



Northern Pacific Railway Company.
Engineering Department Records.

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N. P. RY. CO.

OF

C. E. M. O. Way

FILE NO.

606

SUBJECT:

Section 2

Turntable

General

~~10716 to~~

Section 2

St. Paul, August 2, 1954

606

Mr. W. C. Smith:

The Store Department sent us your requisition WCS-3191 which covers 6 pieces 130 lb. 38 ft. 2nd Class RE rail for the turntables at Auburn, Seattle and Yakima. As a general rule, requisitions such as this are sent to the Bridge Department for check before material is assigned, and it was returned by the Bridge Engineer with the following comment:

"I am attaching one print of Drawing 111088 which covers the foundation plan for the Yakima turntable and one print of Index 113047 which covers the foundation plan for Auburn turntable, and one print of Index 113077 which covers the foundation plan for Seattle.

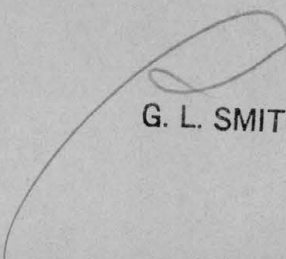
"I am also attaching print of Index 142039 which shows the number of rails and bending details for the Yakima and Auburn turntables. I am also attaching one print of Drawing 5, contract CR 16781, McClintoc-Marshall Corp. for detail of circle rail for Seattle.

"I suggest that the requisition be returned to the Supervisor together with the prints which I have furnished you so that he may show the correct length and number of rails to be ordered for this work."

The prints referred to are attached.

Will you kindly have your Supervisor revise requisition as suggested by the Bridge Department and forward through the usual channels?

FLJ/jwm
attachments



G. L. SMITH

cc: Mr. E. L. Jensen--Requisition returned herewith. Suggest it be voided.

St. Paul, Minnesota
July 30, 1954

Auburn, Seattle and Yakima turntables

Mr. G. L. Smith:

Mr. Younghans gave us the attached requisition WCS-3191 covering circle rails for Auburn, Seattle and Yakima. In this requisition 38' rails are specified.

I am attaching one print of Drawing 111088 which covers the foundation plan for the Yakima turntable and one print of Index 113047 which covers the foundation plan for Auburn turntable and one print of Index 113077 which covers the foundation plan for Seattle.

I am also attaching print of Index No. 1142039 which shows the number of rails and bending details for the Yakima and Auburn turntables. I am also attaching one print of Drawing No. 5, contract CR-16781, McClintoc-Marshall Corp. for detail of circle rail for Seattle.

I suggest that the requisition be returned to the supervisor together with the prints which I have furnished you so that he may show the correct length and number of rails to be ordered for this work.

We were asked whether rail of a different size ^{weight} would be suitable. We would prefer to have 130 lb. rail because of the difference in height of 130 and 131 lb. It will be necessary to add shims to the center of the turntable or make other modifications which are quite laborious if 131 lb. rail were used.

C. E. Sherry

Enc.
CEE:1

606
X

St. Paul, Minnesota
February 8, 1951

File: R/O

Mr. F. C. Turner:

Returning requisition TJK-3028 which calls for 6 pcs. 39' 130# 2nd Cl. RE rail for replacing broken circle rails on turntables at Auburn, Yakima and Seattle:

The requisition states rail is to be furnished from Auburn rail yard to South Tacoma Shops for bending.

Our inventory indicates 3644 linear feet of 3rd Cl. A 130# rail in Auburn rail yard and it is possible 6 pcs. 39' can be selected from this stock suitable for circle rails, and you may place order on Auburn rail yard with request for such selection.

Also attached hereto is Mr. Ekberg's letter of February 6 with 2 prints referred to from which you will note the circle rails for the Seattle table have a different radius and the splice plates are different.

Will you kindly transmit this information to South Tacoma Shops?

FLJ/jwm
attach.

C. L. SMITH

cc: Mr. T. J. Kane

606

Train 4, Sept. 6, 1942

Mr. Bernard Blum:

I am attaching a copy of memorandum outlining information with respect to 5 SH turntables on hand at South Tacoma reclamation plant. In addition to these there are at Brainerd 65 ft. turntable recently shipped from Staples and 85 ft. turntable received from Northtown.

It is quite likely a reservation should be continued for, say, the 85 ft. turntable for the purpose of using as bridge span.

I believe such turntables for which no use is in reasonable prospect should be dismantled by the reclamation forces to recover a sizeable stock of plates which is now in great demand and difficult to obtain.

LY:m

encl.

MEMORANDUM

Listing of SH turntables on hand at Reclamation Plant at So. Tacoma.

1. 56 ft. turntable 24,000# received from Wilkinson 2-13-42.
2. 60 ft. " " " Pendleton 8-12-42.
3. 65 ft. " " " Howell on P&L Branch 2-28-39.
4. 70 ft. " 39,500# " " So. Prairie 2-13-42.
5. 85 ft. " " " Parkwater 9-16-37

Asst. Chief Engr.

On Line, 9-6-42

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On Line, 9-6-42

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4. 70 ft. " 39,500// " " So. Prairie 2-13-42.
5. 85 ft. " " " Parkwater 9-16-37

Asst. Chief Engr.

On Line, 9-6-42

Memorandum
Listing of S. H. Turntables on
hand at Redamation Plant at
So. Tacoma.

- ① - 56 ft Turntable 24000# Received
from Wilkinson Feb 13-1942
- ② 60 ft Turntable received from
Pendleton Aug 12-1942
- ③ 65 ft Turntable received from
Howell on Pt L. Brand Feb. 28-1939
- ④ 70 ft Turntable 39500# received from
So Prairie Feb. 13-1942
- ⑤ 85 ft Turntable received from Parkwater
Sept. 16-1937

Asst. Chief Engr.
On Line
Sept. 6-1942



N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

5:15 M

606

LIVINGSTON JULY 1 1940

G L SMITH

ST PAUL

S 92 TEN CIRCLE RAILS STORED AT LIVINGSTON ARE IN GOOD CONDITION AND OK FOR
REUSE

T H CONWAY

711AM 2

Handwritten notes and signatures:
M. W. 12
J. L. S.
Thompson
A. B.

OFFICE OF
ASST. GEN. ENGINEER
JUL - 22 40
NOR. PAC. RY. CO.
ST. PAUL, MINN.



N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

St. Paul, Minn. July 1, 1940

T. H. Conway
Livingston

Understand there are in storage Livingston ten pieces 130# rail removed
1936 from old turntable circle track. Wish you would advise quick their
condition and if you think they are suitable for re-use in circle at
northtown. S-92

cc/ M.W.BEACH

G L SMITH

606
MWB

Saint Paul,
March 11, 1940.

Mr. L. Yager:

Your note on attached letter from Mr. O. K. Peck of March 5 relative to the continuous type turntable recently purchased from the Wisconsin Bridge & Iron Company and installed at Laurel, Montana

All of the reports which we have had concerning the structural parts of this table indicate that the workmanship is exceptionally good. As the operating machinery was designed and furnished by Geo. P. Nichols & Bro. of Chicago, with many years of experience in furnishing this type of equipment, we do not anticipate that any difficulty will be encountered from the standpoint of operation. During the short time it has been in service the table has performed well and there have been only two minor difficulties, neither of which has seriously interfered with the operation.

Mr. Nichols furnished a very good hydraulic braking system which did not prove to be foolproof with respect to rough handling and sudden application by hostlers and he is redesigning this detail. There has also been some breakage of the cast iron circle rail anchor bolt washers which has occurred during cold weather. We believe this small detail to be deficiency in design. However, the circle rail fastenings of most of our large tables have given a little trouble.

It would, of course, be necessary for the purchaser of a new table to satisfy himself that the operating machinery would be furnished by a responsible party.

L.Y. 3/15

H. A. Beach

March 6th, 1940.

Mr. O. K. Peck
Engineer of Structures
Denver & Rio Grande Western RR. Co.
Denver, Colorado

Dear Sir:

Referring to your letter of February 20th inquiring as to our experience with roller bearings for end trucks of turntable installations:

We began using roller bearings on turntables in 1934 and now have them in use on one table 115' long, one table 125' long, and three tables 135' long. We are also using the standard car wheel bearings on some continuous tables 115' and 120' in length.

Our experience with roller bearings has been very satisfactory. The only repair item which has come to our attention on this type has been a broken housing. The roundhouse foremen have uniformly praised the performance of all our roller bearing tables.

We have no direct comparisons of power consumption to prove the economy of roller bearings. Our calculations indicate that two 25 HP motors should do the same work with roller bearings as two 35 HP motors should do with car wheel bearings, and this is borne out by the fact that with the roller bearing tables we have never had lack of power with two 25 HP motors while there have been occasional failures to turn the 115' tables equipped with Journal bearings under the same power with bad weather conditions.

Yours very truly,

L. YAGER.



THE DENVER AND RIO GRANDE WESTERN RAILROAD CO.

WILSON MCCARTHY AND HENRY SWAN, Trustees

THRU THE ROCKIES  NOT AROUND THEM

DENVER, COLORADO

March 5, 1940

ARTHUR RIDGWAY
CHIEF ENGINEER
C. M. LIGHTBURN
VALUATION ENGINEER
O. K. PECK
ENGINEER OF STRUCTURES

A. E. PERLMAN L-3301
ENGINEER MAINTENANCE OF WAY
B. W. MOLIS
SIGNAL ENGINEER
RAY MCBRIAN
ENGINEER OF TESTS

Mr. L. Yager,
Asst. Chief Engineer,
Northern Pacific Ry. Co.,
St. Paul, Minn.

Dear Sir:

Further to mine of Feb. 20th, in which I asked for your opinion as to the relative merits of Roller Type Bearings as compared to M.C.B. Standard Car Wheel Slip Bearings on continuous Turntables:

I was just advised today that you purchased a 120' continuous type Turntable for Laurel, Mont., from the Wisconsin Bridge & Iron Co. This company is a new competitor in the continuous Turntable field, and I would be very grateful if you can advise as to whether the Table in question compares favorably with the American Bridge or the Bethlehem Steel installations. This Railroad has several continuous Turntables manufactured by the American Bridge Company, and they have given complete satisfaction. I am a little skeptical as to the advisability of purchasing such a vital facility as a Turntable unless assured of its dependability.

Assuring you that any information you may give will not be made public, and thanking you in advance for your trouble, I remain

Very truly yours,

Mr. Beach

Your mine pls.

2/24/40

O. K. Peck

Engineer of Structures

OKP/j

*95 2.39
25 186.39*

*95 5009
P.A. 0.025 #
6-1154 (39)*

606

MWB

Saint Paul,
Feb. 28, 1940.

Mr. L. Yager:

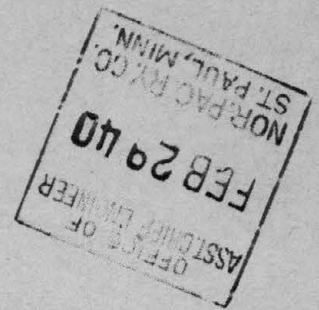
Referring to your note on Mr. Peck's letter of February 20 regarding the use of roller bearings on turntables on the Northern Pacific.

We began using roller bearings on turntables in 1934 and we now have them in use on one table 115 feet long, one table 125 feet long and three tables 135 feet long. We also are using the standard car wheel bearings on some continuous tables 115 and 120 feet in length.

Our experience with roller bearings has been very satisfactory. So far as this office is advised, there has been only one repair item on these bearings, this being a broken housing. The roundhouse foremen have uniformly praised the performance of all of our roller bearing tables.

We have no direct comparisons of power consumption to prove the economy of roller bearings. Our calculations indicate that two 25 H.P. motors should do the same work with roller bearings as two 35 H.P. motors should do with car wheel bearings and this is borne out by the fact that on the roller bearing tables we have never had lack of power with two 25 H.P. motors, while there have been occasional failures to turn the 115 foot tables equipped with journal bearings under the same power, with bad weather conditions.

24.7/6 H.M. Peck



March 15, 1940.

Mr. O. K. Peck
Engineer of Structures
The Denver and Rio Grande Western RR. Co.
Denver, Colorado

Dear Sir:

A prompt reply to your letter of March 5th was prevented by reason of my absence from the office.

In the past we have purchased the larger turntables from either the American Bridge Company or the Bethlehem Steel Company, complete with their particular type of operating apparatus. We received a favorable bid from the Wisconsin Bridge & Iron Company for the installation at Laurel, Montana. We naturally checked up the design in its structural aspects as well as the turning mechanism, and we likewise inspected the fabrication of this unit at the plant.

The Wisconsin Bridge & Iron Company were not in position to furnish the turning equipment so they made a connection with George P. Nichols & Bro. of Chicago who, as you probably know, have for a number of years specialized in this line of work. This company furnished the turning equipment for a considerable number of our manual-operated turntables. They have also furnished us operating machinery for a number of our drawbridges. We have always regarded them with favor because of the highly satisfactory equipment they have furnished in the past. The fact that the bridge company were connected up with the Nichols company for turning equipment gave us confidence in anticipating a satisfactory installation.

During the time that this table has been in service it has performed well and there have been only two minor difficulties neither of which has seriously interfered with the operation. The Nichols company furnished a very good hydraulic braking system which did not prove to be foolproof with respect to rough handling and sudden application by hostlers and they are re-designing this detail. There has also been some breakage of the cast iron circle rail anchor bolt washers which has occurred during cold weather. We believe this small detail to be deficiency in design; however, the circle rail fastenings of most of our large tables have given a little trouble.

98

Mr. Peck - 2
March 15, 1940

I would say that we have been entirely satisfied with the table and turning equipment furnished as described and the minor difficulties which we have had are no greater than may be normally expected.

Yours very truly,

L. YAGER.

Our files contain no information
on turntable roller bearings -

Mr Becht
Ples furnish data
for reply. slf. 2/13

1/2/13



THE DENVER AND RIO GRANDE WESTERN RAILROAD CO.

WILSON McCARTHY AND HENRY SWAN, Trustees

THRU THE ROCKIES



NOT AROUND THEM

DENVER, COLORADO

February 20, 1940

ARTHUR RIDGWAY
CHIEF ENGINEER
C. M. LIGHTBURN
VALUATION ENGINEER
O. K. PECK
ENGINEER OF STRUCTURES

A. E. PERLMAN
ENGINEER MAINTENANCE OF WAY
B. W. MOLIS
SIGNAL ENGINEER
RAY MCBRIAN
ENGINEER OF TESTS

Mr. L. Yager,
Asst. Chief Engineer,
Northern Pacific Ry. Co.,
St. Paul, Minn.

Dear Sir:

I have been advised that your Railroad has installed two 135' continuous deck turntables; same being fitted with Hyatt Solid Roller Type Bearings for the end trucks.

Our Budget calls for the installation of a 130' Turntable at Burnham, and the question has arisen as to the advisability of using roller bearings for the end trucks, as compared with the old standby - M.C.B. Standard Car Wheel Bearings. Can you advise whether your roller type installations on turntables have proven entirely satisfactory, both as to dependability and as to saving in power costs?

I am not so much interested in the additional initial cost of such bearings, but want to be very certain: (1st) that repairs are no more frequent than for the old type, and (2nd) that real economy as to power costs can be substantiated.

I would greatly appreciate any advice that you can give relative to this matter.

Yours very truly,

O. K. Peck
Engineer of Structures

OKP/j

C

606

St. Paul, Minn., July 27, 1937

File 15

Mr. M. W. Beach,

Bridge Engineer

Dear Sir:

For your information I am attaching
statement of turntables, turntable tractors
and turntable centers on the line as of
July 25th, 1937.

Yours truly,

N-n

General Storekeeper

Cy LY

[Handwritten signature]
[Handwritten initials]

TURNTABLES, TURNTABLE TRACTORS AND TURNTABLE CENTERS
ON THE LINE AS OF JULY 25, 1937

- BRAINERD -

2 85-ft. Centers

- BRIDGER, MONT. -

1 64-ft. turntable center in pit

1 64-ft. turntable still in pit

- LIVINGSTON -

1 100-ft. Turntable, girders only, with circle rails, recovered from AFE 265-63. Girders have connected to them one D.O. James Mfg. Co. reducer No. 5388, 3 H.P., high speed, 900 R.P.M., low speed 6.69, number plate MT-7423.

- MISSOULA -

1 85-ft. Turntable in pit at East roundhouse

1 85-ft. turntable center

- PARKWATER -

1 85-ft. Turntable

1 85-ft. Turntable center

1 85-ft. Turntable tractor

- PASCO -

1 85-ft. Turntable

1 85-ft. Turntable center

1 85-ft. Turntable tractor

TURNTABLES, TURNTABLE TRACTORS AND TURNTABLE CENTERS

Sh. #2

ON THE LINE AS OF JULY 25, 1937

The structural material from one of the tables at Parkwater or Pasco will be scrapped. The tractors and centers will be retained.

- YAKIMA -

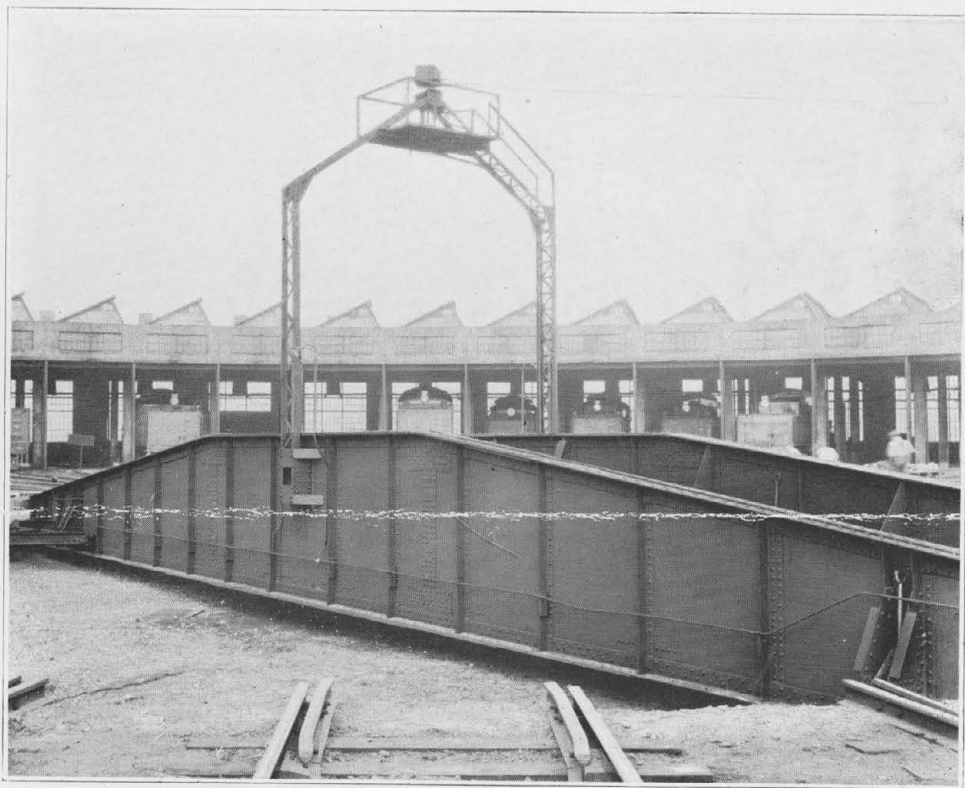
- 1 80-ft. TPG turntable manufactured in 1905 and placed at Yakima in 1912 from Pasco. It is a 219-ton Santa Fe Type.

- SOUTH TACOMA -

- 1 85-ft. Turntable center

OFFICE OF
ASSISTANT ENGINEER
JUL 27 37
NOR. PAC. RY. CO.
ST. PAUL, MINN.

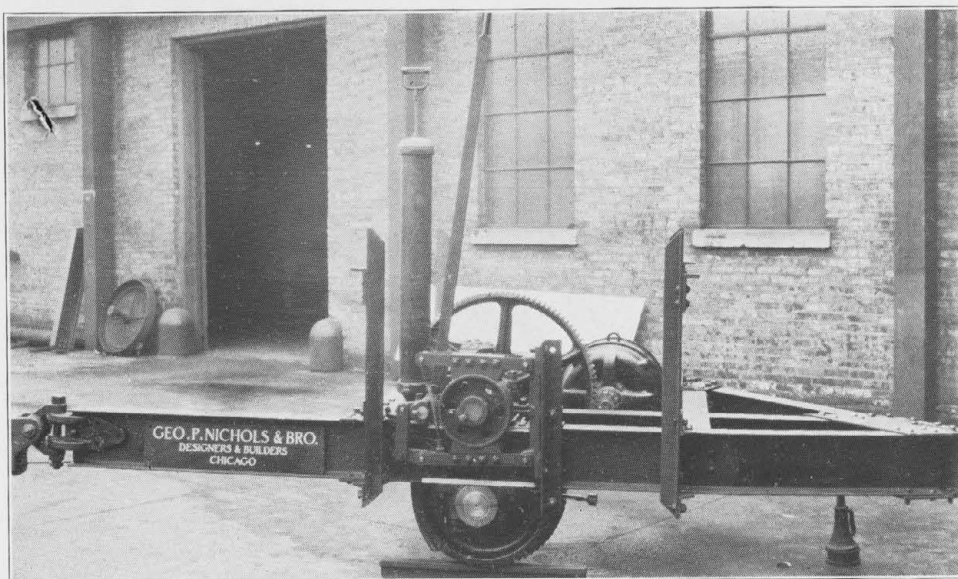
Nichols Turntable Tractors



New Type Supporting Frame for Collector, with Ladder and Inspection Platform.

Over 1000 In Use
On More Than 100 Railroads

Geo. P. Nichols & Bro.
2139 Fulton Street
CHICAGO



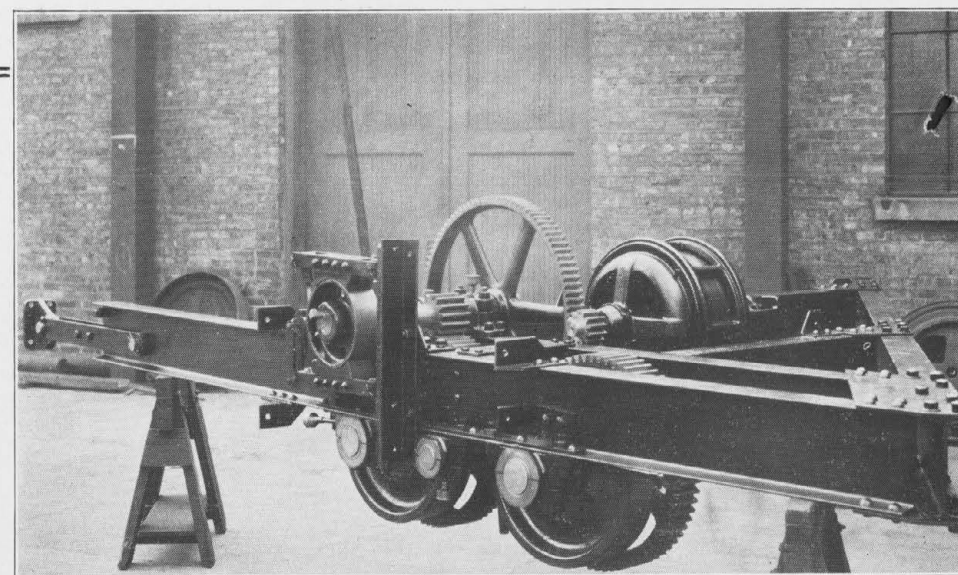
Single Wheel Tractor with cab and housing removed.

Giant Single Wheel Tractor

THE NICHOLS GIANT TRACTOR embodies the latest and best developments in turntable practice. The frame is made of 10-inch "I" beams throughout. The bearings are attached to tops and bottoms of beams, the backs of the flanges being reinforced to give greater thickness where bolts pass through. Axles are 4 inches diameter. Drive gears are $2\frac{1}{2}$ diametral pitch, 5 inch face. All gears are steel with cut teeth.

Nichols tractors are furnished complete with operator's cab, brake, sand box and all electrical material. Motor and machinery are completely housed from the weather. For support of overhead center collector, we offer our standard tubular frame or our new structural support shown on first page.

All tractor parts are standard and carried in stock



Two Wheel Tractor with cab and housing removed.

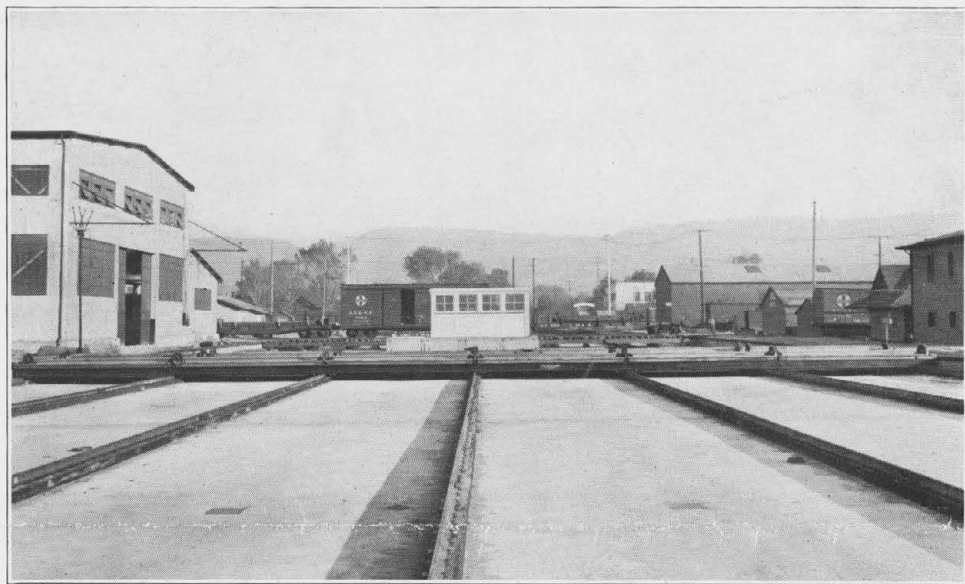
Giant Two-Wheel Tractor

THE Giant two Wheel Tractor is similar to the single wheel type in design and construction, but with two traction wheels mounted on radial axles. Using two wheels prevents teetering, a link connection to the table being used. The use of the two radial axles is original and exclusive, and makes the tractor tend to run in a true circle without side slipping or excessive wear.

Many of our customers are prolonging the useful life of balanced turntables by converting them to three point suspension, using roller bearings on the end trucks. In such cases an external tractor at each end affords the best application of power. Our system of duplex control is ideal. Tell us your problems.

Immediate shipment can be made of tractors or parts

Nichols Transfer Tables



Nichols Transfer Table. 120 Feet Long, 425 Tons Capacity.

*Have been the standard for over
25 years. More than 200
in use. More than 70
railroads use them.*

THOROUGHLY STANDARDIZED IN EVERY DETAIL



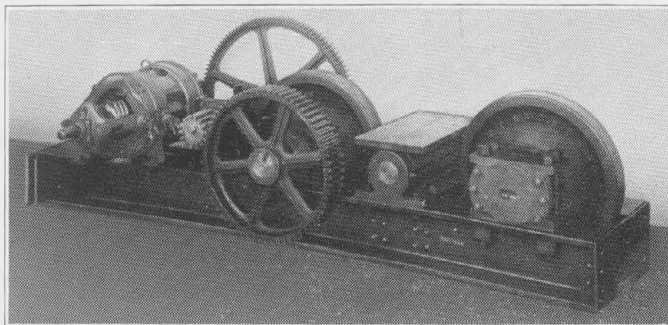
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GEO. P. NICHOLS & BRO. INC.

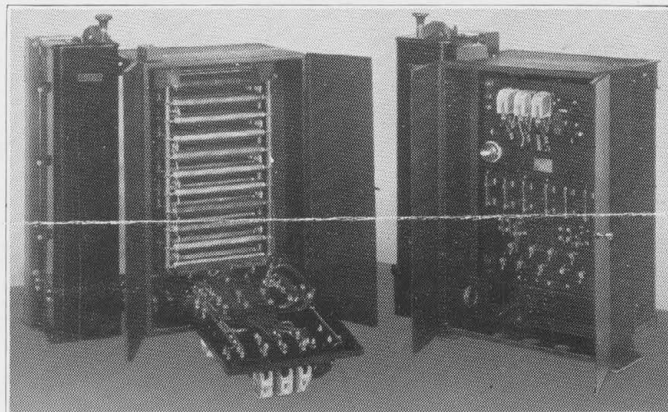
ESTABLISHED 1894



CHICAGO, ILL.



UNDERHUNG ROLLER BEARING DRIVING TRUCK



UNIT ASSEMBLY OF CONTROLLER, CONTACTOR PANEL AND RESISTANCE FOR TURNABLES

Furnished wired up ready for motor and feeder connections. Panel may be swung down to afford access to back connections and resistance which is fully ventilated.

GEO. P. NICHOLS & BRO., INC.

Leaders since 1900

ELECTRIC TURNTABLE TRACTORS

Single-Wheel and Two-Wheel Types

ELECTRIC TRANSFER TABLES

Universally Used

TURNTABLE DRIVING TRUCKS

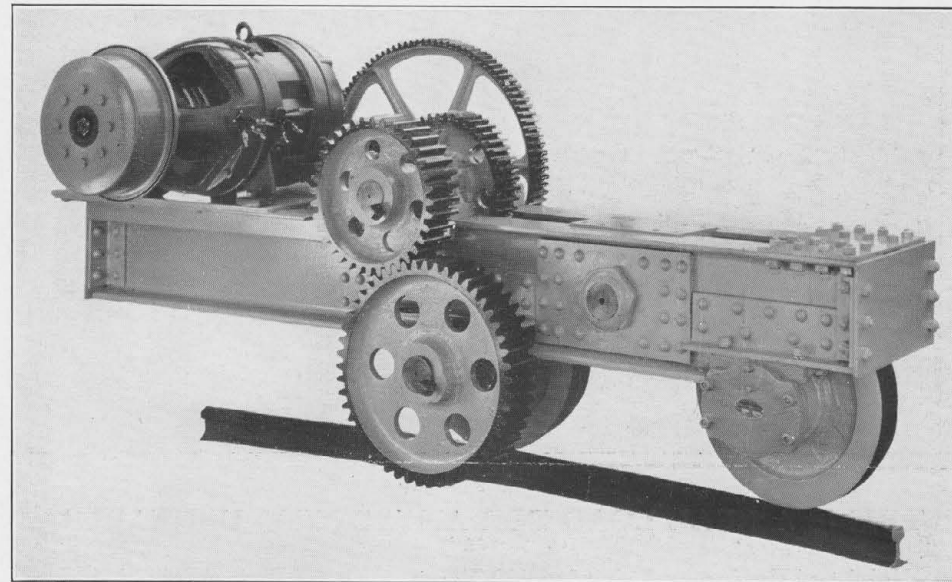
Adapted to Any Type of Table

ROLLER BEARINGS for TURNTABLE

It is no longer possible to balance modern locomotives on existing turntables. The trucks, bearings and wheels were not designed to carry any considerable load in turning. The only solution is a new turntable which costs a lot of money to buy and install, or conversion to 3-point suspension, taking part of the load off the center, and installing roller bearings on new or existing trucks.

We have successfully converted scores of tables, using roller bearings and either two external tractors or two driving trucks which utilize the weight of the locomotive for traction. Our trucks are so designed that the driving effect is adequate, 2500 lbs. being available from either truck even when the remaining wheels do not touch the rail at all. The principle that makes this remarkable service possible is exclusive with us and may not be used by others.

Office and Factory 2137-51 Fulton St.,
CHICAGO, ILL.



NICHOLS ROLLER BEARING DRIVING TRUCK FOR TURNABLES



THIS IS A REAL LOAD FOR ANYBODY'S TURNTABLE

Weight of Engine and Tender 420 Tons; Wheel Base 92'-9½".
Length of Turntable 100 Ft. Deck Type, with Roller Center.
Served by two Nichols Driving Trucks shown on back of this page.
Roller Bearings on Driving Trucks and existing Idler Trucks.
Equipment has been in service nearly four years with no delays
and no maintenance expense.

Don't Discard Your Balanced Turntable!

CONVERT IT INTO A

Modern Three-point Suspension Table

Using Nichols Duplex Tractor Equipment
and Stafford Roller Bearings

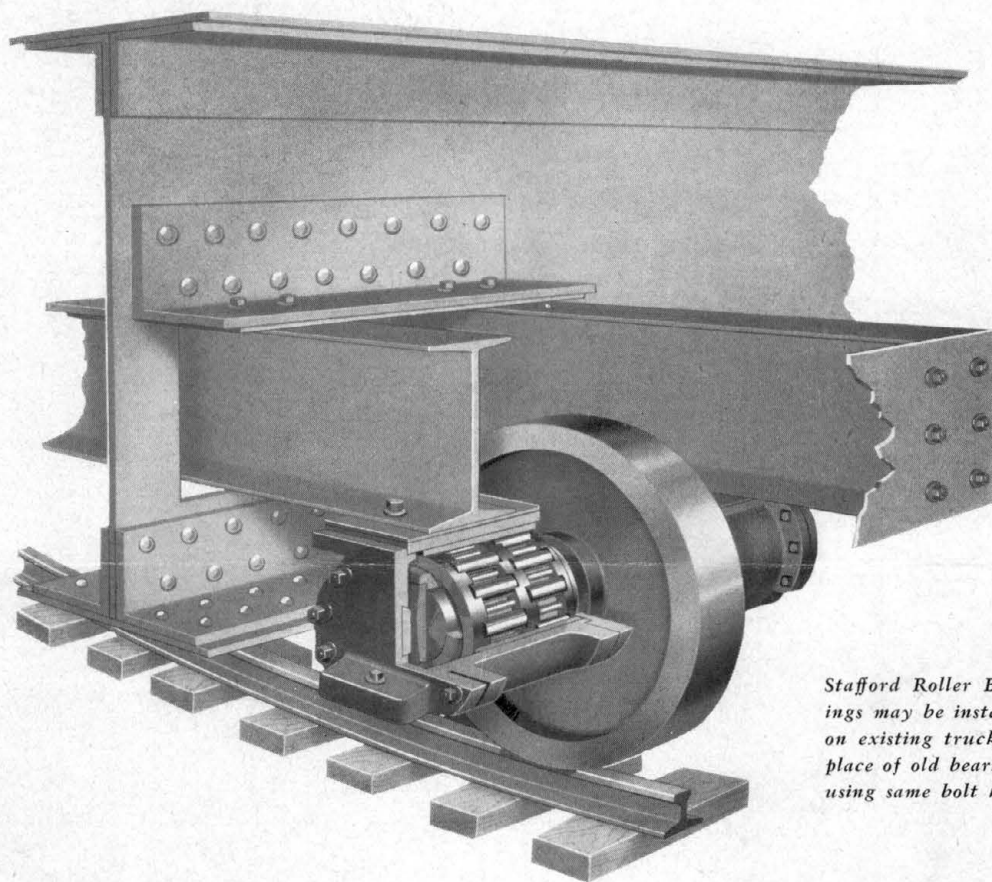
The Livest Proposition Before the Railroads Today

Hundreds of balanced turntables are strong enough and long enough to take on engine and tender, but the loads cannot be balanced when the tender is light, or not at all. If the trucks can only be made to carry their share of the load in turning, these same tables may be used for many years as economically and safely as if a new 3-Point Suspension Table were bought. Existing bearings were not made to perform this service. Roller bearings are replacing these on the same trucks and perform perfect service.

Scores of turntables have been converted to 3-Point Suspension with

Stearns Stafford Roller Bearings and *Nichols Electric Tractors*. Ordinarily the power should be applied to both ends of a 3-Point Suspension Table. The existing tractor, if in good condition, may be utilized. We have developed a perfect system of duplex control by which both tractors together or one only may be used.

The *Nichols Tractor* needs no introduction. It has been the standard for nearly thirty years. Made in single-wheel type or with two driving wheels. In both types the axles are always radial.



Stafford Roller Bearings may be installed on existing trucks in place of old bearings, using same bolt holes

GEORGE P. NICHOLS & BRO.

DESIGNERS AND BUILDERS OF

Nichols Turntable Tractors and Transfer Tables
Headquarters for Stafford Roller Bearings

2139 FULTON STREET

CHICAGO, ILLINOIS

606
"LINE OF THE MINUTE MAN"

BOSTON AND MAINE RAILROAD

W.J. Backes,
Chief Engineer.



8.

BOSTON, December 24, 1928

Mr. L. Yager, Asst. Chief Engineer,
Northern Pacific Railway Company,
St. Paul, Minn.

Dear Mr. Yager:

Thank you very much for the information contained in
your telegram and letter of December 19 with respect to installa-
tion of Bethlehem three-point turntables on your Road.

Yours very truly,

W. J. Backes
Chief Engineer.

(A)

December 19, 1928

Mr. W. J. Backes, Chief Engineer,
Boston & Maine Railroad,
Boston, Mass.

Dear Mr. Backes:

Confirming my wire date relative to your inquiry as to our experience with Bethlehem three point support turntables.

We installed Bethlehem tables 115' long at Glendive, Missoula and Ellensburg in 1927 and one of the same length at Auburn this year. The American Bridge Company furnished us the same type in 100' lengths, one at Livingston in 1925 and one at Jamestown and Helena in 1926. The American Bridge Company offered us their roller design which is in accordance with their patent, but we insisted on the disc type such as was furnished by the Bethlehem Steel Company.

Our Bridge Engineer reports that all these tables furnished by both concerns have been entirely satisfactory.

Yours very truly,

LY:wp

CLASS OF SERVICE DESIRED	
Telegram	<input type="checkbox"/>
Day Letter	<input type="checkbox"/>
Night Message	<input checked="" type="checkbox"/>
Night Letter	<input checked="" type="checkbox"/>
Patrons should mark an X opposite the class of service desired; OTHERWISE THE MESSAGE WILL BE TRANSMITTED AS A FULL-RATE TELEGRAM	

WESTERN UNION TELEGRAM

NEWCOMB CARLTON, PRESIDENT

GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

Receiver's No.
Check
Time Filled

Send the following message, subject to the terms
on back hereof, which are hereby agreed to

St. Paul, Minn., Dec. 19, 1928

W. J. Backes, Chief Engineer
Boston & Maine Railroad
Boston, Mass.

Bethlehem

We have four one hundred and fifteen foot/three point tables

Three installed in nineteen twenty-seven one this year also three

one hundred foot of the same type furnished by American Bridge

Company one in nineteen twenty-five and two in nineteen twenty-six

all have been entirely satisfactory.

L. YAGER

CHARGE NOR. PAC. RY. CO.
ENGINEERING DEPT.

ALL MESSAGES TAKEN BY THIS COMPANY ARE SUBJECT TO THE FOLLOWING TERMS:

To guard against mistakes or delays, the sender of a message should order it repeated, that is, telegraphed back to the originating office for comparison. For this, one-half the unrepeatable message rate is charged in addition. Unless otherwise indicated on its face, this is an unrepeatable message and paid for as such, in consideration whereof it is agreed between the sender of the message and this company as follows:

1. The company shall not be liable for mistakes or delays in the transmission or delivery, or for non-delivery, of any message received for transmission at the unrepeatable message rate beyond the sum of five hundred dollars; nor for mistakes or delays in the transmission or delivery, or for non-delivery, of any message received for transmission at the repeated-message rate beyond the sum of five thousand dollars, *unless specially valued*; nor in any case for delays arising from unavoidable interruption in the working of its lines; nor for errors in cipher or obscure messages.

2. In any event the company shall not be liable for damages for mistakes or delays in the transmission or delivery, or for the non-delivery, of any message, whether caused by the negligence of its servants or otherwise, beyond the sum of five thousand dollars, at which amount each message is deemed to be valued, unless a greater value is stated in writing by the sender thereof at the time the message is tendered for transmission, and unless the repeated-message rate is paid or agreed to be paid, and an additional charge equal to one-tenth of one per cent of the amount by which such valuation shall exceed five thousand dollars.

3. The company is hereby made the agent of the sender, without liability, to forward this message over the lines of any other company when necessary to reach its destination.

4. Messages will be delivered free within one-half mile of the company's office in towns of 5,000 population or less, and within one mile of such office in other cities or towns. Beyond these limits the company does not undertake to make delivery, but will, without liability, at the sender's request, as his agent and at his expense, endeavor to contract for him for such delivery at a reasonable price.

5. No responsibility attaches to this company concerning messages until the same are accepted at one of its transmitting offices; and if a message is sent to such office by one of the company's messengers, he acts for that purpose as the agent of the sender.

6. The company will not be liable for damages or statutory penalties in any case where the claim is not presented in writing within sixty days after the message is filed with the Company for transmission.

7. It is agreed that in any action by the Company to recover the tolls for any message or messages the prompt and correct transmission and delivery thereof shall be presumed, subject to rebuttal by competent evidence.

8. Special terms governing the transmission of messages under the classes of messages enumerated below shall apply to messages in each of such respective classes in addition to all the foregoing terms.

9. No employee of the company is authorized to vary the foregoing.

THE WESTERN UNION TELEGRAPH COMPANY

INCORPORATED

NEWCOMB CARLTON, PRESIDENT

CLASSES OF SERVICE

TELEGRAMS

A full-rate expedited service.

NIGHT MESSAGES

Accepted up to 2.00 A.M. at reduced rates to be sent during the night and delivered not earlier than the morning of the ensuing business day.

Night Messages may at the option of the Telegraph Company be mailed at destination to the addressees, and the Company shall be deemed to have discharged its obligation in such cases with respect to delivery by mailing such Night Messages at destination, postage prepaid.

DAY LETTERS

A deferred day service at rates lower than the standard telegram rates as follows: One and one-half times the standard Night Letter rate for the transmission of 50 words or less and one-fifth of the initial rates for each additional 10 words or less.

SPECIAL TERMS APPLYING TO DAY LETTERS:

In further consideration of the reduced rate for this special Day Letter service, the following special terms in addition to those enumerated above are hereby agreed to:

A. Day Letters may be forwarded by the Telegraph Company as a deferred service and the transmission and delivery of such Day Letters is, in all respects, subordinate to the priority of transmission and delivery of regular telegrams.

B. Day Letters shall be written in plain English. Code language is not permissible.

C. This Day Letter is received subject to the express understanding and agreement that the Company does not undertake that a Day

Letter shall be delivered on the day of its date absolutely and at all events; but that the Company's obligation in this respect is subject to the condition that there shall remain sufficient time for the transmission and delivery of such Day Letter on the day of its date during regular office hours, subject to the priority of the transmission of regular telegrams under the conditions named above.

No employee of the Company is authorized to vary the foregoing.

NIGHT LETTERS

Accepted up to 2.00 A.M. for delivery on the morning of the ensuing business day, at rates still lower than standard night message rates, as follows: The standard telegram rate for 10 words shall be charged for the transmission of 50 words or less, and one-fifth of such standard telegram rate for 10 words shall be charged for each additional 10 words or less.

SPECIAL TERMS APPLYING TO NIGHT LETTERS:

In further consideration of the reduced rate for this special Night Letter service, the following special terms in addition to those enumerated above are hereby agreed to:

A. Night Letters may at the option of the Telegraph Company be mailed at destination to the addressees, and the Company shall be deemed to have discharged its obligation in such cases with respect to delivery by mailing such Night Letters at destination, postage prepaid.

B. Night Letters shall be written in plain English. Code language is not permissible.

No employee of the Company is authorized to vary the foregoing.

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram. Its deferred character is indicated by a suitable sign above or preceding the address.

WESTERN UNION

NEWCOMB CARLTON, PRESIDENT

J. C. WILLEVER, FIRST VICE-PRESIDENT

SIGNS

DL = Day Letter
NM = Night Message
NL = Night Letter
LCO = Deferred Cable
CLT = Cable Letter
WLT = Week-End Letter

The filing time as shown in the date line on full-rate telegrams and day letters, and the time of receipt at destination as shown on all messages, is STANDARD TIME.

Received at 332 Robert Street, St. Paul, Minn. Telephone Cedar 9685

CB456 CAK=GM BOSTON MASS 19 320P

L YAGER=

NORTHERN PACIFIC RR STPAUL MINN=

1928 DEC 19 PM 2 52

CONSIDERING PURCHASE BETHLEHEM THREE POINT TABLE WHAT
HAS BEEN YOUR EXPERIENCE ARE THEY SATISFACTORY HAVE YOU
DEVELOPED ANY TROUBLE WITH CENTER CONNECTIONS=

W J BACKES.

But
Gladwin 115-27
Musk 115-27
Ellisburg 115-27
Aulen 115-27

Andrew Br. Co. Deller
Ringside 100 1925
Jensen 100 1926
Helmer 100 1926

Disc Type

THE QUICKEST, SUREST AND SAFEST WAY TO SEND MONEY IS BY TELEGRAPH OR CABLE

☐ SEND TUMBLING MILL BULLETIN No. 183

☐ SEND DUST FILTER BULLETIN No. 181

☐ HAVE REPRESENTATIVE CALL _____

☐ REMARKS:

Please
Correct
Errors
in Name
or
Address

Mr. L. Yager, Asst. C. E.,
Northern Pacific Ry.,
St. Paul, Minn.

Post Card

STAMP
HERE

WHITING CORPORATION

HARVEY,

(Chicago Suburb)

ILLINOIS

WHITING CORPORATION

CRANES-FOUNDRIY EQUIPMENT

RAILWAY SPECIALTIES

HARVEY, ILL., U.S.A.

(CHICAGO SUBURB)

Mr. L. Yager, Asst. C. E.,
Northern Pacific Ry.,
St. Paul, Minn.

April 25, 1928

Dear Sir:

An Eastern railroad, one of the first to adopt the Whiting Electric Drop Pit Table, saved 114% on the investment the first year as explained on the inside pages of this letter.

Since then dozens of other shops have adopted this equipment to find that it soon pays for itself through savings in time and labor. A sure way to reduce locomotive repair costs is the installation of a Whiting Electric Drop Pit Table for--

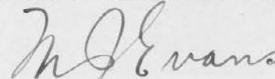
- Removal of drivers
- Removal of engine trucks
- Removal of trailer wheels
- Removal of tank trucks
- Spring renewals and equalization
- Tank pin inspection
- Tire changing
- Tire shimming
- Medium height jacking
- Removal of trailer wheel, cradle and booster
- Any dropping operation

Once you become familiar with its operation in your own shop you will discover additional ways of usefulness and increased savings.

Let us send you Bulletin No. 177 -- it tells the story -- or price and specifications on request. A post card is enclosed for convenience.

Yours very truly,

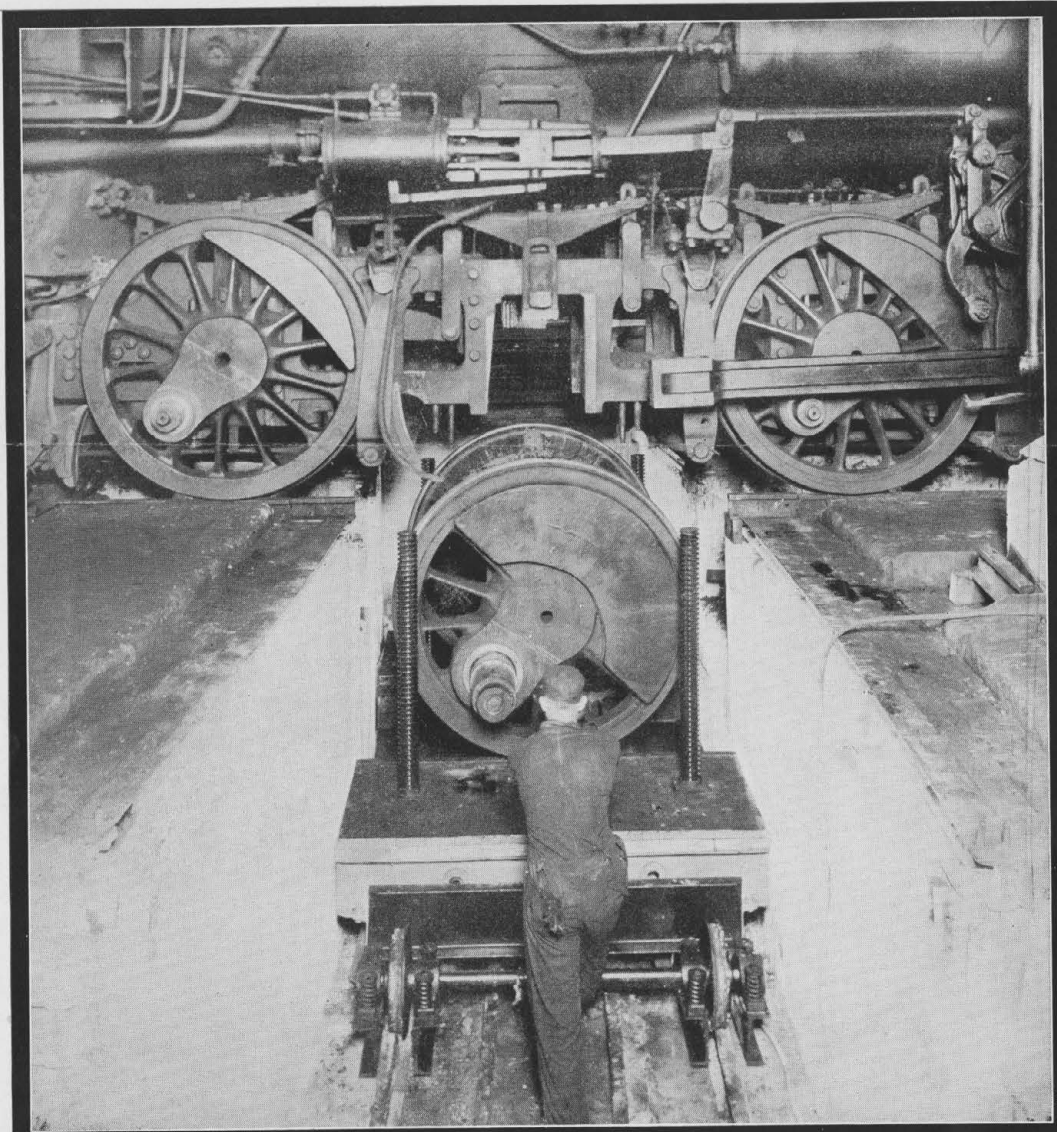
WHITING CORPORATION



M. J. Evans
Sales Manager

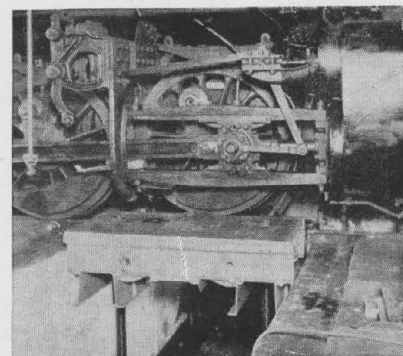
P.S. A large Eastern carrier has just ordered 7 additional drop tables for various points, making 10 in all on this particular road.

This Drop Pit Table Returns 114%



The rated capacity is 50 tons, but the users report loadings up to nearly 100 tons. A 15 h-p motor, with a push button control, raises or lowers the table. By moving the truck laterally along the pit track, delivery is made to any one of several shop tracks.

Table Raised to Remove Driver Springs, Pins or Hangers



Removing driver wheels with a Whiting Drop Pit Table. This illustrates how wheels can be moved from under engine to repair track with single operator, by hand.

Where the Whiting Drop Pit Table Saves Money:

For removal of drivers
For removal of engine trucks
For removal of trailer wheels
For removal of tank trucks
For spring renewals and equalization
For any dropping operation

For tank pin inspection
For tire changing
For tire shimming
For medium height jacking
For removal of trailer wheel, cradle and booster

on the Investment the First Year

Reproduction from an impartial report made on the savings effected by the Whiting Drop Pit Table in Engine House:

Labor saving: Based upon an average saving of 2½ hours of one mechanic's and one helper's time per shift, for three shifts—	
2½ hours x 3 shifts x \$.74.....	\$5.55
2½ hours x 3 shifts x .49.....	3.68
Daily saving in labor.....	\$ 9.23
Engine time saving: Based upon the rental value of a locomotive, as determined by the U. S. Railway Administration, of \$.001 per pound of tractive effort for engines of 60,000-lb. tractive effort, and assuming engine time saved is only one-half of shopmen's time saving—	
2½ hr.—2 x 3 shifts x (\$.001 x 60,000 lb.—24 hr.).....	9.33
Total gross daily saving.....	\$18.56
Operating cost of drop pit table.....	2.62
Net saving per day.....	\$15.94
Saving per shift.....	5.31
Annual saving—\$15.94 x 365.....	\$5,818.10
Net return on investment.....	114%
(Figures checked and approved by Master Mechanic in charge of Engine House.)	

Many Uses and Advantages

The Whiting Drop Pit Table can be used for any dropping operation on locomotives, tenders or cars, performing many that are impossible with the ordinary pneumatic jacks such as: dropping two pairs of crank journal main wheels of a 3-cylinder locomotive, or dropping trailer trucks of booster type locomotives which have a gear in the center of the trailer journal.

Eliminates Accident Risks

The Whiting Drop Pit Table eliminates the serious accident risk which always accompanies engine over-hauling when handled with ordinary jacks—an advantage of the greatest importance.

Whiting Drop Pit Table Users

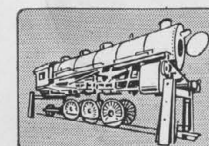
A. T. & Santa Fe Ry.	2
Baltimore & Ohio R. R.	5
Boston & Albany R. R.	1
Boston & Maine R. R.	4
Central of Georgia	1
Central of New Jersey	1
Chesapeake & Ohio	2
Chicago & Eastern Illinois	1
Chicago, Milwaukee & St. Paul	1
Chicago, Rock Island & Pacific	4
Chicago, Rock Island & Gulf	1
C. C. C. & St. L. Ry. Co.	2
D. L. & W. R. Co.	3
Florida East Coast Ry. Co.	2
Ford Motor Co.	1
Gulf, Colo. & Santa Fe	3
Interstate R. R.	1
Michigan Central.	1
Minn., St. Paul & S. S. M.	1
New York Central R. R.	5
N. Y., N. H. & H. R. R. Co.	1
N. Y. Rapid Transit Co.	1
Norfolk & Western.	5
Pennsylvania R. R.	9
Pittsburgh & Lake Erie	1
Richmond, Fredericksburg & Potomac	2
Texas & Pacific	5
Union Pacific	2

SPECIAL MACHINERY

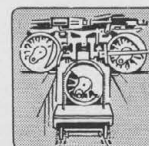
We design and build special equipment and machinery of all kinds. Experienced engineers are at your service.

WHITING CORPORATION

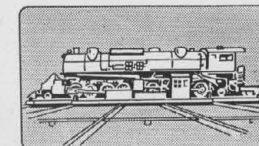
15603 LATHROP AVENUE, HARVEY, ILL., (Chicago Suburb)



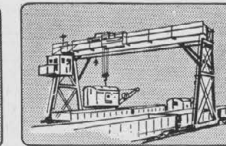
LOCOMOTIVE HOISTS



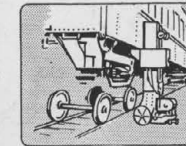
DROP TABLES



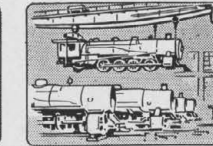
TRANSFER TABLES



GANTRY CRANES

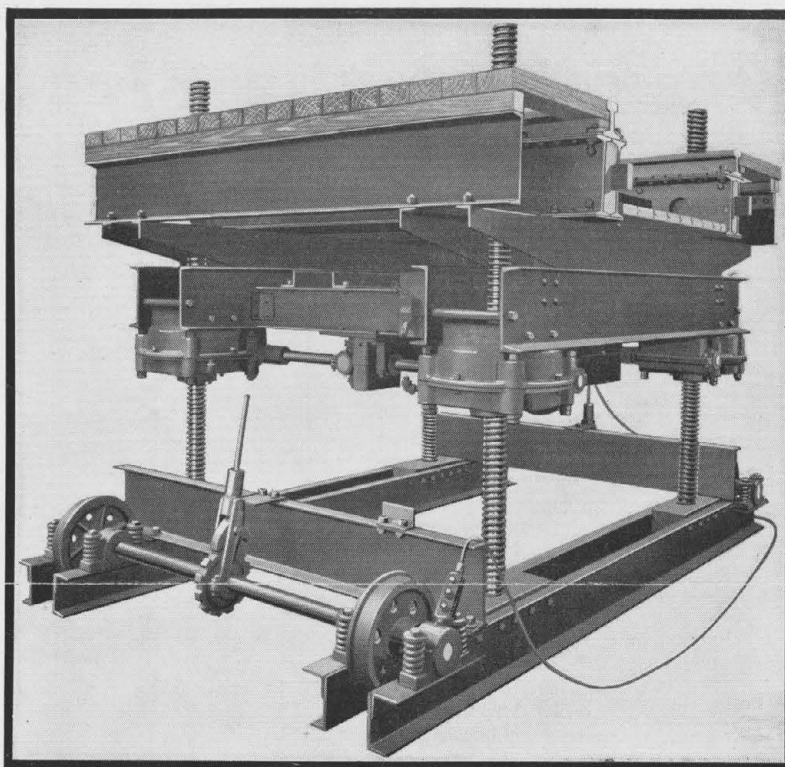


PORTABLE CAR JACKS



LOCOMOTIVE CRANES

WHITING



The Whiting Electric Drop Pit Table

"Good Till the Last Drop"

A Sturdy, Substantial Shop Tool, built for Heavy Duty

Heavy Steel Frame and Steel Screws The framework and truck are built of heavy structural shapes and castings, securely riveted together, conforming to standard crane practice. The load is carried on four steel screws of ample strength and unusually low thread pressure. After the first 4 in. drop the thread pressure is only 90 lb. per sq. in., an exceptionally low figure.

Self-Locking Worm Gearing Each screw is provided with a phosphor bronze nut, which is turned by a worm gear securely fastened to the nut. The load is always under control of the operator. It is carried by thrust bearings consisting of rollers which operate between hardened steel plates and are kept in position by a retainer plate.

Ball Thrust Bearings The steel worms are provided with ball thrust bearings immersed in oil bath.

Locking Bars Table is provided with locking bars to take the live load while moving the locomotive on or off the table. These serve as an additional protection for the moving parts. Electric inter-

lock is provided so that table cannot be lowered until locking bars are entirely unlocked or locked. This can only be done when the weight is taken on the table screws.

Capacity Standard tables are designed for 50 tons capacity (based on a safety factor of 5). This is sufficient for all classes of work and eliminates the necessity of jacking the load.

A lighter table of about 25 tons capacity for handling engine trucks, wheels, or for use in passenger car yards for handling passenger or freight car equipment, can be furnished.

Motor Operated The hoisting and lowering movements are operated by a standard electric motor of ample rating, with push button control. The rack or travel movement may also be arranged for motor operation if desired. Ordinarily this is operated by a hand ratchet device.

Speed Normal vertical movement is 12 in. per min. for single speed, 24 in. per min. for double speed tables.

For full details see Catalog No. 177

WHITING CORPORATION
HARVEY (Chicago Suburb) ILLINOIS

WFC

Py 606
Saint Paul, October 27, 1924.

Dear Sir:-

I hand you herewith revised sheets for the turntable record furnished you March 25, 1924.

Changes have been made in turntables at the following locations:

Dilworth
Forsyth
Billings
South Bend

Kindly destroy the original sheets which are to be replaced by the attached prints.

Yours truly,



Bridge Engineer.


Encl.

LOCATION OF TURNTABLES
LENGTH 64' TO 70'

[illegible]

LOCATION OF TURNABLES
LENGTH 80' TO 85'

[illegible]

TURNTABLE RECORD

LOCATION FORSYTH

Length and type 86' T.P.G.

Fabricated by Am. Br. Co. Reinforcement M.S. & M. Co.

Date manufactured 1907 - Reinforcement 1924

Maker's No.

Date installed Oct. 1924

Former location Livingston 1907-1923

Former table { 56' - 1896

Former { 60' - 1896-1906

Former { 70' - 1906-1924

Designing load 219 Ton Santa Fe

Maximum moment

Carrying Capacity W₃, W₅, Z₂, Z₃

Power - Tender loaded W₃, W₅

Power - Tender light

Rail on Table - 90" A.R.E.A. B tie plates & anchored

Circle Rail - 130" R.E. rail on plates

Kind of floor Ties on shelf angle

Type of center Am. Br. Co. Type H

No. of rollers

Live ring Yes

No. of End Wheels 4 each end

Size of End Wheels 16"

Center foundation Concrete on piling

Circular rail support Concrete with masonry plates

Allowance for deflection 1 $\frac{3}{8}$ "

Curb wall Concrete

Approach rail support H Beam on concrete

End latch None

Tractor One - Hand Brake

Kind of power Electric

Manufacturer Tractor Geo. P. Nichols & Bro.

Name Motor G.E. Co. 1181932 M.T. 7264

Size Motor 22 H.P. Induction 1135 R.P.M.

Current A.C. 220 V. 60 cycle 3 ph.

File No. Plans

Weight Table

Weight Center

Cost Turntable

Cost Center

Cost Total Installation

Founded on Clay, Gravel 7' or 8' down

56' Table sold for scrap

60 "

70 " shipped to South Bend Oct. 1924

TURNTABLE RECORD

LOCATION *SOUTH BEND*

Length and type *70' T.P.G.*

Fabricated by *Philadelphia Bridge Works*

Date manufactured *1903*

Maker's No. *270*

Date installed *1924*

Former location *Forsyth 1906-1924*

Former table *60', 1892-1911*

Former table *65', 1911-1924*

Designing load

Maximum moment

Carrying Capacity

Power - Tender loaded

Power - Tender light

Rail on Table

Circle Rail *85 lb.*

Kind of floor *10" x 12" ties on shelf angle*

Type of center *N.P. 85 ft. center*

No. of rollers

Live ring *None*

No. of End Wheels *2 each end*

Size of End Wheels

Center foundation *concrete on piling*

Circular rail support

Allowance for deflection

Curb wall

Approach rail support

End latch

Tractor

Kind of power

Manufacturer *Tractor*

Name Motor

Size Motor

Current

File No. *Plans*

Weight Table

Weight Center

Cost Turntable

Cost Center

Cost Total Installation

TURNTABLE RECORD

LOCATION - *DILWORTH*

Length and type *80' T.P.G. (Reinforced)*
 Fabricated by *American Bridge Co. & M.S. & M. Co.*
 Date manufactured *1907 + 1924*
 Maker's No. *None*
 Date installed *1907 + 1924*
 Former location *None*
 Former location
 Former location
 Designing load *219 Ton Santa Fe Type*
 Maximum moment
 Carrying Capacity
 Power - Tender loaded
 Power - Tender light
 Rail on Table - *90 lb. on tie plates*
 circle Rail - *130 lb. with tie plates*
 Kind of floor
 Type of center - *Am. Br. Co. Type H*
 No. of rollers *20*
 Live ring *Yes*
 No. of End Wheels *Four each end*
 Size of End Wheels *16"*
 Center foundation *Concrete on piling*
 Circular rail support *Plates on concrete*
 Allowance for deflection *1 1/2"*
 Curb wall *Concrete with timber top (underpinned)*
 Approach rail support *Timber on concrete*
 End latch *None*
 Tractor *One-Hand brake - Countershaft*
 Kind of power *Electric (Timber support for trolley)*
 Manufacturer Tractor *Geo. P. Nichols and Bro.*
 Name Motor *MN 1278 G.E. # 179184*
 Size Motor *15 H.P. Induction 1100 R.P.M.*
 Current A.C. *2 ph. 60 cycle 220 V. 36 A.*
 File No. Plans
 Weight Table
 Weight Center
 Cost Turntable
 Cost Center
 Cost Total Installation

9/5/23

TURNTABLE RECORD

LOCATION **BILLINGS**

Length and type 85' T.P.G.

Fabricated by American Bridge Co.

Date manufactured 1906 - Ctr. 1924

Maker's No. None

Date installed 1906 - Ctr. 1924

Former location None

Former table 56' D.P.G. 1887-1899

Former table 65' D.P.G. 1899-1906 #228

Designing load 219 Ton Santa Fe Type

Maximum moment

Carrying Capacity Q5, Q6, W3, W5, Z2, Z3

Power - Tender loader

Power - Tender light

Rail on Table - 85 lb.

Circle Rail

Kind of floor Ties on shelf angle

Type of center Am. Br. Co. Type H

No. of rollers 20

Live ring Yes

No. of End Wheels 4 each end

Size of End Wheel

Center foundation Concrete

Circular rail support Solid ties on the ground

Allowance for deflection 3 in.

Curb wall Timber throughout

Approach rail support Timber without tie

End latch None

Tractor One - With hand brake

Kind of power Electric

Manufacturer Tractor Geo. P. Nichols and Bros.

Name Motor G.E. Co #130180 MT1758

Size Motor 15 H.P. Induction 1100 R.P.M.

Current A.C. 3ph. 60 cy. 220 V. 41A.

File No. Plans

Weight Table

Weight Center

Cost Turntable

Cost Center

Cost Total Installation

CE & CO. 10-11-1906

Old turntable removed and new one installed

Turntable was started again

Turntable was started May 24-1909