

The prior art also includes all pertinent products or articles of manufacture which have been in public use or on sale in this country.

The applicant with a full knowledge of the pertinent prior art has by far the best chance to get effective patent protection. In order to evolve a broad concept of what is new and patentable, one must first understand what is old. The head-in-sand approach often spells disaster.

All applicable prior art should be described to Patent Counsel as soon as it is discovered and should be carefully reviewed and up-dated during the prosecution of the patent application. IF CLAIMS ARE ALLOWED WHICH WOULD HAVE BEEN REJECTED HAD ALL PRIOR ART BEEN CITED, THE CLAIMS ARE PROBABLY NOT VALID AND WOULD NOT BE SUSTAINED IN LITIGATION.

C. PATENTABILITY - a general understanding of how to think about patentability (especially early in the projects) is often a major factor in finally obtaining valuable patents.

1. Requirements - Usefulness, newness, unobviousness

A development which is unobvious, new and useful with respect to the prior art is considered to be a significant advance over the prior art and hence patentable. Figure 1 presents a memory device which relates these four concepts. Much of the information in the following sections can be associated with it. Briefly this tripod of patentability signifies that

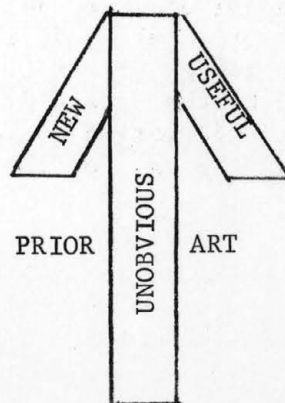


Figure 1. Tripod of Patentability

usefulness, newness and unobviousness (UNU) are the essentials of patentable subject matter, as measured from the foundation or in the context of the prior art. A patent must have, in addition, a unitary structure (i.e., the subject must have clear boundaries and the newness, unobviousness and usefulness must be coextensive with those boundaries).

Considering usefulness, newness and unobviousness individually:

a. Usefulness

The amount of usefulness which must be shown varies with the situation. When a discovery includes a large amount of new teachings and clear illustration of unexpected or unobvious results, a minimum showing of usefulness or utility is all that is required. A "minimum showing of utility" is simply a demonstration or allegation that the claimed subject matter can accomplish a specified useful result without establishing any clear advantages over existing methods for achieving that result. If polytetrafluoroethylene (TEFLON) had been described as an "insoluble, intractable, non-moldable product of no known value" it could not have been patented despite its novelty, unobviousness and the many important applications which it now enjoys.

b. Newness

Newness or novelty is usually the least difficult to grasp of the concepts represented by the three legs of the tripod. The subject matter of the invention need be only slightly different from the prior art provided that proper showings can be made with respect to unobviousness and utility. Thus, a new chemical compound might be patentable over the next adjacent homolog in the prior art or a liquid adhesive containing a filler might be patentable over the same liquid adhesive without the filler or an evacuated glass envelope with a wire mounted in it might be patentable over an evacuated glass envelope in the prior art with no wire mounted in it.

c. Unobviousness

There are certain difficulties in the concept of unobviousness just as there are in the concept of utility. Some of the questions which arise are: "Just how unobvious is unobvious?" and "Unobvious from whose point of view?"

These questions, of course, are not amenable to precise answers, but usually both are answered from the point of view of a person ordinarily skilled in the particular art. This may not sound like a very helpful standard at first, but remember that the purpose of the patent law in any given art is the encouragement of that art, i.e. to maximize progress. If patents were granted too freely, the art would not be encouraged to develop as fast as it could otherwise since 17 year monopolies would be granted in exchange for things which the art already knew, or should have known. On the other hand, if too few patents were granted in any given art (i.e. if too great a degree of unobviousness were required by the Patent Office) then again that particular art would be retarded since information would be withheld which was really unobvious to, and needed by, the art for its faster growth.

But where does this lead? It suggests that something which might be suspected by persons highly skilled in an art would not be obvious to one ordinarily skilled in the same art and might therefore be patentable. It suggests that a development which appeared impossible before it was made would probably be patentable. It suggests that a new development which appears very obvious once made but which answers a need of long standing in the art must not have been obvious or it would have been made long before. Many other examples of this type are possible. Just remember that your touchstone is to show that your invention offers the art something that it did not know previously and which, when incorporated into the art, will result in its advancement.

If an invention is novel and useful, do not independently conclude that it is obvious and hence unpatentable. The more useful the invention, the more desirable patent protection is likely to be. Leave the nebulous question of obviousness to 3M's Patent Counsel.

2. Classes of patentable subject matter

Each claim in a U.S. patent must be directed to one of the six classes of patentable subject matter. These classes together with a few comments relative to the patentability of subject matter in certain of them are presented in this section.

a. Articles of manufacture (e.g., reflective sheet material, heat-sensitive copying paper, roofing granule).

b. Compositions of matter (e.g., adhesive cement, fluorocarbon polymer, thermoelectric alloy).

c. Machines (e.g., electrostatic coating apparatus, tape applying machine, motion picture projector).

Comment - unobviousness through utility in machines - the black box device.

A mental block is often encountered in visualizing unobviousness in a machine. The feeling is that when two mechanical components, e.g. two toothed gears, are brought together, the way in which they will interact is obvious. Similarly, when a large number of mechanical elements are brought together in a machine, their interaction is also foreseeable, hence where is the unobviousness?

Let us avoid these difficulties by mentally placing the devices we want to compare in black boxes. This focuses our attention on the results obtained rather than on the mechanism.

In Figure 2 we compare a pair of synthetic fiber extruders with their mechanisms covered. Clearly the new device, which produces uniform fibers, is superior to the old one which does not. Novelty, utility and unobviousness

could all be said to be present, the unobviousness being in the superior result obtained, even though the result is obtained in a very simple way (e.g., by running each fiber around a hot mandrel, or by running it for two seconds through a 45% relative humidity chamber, etc.).

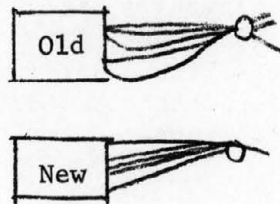


Figure 2. Synthetic Fiber Extruder

d. Process (e.g., method of making a polymer, method of priming fluorocarbon film, method of copying a magnetic pattern from a master record).

Comment - what can be unobvious - in a process?

Making out patentability for chemical processes which involve completely novel and unobvious steps is not difficult. Processes which are simply combinations of previously known steps are more difficult. The necessary combination of unobviousness and utility may, for example, be provided by an unobviously good yield or high purity, easier isolation of product or improvement in safety.

Comment - A New Use of an Old Composition is claimed as a process of producing a new result.

If you discover that acetone (a known compound) makes an excellent house fly spray and this is not obvious, you have intended a:

Method of combating house flies comprising contacting them with acetone.

Perhaps you can analyze your own chances of obtaining a patent by comparing the situation with the tripod of patentability.

e. Designs for an article of manufacture (e.g., design for a slide projector, design for a magnetic tape reel, design for a tape dispenser), and

f. Certain plants (3M presently has no patents in this class).

D. TECHNICAL RECORDS AND CORROBORATION - Care required -

The inventor's habits in recording his work often win or lose patent protection for him -

Example - the interference.

Perhaps the best way to dramatize the importance of records is to discuss them in terms of one type of proceeding in which the outcome often turns on the sufficiency of the records of the parties - the Interference.

An interference is a proceeding in the Patent Office in which it is determined which of two (or more) independent inventors claiming the same patentable subject matter is entitled to receive the patent.

1. Definition of terms

a. Conception

(1) Conception is the complete performance of the mental part of the invention leaving only the actual construction to produce the inventions.

(2) Conception is considered to take place as of a definite date.

(3) Conception requires of the inventor a definite and permanent idea of a complete operative invention.

(4) Intuition, i.e., incomplete conception, is not enough.

(5) Thus, a large amount of research conducted by the inventor after alleged conception in an effort to solve the problem indicates that there was no valid conception.

b. Diligence

(1) Diligence is a continuing and reasonable effort to reduce an invention to practice.

(2) Diligence does not take place as of a given date but rather over a period of time, either actual or constructive, beginning either with conception or subsequent to conception and ending with reduction to practice. Thus if an inventor conceives of his invention but then lays it aside for a year before picking it up and working on it until he had reduced it to practice, his diligence begins a year after his conception.

c. Reduction to Practice

(1) Reduction to practice is a demonstration that the inventor's idea works and accomplishes its intended purpose.

(2) It is not enough to show that it ought to work and may work.

(3) It need not be shown to be commercial.

(4) A showing of utility for the intended purpose is an essential part of reduction to practice. Mere preparation of a chemical compound or construction of a machine is not enough. The invention must be tested to show utility as alleged in the patent application.

Thus any party who can satisfactorily establish his date of reduction to practice can rely on it as a "usable date". Diligence must be continued until the idea is reduced to practice if it is to be of any help.

2. Rules of the proceedings

a. In determining which of two inventors is the first, the following procedure generally holds:

(1) In the absence of further proof, the first person to file a patent application has made a "constructive reduction to practice" (i.e. reduction to practice is construed) and is entitled to receive the patent.

(2) If an "actual reduction to practice" can be proved, the inventor first to reduce the invention to practice (either actually or constructively) is the first inventor.

(3) If "diligence" can be proved immediately prior to either actual or constructive reduction to practice, the inventor having the earliest date when he began diligent work is the first inventor. If continuous diligence is shown, this date may be carried as far back as the date of "conception".

b. Proof

The insistence on relatively detailed corroboration of the testimony and records of the inventor is sometimes resented by technical men as unfair and unreasonable. Experience indicates that it is necessary, however. To borrow language from the decision in *Jex v. Wiese et al*, 124 USPQ 457 (written by an Examiner of Interferences of the United States Patent Office):

"Scientists conventionally accept each other's reports, i.e., hearsay, on faith subject to possible later disproof or modification, but the law does not. The law based on extensive experience prefers that there be corroboration under oath by a witness who had too little to gain and too much to lose by perjury. This is awkward as regards the usual research scientist of well known integrity but the law knows that if the rule of corroboration were dispensed with, many less scrupulous individuals no longer hindered by the rule and with much to gain would be tempted to fabricate records. The law cannot properly accord weight to assumed integrity enough and certainly more than his opponent. There has to be one rule for all...."

Successful corroborating testimony, therefore, must also be free from assumptions, suppositions, etc. which depend either upon the testimony of the inventor or his record or upon other facts which are not established by independent, corroborating records. WHEN WITNESSING A REDUCTION TO PRACTICE OF ANOTHER INVENTION IT IS IMPORTANT THAT YOU ENTER YOUR OBSERVATIONS IN YOUR OWN NOTEBOOK AND HAVE THAT ENTRY DULY WITNESSED BY SOMEONE OTHER THAN THE INVENTOR.

3. Example - Collins v. Olsen, 41 USPQ 220

(A decision of the Court of Customs and Patent Appeals relative to an appeal of an interference proceeding from the United States Patent Office.)

Collins was employed by the Royal Baking Powder Company and Olsen by the Jell-O Company. The invention related to the addition of buffer salts to gelatin to give quicker setting gelatin desserts.

Olsen was awarded (by the Court) a conception date of December 7, 1927 and he filed his patent application on December 3, 1929. Collins was awarded a conception date of October 8, 1928 and apparently worked diligently on the invention until his patent application was filed on December 3, 1928.

Thus each party can rely on his own filing date as a date of reduction to practice without any proof and Collins usable date is October 8, 1928 and Olsen must beat it if he is to win.

What, then is Olsen's case? Relative to his chain of diligence the Court quoted a Patent Office Examiner of Interference in saying:

"During the critical period, however, Olsen was not diligent, since just prior to October when Collins conceived-, Olsen was either engaged in activities relating to his personal educational attainments, or else working on some other problem unrelated to subject matter in issue...."

Since the need for an unbroken chain of diligence ends when an inventor has reduced his invention to practice, this leaves the outcome of the whole case contingent on whether Olsen can prove that he reduced to practice before his lapse in diligence.

What facts would Olsen have to establish to constitute reduction to practice? At least four things, the Court said:

"...first, did the addition of the buffer salts change the taste of the article so as to make it inedible; second, did it reduce the acidity of the preparation so as to destroy the desirable tart taste; third, was the texture of the gelatin substance rendered leathery or otherwise; and fourth, was the setting time of the gelatin mixture substantially reduced by the addition of the buffer salts?"

Two corroborating witnesses testified in Olsen's behalf. They were Dr. Fine, Olsen's superior and Mr. Ferguson, the chief chemist of the Jell-O Company. The Court stated:

"Much testimony was introduced showing the experiments made by Olsen during a period beginning as early as November, 1927, and continuing (except as is hereinafter stated) until the end of 1929. He made out and submitted to Dr. Fine reports showing his experiments of different proportions of the ingredients of the gelatin mixture which included the buffer salts, which reports also showed the results of said experiments. Dr. Fine, in turn, submitted the reports of the chief chemist, Ferguson, at LeRoy, New York...there is nothing in the record to show that Fine at any time participated with Olsen in making any of the experiments or in doing any of the actual work, although it is disclosed by the testimony that Olsen did show Fine his results and that Fine said that Olsen 'frequently demonstrated his experiments' and was generally familiar with the tests made. What was accomplished by the experiments is not stated by Fine. There is nothing to show that these experiments had to do with a substance that would conform to the count, nor is there anything to show that Fine was personally acquainted with what was accomplished by the experiments."

"The record does not show that Fine at any time in the presence of Olsen or elsewhere ascertained that the experiments of Olsen, while using his formula set out in his reports, resulted in producing such an edible product as is defined by the count."

"We must conclude that statements in reports by Olsen, no matter how clear, as to what he used, what he did and what the results were, can not be accepted as proof of reduction to practice, unless fully corroborated, even though such reports were made to an official who had such confidence in their accuracy that he was willing to act upon them without complete and independent investigation. While they constitute good evidence of conception, they are self-serving on the question of reduction to practice."

Relative to the testimony of Ferguson the Court said:

"It is sufficient to say that the Ferguson testimony does not disclose that he or anyone under his direction, unless it was Olsen, by his activities which have heretofore been referred to, made any proper and complete tests, in which satisfactory results were obtained, of a mixture such as defined in the count."

Thus, the Court awarded priority to Collins since Olsen was unable to offer sufficient proof of either reduction to practice before the conception of the invention by Collins or of a timely diligence to reduction to practice.

E. PATENTS - an important part of the scientific and technical literature

Patents serve many important roles in modern free enterprise businesses. One role is often slighted by those engaged in industrial research and development activities. New technical staff members are possibly even unaware of this one through academic accentuation that basic technology is derived in the main from text books and journal publications with only infrequent casual reference to the accomplishments recorded in patents. A few brief paragraphs are therefore appropriate emphasizing patents as technical literature worthy of your continual objective thought and study.

Patents are without doubt a prime source of potentially useful industrial and technical information. They are very frequently the first source or clue to new findings and advances: in a great number of instances they are the only source. Moreover, they contain disclosures of repeatable experimental methods as well as leads on utility, both of which can be extrapolated or applied to other disciplines or goals. They are also almost always years ahead of publication in the more conventional literature - thus constituting an early alert to the lines, progress and continuity of research and development in other laboratories. In this respect, foreign patents corresponding to domestic applications as well as those originating in foreign laboratories issue more rapidly than in the United States. Some countries grant the foreign version months to years ahead of the domestic patent; a few countries even publish and list those which have been filed and are in the course of maturing to a bonafide patent.

There is no easy timesaving way for the individual to benefit from the technical literature aspect of patents. Domestically we have the weekly U.S. Patent Gazette which publishes representative claims of patents granted in the previous week. Periodic abstract journals include coverage of patents. There are also private concerns which sell services relating to past or present patents in specialized, fast moving technical areas. Foreign patents, besides being listed in the "Gazette" of the country of issue and in abstract journals, are publicized in abstract form at an early date in Derwent Publications.

All of these provide the interested person with timely leads and clues to follow. None are entirely satisfactory because of brevity even to the point of being somewhat misleading. For a very reasonable sum, copies of the complete patent can be obtained. Such is to be recommended, for more time and attention can be given to the experimental details of the specification, to the explanations of uniqueness over the prior art or present practice and to the listed references of closely related art considered before the patent was actually granted.

Practically every U.S. patent is modified after filing the application in the Patent Office. The changes are the result of formal legal negotiation between the individual or company making the application and the Patent Office. All correspondence and other pertinent substantiating data relating to this negotiation are kept by the Patent Office in what is called the prosecution file. These files are another very valuable source of additional data. They are not routinely published, but complete, authentic copies pertaining to any issued U.S. patent can be purchased upon request or the files can be examined at the search room in the U.S. Patent Office.

The United States alone has issued over three million patents. Other countries - though not so prolific, have hundreds of thousands dating back into the 1800's or in some instances even further. It is, to be sure, an imposing task for any one individual to be informed even in a very specialized, narrow field of interest. Unfortunately, modern machine methods though offering some possible relief in this regard have not yet been brought into full play on this problem. Studies, of course, on how to mechanize search of this tremendous accumulation of the past are underway. However, for some years to come the older, more time consuming methods must be employed if one is to have even passing acquaintance with the pertinent technology recorded and on file.

There is an excellent little publication entitled "How to Obtain Information from U.S. Patents" published by the U.S. Department of Commerce. Therein, brief but inclusive explanation is given on the Patent Office procedures, publications, filing system and above all the extensive classification system employed to keep order in a truly chaotic situation. Technical people are urged to become acquainted with this brochure. Further advantages are brought by actually traveling to the Patent Office in Washington, D.C. and spending a day or so actually running searches. There is no better way to become aware of the value and intricacies of the patents and the patent system than by spending some of your own time in this manner.

Within our own company in various laboratories and in the office of the Patent Counsel there are literally thousands of domestic and foreign patents which can be consulted. No centralized index exists for these holdings. In the past two years steps have been taken to centralize a file on current acquisitions in the Technical Communications Center. Location of many of the separate collections is also a matter of record in the Center. Patent Counsel, firm of Carpenter, Kinney and Coulter, keeps an up-to-date card file dating back many, many years on all the patents it has purchased. From this card file the location of the actual copy can be determined if the patent issue number is known.

Finally, it is worth mentioning that the inquiry of knowledgeable colleagues is always a useful practice. Tucked away in their memories are bits and pieces of information which come to light when their personal random access storage is interrogated.

F. FOREIGN PATENTS

A U.S. patent is effective only within the United States, its territories and possessions, and has no standing in foreign countries; there is no such thing as a "world wide" patent. The European Economic Community (E.E.C. or the Common Market) is considering the possibility of a patent system whereby one patent would cover all the countries within the membership. Even if this procedure is adopted, we will still have to file separate applications in countries which do not belong to the E.E.C.

Foreign patent law usually differs markedly from that of the United States. To illustrate: the "inventive height" (unobviousness) required to secure a patent in West Germany or Holland probably exceeds that which is required in the United States. France and several other countries impose no requirement of unobviousness at the time of filing but insist that there be absolutely no disclosure of the invention to an outsider before the patent application is filed.

It is important to note that the divulgation of an item before the United States patent application is filed may invalidate the French, Italian and Swedish patents corresponding to the United States case. By international treaty, a patent application filed in most foreign countries within one year after it is filed in the United States is treated as if it had been filed in the foreign country on the United States filing date.

Moral: For the best foreign protection, review the patent picture before disclosing the invention or selling the product you hope to patent.

G. TRADEMARKS AND COPYRIGHTS

Patents are sometimes confused with trademarks and copyrights, but there is actually a great difference. Without trying to distinguish these three forms of protection fully, certain basic facts should be noted. Patents are concerned with inventions; trademarks are marks which identify a manufacturer with certain goods (e.g., "SCOTCHLITE", "THERMO-FAX", "KEL-F"); copyrights are concerned with artistic creations or writings of an author. The administration of patents and trademarks falls under the Patent Office; copyrights are registered with the Library of Congress. The degree of governmental examination given each varies. Patent protection (i.e., the right to keep others from making, using, or selling the patented invention) lasts for 17 years. Trademark protection (the exclusive right to use the mark on the same or similar goods) lasts for 20 years and is renewable every 20 years as long as the mark is being used exclusively. Copyright protection (the right to keep others from copying the work) extends for 28 years and is renewable for one additional 28 year period. There are many other differences.

II. RECORD KEEPING AT 3M

There are at least two major classes of reasons for keeping complete and accurate records of technical work:

Operational - To provide sufficient information for the author or others to use and build on it.

Legal - To prove later what was done, when it was done, how it was done, etc.

In this booklet we are concerned primarily with the legal reasons.

3M Technical Notebooks are the normal primary technical records in all of the laboratories of the company. They become particularly important legally when it is necessary to establish the earliest possible dates of invention.

There are various subsequent records made in the regular course of business which can also be important in matters of legal proof. They are usually typewritten and better organized than the notebook, and are widely distributed. Consequently they are often introduced in evidence in preference to notebooks when the date of the original entry need not be established. Among these are suggestion letters, factory experiments, laboratory reports, field trip reports, letters, etc. Subsequent documents which relate particularly to patent matters include Records of Invention, Patent Authorizations and Patent Memoranda. These are discussed individually below. All of these should of course be written clearly and accurately with sufficient details to provide the reader with all necessary information.

A. 3M TECHNICAL NOTEBOOKS

1. Issuance and filing

All 3M Technical Notebooks are issued from the office of Scientific and Technical Communications by the Technical Records Custodian. These notebooks are 3M Company property. The original copies of the notebooks are returned to the office of Scientific and Technical Communications for storage after they have been completed. Each notebook is issued to one person only and should be used by him and no one else.

2. Divisional Record Keepers

The blank notebooks needed for each division are ordered from the Technical Records Custodian by one person who is designated as the Divisional Record Keeper (DRK). The DRK maintains a list of all notebooks which have ever been ordered for his division, the date when each notebook was ordered, the person to whom it was assigned, the date when the notebook was returned to the DRK, and the date when the completed original of the notebook was returned to the Technical Records Custodian.

When a person leaves the employ of Minnesota Mining and Manufacturing Company or transfers to another division, all his notebooks should be turned into the Divisional Record Keeper (DRK). It is the responsibility of the DRK to obtain the original notebooks and the carbon copies from every man leaving a division. This policy should be followed even though all pages in a notebook have not been used.

3. Completed Notebooks

Completed notebooks should have:

- a. An index of contents on the first page or pages.
- b. Each page used properly signed and dated by the author and by a qualified witness.
- c. The signature of the author's supervisor inside the front cover.

The DRK, after establishing that these requirements have been met, should remove the carbon copy pages, bind them in the special cover provided for that purpose. The carbon copies are retained in the laboratory. They are not the property of the individual. However, the author of the notebook may request the DRK to charge the notebook carbon copy to him for the duration of his employment in the laboratory. As noted above, the original copy is returned to the Technical Records Custodian.

4. Who Should Keep a Notebook?

In general, every person doing technical work other than of a service nature should keep a notebook. The man who requests work done by a service group should assume responsibility for keeping records of the results. The service group need not maintain research notebooks. A chronological reference log which is indexed, dated, provided with proper identification, and initialed by the head of the service group is satisfactory, even if the data appear on separate sheets of paper.

5. Keeping a Notebook

The first pages of each notebook should be used for an index of contents.

As an aid to the use of a completed notebook, all subjects discussed on a given page should be listed at the top.

Original data should be recorded directly in the notebook. This avoids the problem of misplacing the data after it is obtained and eliminates errors resulting from copying.

If several entries corresponding to several days appear on a single page, each entry should be signed and dated by the author.

In order to tie together the various records of a project, an author should refer to the numbers of other notebooks if pertinent, including both his own notebooks and those of others. Similarly, notebook entries should be cited in formal reports, records of invention, and other written documents relating to the project.

If tests are described under the entry for a specific date and the test results are not obtained until later, follow either of these two procedures: write the data on the back of the preceding sheet; or "fence" an area in which the subsequently recorded data will be placed, signing, dating and witnessing the entry when it is actually made.

In writing notebook entries, record all observations actually made. Do not make conclusions (either positive or negative) based on inadequate data. Erroneous conclusions may impair or destroy the patent significance of valid recorded observations.

6. Witnessing a Notebook

Notebook entries should be witnessed as soon as possible after they are made; in no event should more than a week elapse before witnessing. The page is uncorroborated and hence of little value as a legal document to establish any date prior to the date the witness reads, signs and dates the page.

The witness must understand the information witnessed. He must not be a co-inventor.

Ordinarily a witness simply signs as having read and understood the information on the page as of a given date. If, however, the witness has knowledge of a reduction to practice of the work (e.g. by having witnessed it or preferably carried it out himself) this fact should be noted and should also be recorded in his own notebook. With such a witness who had independently carried out the invention himself the inventor has an excellent proof of reduction to practice. This would have been of great help to Olsen in the case of Collins vs. Olsen of our earlier example.

The witness may either sign each day's entry or sign at the bottom of the completed page. In any event, all blank spaces should be lined out before either the author or the witness signs at the bottom of the page.

7. Supervisor's Responsibility

Supervisors have the responsibility of insuring that notebook records are kept properly. A space has been provided inside the back cover for the supervisor of the person using the notebook to indicate that he is familiar with the contents thereof. By signing here the supervisor does not serve as a witness in the sense discussed previously. His function is to assure that proper notebook-keeping methods are being followed.

B. SAMPLE STORAGE PROCEDURE

The DRK should store patent-significant samples for each project. The samples should be carefully prepared for storage and labeled, e.g., by:

1. Stapling in a labeled manila file folder.
2. Wiring on tag labels.
3. Placing in labeled envelopes, in which the contents are also labeled.
4. Placing in labeled bottles.

Each sample should be dated, signed and witnessed in exactly the same way as a notebook entry; pertinent references to experiments or notebooks should also appear. The DRK should maintain a register of all samples, logging the time and date on which they were received and placed in storage. The samples should not be permitted out of his jurisdiction without his express consent, and any samples removed should similarly be reported on his register.

C. RECORDS OF INVENTION (dated and countersigned)

The inventor is responsible for preparing a record of invention after reduction to practice. A form, copy attached, should be filled out and submitted in triplicate to the Division Record Keeper's office where it will be given a number and listed in his record book. The original is then sent to office of Technical Planning and Coordination. One copy is circulated to the Laboratory Patent Committee, and one copy is returned to the individual.

It is strongly recommended that the reduction to practice be done or repeated before a witness who can then date and countersign this record in both the inventor's notebook and also note it in his own notebook as previously mentioned.

D. PATENT AUTHORIZATION

It is the responsibility of the technical director of each division or the director of the staff laboratory to authorize Patent Counsel to prepare and file applications in the U.S. Patent Office on ideas that are judged to be patentable and commercially significant. This authorization is in the form of a letter and should contain the following:

1. A brief statement of the subject matter of the invention.
2. A statement of the objectives and possible uses for the invention.
3. A short description of the invention including a proposed claim.
4. The names of persons concerned with the subject matter, e.g., possible inventors.

A copy of the patent authorization should be sent to the Director of Scientific and Technical Communications who will distribute copies to the members of the Technical Audit Committee. The Audit Committee members will determine whether the proposed patent subject matter is of interest to those laboratories he represents. Members of the Audit Committee can get more detailed information about the proposed patent application through the technical director issuing the authorization. Should a common interest be discovered, a patent application which would best serve the overall interest of the company can then be prepared.

E. PATENT MEMORANDUM

The patent memorandum is for use by Patent Counsel in the preparation of a rough draft of the proposed patent application. It should generally be prepared by the person or persons most closely connected with the subject matter.

In general the patent memorandum should contain the following:

1. A brief statement of the invention including drawings or graphs when necessary. The invention should be defined in light of the prior art. A statement of any theory or principle underlying the invention should be included since it may aid in defining the invention.

2. The most pertinent art should be cited and characterized with regard to the invention.
3. The experimental basis for the invention should be given. It should be written with sufficient detail and clarity to enable anyone of ordinary skill in the art to use it in duplicating the work. All available examples should usually be given and the preferred example identified. Plans for further experimental work should be explained.
4. A brief history of the development should be given. Names of individuals concerned as well as specific reference to laboratory records, records of invention, notebooks and reports, etc.

CARPENTER, KINNEY & COULTER
ATTORNEYS AT LAW
PATENT AND TRADEMARK LAWYERS
2501 HUDSON ROAD
SAINT PAUL, MINNESOTA 55101

JAN 27 1966

*Carment
3/14/66*

January 26, 1966

Mr. Harold Hughesdon
Minnesota Mining and Manufacturing Company
Saint Paul, Minnesota

Re: Question of filing foreign patent
applications corresponding to the
United States application of
Arthur L. Fry
Serial No. 315,688
Art medium

Dear Mr. Hughesdon:

The above application was allowed January 19, 1966, and is expected to issue as a patent in due course. Although there are some exceptions, corresponding foreign applications would have to be filed before the United States patent issues and a final determination should accordingly be made at this time as to whether additional foreign applications are desired.

The invention relates to printmaker's tape which can be readily cut or shaped to either cameo or intaglio form and adhered to support. It replaces linoleum block in printing operations.

Pursuant to your letter of September 15, 1964 and subsequent telephone conversation, we filed convention applications in

Canada
Germany

Great Britain
Japan

subject to being withdrawn before publication. In view of the allowance of the United States case, this restriction will now be removed and the foreign applications will be allowed to proceed in the normal manner.

Mr. Harold Hughesdon

- 2 -

January 26, 1966

Under the new law, we now have only three months in which to pay the final fee and unless this office is advised by

March 19, 1966

the United States application will be allowed to issue without filing in any additional countries.

A copy of the specification and claims as allowed is enclosed herewith. Will you kindly return it.

Very truly yours,

ERNST A. JAFFRAY

EAJ:jal

Encl.

cc - R. E. Brink
J. E. Corbin ✓
A. L. Fry
J. O. Hendricks
M. D. Jones
R. W. Keeley
R. W. Lundbohm
R. D. MacDonald
R. J. McCubbin
R. W. Mueller
M. H. Patterson
C. W. Pipal
R. S. Priebe
A. H. Redpath
C. B. Sampair
J. A. Thwaits



MINNESOTA MINING AND MANUFACTURING COMPANY

GENERAL OFFICES • P.O. BOX 3800 • ST. PAUL, MINNESOTA, U.S.A. 55101 • TEL. 733-1110

cc: E. A. Jaffray

*1/27/66
Pat Com
Disc and
WB*

PMP

*Reply
JAN 28 1966*

International Division

INTEROFFICE CORRESPONDENCE

SUBJECT: Question of filing foreign patent applications corresponding to the United States application of Arthur L. Fry
Serial No. 315,688
Art medium

DATE: January 28, 1966

TO: J. E. CORBIN - RETAIL TAPE & GIFT WRAP - 220-8W

FROM: H. HUGHESDON - INTERNATIONAL DIVISION - 220-4

Dear Mr. Corbin:

You have received a copy of Mr. Jaffray's letter of January 26, 1966 relative to the allowance on the above identified application.

I am attaching a copy of the original letter on foreign filings for your convenience, and I would appreciate your advising me if the situation as set forth in that letter has changed materially and if the decision reached therein should be altered. ✓

May I hear from you at your earliest convenience.

Harold Hughesdon
HH/cct *cct.*

CARPENTER, KINNEY & COULTER

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1/31/66
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AS
January 24, 1966

A. W. Boese
Retail Tape & Gift Wrap Div. 220-8W
Minnesota Mining and Manufacturing Company
Saint Paul, Minnesota 55101

Re: Fry Patent Application Ser. No. 315,688,
"Art Medium"

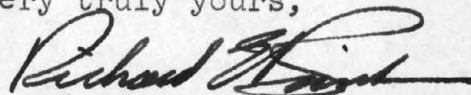
Dear Mr. Boese,

We have just received a Notice of Allowance for the seven claims in this case; a copy of the claims is enclosed.

The issue fee (estimated at \$130) is due on April 19. Before paying it, we should appreciate your reviewing the patent coverage for completeness and accuracy.

Any other comments will also be appreciated.

Very truly yours,



Richard E. Brink

REB:mc
Enc.

cc: A. H. Redpath
P. H. Carey, Jr.
R. W. Lundbohm
A. L. Fry

1. For use in art work, a novel printing sheet material which can be stored at room temperature for a year or more without impairment of its function, and which can be adhered to a suitable support, readily and cleanly cut to a desired contour or shape with a linoleum cutter, stencil knife, or scissors, and thereafter used in either relief or intaglio painting, said sheet material comprising in combination:

a self-supporting, amorphous, compliant, firm, extensible smooth thermoplastic layer on the order of .050 inches thick consisting essentially of

a binder comprising a homogeneous blend of 100 parts by weight of

10-60 parts of readily extensible waxy, low density solid branched thermoplastic ethylene polymer,

5-75 parts of soft, weak, flexible resilient elastomer,

0-50 parts of tough, strong, flexible elastomer which can be formed into a smooth sheet, and

insoluble finely divided particulate filler, constituting from about 1/20 to about 2/3 the volume of said layer, said filler further being present in amount sufficient to keep said layer from blocking but insufficient to permit said layer to break when bent back sharply against itself,

an adhesive coated over one face of said layer.

2. For use in art work, a novel printing sheet material which can be stored at room temperature for a year or more without impairment of its function, and which can be adhered to a suitable support, readily and cleanly cut to a desired contour or shape with a linoleum cutter, stencil knife, or scissors, and thereafter used in either relief or intaglio printing, said sheet material comprising in combination:

a self-supporting, amorphous, compliant, firm, extensible smooth thermoplastic layer on the order of .050 inches thick consisting essentially of

a binder comprising a homogeneous blend of 100 parts by weight of

10-60 parts of a branched polyethylene having a density of about 0.92 and a melt index of less than 300,

5-75 parts of a stereospecific cis-1,4 polybutadiene rubber having a Mooney viscosity in the range of 25-55,

0-50 parts of smoked sheet natural rubber, and insoluble finely divided particulate filler, constituting from about 1/20 to about 2/3 the volume of said layer, said filler further being present in amount sufficient to keep said layer from blocking but insufficient to permit said layer to break when bent back sharply against itself,

a continuous primer film coated on one face of said layer, an aggressive normally tacky and pressure-sensitive adhesive adhered to said primer film, and a release liner applied over said adhesive.

3. For use in art work, a novel printing sheet material which can be stored at room temperature for a year or more without impairment of its function, and which can be adhered to a suitable support, readily and cleanly cut to a desired contour or shape with a linoleum cutter, stencil knife, or scissors, and thereafter used in either relief or intaglio printing, said sheet material comprising in combination:

a self-supporting, amorphous, compliant, firm, extensible smooth thermoplastic layer on the order of .050 inches thick consisting essentially of

a binder comprising in homogeneous blend of 100 parts by weight of

10-60 parts of a readily extensible waxy, low density solid branched thermoplastic ethylene polymer, selected from the class consisting of low density polyethylene, ethylene:vinyl acetate copolymers, and ethylene:acrylate ester polymers, and blends thereof,

5-75 parts of a relatively tough, soft, resilient elastomeric polymer selected from the class consisting of stereospecific cis-1,4 polybutadiene rubber, chlorosulfonated polyethylene, polyisobutylene, rubbery polyvinyl ethers, ethylene:acrylate ester polymers, ethylene:propylene polymers, and blends thereof,

0-50 parts of a linear unsaturated flexible rubber capable of forming a smooth sheet selected from the class consisting of natural rubber, low gel nitrile rubber having a Mooney viscosity in the range of 20-40, calendering grades of styrene:butadiene rubber, calendering grade neoprene, and blends thereof, and

insoluble particulate filler constituting from 1/20 to 2/3 of the volume of said layer in amount sufficient to keep said layer from blocking but insufficient to permit said layer to break when bent back sharply against itself,

an aggressive normally tacky and pressure-sensitive adhesive adhered over one face of said layer, and

a release liner applied over said adhesive.

4. For use in art work, a novel printing sheet material which can be stored at room temperature for a year or more without impairment of its function, and which can be adhered to a suitable support, readily and cleanly cut to a desired contour or shape with a linoleum cutter, stencil knife or scissors, and thereafter used in either relief or intaglio printing, said sheet material comprising in combination:

a self-supporting, amorphous, compliant, firm, extensible smooth thermoplastic layer on the order of .050 inches thick consisting essentially of

a binder comprising a homogeneous blend of 100 parts by weight of

10-60 parts of a branched polyethylene having a density of about 0.92 and a melt index of less than 300,

5-75 parts of a stereospecific cis-1,4 polybutadiene rubber having a Mooney viscosity in the range of 25-55,

0-50 parts of smoked sheet natural rubber, and

insoluble particulate filler constituting from about 1/4 to about 2/3 of the volume of said layer in amount sufficient to keep said layer from blocking but insufficient to permit said layer to break when bent back sharply against itself,

an aggressive normally tacky and pressure-sensitive adhesive layer adhered over one face of said layer, and

a release liner applied over said adhesive.

5. For use in art work, a novel printing sheet material which can be stored at room temperature for a year or more without impairment of the function, and which can be adhered to a suitable support, readily and cleanly cut to a desired contour or shape with a linoleum cutter, stencil knife, or scissors, and thereafter used in either relief or intaglio printing, said sheet material comprising in combination:

a self-supporting, amorphous, compliant, firm, extensible smooth thermoplastic layer on the order of .050 inches thick consisting essentially of

a binder comprising a homogeneous blend of 100 parts by weight of

10-60 parts of a branched polyethylene having a density of about 0.92 and a melt index of less than 300,

5-75 parts of a stereospecific cis-1,4 polybutadiene rubber having a Mooney viscosity in the range of 25-55,

0-50 parts of smoked sheet natural rubber, and

insoluble particulate filler constituting from about 1/4 to about 2/3 of the volume of said layer in amount sufficient to keep said layer from blocking but insufficient to permit said layer to break when bent back sharply against itself,

a continuous coating of a flexible butadiene:styrene copolymer bonded to one face of said layer,

an aggressive normally tacky and pressure-sensitive adhesive layer adhered to said coating, and

a release liner applied over said adhesive.

6. A method of intaglio printing comprising cutting to intaglio configuration a self-supporting, amorphous firm, compliant, extensible smooth, non-blocking thermoplastic sheet on the order of .050 inches thick, said sheet comprising a homogeneous blend of 100 parts by weight of a binder consisting essentially of 10-60 parts of readily extensible, waxy, low density solid branched thermoplastic ethylene polymer, 5-75 parts of soft, weak, flexible resilient elastomer, and 0-50 parts of tough, strong, flexible elastomer which can be formed into a smooth sheet, said sheet also containing 1/20-2/3 finely divided particulate filler by volume, said filler further being present in an amount sufficient to keep said

sheet from blocking but insufficient to permit said sheet to break when bent back sharply against itself; adhering the intaglio-configured sheet material to a dimensionally stable support; inking the thus-formed intaglio plate; removing the excess ink from the relief areas while retaining it in the depressions; and forcing said plate against the sheet to be printed, said plate compressing sufficiently to permit said sheet to contact said ink.

7. A novel printing plate comprising a dimensionally stable backing, adhered to said backing a suitably configured resilient sheet material having relief areas defining a design, said sheet material comprising:

compliant, firm, extensible smooth thermoplastic material on the order of .050 inches thick consisting essentially of


a binder comprising a homogeneous blend of 100
100 parts by weight of

10-60 parts of readily extensible, waxy, low density solid branched thermoplastic ethylene polymer,

5-75 parts of soft, weak, flexible resilient elastomer,

0-50 parts of tough, strong, flexible elastomer which can be formed into a smooth sheet, and

insoluble finely divided particulate filler, constituting from about 1/20 to about 2/3 the volume of said material, said filler further being present in amount sufficient to keep said sheet material from blocking but insufficient to permit said layer to break when bent back sharply against itself.

cc: J.F. Abere 230-11
R.W. Adam 220-8E
G.A. Berger 230-5
 W. Boese 220-8W
C.J. Calabrese 230-2
P.H. Carey 230-33
J.E. Corbin 220-8W
H.R. Courtney 230-33
C.A. Dahlquist 230-11
G.W. Engdahl 220-8E
J.O. Hendricks 230-10
E.W. Kellgren 230-3
J.J. LaBuda 230-23
L.W. Lehr 220-7W
R.W. Lundbohm 230-14
R.D. MacDonald 230-24
R.W. Mueller 220-14W
V.T. Mattison 230-3
C.E. Myers 230-22
A.D. Pearson 230-21
G.R. Rabuse 230-24
A.H. Redpath 220-8W
R.P. Rivard 230-6
E.L. Rzepecki 230-4
A.F. Schmelzle 230-12
H.W. Wilcox 230-21A

TAPE PATENT COMMITTEE MEETING

1ST QUARTER 1966

MEETING #103

REINFORCED PLASTICS PATENT CASES:

Time & Place: Monday, February 7, 1966 -- S-114 in 230-1.

Present: J.N. Schurb, R.W. Lundbohm, R.B. Ericson.

ART PRODUCTS PATENT CASES:

Time & Place: Wednesday, February 9, 1966 -- S-75 in 230-B.

Present: P.H. Carey, O.M. Wiste, A.L. Fry, R.W. Lundbohm, R.B. Ericson.

RETAIL TAPE PATENT CASES:

Time & Place: Wednesday, February 9, 1966 -- S-208 in 230-2.

Present: J.E. Corbin, R.D. MacDonald, G.R. Rabuse, J.N. Korich, H.J. Revoir, J.O. Hendricks, R.W. Lundbohm, R.B. Ericson.

MEDICAL PRODUCTS PATENT CASES:

Time & Place: Thursday, February 10, 1966 -- S-202 in 230-2.

Present: J.J. LaBuda, J.O. Hendricks, H.W. Wilcox, A.D. Pearson, R. Chang, R.W. Lundbohm, R.B. Ericson.

INDUSTRIAL TAPE PATENT CASES:

Time & Place: Thursday, February 10, 1966 -- S-166 in 230-1.

Present: C.J. Calabrese, G.A. Berger, V.T. Mattison, E.L. Rzepecki, J.O. Hendricks, R.W. Lundbohm, R.B. Ericson.

"ESTABLISHED PATENT CASES"

CASE NO.

M-54

ANTISTATIC BACKSIZE:

C.A. Dahlquist reports that Carl Sandberg in Central Research is synthesizing a copolymer of dimethylamino methyl methacrylate-octadecyl acrylate which will be quaternized with methyl chloride. It is hoped that this material will be more uniform than Shell's glycidyl trimethyl ammonium chloride. J.O. Hendricks will arrange a problem review for this case.

Action: August review.

ESTABLISHED CASES:

CASE NO.

S-126

GAS STERILIZATION OF SURGICAL PRODUCTS:

R. Burton reports that "in vitro" tests on prisoners in Stillwater Prison started February 1, 1966. These tests will take about 2-3 months. A.D. Pearson reports that the combinations of bacteriostats 3M has investigated definitely do exhibit activity before and after gas sterilization. J.J. LaBuda reports that 3M is considering the purchase of a formic acid enhanced ethylene oxide gas sterilization system.

Action: May review.

S-150

BIOLOGICAL ADHESIVES:

Dr. J.E. Robertson, Central Research Biochemical, reports that several patent proposals are being written. Mr. LaBuda indicated that T.P.L. should see these proposals and have dry copies of those pertinent to Medical Products cases.

Action: August review.

M-157

POLYOLEFIN ADHESIVES:

On 65/11/16, a meeting was held with R.I. Coulter. In this meeting, Mr. Coulter recommended a position be developed wherein this concept would be used in a specific product. G.L. Goken closed the problem 280822-004 with a final report of 66/01/05. This case could be reopened if attempts are successful in synthesizing block-polyolefin polymer combinations which possess the desired properties.

Action: Closed -- Low Interest.

I-164

FOAMED PSA SYSTEMS:

J.O. Hendricks reports that R.L. Renstrom will be investigating these systems.

Action: August review.

M-239

PVC EXTRUSION:

W.P. Nitardy and W.L. Krueger report that this case has been inactive because the 16" die has not arrived. Delivery has been promised for February 18, 1966. When it arrives, films, with and without sucrose benzoate, will be evaluated. Also, various stabilizers and lubricants will be evaluated to see if clarity will be improved. The extruded PVC has been distinguished from Calendered and Luvitherm PVC. H.J. Revoir reports the extruded PVC doesn't shrink like the Calendered.

Action: May review.

ESTABLISHED CASES:

CASE NO.

M-244

BLOCK POLYMERS FOR ADHESIVES:

J.F. Abere is preparing a patent memo on block polymers used in Can Sealing Tape. The Contract Research Lab intends to submit a proposal to Wright-Patterson AFB for a program involving the study of viscoelastic properties of block copolymers. R.D. MacDonald indicated again that this type of adhesive could be tried in Produce Tape because the inherent strength of these elastomers can contribute to the backing strength of the relatively weak paper tape.

Action: May review.

I-266

SPECIAL SLITTING FILM TAPES:

On 65/11/24, a meeting was held with R.I. Coulter. All of the data, requested by Mr. Coulter, have been sent to him and the writing of the application is underway. Patent Liaison indicated that this case should be filed within two weeks.

Action: May review.

S-274

CONDUCTIVE ADHESIVE:

M.F. Johansen reports that small batches of the original formula have been made and sent out for market evaluation. The results are still forthcoming. H.W. Wilcox reports that an alternative raw material must be found because our source of sulfonated polystyrene has gone out of production.

Action: August review.

I-279

NON-BLOCKING BONDING FILM:

G.L. Goken reports that Y-9079 Nameplate Bonding Film has been modified to include a patterned adhesive coating on one side. A Record of Invention (R.I. 258) has been written by R.R. Hannula and R.L. Renstrom on the patterned adhesive and G.L. Goken will write one on the Bonding Film. R.I. 254 "Non-Blocking Adhesive, Block Polymer and Glass Beads" 65/12/21 by G.L. Goken, was placed in the file on this case. G.A. Berger wants a lab review of this case in one month.

Action: May review.

I-281

TEXTILE SPLICING TAPE:

A termination report, 65/12/03, was written by J.M. Daddario. G.A. Berger reports that our efforts will now be directed toward the coated fabric market using straight film approach! "Puckering" is to be overcome by inherent film characteristics.

Action: November review.

ESTABLISHED CASES:

CASE NO.

M-285

EASY TEAR POLYPROPYLENE BACKING:

On 65/11/22, a meeting was held with R.I. Coulter. Mr. Coulter recommended that TPL guide A.N. Schaffhausen in preparing a rough draft of an application. J.O. Hendricks reports that we ought to study a recent patent in which the MW is built-up rather than degraded. G.A. Berger suggested a lab meeting with A.N. Schaffhausen, B.M. Sower, A.G. Smith and J.O. Hendricks.

Action: May review.

M-292

POLYURETHANE EMULSION SATURANT:

J.B. Snell reports that none of the Wyandotte polyurethane emulsion saturants work as well as Dupont's neoprene. J.O. Hendricks mentioned that the large particle size (2-3 micron) of the polyurethanes prohibited good saturation. The 3M polyurethane lattices haven't been tried yet but results comparable to those obtained with Wyandotte's lattice are expected. Again, the particle size of the lattice being too large. R.D. MacDonald recommended changing the title to Industrial instead of Mutual.

Action: August review.

I-298

ACOUSTICAL PRODUCTS:

On 65/10/13, a meeting with R.I. Coulter was held. He suggested concentrating on an "acoustical product" with the weather-strip capabilities as an extra feature. Mr. Coulter requested numerical values be assigned to physical properties in order to show this to be a useful article. D.B. Caldwell reports that the data has been compiled but is not yet fully evaluated.

Action: May review.

S-304

IMPROVED POROUS BACKING:

K.J. Petters reports that National and Minnesota In-Home Tests were completed by T.Q. Rounds, Staff Marketing Research Dept., and the results are available. H.W. Wilcox reports that nothing has been done with 3M's polyurethane lattices. He also mentioned that polyurethane on polyurethane sometimes resulted in blocking in the package. Cellulose acetate, coated as a backsize from acetone, alleviated this problem. A.D. Pearson reports that the foamed ethylene copolymer from Union Carbide hasn't been successfully extruded in slot dies. H.W. Wilcox reports that 40 grams of polyurethane latex with 1 millicurie of C₁₄ has been ordered and received.

Action: May review.

ESTABLISHED CASES:

CASE NO.

M-305

POLYURETHANE ADHESIVES:

G.L. Goken has written a close-out report on Problem 280825-002 66/01/25. In his report, he stated that poor reproducibility of the polyurethane was a major problem. J.E. Corbin and R.D. MacDonald recommended this case be changed to Industrial or closed. C.J. Calabrese recommended closing this case.

Action: Closed -- Low Interest.

I-307

SYNTHETIC LEATHER:

"KWIC" indexing of the synthetic leather patents is underway. Several new "Brief Histories" have been received and studied. A letter of authorization was written on 66/01/06 to A.O. Maki instructing him to file a patent application on W.C. Tingerthal's topcoat material. At a laboratory meeting on 66/01/03, A.F. Schmelzle indicated plans for making shoes in January at Brown Shoe Co. in St. Louis, Mo., and at Genesco Inc. in Nashville, Tenn., in February. Hopefully, by June, outside wear testing and shoe evaluation will be a reality. G.B. Rathmann, in a field report, 65/12/16, indicated that International Shoe Co., Brown Shoe Co., and Genesco Inc. felt that Corfam was filling an important need and that our material had some deficiencies. There seemed to be a desire for other suppliers to make the source of supply competitive. E.L. Rzepecki mentioned that Tape's topcoat on Tim Raymond's substrate is still a possibility.

Action: May review.

I-308

EMBOSSABLE TAPE SILVER SOAP:

J.G. Huddleston reports that a presentation on this subject will be made to Messrs. Adam and Mueller in 2-3 weeks. No further lab work is being done.

Action: May review.

I-314

MECHANICAL FASTENERS:

The notice of allowability has been received for the Flanagan CIP. The "Free-Forming" heading process of Nealis is essential to high quality mass produced fasteners. Mr. Gipple now has a "validity search" on Nealis' concept. J.H. Kayser's work on the concept of fasteners with random entry, substantial number of displaced elements at engagement and uniform disengagement at any angle, will be actively continued. This later concept will then be filed by Mr. Gipple as CIP before the allowed Flanagan CIP issues.

Action: May review.

ESTABLISHED CASES:

CASE NO.

S-315

DENTAL ADHESIVES:

This case is a general area for any improvements in the Dental Adhesives. The 315A and C remain status quo and a new case 315D has been opened in the names of Rambosek and Chang. These cases have been renamed:

- 315A - Dental Filler Glass Beads/Fibers Anterior
- 315B - Dental Filler Powdered Plastics/Spherical Inorganics
- 315C - Dental Liner
- 315D - Dental Filler - Lithafrax - Posterior

R. Chang reports that Dr. Norm Olson has made a model for cavities. This model will aid in determining what cavities are suitable for 3M posterior Addent. R. Chang also mentioned that Central Research has two active programs in this area: one in Biochemical Research; the other in Contract Research. The former group is working on adhesive liners while the latter group's prime contract is to develop testing methods for tooth adhesion. R. Chang reports that the whole restorative field is an art. There are no standard testing methods for ADA. A laboratory in California which is now apparently ready to run comparative tests on various restorative materials has been contacted by R. Chang. We will shortly be sending samples of our material to them for testing. TPL will arrange a meeting with D.M. Sell to review Chang's recently submitted data.

Action: May review.

I-316

DOUBLE ACTION TAB:

On 66/02/02 a meeting with Ed Okubo was held to review Gregory's draft of a CIP combining applications S.N. 378,294 filed 64/01/26 on "Flexible Self Holding Device" and S.N. 417,389 filed 64/12/10 on "Self Holding Device". The draft was rewritten and filed the early part of the week of February 7, 1966. This refileing was necessary to insure a strong patent position for 3M and to make the filing of foreign equivalents for 3M International easier and stronger patentwise.

Action: May review.

I-320

ACRYLATE VIBRATION DAMPING:

C.A. Dahlquist reports that the 3M IOA:AA with 30% AA met the initial Chrysler Corporation specifications. At this point, 3M's program has been held up until Mr. Staffield of Chrysler reevaluates their needs. The low frequency-high strength damping material needs of The World Trade Center will be receiving more attention under this project because of the attractive market potential. Efforts on the Chrysler application can be renewed when they define their need. V.T. Mattison recommends that Chemical Division prepare a set of monomers and Industrial will evaluate.

Action: August review.

ESTABLISHED CASES:

CASE NO.

A-322 MULTICOLOR PRINTING PLATE:

P.H. Carey has supplied Mr. Gehrenbeck with a memo, 66/01/21, outlining the basic concept, the objectives and how they were accomplished, and the distinguishing features over prior art. A.L. Fry reports that several alternates to the preferred construction have been made. Among these variations, the following are included: BTM-42 paper for #35 Bond Kraft; PSA, solvent and heat activated, and water activated adhesive systems; different color coating systems. A.L. Fry is in the process of writing a comprehensive report on this case. A meeting with Mr. Gehrenbeck after he has had time to review Fry's forthcoming report should be arranged.

Action: May review.

I-323 CAN SEALING TAPE:

J.F. Abere reports that other block polymer systems such as the EPR type of Ramses Gobran are needed to give 3M scope and position in this field. He also reports a thermoplastic and a PSA tape have passed initial canning line experiments at Libby, McNeill & Libby in a hot fill application. Initial marketing tests in the field are about to begin. Several different tapes are in a joint program with American Can Co. Tape Top Tabs for hot fill, tear strips for processed foods, removable strips for crimp lids, and sealing tapes for aerosol containers are areas of intended application. Programs with other can companies are relatively inactive. A.W. Morgan is to write a Record of Invention covering the concept of lasting adhesion build-up due to Electron-Beam activation. J.F. Abere requested a meeting with R.I. Coulter when A.W. Morgan has completed his R.I. and evaluated his samples.

Action: May review.

R-326 TOXIC DUST MASK:

A lab meeting was held on 66/01/20 to ascertain 3M's position regarding possible patentability. TPL recommended that physical measurements, such as the ability to vocally transmit through the mask without distortion, be made using, if necessary, the acoustical chamber of 3M Central Research.

Action: May review.

I-328 PHOTOGRAPHIC ITEMS:

A patent application filed in January, 1966 for A.W. Morgan and R. Fisch, claims a one-step photographic subbing composition. This application is the outgrowth of a broader polyester film primer application filed only in Morgan's name at about the same time. See: Case #335. The Morgan-Fisch filing is in Case #906.

Action: May review.

ESTABLISHED CASES:

CASE NO.

I-329

SCOTCHCLING TAPE:

The most recent lab meeting 66/01/06 involved research and marketing people. Patent status, physical properties, performance data and lab product work were discussed in conjunction with marketing field evaluations. Jack Brodie reported Red Owl will do a store test with DAT's in strip form. T.L. Joseph's group will provide Brodie with 1,000 strips. Also, his group will provide butt-cut rolls of "Scotchcling" for this test. V.T. Mattison recommended that C.A. Dahlquist be requested to take the responsibility for physical measurements which would aid Patent Counsel in distinguishing "cling".

Action: May review.

S-330

ELASTIC BANDAGE:

T.L. Dahl reports that test marketing will begin in May, 1966. In his memorandum of 66/01/21, he reports the clinical results from four evaluation areas: doctors, nurses, athletic trainers, and hospitals. He also mentioned that the aging and loss of cohesion difficulties have been overcome. J.J. LaBuda will write to G.B. Gehrenbeck distinguishing 3M's bandage over previous products.

Action: August review.

M-333

FIBROUS FILMS:

Several Brief Histories have been received and studied. R.I. Coulter has furnished Tape Division with an opinion regarding the Bottomley patent U.S. 3,214,234 issued to Phillips Petroleum. A lab meeting on 66/01/19 brought together Ribbon, Retail, Industrial and Research to assess the position of each of these groups relative to the other in terms of original objectives, accomplishments and future goals. Foamed, oriented films to date have been disappointing. They have not gained the expected tensile properties. In fact, weight for weight, they are not usually as good in tensile as the equivalent "unblown" oriented film! TPL will arrange for a meeting with R.I. Coulter for representatives from Ribbon, Retail, Industrial and Research. This will be to show Mr. Coulter the progress to date. H.J. Revoir mentioned that finally "wide" samples have been received to evaluate as a tape backing. He emphasized that over and above the fact that the previously seen narrow samples weren't wide enough for tape products, they still fell short in having properties desirable for tape products. TPL recommends changing the title to Fibrous Blown Polypropylene Film.

Action: May review.

ESTABLISHED CASES:

CASE NO.

M-334

PATTERNED COATINGS:

On 65/12/02, a meeting was held with R.I. Coulter to obtain counsel before proceeding further. He recommended filing on the article and also possibly the process. R.I.'s 233-1 by R.R. Hannula and J.K. Lindgren on "Stripped Coating of LAB's" and 258 by R.R. Hannula and R.L. Renstrom on "Patterned Adhesive Coating" have been placed in the file on this case. J.N. Korich reports that a limited sale of pattern coated LAB'd cellophane tape will take place shortly. R.D. MacDonald recommended segregating patterned LAB's from other patterned coating cases.

Action: May review.

M-335

PRIMER FOR POLYESTER SURFACES:

This patent application was filed on 66/01/03 in the name of A.W. Morgan, S.N. 518,005- F.N. 23,804.

Action: Filed 66/01/03.

A-336

WATER COLOR PAPER:

On 66/01/13, a meeting was held with G.B. Gehrenbeck. O.M. Wiste presented his patent memorandum with the distinguishable features of this invention over prior art. O.M. Wiste reports that additional examples are completed and that Mr. Gehrenbeck should receive a report next week.

Action: May review.

R-338

CARNIVAL BOW:

On 66/01/26, a meeting with R.L. Harrington was held to review the rough draft of the patent application. More examples have been furnished Mr. Harrington and as a result, this case should be ready for filing before March 1, 1966.

Action: May review.

R-339

CORRUGATED RIBBON BOW:

R.M. Schmidt reports that a request is in to Engineering to design and make the machine necessary to produce corrugated ribbon.

Action: August review.

I-340

CORONA TREATMENT OF THERMOPLASTIC ADHESIVES:

This case is in the process of being built-up.

Action: May review.

"NEW CASES"

CASE NO.

I-341 CARPET SPLICING TAPE:

This new case was opened as an outgrowth of #281 Textile Splicing. On 65/11/30, a meeting was held with R.I. Coulter. Mr. Coulter recommended directing the invention to the tape article which produces the "invisible" and "useable" splice. Claiming the splice per se would mean that 3M would have to sue potential customers. V.T. Mattison indicated that he will instruct G.A. Toren to work on the patent memo directed to a product for carpet splicing.

Action: May review.

I-342 FOAMED BACK MECHANICAL FASTENERS:

This new case was opened as an outgrowth of #314, Mechanical Fasteners and #243, Scotchmount. D.C. Gipple filed this case this week in names of Kayser and Flanagan. S.N. and exact filing date will be furnished by Patent Office.

Action: Filed.

I-343 JUSTIFICATION SHEETS:

This new case was opened to investigate stretchable plastic sheet material slit 6 lines per inch to accommodate typewritten copy. The irregular right-hand margin can be manually "justified" without need to retype sheet and is immediately ready to be "photographed" for lithographic printing. A prior art search in Washington D.C. revealed a substantial amount of very pertinent art. Bruce Parker, who brought this concept to 3M, has an application filed. R.E. Brink is investigating the ownership of the Horne U.S. 3,075,446 patent since it is the most pertinent and also the only one still in force. Samples of this product, made by R.W. Schilling and E.O. Anderson, have been sent to Parker. A meeting with Parker and his attorney was held 66/2/8. The pertinent prior art, Parker's application and licensing details were discussed.

Action: May review.

R-344 PAK-A-BOW:

This case was established to follow the work of R.M. Schmidt and H.R. Courtney. A R.I. has been placed in the case files. H.R. Courtney has written R.L. Harrington, authorizing the writing of a patent application.

Action: May review.

NEW CASES:

CASE NO.

I-345

RESEALABLE POUCH:

This case was established to cover Bruce Frye's work in this area. It was filed 65/10/20 with a S.N. 498,427.

Action: May review.

RP-818

GOLF SHAFT:

This new case was opened as a result of RP coming into the Tape Division. J.N. Schurb reports that A.J. Anderson's concept incorporates into the basic shaft a 45° overlay which is designated to overcome torque forces. Overcoming the undesirable torsion may give this product a patent position. TPL will contact J.W. Klooster and meet with Jim Anderson in the near future.

Action: May review.

RP-819

SYNTACTIC FOAM:

This new case was likewise opened as a result of RP coming into the Tape Division. This case has been divided into two and filed: RP-819 - Syntactic Foam - Anti-Levitation in the names of J.N. Schurb and R.W. Johnson filed in January, 1966 - S.N. and date to be furnished. RP-819A - Improved Syntactic Foam in the names of R.W. Johnson and G.R. Modig filed in January, 1966 - S.N. and date to be furnished.

Action: Filed - January, 1966.

RP-820

LOW DENSITY CORE MATERIAL - TAPE:

This new case was opened as a result of RP becoming a part of the Tape Division. J.N. Schurb reports that a Technical Data Sheet #1 was issued 63/12/23, announcing this material. This material has been offered for sale to a limited number of contacts. However, no appeal because for the type of strength it furnishes, the low density isn't required and Scotchply would be a better solution. When low density is required, this material doesn't reach the level obtainable with syntactic foams. TPL will contact R.I. Coulter to check about disclosures. Possibly this case should be closed for economic as well as for disclosure reasons.

Action: May review.

906

PHOTOGRAPHIC SUBBING COMPOSITION:

An application filed in January by J.A. Smith for R. Fisch and A.W. Morgan - date and S.N. to be furnished -- claims a one-step photographic subbing material for polyester and other hydrophobic film. It is an outgrowth of Morgan's broader primer for polyester films. See Case #335.

Action: Filed.

"ACTIVITY RELATED TO CASES ON FILE"

CASE NO.

21 ORGANOPOLYSILOXANE:

An attempt to settle this interference outside the Patent Office through procedurally determining the inventorship is underway. At this time, Dow has agreed to the documentation upon which 3M will try to establish Olson's priority. 3M will now see what Dow is going to depend upon to establish the Plueddemann priority. Hopefully, these exchanges and the subsequent agreement between 3M and Dow can be reached without resorting to the Board of Interferences.

109 GAS STERILIZATION INDICATOR TAPE:

Allowed: 65/12/13.

144 EASY TEAR POLYESTER TAPE:

Allowed: 65/09/15.

212 LUMBER BUNDLING TAPE:

Abandoned: 66/03/10.

235B BLENDED ISOTACTIC FILM BACKING POLYPROPYLENE - BUTYL:

Allowed: 66/02/03.

243 D.C. FOAM TAPE:

Mr. R.I. Coulter indicated that it would be advantageous to file a CIP. This CIP will be a clarifying revision of the present application and will permit us, for defensive purposes, to include some of the versions of foam tape that we did not anticipate in the early filing.

264 COPPER TARNISH PREVENTATIVE:

Allowed: 65/09/16.

287 PRINTMAKERS PLATE:

Allowed: 66/01/19.

289 MECHANICAL FASTENERS - M-CULES:

A notice of allowability has been received 66/02/02. The notice of allowance will follow in due course.

810 SCOTCHPLY MOULDING COMPOSITION:

Mr. R. Tampte is filing an amendment which if accepted by the Examiner would eliminate the costly procedure of going to the Board of Appeals. Appeal Brief will have to be filed in February if amendment is rejected.

ACTIVITY RELATED TO CASES ON FILE:

CASE NO.

816 PROCESS-GARMENT STAY:

Abandoned; 66/01/21.

904 OVEN LINER - BURNIL:

Response due 65/12/29.

"RECORDS OF INVENTION"

R.I. NO.

248 CARNIVAL BOW: R.M. Schmidt 65/11/05

A copy has been placed in TPL Case No. 338, Carnival Bow.

249 LATENT THERMOSETTING BONDING FILM: R.J. Peterson 65/11/05

A copy has been placed in the hold file.

250 TWO-PART ROOM TEMPERATURE CURE SYNTACTIC FOAM: G.R. Ward 65/11/15

A copy has been placed in TPL Case #319A, Improved Syntactic Foam. TPL will consult with A.O. Maki about possible separate filing or CIP.

251 COCKADE BOW: R.M. Schmidt 65/11/23

A copy has been placed in TPL Case No. 339, Corrugated Ribbon.

252 PHOSPHOR TAPE: R.L. Goodlad 65/11/24

A copy has been placed in a precase, Thermography Diagnostic Tape. H.W. Wilcox reports that work with Dr. Lawson is still progressing. He also reported that Dr. Gilbertson at the University of Minnesota is testing the tape.

253 REUSABLE POSITIONING TAPE: L.F. Masonick 65/12/15

A copy has been placed in the hold file.

254 SELF BONDING ADHESIVE: G.L. Goken 65/12/21

A copy has been placed in TPL Case No. 279, Non-Blocking Bonding Film.

255 POLYOLEFIN ADHESIVES: G.L. Goken 66/01/07

A copy has been placed in TPL Case No. 157, Polyolefin Adhesives.

DISCUSSION:

MEDICAL:

"SPIN CAST FIBERS"

If the Central Research Pilot Plant could simultaneously extrude, fibrillate and spin fibers of different melt characteristics and different diameters from adjacent orifices of concentric orifices, then the basic structure for the filter fiber masks would be a reality. TPL will try to obtain the American Cyanamid Patent Department Brochure from Gordon Smith or Don Sell.

"MEDICATED TAPES"

J.J. LaBuda reports that 3M has an agreement with Eli Lilly Co. to make a Blenderm tape with cortisone steroid in the RD918 adhesive. Lilly will clinical test this construction. Other drug firms haven't been contacted because the 3M-Lilly agreement gives Lilly a 1 year lead-time. F.A. Steldt has sent to TPL a Belgian patent which apparently is pertinent. If pertinent, TPL will have this patent translated. H.W. Wilcox reported that the non-prescription area might become the most promising.

MUTUAL:

"ELECTRON BEAM"

This precase was opened to follow A.W. Morgan's work on the subject. A patent search in Class 117 - 93.3 Coating: Processes and Miscellaneous Products - Radiant Wave and/or Corpuscular Bombardment Energy was done. A.W. Morgan reports striking effects in producing differential heat bonding with thermoplastic adhesive. Controlled tack effects have also been noted. Work is progressing rapidly in this area.

REINFORCED PLASTICS:

"SCOTCHPLY/BONDING FILM LAMINATE"

J.N. Schurb showed this concept and recommended opening a precase on it. In a letter of 65/08/30, to D.C. Gipple, Mr. Schurb described the product. According to J.N. Schurb, AC&S has used this concept or one similar to it.

RETAIL:

"DOT COATING SASHEEN"

This precase was opened to follow the Rotogravre coating technique used to improve the fray resistance of Sasheen.

R.B. Ericson
R.B. Ericson,
Tape Patent Liaison
2/14/66

R: Retail Items
S: Medical Items
A: Art Products

M: Mutual Items
I: Industrial Items
RP: Reinforced Plastics Items

MCP
Interoffice Correspondence



Subject:

cc: R. W. Lundbohm - 230-1S
A. W. Boese - 220-8W
A. L. Fry - 230-B
W. M. Westberg - 219-1

February 18, 1966

TO: G. B. GEHRENBECK - PATENT COUNSEL - 220-12W
FROM: P. H. CAREY - ART & EDUCATION PRODUCTS - 230-B(33)

Attached is a copy of the objectives and advantages of the Multi-Color Plate product, compiled by Art Fry, Walt Westberg, and myself.

Pat

PHC/jd

Attachment

3M BRAND MULTI-COLOR PLATE

This invention relates to a sheet material suitable for color printmaking in the art and art education field, to the method of manufacture of this material, and to the method of producing the design plate.

Printmaking, as it is practiced today in the art and art education field, requires not only the preparation of a separate printing plate for each color, but also the separate inking of each plate and the separate pressing of the plate and paper together. Thus, in a five color print, not only are five separate plates required but each final print requires five separate inkings and five impressions. In addition to the art design problem, both construction of the printmaking plates and the printing process itself requires considerable skill and training. It is difficult, for example, to obtain accurate registry of each color. This is particularly true in the intaglio process where the paper must be wet with water before each impression. Further more, the development of the printing plate generally requires the use of sharp cutting tools such as gouges and knives, or of acids for etching, while the printing process requires the use of a printing press or the labor of careful and tedious rubbing with a barin or spoon to transfer the ink from the plate to the paper. Both students and fine artists are accustomed to seeing and working with color in their other art activities, but because of the labor and time required, they are reluctant to do printmaking in several colors. As a result, most prints by students contain only one color and very few prints by fine artists contain as many as five colors.

The object of this invention is to provide thin, flexible sheet materials comprising dry colored inks in an easily torn or cut form which can be easily, quickly and accurately converted into a designed printmaking plate containing

a multiplicity of colors. The plate thus made is capable of yielding a moderate number (about 10-30) of a multi-color design print by the simple process of pressing the plate against a wet piece of paper or fabric. The most important advantages of this invention lie in the ease and quickness with which a multi-colored print can be obtained, using simple paper tearing and cutting skills, and a minimum of equipment. Experience with the visual problems of printmaking in both the relief or intaglio techniques can be gained. The same design problem of using mass tones or line apply but without the need for great manipulative skill or elaborate, and generally unavailable, equipment. The use of this material provides a valid art experience for the student and artist alike.

Another objective of the invention is to provide art students the opportunity to experience the printmaking art using many colors in the print. Since the material can be easily torn with the fingers into the design shape, or can be cut with simple scissors, the young child can form the shapes of his design in several colors and quickly obtain several prints. The older child can modify the printmaking plate by drawing on or otherwise marking the surface of the colored ink with a solvent resistant material such as wax crayon or shellac. Line elements can be obtained by cutting narrow strips or masking with a resist or by removal of the masking as by scraping. In the printing process, the solvent does not activate the area covered by the resist and the area does not print. Texture can be developed by differentially pressing the wet paper against the color surface as with a screen. Overprinting of several impressions

is possible if the paper is sufficiently wet with solvent.

In addition to the ease of working, the ability to work and create using many colors, perfect registry, quick success, and versatility of this material, it provides a substantial reduction in the cost of printmaking, thus allowing the experience of printmaking and especially color printmaking, to be given to young children and economically disadvantaged children.

The printmaking plate is prepared by cutting or tearing the design elements from the various colored-ink sheets. The adhesive side of the design element is activated and the design element is pressed against a solvent resistant paper. The remaining design elements are applied in a similar manner in their appropriate position. The adhesive bond is allowed to set for a short time (1-15 minutes). A solvent wet sheet of paper is laid against the plate and pressed firmly against it. The solvent in the paper softens and dissolves a portion of the color ink which adheres to the paper producing a copy of the design. About 30 copies can be obtained on papers such as newsprint, and 10 copies on a material such as "Art Fabric".



March 29, 1966

Richard E. Brink
Carpenter, Kinney & Coulter
Saint Paul, Minnesota 55101

Re: Printmaker's Plate Patent Application,
Ser. No. 315,688

Dear Mr. Brink:

C
O
P
Y

In the patent application for Printmaker's Plate, a formulation is given in example #2 wherein the components are specified both in parts by weight and parts by volume. The figures for the parts by weight are accurate, but in my letter to you of September 24, 1964, I indicated that there was an error in the parts by volume. The filler is stated to comprise 7% by volume of the composition, and my calculations showed it to be 11.3%. I arrived at this figure by the means shown below.

The millbase for the backing of Printmaker's Plate is composed of an intimate and homogeneous blend of DFD3300 polyethylene, Ameripol CB polybutadiene rubber, and smoked sheet rubber (which are referred to as the pigment binders), and seven other items which we refer to collectively as the filler. The weight of each item in the formulation can be measured accurately, but the volumes of each item in the compounded millbase can only be calculated because the effective volume can change. The pigment binders in their raw states are solid, non-porous materials and when they are combined, the total volume is essentially the sum of the volumes of the components.

The filler, on the other hand, is porous. Its bulk volume is higher than its effective volume within the compounded millbase. Therefore, the effective volume of the filler within the compounded millbase is determined by subtracting the volumes of the individual pigment binder components from the volume of the total, compounded millbase.

$$\text{Vol. Fillers} = (\text{Vol. Millbase}) - (\text{Vol. pigment binders})$$

The volume of the pigment binders and the compounded millbase were calculated from their specific gravities, which had first been measured with a pycnometer as follows:

R. E. Brink
 Page 2
 March 29, 1966

P_E = Weight Pycnometer Empty
 P_W = Weight Pycnometer Full of Water
 P_S = Weight Pycnometer Plus Sample
 P_{WS} = Weight Pycnometer Full of Water Plus Sample

$$\begin{aligned} \text{Specific Gravity} &= \frac{\text{wt. sample}}{\text{wt. equal vol. water}} = \frac{\text{wt. sample}}{\text{wt. water displaced by sample}} \\ &= \frac{\text{wt. sample}}{(\text{wt. water in full pyc.}) - (\text{wt. water left in pyc. with sample})} \\ &= \frac{P_S - P_E}{(P_W - P_E) - (P_{WS} - P_S)} \\ &= \frac{(\text{Wt. sample})}{P_W - P_{WS} + (\text{wt. sample})} \end{aligned}$$

Since Specific Gravity is equivalent to density in grams/cc., we can calculate the parts by volume (in c.c. units) of a component in a formulation from its parts by weight as follows:

$$\frac{\text{parts weight}}{\text{spec. grav.}} = \frac{\text{parts weight}}{\text{weight/vol.}} = \text{parts volume}$$

The effective specific gravity of the filler in the preferred formulation was next calculated as follows:

<u>Components - Pref. Form</u>	<u>Parts Wt.</u>	<u>Spec. Grav.</u>	<u>Parts Vol.</u>
Smoked Sheet Rubber	25 gm.	0.9401	25/.94 = 26.6 cc
Ameripol CB Rubber	25	0.8958	25/.896 = 27.9
DFD 3300 polyethylene	50	0.918	50/.92 = 54.4
<u>Filler</u>	<u>141</u>		
Compounded Millbase	241	1.278	241/1.3 = 188.6

Parts volume of filler = 188.6 - (54.4 + 27.9 + 26.6) = 79.9 c.c.
 Therefore, the effective density filler = $\frac{.141 \text{ gm}}{79.7 \text{ c.c.}} = 1.77 \text{ gm/c.c.}$

It was assumed that the effective density of the filler was the same in different formulations. Therefore, the corrected percentage filler in Example II in the patent was calculated as follows:

$$\text{vol. filler} = \frac{\text{wt. filler}}{\text{eff. density filler}} = \frac{12.6 \text{ gm.}}{1.77 \text{ gm/c.c.}} = 7.11 \text{ c.c.}$$

R. E. Brink
Page 3
March 29, 1966

$$\text{vol. DFD 3300} = \frac{\text{wt. DFD 3300}}{\text{density DFD 3300}} = \frac{25 \text{ gm.}}{0.918 \text{ gm/cc}} = 27.2 \text{ c.c.}$$

$$\text{vol. Ameripol CB} = \frac{\text{wt. Ameripol CB}}{\text{density Ameripol CB}} = \frac{25 \text{ gm}}{0.8958 \text{ gm/cc}} = 27.9 \text{ c.c.}$$

$$\% \text{ vol. filler} = \frac{7.11 \times 100}{7.11 + 27.2 + 27.9} = 11.3\%$$

Very truly yours,

Arthur L. Fry

ALF:jd/mc

bcc: P. H. Carey - 230-B
A. W. Boese - 220-8W
D. E. Hennen - 230-B

CARPENTER, KINNEY & COULTER

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1908-1941

E. G. CARPENTER
OF COUNSEL

G. B. GEHRENBECK
TEMPLE CLAYTON
PATENT AGENTS

April 29, 1966

A. W. Boese
Retail Tape and Gift Wrap Div. - 220-8W
Minnesota Mining and Manufacturing Company
Saint Paul, Minnesota 55119

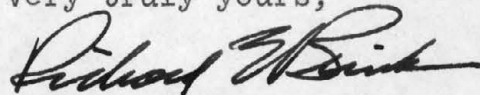
Re: Fry U. S. Patent Application Ser. No. 315,688 -
"Art Medium"

Dear Mr. Boese,

On March 10 we wrote you that the Patent Office had declined to enter the amendment we proposed after allowance of all the claims on the first Office action. We had particularly hoped to amend allowed Claim 7, which is directed to a printing plate, to delete the requirement for a backing.

On April 14 we filed a request for reconsideration of the previous unfavorable decision, and I am pleased to advise you that Claim 7 has been amended in the manner we hoped for. An arithmetical error in one of the examples has also been corrected.

Very truly yours,



Richard E. Brink

REB:mc

cc: A. H. Redpath
P. H. Carey
R. W. Lundbohm
A. L. Fry

CARPENTER, KINNEY & COULTER
ATTORNEYS AT LAW
PATENT AND TRADEMARK CAUSES
2501 HUDSON ROAD
SAINT PAUL, MINNESOTA 55101

June 14, 1966

Mr. D. J. MacDonald
Electrical Products Lab., 207-1W
3M Company
St. Paul, Minnesota 55101

Re: Boese S.N. 9,674 *file*

Dear Mr. MacDonald:

Enclosed is a copy of the decision by the Board of Appeals dated May 26, 1966 wherein the Examiner's rejection was reversed as to the article claims and affirmed as to method claims. Since the 12 article claims which will be allowed appear to protect the invention adequately, we are preparing and will file within the next few days an amendment cancelling all method claims. The patent should issue sometime this fall.

Also enclosed are copies of the broader article claims, viz., claim 38 which calls for a composite of the nonwoven fabric and a film of electrical insulating resin, claim 44 which calls for a composite of two plies of the nonwoven fabric, and claim 46 which calls for a composite of oriented polyester film with external layers of the nonwoven fabric.

We suggest that you have someone carefully study the case to make sure it is sound technically and in condition for issuance of the patent. For such study we enclose with the ribbon copy of this letter a copy of the specification and claims as amended.

Very truly yours,

REG:rm
Encl.

Robert E. Granrud

c: A. W. Boese ✓
R. R. Charbonneau
W. M. Hanson
R. V. Holton

38. A composite film-fabric sheet comprising (1) a heat-pressed tissue-like fabric of heterogeneously interlaced drawn and undrawn staple unplasticized polyester fibers, said undrawn fibers being formed of the same polyester as said drawn fibers and having been converted from an initial relatively low softening amorphous state to a crystalline state affording substantially the same softening temperature range as that of the drawn fibers, said crystallized undrawn fibers being autogenously interbonded at their crossing points to form a network within which said drawn fibers are interlaced without being interbonded to each other, said fabric having a ream weight of about 15 to 60 pounds, and (2) a film of electrical insulating resin inseparably united to said fabric.

44. A composite electrical insulating sheet of at least two plies comprising (1) a first heat-pressed fabric of heterogeneously interlaced drawn and undrawn staple unplasticized polyester fibers, said undrawn fibers being formed of the same polyester as said drawn fibers and having been converted from an initial relatively low softening amorphous state to a crystalline state affording substantially the same softening temperature range as that of the drawn fibers, said crystallized undrawn fibers being autogenously interbonded at their crossing points to form a network within which said drawn fibers are interlaced without being interbonded to each other, said first fabric having a ream weight of about 15 to 60 pounds, and (2) a second heat-pressed fabric of heterogeneously interlaced drawn and undrawn staple unplasticized polyester fibers of the same polyester as said drawn fibers of said first heat-pressed fabric, said undrawn fibers of the second fabric having been converted from an initial relatively low softening amorphous state to a crystalline state affording substantially the same softening temperature range as that of the drawn fibers, said crystallized undrawn fibers being autogenously bonded at their crossing points and to fibers of said first fabric, said second fabric having a ream weight of about 15 to 60 pounds.

46. A composite film-fabric electrical insulating sheet comprising a preformed oriented polyester film and two layers of nonwoven fabric, each of said fabric layers being inseparably united to one surface of the film and comprising heat-pressed interlaced drawn and undrawn staple unplasticized fibers, said undrawn fibers being formed of the same polyester as said drawn fibers and having been converted from an initial relatively low softening amorphous state to a crystalline state affording substantially the same softening temperature range as that of the drawn fibers, said crystallized undrawn fibers being autogenously interbonded at their crossing points and bonded to said film at points of contact therewith, each of said fabrics having a ream weight of about 15 to 60 pounds.

CARPENTER, HANSON & COULTER

ATTORNEYS AT LAW

PATENT AND TRADEMARK CAUSES

2501 HUDSON ROAD

SAINT PAUL, MINNESOTA 55101

March 20, 1967

Mr. F. A. Blankenbaker
Electrical Products, 220-5W
3M Company
St. Paul, Minnesota

Re: Boese Patent No. 3,309,260

Dear Mr. Blankenbaker:

With this letter we are distributing copies of the just-issued patent on composite film-fabric sheet, the fabric of which is generally referred to as the Boese mat. As defined by the patent claims, the film may be any electrical insulating resin such as electrical varnish or oriented polyethylene terephthalate film.

This patent should be of considerable importance to the Dielectric Materials & Systems division in that 18 separate products come within the claims according to a list compiled by Ward Hanson. These include most of the "Fibremat" family, two tubings, a mica tape and several pressure-sensitive adhesive tapes. We urge that the covered products be marked with the patent number as soon as convenient.

The patent is based on an application prepared by Mr. Coulter and filed on September 2, 1955. Then in 1960, the case was refiled and after exchange of many arguments with the patent examiner, was allowed because of a favorable decision by the Board of Appeals.

We are not aware of any infringement. Jun Tomita has been examining a product of Kendall Mills for possible infringement, but results are thus far inconclusive.

Very truly yours,

REG:rm
Enc.

Robert E. Granrud

irc:	A. W. Boese	J. J. LaBuda
	H. M. Bond	J. Tomita
	R. R. Charbonneau	C. W. Walton
	R. I. Coulter	R. L. Westbee
	P. E. Hansen	W. T. Whitenack
	W. M. Hanson	

United States Patent Office

3,263,605

Patented August 2, 1966

1

3,263,605

ART MEDIUM

Arthur L. Fry, North St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
 No Drawing. Filed Oct. 11, 1963, Ser. No. 315,688
 7 Claims. (Cl. 101-170)

This invention relates to the field of art and is especially concerned with a sheet product which is highly useful in the preparation of plates for both relief and intaglio printing.

It has long been common for students and artists to employ conventional battleship linoleum as a medium for preparing plates to be used in relief printing. A design is applied to the linoleum in mirror image of the form desired and the unwanted areas cut or gouged away. The relief area remaining after this operation is inked and the plate, preferably adhered to a rigid support to prevent flexing which might crack the design, is forced against the surface to be printed. The inking and printing operation is then repeated, as desired. Linoleum is inherently hard, brittle, and temperature-sensitive, characteristics which become worse as it ages. As a result it is extremely difficult to create fine lines in relief, particularly on a plate that is to be used repeatedly. Because of linoleum's lack of resilience, it is necessary to apply heavy pressure in order to insure uniform contact with the surface being printed; this in turn often ruins a plate. Linoleum is not easy to cut, and it is necessary to sharpen the tools very frequently. Even then, most young students are unable to do satisfactory work on linoleum, often ruining their projects and/or injuring themselves.

Because of linoleum's deficiencies, grade school artists usually work with other printing media. Vegetables, such as potatoes or carrots, are often used, but have obvious limitations, e.g., as to size, durability, and permanence. Likewise, strips or designs have been cut from old inner tubes, but such materials are rubbery and difficult to work with, resulting in distortion during both preparation and printing, and corresponding lack of detail in the finished print. Attempts have also been made to employ such rubber sheet material as sandblast stencil, e.g., of the type disclosed in Wartha U.S. Patent No. 2,251,647. Although more satisfactory than either inner tubes or linoleum, sandblast stencils have also been difficult to cut with art tools without having the cutting tool chatter or leave ragged edges. Resistance to cutting is extremely high, making it extremely difficult for young artists to produce consistently good results. Sandblast stencils suffer from the additional drawback that they are water-sensitive, thereby making it impractical to use many of the water-based inks which otherwise lend themselves to school art practices.

Prior to my invention intaglio printing has been done only by comparative experts. Intaglio plates have been prepared either by acid-etching metals such as copper, steel or zinc, or by mechanically engraving metal or hard plastic sheets. The printing plate is covered with ink, which flows into the depressions in the surface of the plate; the raised surface is then wiped free of ink and a specially prepared soft conformable paper or other sheet material is placed over the surface of the plate. A resilient felt blanket or soft rubber roller on a high pres-

2

sure press is used to force the paper against the plate and into contact with the ink contained in the depressions.

I have now devised a novel art medium which can be stored for a year or more without loss of its desirable attributes. This product is a highly superior replacement for all common hand crafted forms of relief printing plates known to me; in addition, it provides—for the first time insofar as I am aware—a simple, resilient flexible sheet which can be used in intaglio printing.

My novel art medium is a simple, convenient, easy to work with, versatile sheet material which is capable of repeated use. A pencil or charcoal design drawn by the student in the form in which it is to be printed may be directly transferred to the face of my novel sheet material, which is thereafter cut to the desired configuration. My sheet material is flexible, and may be adhered either to a rigid block, a roll, or to such supports as paper or cardboard. It may be cut into strips or pieces for use in forming intricate designs, thereby making possible essentially complete utilization of the material itself. Intaglio plates may be prepared, the resilient nature of this art medium making it possible to dispense with resilient supports, high pressure presses, and specially prepared papers or fabrics. Because this product is easily cut, it is safer for children to use, as well as being more appealing to adults. Tools used to prepare the surface need be sharpened only upon rare occasions. Even such simple tools as a pair of scissors, a paper clip, or a pin, may be used to create interesting and effective designs.

In accordance with my invention I employ a self-supporting amorphous, compliant, firm, extensible smooth thermoplastic sheet which is from about .025 to about .075 inch thick, coated over one surface with an aggressive adhesive, preferably a normally tacky and pressure-sensitive adhesive. The sheet comprises a polymer binder and an insoluble finely divided particulate filler. The binder is made up of from about 10 to 60 parts of readily extensible, waxy, low density solid branched thermoplastic ethylene polymer, 5 to 75 parts of a soft, weak, flexible, resilient elastomer such as a stereospecific polybutadiene, and from 0-50 parts of a tough strong, flexible elastomer which can be formed per se into a smooth sheet, e.g., natural rubber.

The filler constitutes from about $\frac{1}{20}$ to about $\frac{2}{3}$ the total volume of the sheet, the exact quantity for a given binder system being selected so that it is sufficient to keep the sheet from blocking but insufficient to permit the sheet to break when it is bent back sharply against itself. It is important that this sheet material be substantially free from any tendency to block, both to permit material which has been cut or gouged from the printing medium to be readily removed and to prevent the sides of narrow incised grooves from "healing" during printing. A simple blocking test involves placing one sheet of material on top of another and leaving the two at room temperature overnight; if there is any substantial tendency for the two sheets to stick together, blocking is regarded as excessive.

Because my novel art medium is extensible, it is desirable that it be adhered to a dimensionally stable support, e.g., metal, wood, paper, or cardboard. Accordingly, it is important that the adhesive be comparatively aggressive. It is also desirable that a continuous primer layer be present between the adhesive and the back of the

sheet to insure retention of optimum adhesion. For ease in use, a pressure-sensitive adhesive is desirably protected with a readily removable liner, especially a silicone-treated paper.

My invention will now be described by means of certain specific illustrative but non-limitative examples.

Example I

To an 84-inch rubber mill heated to a temperature of 235° F. and set at a nip spacing of approximately 100 mils were added 33.3 lbs. of pelletized "DFD 3300" (branched polyethylene having a density of 0.918, an average melt index of 3.5, and an average molecular weight of 20,000, sold by Union Carbide). In approximately 30 seconds, when the polyethylene had softened and stuck to the roll, the following finely divided particulate fillers were slowly and individually added: 25 lbs. of "Silene EF" (a reinforcing silica), 25 lbs. of "Celite 165S" (diatomaceous earth) and 25 lbs. of "ASP 103" (aluminum silicate in the form of hexagonal platelets). When these fillers had been thoroughly dispersed and wetted by the polyethylene, the nip of the mill was opened to about ¼-¾ inch and the following materials added: 8.3 lbs. of "Solka-Floc BW100" (a bleached short fiber cellulose), 11.7 lbs. of white factice (vulcanized vegetable oil), 1.6 lbs. of stearic acid, and .834 lb. of "Agerite Resin D" (a polymerized trimethyl dihydroquinoline antioxidant). When all the ingredients had been dispersed in and wetted by the polyethylene, 16.8 lbs. of smoked sheet rubber and 16.8 lbs. of "Ameripol CB" (a stereospecific cis-1,4-polybutadiene rubber having an average Mooney viscosity of 41.2, obtainable from Goodrich Gulf) were added simultaneously and the batch cut and blended to obtain a homogeneous mixture. The batch, or mill base, was then removed from the mill in pieces about ½" x 1' x 3'. Total time on the mill was about 35 minutes; alternatively the batch may be prepared on a Banbury, in about ½ the time.

The dispersed mill base was preheated to 270-290° F. on a rubber mill and then calendered at 230-240° F. to form a smooth .050 inch sheet about 250 yards long. A coating of "Pliolite 160" (33:67 butadiene:styrene copolymer latex, sold by Goodyear Tire & Rubber Co.) was next applied to one surface of the calendered sheet backing in an amount sufficient to leave 10 grains of solid material per 24 square inches. The coating was dried in a 200° F. forced air convection oven, and the finished coated material then wound upon itself in roll form.

To the coated side of the calendered sheet was next applied a heptane solution of pressure-sensitive adhesive composition having the following ingredients (parts by weight):

Rubbery polyisobutylene (such as "Vistanex B120")	100
Polybutene rubber (such as "Indopol H300")	70
Pure hydrocarbon terpene tackifier resin (such as "Piccolyte S85")	45
Rosin ester tackifier resin (such as "Hercolyn")	30
Di-tert.-amyl hydroquinone antioxidant (such as "Santovar A")	1.1

The coated sheet was dried by passing it through an oven to eliminate the solvent. At the oven exit a 40-lb. silicone-treated paper liner was squeeze roll-laminated to the adhesive-coated sheet and the completed article wound convolutedly upon itself in roll form. Thereafter the roll was cut to sheets of convenient size, e.g., 8½" x 11", 22" x 30", etc.

The product of this example was easily cut with conventional linoleum cutting tools and stencil knives, the line of cut being clean and sharp. It was also readily cut into narrow strips with a pair of scissors, and the

strips thereafter bent to complex curves or such shapes as the artist desired. The product was sufficiently resilient that intaglio plates made therefrom functioned on a simple roller press to produce excellent prints, and yet it was sufficiently firm that the printed sheet showed clean, sharp lines. The surface was readily receptive to water-based inks, and hence the product was especially attractive for use with young grade school artists. Several thousand prints can be typically made from a relief plate. Normally 25 or more copies can be printed from even delicate intaglio plates without significant loss of detail. Plates can either be stored for future use, or, if desired, the individual strips can be removed and employed in still further designs. The flexible nature of the product makes it possible to use cardboard as a backing, there being no danger of plate breakage or cracking upon bending. The aggressive pressure-sensitive adhesive holds the block or strips firmly in place.

Based on the specific gravity of the various binder and filler components, it was calculated that the filler constituted approximately 45% of the total volume of the sheet itself. Although the filler system employed in this example is fairly complex, and although it is preferred, many variations and simplifications can be made. For example, the entire filler system can be satisfactorily replaced with diatomaceous earth or an Attapulugus clay. Other fillers, e.g., calcium carbonate may also be used. In general, however, the filler system employed in this example provides a combination of receptivity to water-based inks, millability, strength, and ease in cutting.

Example II

A mill base was prepared in the manner described in Example I, from the following components, the figures indicating parts by weight:

"DFD 3300"	25
"Silene EF"	2.7
"Celite 165S"	2.7
"ASP 103"	2.7
"Solka-Floc BW100"	0.9
White factice	1.2
Stearic acid	1.6
"Agerite Resin D"	.8
"Ameripol CB"	25

This composition, which contained about 11% filler by volume, was slightly sticky but was milled, calendered to form a sheet, primed, and adhesive-coated as in Example I. The finished product showed excellent flexibility, ink receptivity, and was readily cut.

A conventional rubber mill can be employed without any particular criticality as to the milling time provided that the filler content of the mill base is at least about ¼ the total volume and the temperature does not exceed about 240° F. If, of course, a Banbury is employed, or if the product is extruded, a lesser degree of filler will suffice. It has been found, however, that the sheet should contain at least about ½ filler if it is to be readily cut by conventional printmaking tools. The quantity of filler should, however, be further adjusted so that, for those binder compositions which would otherwise tend to stick and block, the filler content is sufficient to prevent such as occurrence. In general, increasing the amount of either the polybutadiene (or other soft, weak, flexible elastomeric equivalent), e.g., to 70% or more, or the natural rubber (or other tough, strong, flexible elastomeric equivalent), e.g., to 40% or more, increases the tendency toward stickiness and blocking. Hence, in such compositions, it is generally preferred to have a filler content on the order of 50% or more by volume.

Example III

A mill base was prepared, in the manner described in

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Example I, from the following components, the figures indicating parts by weight:

"DFD 3300" -----	33.3
"Silene EF" -----	50
"Celite 165S" -----	50
"ASP 103" -----	50
"Solka-Floc BW100" -----	16.6
White factice -----	23.4
Stearic acid -----	1.6
"Agerite Resin D" -----	.8
"Ameripol CB" -----	6.7
Smoked sheet -----	26.6

This composition, which contained about 62% filler by volume, was readily processable. The finished product was easy to cut and readily wet by water-based printing inks, but showed a slight tendency to block. It was, however, judged acceptable.

The amount of filler can be increased to $\frac{2}{3}$ the volume of the composition, although there is an increasing tendency for the finished product to become excessively brittle.

The following tabulated examples show the effect of varying the ratio of the three major binder components while maintaining a constant filler content of 45% by volume, as in Example I.

BINDER COMPOSITION

Example	Percent "Ameripol CB"	Percent "DFD 3300"	Smoked Sheet	Comments
IV -----	70	30	0	Slightly soft but generally entirely satisfactory.
V -----	20	60	20	Slightly tendency to crack when bent sharply; otherwise satisfactory.
VI -----	10	50	40	Slightly rubbery but generally satisfactory.
VII -----	35	30	35	Do.
VIII -----	70	20	10	Processable on Banbury; finished product satisfactory.

The preceding examples illustrate the general range of compositions which I presently prefer in the practice of my invention. The amount of "Ameripol CB" in the binder can be reduced to about 5%, provided that the amount of smoked rubber is on the order of 40-50% and that the sheet contains at least about $\frac{1}{2}$ filler by volume. The amount of "DFD 3300" in the binder can be reduced to about 10%, provided that the sheet contains on the order of a least 60% "Ameripol CB."

Generally speaking, a product containing too little polyethylene is hard to cut, tending to be rubbery or sticky; too much polyethylene results in a product which breaks when bent sharply back on itself. If too little polybutadiene is present, the finished product is rubbery and tough or gummy; too much polybutadiene makes the mill base too sticky to process readily, and the final product blocks or is too rubbery. As noted, smoked sheet may be eliminated altogether if sufficient polybutadiene is present; too much smoked sheet causes the finished product to be tough, rubbery, and hard to cut.

I have found that certain substitutions may be made for the individual binder components described in the preceding examples without deleteriously affecting the quality of the finished product. For example, ethylene polymers other than the "DFD 3300" disclosed also function satisfactorily. Branched polyethylenes having a melt index of less than 300 have been found generally suitable, although the products having a high melt index tend to be excessively sticky. Likewise, ethylene may be copolymerized with vinyl esters such as vinyl acetate (e.g., "Elvax 250," a 72:28 ethylene:vinyl acetate copolymer) or acrylate esters (e.g., "Bakelite DPDB," an ethylene:ethyl acrylate copolymer). If desired, blends of waxy ethylene polymers may be employed.

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Other tough soft resilient elastomeric polymers which may be used in place of the "Ameripol CB" include chlorosulfonated polyethylene (e.g., "Hypalon" 20), polyisobutylene, rubbery polyvinyl ethers (e.g., polyvinyl ethyl ether or polyvinyl isobutyl ether), ethylene:acrylate ester copolymers (e.g., "Bakelite DPDB"), ethylene:propylene copolymers, etc. I have likewise found that for natural rubber I may substitute a low gel nitrile rubber having a Mooney viscosity in the range of 20-40, or calendering grades of either styrene:butadiene or neoprene rubbers. Blends of equivalent materials may, of course, also be employed.

I am aware that certain of the compositions employed as the base for my novel art product are disclosed in Latham U.S. Patent No. 2,369,471, where they are broadly suggested for myriad uses. The patentee does not contemplate art products, nor would many of the products he discloses be adaptable to such use.

What I claim is:

1. For use in art work, a novel printing sheet material which can be stored at room temperature for a year or more without impairment of its function, and which can be adhered to a suitable support, readily and cleanly cut to a desired contour or shape with a linoleum cutter, stencil knife, or scissors, and thereafter used in either relief or intaglio printing, said sheet material comprising

45 a self-supporting, amorphous, compliant, firm, extensible smooth thermoplastic layer on the order of .050 inch thick consisting essentially of

50 a binder comprising a homogeneous blend of 100 parts by weight of

55 10-60 parts of readily extensible waxy, low density, solid branched thermoplastic ethylene polymer,

5-75 parts of soft, weak, flexible resilient elastomer,

0-50 parts of tough, strong, flexible elastomer which can be formed into a smooth sheet, and

60 insoluble finely divided particulate filler, constituting from about $\frac{1}{20}$ to about $\frac{2}{3}$ the volume of said layer, said filler further being present in amount sufficient to keep said layer from blocking but insufficient to permit said layer to break when bent back sharply against itself, and

65 an adhesive coated over one face of said layer.

2. For use in art work, a novel printing sheet material which can be stored at room temperature for a year or more without impairment of its function, and which can be adhered to a suitable support, readily and cleanly cut to a desired contour or shape with a linoleum cutter, stencil knife, or scissors, and thereafter used in either relief or intaglio printing, said sheet material comprising

75 a self-supporting, amorphous, compliant, firm, extensible smooth thermoplastic layer on the order of .050 inch thick consisting essentially of

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a binder comprising a homogeneous blend of 100 parts by weight of

10-60 parts of a branched polyethylene having a density of about 0.92 and a melt index of less than 300,

5-75 parts of a stereospecific cis-1,4-polybutadiene rubber having a Mooney viscosity in the range of 25-55,

0-50 parts of smoked sheet natural rubber, and

insoluble finely divided particulate filler, constituting from about $\frac{1}{20}$ to about $\frac{2}{3}$ the volume of said layer, said filler further being present in amount sufficient to keep said layer from blocking but insufficient to permit said layer to break when bent back sharply against itself,

a continuous primer film coated on one face of said layer,

an aggressive normally tacky and pressure-sensitive adhesive adhered to said primer film, and a release liner applied over said adhesive.

3. For use in art work, a novel printing sheet material which can be stored at room temperature for a year or more without impairment of its function, and which can be adhered to a suitable support, readily and cleanly cut to a desired contour or shape with a linoleum cutter, stencil knife, or scissors, and thereafter used in either relief or intaglio printing, said sheet material comprising in combination:

a self-supporting, amorphous, compliant, firm, extensible smooth thermoplastic layer on the order of .050 inch thick consisting essentially of

a binder comprising a homogeneous blend of 100 parts by weight of

10-60 parts of a readily extensible waxy, low density solid branched thermoplastic ethylene polymer, selected from the class consisting of low density polyethylene, ethylene:vinyl acetate copolymers, and ethylene:acrylate ester polymers, and blends thereof,

5-75 parts of a relatively tough, soft, resilient elastomeric polymer selected from the class consisting of stereospecific cis-1,4-polybutadiene rubber, chlorosulfonated polyethylene, polyisobutylene, rubbery polyvinyl ethers, ethylene:acrylate ester polymers, ethylene:propylene polymers, and blends thereof,

0-50 parts of a linear unsaturated flexible rubber capable of forming a smooth sheet selected from the class consisting of natural rubber, low gel nitrile rubber having a Mooney viscosity in the range of 20-40, calendaring grades of styrene:butadiene rubber, calendaring grade neoprene, and blends thereof, and

insoluble particulate filler constituting from $\frac{1}{20}$ to $\frac{2}{3}$ of the volume of said layer in amount sufficient to keep said layer from blocking but insufficient to permit said layer to break when bent back sharply against itself,

an aggressive normally tacky and pressure-sensitive adhesive adhered over one face of said layer, and a release liner applied over said adhesive.

4. For use in art work, a novel printing sheet material which can be stored at room temperature for a year or more without impairment of its function, and which can be adhered to a suitable support, readily and cleanly cut to a desired contour or shape with a linoleum cutter, stencil knife, or scissors, and thereafter used in either relief or intaglio printing, said sheet material comprising in combination:

a self-supporting, amorphous, compliant, firm, extensi-

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ble smooth thermoplastic layer on the order of .050 inch thick consisting essentially of

a binder comprising a homogeneous blend of 100 parts by weight of

10-60 parts of a branched polyethylene having a density of about 0.92 and a melt index of less than 300,

5-75 parts of a stereospecific cis-1,4-polybutadiene rubber having a Mooney viscosity in the range of 25-55,

0-50 parts of smoked sheet natural rubber, and

insoluble particulate filler constituting from about $\frac{1}{4}$ to about $\frac{2}{3}$ of the volume of said layer in amount sufficient to keep said layer from blocking but insufficient to permit said layer to break when bent back sharply against itself,

an aggressive normally tacky and pressure-sensitive adhesive layer adhered over one face of said layer, and a release liner applied over said adhesive.

5. For use in art work, a novel printing sheet material which can be stored at room temperature for a year or more without impairment of its function, and which can be adhered to a suitable support, readily and cleanly cut to a desired contour or shape with a linoleum cutter, stencil knife, or scissors, and thereafter used in either relief or intaglio printing, said sheet material comprising in combination:

a self-supporting, amorphous, compliant, firm, extensible smooth thermoplastic layer on the order of .050 inch thick consisting essentially of

a binder comprising a homogeneous blend of 100 parts by weight of

50-60 parts of a branched polyethylene having a density of about 0.92 and a melt index of less than 300,

5-75 parts of a stereospecific cis-1,4-polybutadiene rubber having a Mooney viscosity in the range of 25-55,

0-50 parts of smoked sheet natural rubber, and

insoluble particulate filler constituting from about $\frac{1}{4}$ to about $\frac{2}{3}$ of the volume of said layer in amount sufficient to keep said layer from blocking but insufficient to permit said layer to break when bent back sharply against itself,

a continuous coating of a flexible butadiene:styrene copolymer bonded to one face of said layer, an aggressive normally tacky and pressure-sensitive adhesive layer adhered to said coating, and a release liner applied over said adhesive.

6. A method of intaglio printing comprising cutting to intaglio configuration a self-supporting, amorphous firm, compliant, extensible smooth, non-blocking thermoplastic sheet on the order of .050 inch thick, said sheet comprising a homogeneous blend of 100 parts by weight of a binder consisting essentially of 10-60 parts of readily extensible, waxy, low density solid branched thermoplastic ethylene polymer, 5-75 parts of soft, weak, flexible resilient elastomer, and 0-50 parts of tough, strong, flexible elastomer which can be formed into a smooth sheet, said sheet also containing $\frac{1}{20}$ - $\frac{2}{3}$ finely divided particulate filler by volume, said filler further being present in an amount sufficient to keep said sheet from blocking but insufficient to permit said sheet to break when bent back sharply against itself; adhering the intaglio-configured sheet material to a dimensionally stable support; inking the thus-formed intaglio plate; removing the excess ink from the relief areas while retaining it in the depressions; and forcing said plate against the sheet to be printed, said plate compressing sufficiently to permit said sheet to contact said ink.

7. A novel printing plate comprising a suitably configured resilient sheet material having relief areas defining a design, said sheet material comprising:

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compliant, firm, extensible smooth thermoplastic material on the order of .050 inch thick consisting essentially of

a binder comprising a homogeneous blend of 100 parts by weight of

10-60 parts of readily extensible, waxy, low density solid branched thermoplastic ethylene polymer,

5-75 parts of soft, weak, flexible resilient elastomer,

0-50 parts of tough, strong, flexible elastomer which can be formed into a smooth sheet, and

insoluble finely divided particulate filler, constituting from about $\frac{1}{20}$ to about $\frac{2}{3}$ the volume of said material, said filler further being present in

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amount sufficient to keep said sheet material from blocking but insufficient to permit said sheet material to break when bent back sharply against itself.

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3,180,260	4/1965	Joseph	101-401.1

15 DAVID KLEIN, *Primary Examiner.*



Patents

GENERAL OFFICES • 2501 HUDSON ROAD • ST. PAUL, MINNESOTA 55119 • TEL. 733-1110

June 1, 1967

Mr. F. A. Steldt
Carpenter, Kinney & Coulter
2501 Hudson Road
St. Paul, Minnesota 55119

Re: *Modeling Clay - Glass Bubbles* R.I. #309
P. H. Carey - Art & Education Products

Dear Mr. Steldt:

The attached Record of Invention #309 was described by Mr. P. H. Carey March 14, 1967 and references his October 11, 1966 Research Notebook #14977, page 9 where he first recorded his concept.

In Dr. W. S. Friedlander's April 28, 1967 *Letter of Authorization* on New Products Division Patent Proposal No. 68 has description of a *Light-weight, Non-Cracking Modeling Compound* appears to be much like the material which Mr. Carey describes. Patent Proposal No. 68 was written by H. T. Wingfield dated May 5, 1967.

We became aware of this request to file a patent application through Mr. H. L. Anderson who was on the copy list and who passed the information on to Mr. J. E. Corbin.

We are forwarding the Carey Record of Invention with the hope that his formulations and the utility which he sees in this as an art medium for commercial as well as schoolroom adaptation will make it possible for you to gain breadth for the application.

There seems to have been good inter-laboratory communication on this as you will note on page 4 of Carey's R.I. his reference to H. T. Wingfield and the General Motors work and also his acknowledgment of assistance from Warren Beck, et al.

My personal comment, after reading the Wingfield Patent Proposal and the Carey

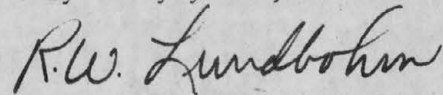
Mr. F. A. Steldt

-2-

June 1, 1967

Record of Invention is that some of the shaping and carving and repairing features that the glass bubbles appear to contribute to the modeling clays are described and claimed in the Rambosek application on *Podiatry Resin and Appliance* filed by Mr. A. O. Maki in February.

Very truly yours,



R. W. LUNDBOHM
Tape Patent Liaison

RWL:mrs

Attached: (R.I. #309 - F. A. Steldt, only)

cc: H. L. Anderson
R. C. Baker
W. R. Beck
A. W. Boese ✓
P. H. Carey
J. E. Corbin
J. G. Erickson
W. S. Friedlander
A. O. Maki
H. T. Wingfield



90.10/13

Subject: Patents--Non-Woven
A. W. Boese Request

September 14, 1967

TO: SHIRLEY JACKSON - RETAIL TAPE & GIFT WRAP - 220-8W

FROM: R. W. LUNDBOHM - TAPE TECH INFO - 230-1-14

Pursuant to your September 12, 1967 request on behalf of Mr. Boese, the following patents on the subject of *Non-Woven* fabrics have been ordered and will be delivered to you upon arrival:

<u>U. S.</u>	<u>BRITISH</u>	<u>FRENCH</u>	<u>GERMAN</u>
3,205,342	977,708	1,413,373	1,119,816
3,218,844	979,260		
3,227,592	987,702		
	997,921		
	1,009,636		
	1,015,427		
	1,017,020		
	1,030,656		

In the list which you submitted, there are listed English translations of certain foreign technical journals. These you will have to request from the reference librarian in the 3M Technical Communications Center.

RWL

RWL:mrs

cc: A. W. Boese

C1019/13

Foreign Materials on Patent

September 12, 1967

TO: ROBERT W. LUNDBOHN - TAPE TECHNICAL INFORMATION - 230-1S
FROM: SHIRLEY JACKSON - RETAIL TAPE AND GIFT WRAP DIVISION - 220-8W

Attached you will find a number of patents which Mr. Boese would like copies of for his files on NONWOVENS.

If you need any further information, please let me know.

saj

Attachments (2)

1. MANUFACTURE OF NONWOVEN FILTER MATERIALS BY IMPREGNATION OF FIBROUS SYSTEMS WITH HIGH-POLYMER DISPERSIONS: INVESTIGATION OF THE MIGRATION OF THE POLYMER PARTICLES DURING THE DRYING OF THE IMPREGNATED LAP. E. T. Ustinova and S. S. Voyutskii.
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12. SHAPING OF NONWOVEN BATTS FOR AIR FILTERS. H. W. Coates and D. T. Dunlap (to Celanese Corp.). USP 3 227 592, Jan. 4, 1966, Appl. Apr. 2, 1959.

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