Jan. 16, 1923. 1,442,148.

M. G. HILPERT.

TRANSFER TABLE LOCKING AND ALIGNING DEVICE.

FILED JUNE 7, 1920. 3 SHEETS—SHEET 1.

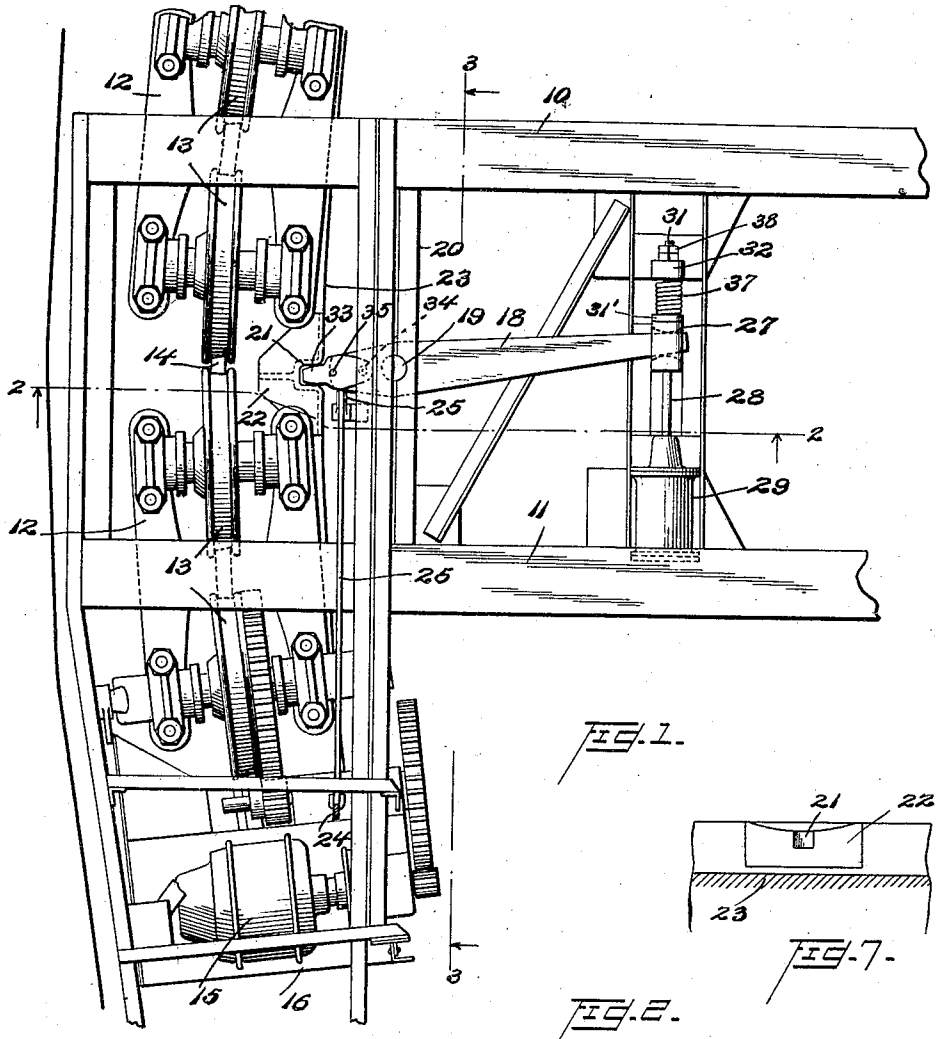
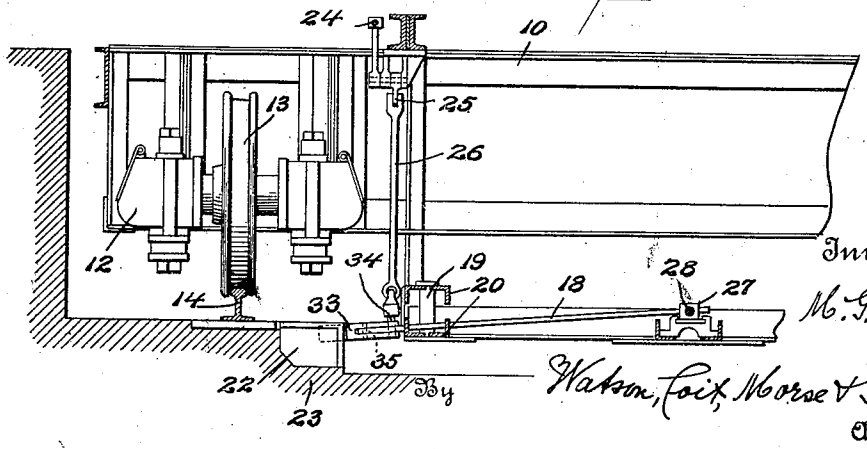


FIG. 1.

FIG. 7.

FIG. 2.



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3 SHEETS—SHEET 2.

FIG. 4.

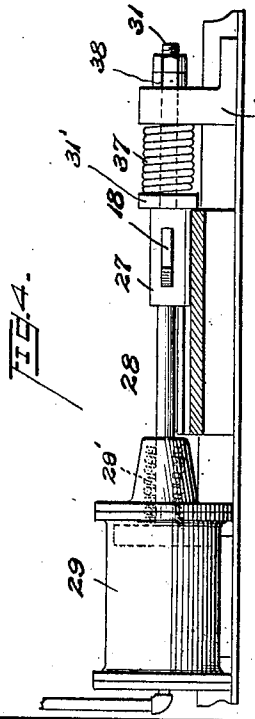


FIG. 5.

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3 SHEETS—SHEET 3.

Fig. 5.

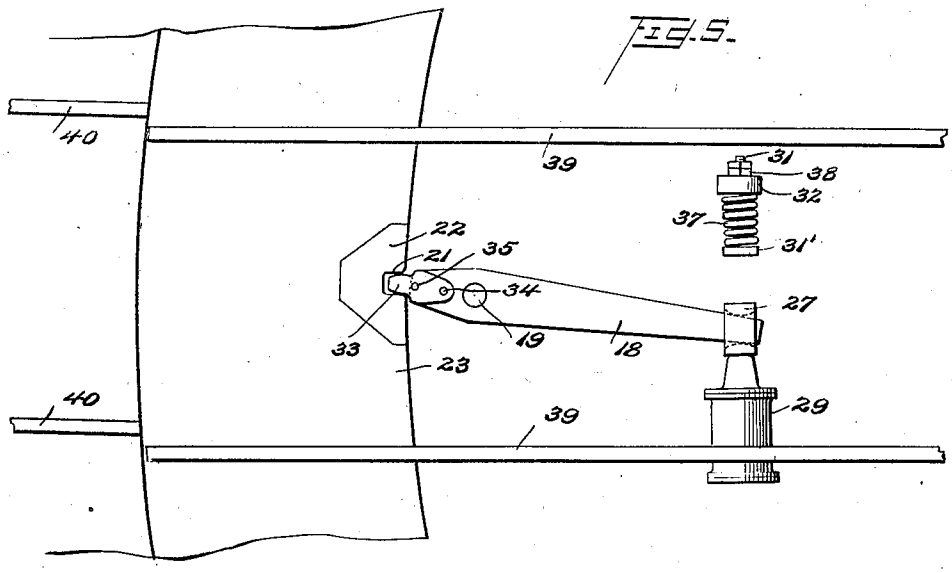
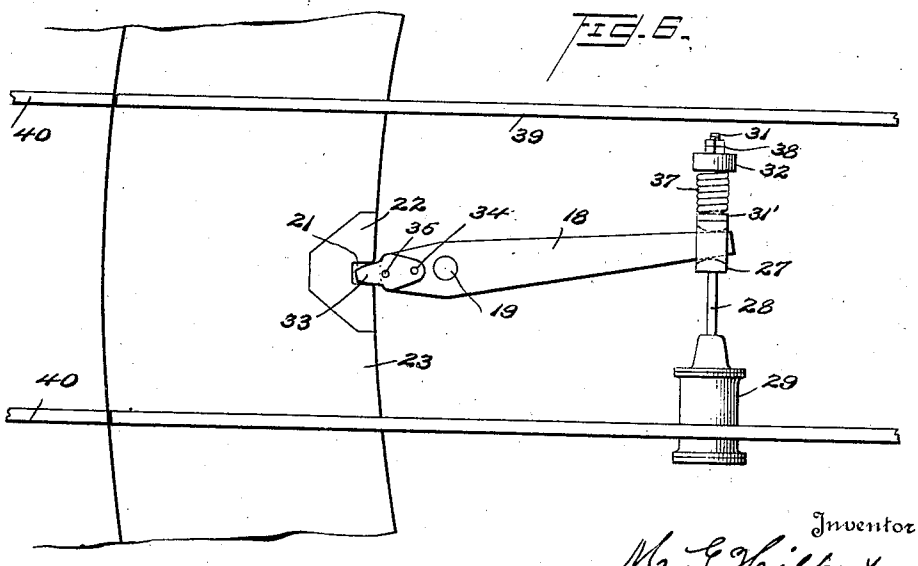


Fig. 6.



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UNITED STATES PATENT OFFICE.

MEIER G. HILPERT, OF HARRISBURG, PENNSYLVANIA, ASSIGNOR TO BETHLEHEM STEEL BRIDGE CORPORATION, OF BETHLEHEM, PENNSYLVANIA, A CORPORATION OF DELAWARE.

TRANSFER-TABLE LOCKING AND ALIGNING DEVICE.

Application filed June 7, 1920. Serial No. 387,074.

To all whom it may concern:

Be it known that I, MEIER G. HILPERT, a citizen of the United States, and residing at Harrisburg, Dauphin County, State of Pennsylvania, have invented certain new and useful Improvements in Transfer-Table Locking and Aligning Devices, of which the following is a specification.

The present invention relates to locomotive transfer tables. The principle objects of the invention are to provide, an improved means to lock the table against movement with the table track in alignment with an approach track; means to adjust the alignment of the table and approach tracks; means to adjust the alignment after the locking device has been thrown in; and an easily replaceable connection in the locking device adapted to break when the device is subjected to an abnormal force.

Other objects and features of novelty will be apparent from the description taken in connection with the drawings in which:

Figure 1 is a top plan view of one end of a transfer table having the present invention incorporated therewith;

Figure 2 is a sectional elevation taken substantially on the line 2—2 of Figure 1;

Figure 3 is a sectional elevation taken substantially on the line 3—3 of Figure 1;

Figure 4 is an elevation of a detail;

Figures 5 and 6 are diagrammatic plan views illustrating the manner of operation of the device for aligning the tracks; and

Figure 7 is a front elevation of one of the members formed with a recess to receive the aligning lever.

Referring to the drawings the numerals 10 and 11 indicate the girders of a transfer table, these girders being connected by proper bracing and supported so that the table may be moved to bring the table track into substantial alignment with an approach track. As shown each of the girders near its end is supported by a truck 12 having wheels 13 running on a track 14. In the form of the invention illustrated the table is shown as a turntable and the track 14 is therefore circular. The turntable is moved to bring the desired tracks into alignment by driving one of the supporting wheels 13 of a truck. As shown a motor 15 is carried on a platform 16 near the end of the girders 11 and this platform is pivotally supported on an axle 17 of the truck. The motor is connected to drive the axle 17 and wheel 13 by suitable gearing. This drive and associated parts form the subject matter of a separate application, Serial No. 383,056, filed May 21, 1920.

The present invention relates particularly to means for adjusting the alignment and locking the turntable against movement. To this end the invention comprises means to lock the table part to a stationary part with its track substantially aligned with an approach track including a member carried by one part adapted to engage the other part and means to move said member to adjust the alignment of the tracks. As shown a lever 18 is pivotally mounted on a pin 19 carried by suitable members 20 extending between the girders 10 and 11. One end of the lever is adapted to be positioned in a recess 21 formed in a member 22 carried by the foundation 23. In will be understood that there are a plurality of members 22 properly positioned so as to align the track on the table with any one of the approach tracks. The lever 18 is mounted for axial movement on its pivot pin 19. When in its lowermost position it engages any one of the recesses 21. When raised, however, it is disengaged from said recesses. Any suitable mechanism may be provided for moving the lever on its pivot. As shown an operating lever 25′ is provided in the cab, its lower end being connected by a link 24 to one arm of a bell crank 25, the other arm having a link 26 secured to the locking lever 18. It will be observed that the swinging of the operating lever 25′ effects the raising and lowering of the locking lever 18.

In the operation of the table it is difficult to effect an accurate alignment of the table track and an approach track by means of the main power operating means. That is to say, it is difficult to stop the table at the exact spot where the tracks will align. Usually it is necessary to reverse and drive forward alternately in jerks to obtain as near an alignment as possible. It is one of the main objects of the present invention to eliminate this hit-and-miss method of aligning the tracks and to provide a means whereby an exact alignment may be obtained almost immediately. For this purpose means is provided for turning the lever 18 on its

pivot after its end has been disposed in one of the recesses 21. In operation the operator will stop the table within one, two or three inches of an alignment as he approaches the track with which it is desired to align the table track. Then the lever 18 will be pressed downwardly by the operating lever 25′ in the cab and at the same time the lever 18 will be turned on its pivot until the end thereof drops into the recess 21. In order to aid in this movement, the top of the member 22 is concaved as shown in Figure 7 and preferably is also greased. The position of the parts at this time is illustrated by Figure 5. The lever is now turned to bring the tracks into alignment as shown in Figure 6. Any suitable mechanism may be provided for turning the lever. Thus in the form shown its inner end engages a slidable cross head 27 carried by a piston rod 28 connected with a motor 29. Preferably the motor 29 is a standard air brake cylinder and is adapted to be controlled by an air brake valve 30 located in the operating cab of the table. When this valve 30 is turned in one direction the cross head 27 is moved away from the cylinder 29 thereby turning the lever 18 on its pivot and adjusting the turntable from the position shown in Figure 5 to that illustrated in Figure 6. At the end of this movement the cross head 27 strikes an abutment, this abutment being positioned so that the tracks are held in perfect alignment. Preferably this abutment is somewhat yielding. As shown it comprises a bar 31 having a head 31′, between which and the bracket 32 is disposed a stiff spring 37 which is held very nearly fully compressed by the nuts 38 on the rod 31. Thus when the cross head 27 strikes the head 31′, the head 31′ may yield very slightly. The brake cylinder 29 is single acting, the compressed air operating to project the piston rod from the cylinder. The return movement of the cross head 27 is effected by the spring means 29′ within the cylinder. As the lever 18 may be turned on its pivot when in engagement with the recess 21, the end of the lever is preferably shaped as a gear tooth and the recess 21 as a space, the sides of which properly cooperate with the tooth shaped end of the lever.

It sometimes occurs that abnormal forces are applied to the table tending to move the same after the locking device has become effective. In order to avoid the breaking of some important part of the table under such circumstances, the locking device is provided with an easily replaceable part which is adapted to break when subjected to an abnormal force. Thus, as shown, the tooth shaped end 33 of the lever 18 is separate from the remaining part of the lever and it is bifurcated to straddle the adjacent part. The link 26 is secured to the lever 18 by a pin 34 which extends through and connects the end member 33 to the body of the lever. This pin 34 acts as a pivot for the end member 33, but turning movement of the member 33 relative to the body of the lever is prevented by a pin 35 which extends through the member 33 and the lever 18 and is designed of such size that it will break when an abnormal force is applied to the table after the locking mechanism has been thrown in.

In operation the lever 18 is normally held raised so that it is above the members 22. When it is desired to bring the table rails 39 into alignment with the rails 40 of an approach track the main power apparatus 15 is energized, being controlled from the cab to bring the table to substantially the position illustrated diagrammatically in Figure 5. Then the hand lever 25′ in the cab is moved so as to force the aligning lever 18 downwardly into the recess 21. If the end of the lever does not register with the recess 21 then the air brake valve 30 is opened very slightly to slowly move the cross head 27 until the lever drops into the recess 21. Then the brake valve 30 is fully opened and the brake cylinder thus acts to turn the lever 18 on its pivot into the position shown in Figure 6, the rails of the table track and approach track being in alignment when the cross head 27 strikes the abutment plate 31′. Furthermore, as long as the air pressure is maintained in the cylinder the lever 18 will lock the tracks in alignment. If the locking members are moved into engagement when the turntable has considerable momentum or if any abnormal force tending to move the table is applied, the pin 35 will be broken thereby permitting the member 33 to turn on its pivot 34 and render the locking device inoperative. It will be seen therefore that the present invention includes a main power means to effect movement of the table and a supplemental power means, the latter being adapted to bring the tracks into accurate alignment after the main power means has been thrown off.

It will be apparent that applicant's invention is adapted for use in connection with any form of movable table which carries a track designed to align with any one of a plurality of approach tracks. In other words, the invention is applicable to tables which move rectilinearly as well as tables which rotate and in this specification and claims the term transfer is used as a generic term to include both of the above mentioned forms.

It is to be understood, although a lever has been shown for effecting adjustment in the alignment of the tracks, the invention is not thus limited but includes other means for effecting this result. Neither is the in-

vention limited to the other details shown, but includes modifications and changes which come within the scope of the appended claims.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

1. The combination with a transfer table, of means to align the track on the table with an approach track including a member having a notch open at its top, a second member mounted for movement in a vertical direction into and out of register with said notch through its open top, and means to so actuate said second member, one of said members being carried by the table and the other being stationary and means to move said second member relative to its support in a horizontal direction to adjust the alignment of said tracks.

2. The combination with a transfer table, of means to align the track on the table with an approach track including a member having a notch open at its top, a second member, one of said members being mounted for movement in a substantially vertical direction, one of said members being carried by the table and the other being mounted on a stationary part, and means to actuate said movably mounted member into and out of engagement with the other member through said open top and means to move said second member in a horizontal direction relative to its support to adjust the alignment of said tracks.

3. The combination with a transfer table, of means to align the track on the table with an approach track including a member having a notch, a lever member, one of said members carried by the table and the other by a stationary part, one of said members mounted for movement to engage the other member, means to actuate said movable member into and out of engagement with the other member, and means to turn the lever on its fulcrum to adjust the alignment of said tracks.

4. The combination with a transfer table, of means to adjustably align the track on the table with an approach track including a locking device adapted to connect the table and a stationary member, and means to move the table slightly to adjust the alignment of said tracks after the locking device has connected said members and table.

5. The combination with a transfer table, of means to adjustably lock the table against movement with its track substantially aligned with an approach track, and means to adjust said locking means to obtain a perfect alignment of said tracks.

6. The combination with a movable transfer table part, of means to connect said table part to a stationary part with its track substantially aligned with an approach track, including a member carried by one part adapted to engage the other part, said member being mounted on its part for relative movement in a direction to move the table, and means to effect such relative movement to adjust the alignment of said tracks.

7. The combination with a movable transfer table part, of means to connect said table part to a stationary part with its track substantially aligned with an approach track including a lever pivoted on one part adapted to engage the other, and means to turn said lever on its pivot to adjust the alignment of said tracks.

8. The combination with a movable transfer table part, of means to connect said table part to a stationary part with its track substantially aligned with an approach track including a lever pivoted on one part and slidable on its pivot into and out of engagement with the other part, and means to turn said lever on its pivot to adjust the alignment of said tracks.

9. The combination with a movable transfer table part, of means to connect said table part to a stationary part with its track substantially aligned with an approach track including a pivotally mounted member on one part having a tooth adapted to engage a recess formed in the other part, means to actuate said member to move the tooth into and out of said recess, and means to turn said member on its pivot to adjust the alignment of said tracks.

10. The combination with a movable transfer table part, of means to connect said table part to a stationary part with its track in alignment with an approach track including a member on one part having a locking element, means to actuate said member with its element to move the latter into and out of engagement with the other part, and means securing the element to the member adapted to break when subjected to an abnormal force.

11. The combination with a movable transfer table part, of means to connect said table part to a stationary part with its track substantially in alignment with an approach track including an element on one part mounted for movement into and out of engagement with the other part, and means supporting the element adapted to break when subjected to an abnormal force.

12. The combination with a movable transfer table part, of means to connect said table part to a stationary part with its track substantially in alignment with an approach track, including a projecting element pivotally mounted on one part adapted to be moved into and out of a recess in the other part, and means to hold said element against turning on its pivot adapted to break when subjected to an abnormal force.

13. The combination with a movable

transfer table part, of means to connect said table part to a stationary part with its track substantially in alignment with an approach track, including a member rotatably mounted on one part having a projecting element pivoted thereon adapted to cooperate with a recess in the other part, means to move said member to carry said element into and out of said recess, a pin securing the element against turning on its pivot adapted to break when subjected to an abnormal force, and means to turn said member on its pivot to adjust the alignment of the tracks.

14. The combination with a movable transfer table part, of means to connect said table part to a stationary part with its track substantially in alignment with an approach track, including a member having a recess carried by one part, a projecting member on the other part adapted to cooperate with said recess, one of said members mounted for movement into and out of engagement with the other, one of said members being rotatable, and means to hold the rotatable member against turning adapted to break when subjected to an abnormal force, for the purpose set forth.

15. The combination with a movable transfer table part, of means to connect said table part to a stationary part with its track substantially in alignment with an approach track, including a stationary member having a recess, a lever on the turntable mounted to be moved into and out of said recess, and means to turn said lever to adjust the alignment of said tracks.

16. The combination with a movable transfer table part, of means to connect said table part to a stationary part with its track substantially in alignment with an approach track, including a stationary member having a recess, a rotatable member on the table having a part adapted to engage said recess, and means to turn said member to adjust the alignment of said tracks.

17. The combination with a movable transfer table part, of means to connect said table part to a stationary part with its track substantially in alignment with an approach track, including a stationary member having a recess, a lever on the table, a tooth pivotally mounted at one end of said lever adapted to engage said recess, means to hold said tooth against turning on its pivot adapted to break when subjected to an abnormal force, and means to turn the lever to adjust the alignment of said tracks.

18. The combination with a movable transfer table part, of means to connect said table part to a stationary part with its track substantially in alignment with an approach track including a member mounted on one part for movement relative thereto to adjust the alignment of said tracks, a crosshead engaging said member, fluid pressure means to move the crosshead in one direction, and yielding means opposing such movement.

19. The combination with a movable transfer table having main power means to move the same; of a supplemental power means adapted to bring the table track into accurate alignment with an approach track after the main power means has been thrown off.

In testimony whereof I affix my signature.

MEIER G. HILPERT.