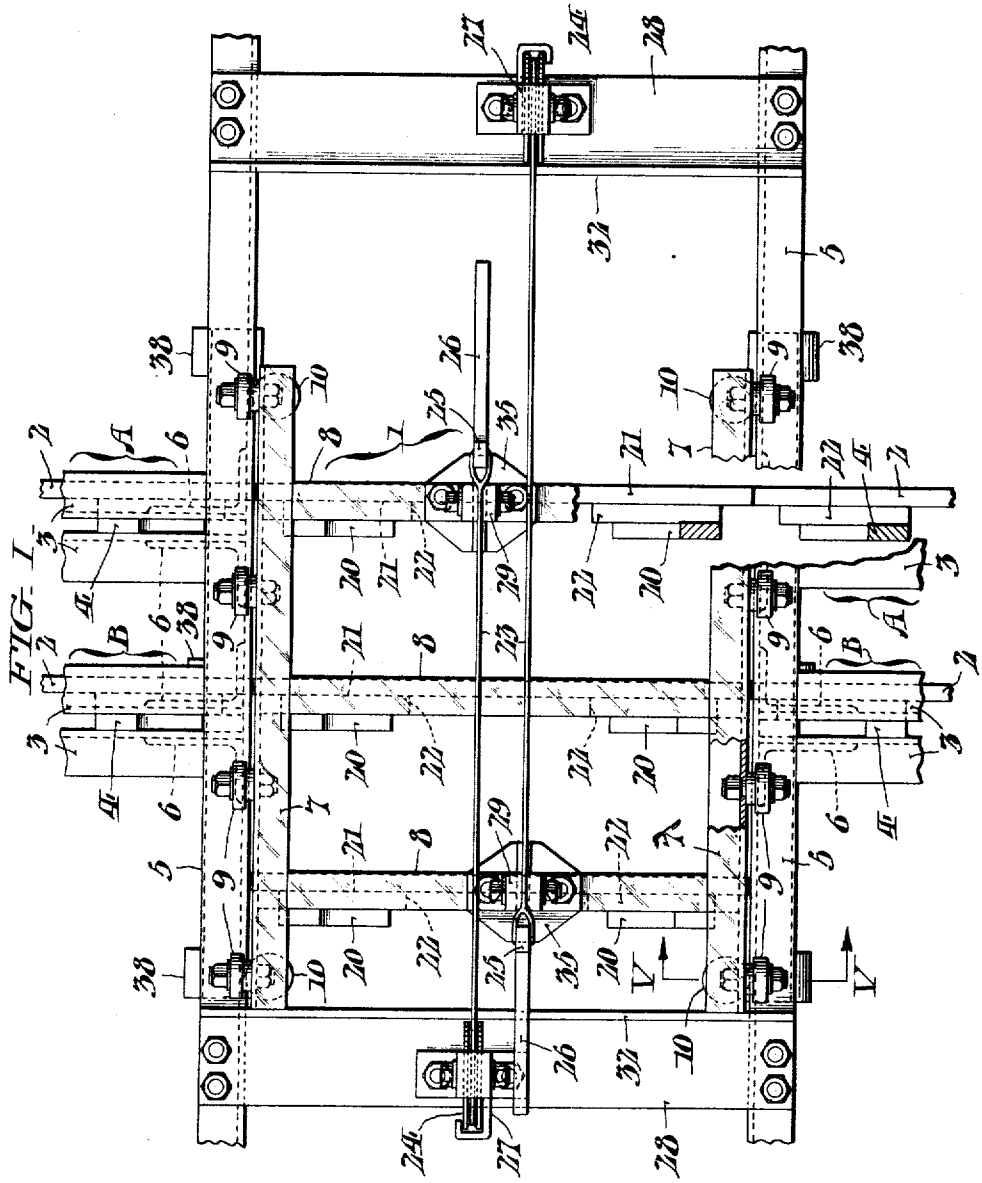
Jan. 19, 1932. V. P. SCHMIDT ET AL 1,841,640

TRANSFER DEVICE FOR OVERHEAD TRACK SYSTEMS

Filed July 27, 1931 3 Sheets-Sheet 1

FIG. 1.



WITNESSES

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TRANSFER DEVICE FOR OVERHEAD TRACK SYSTEMS

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FIG. II.

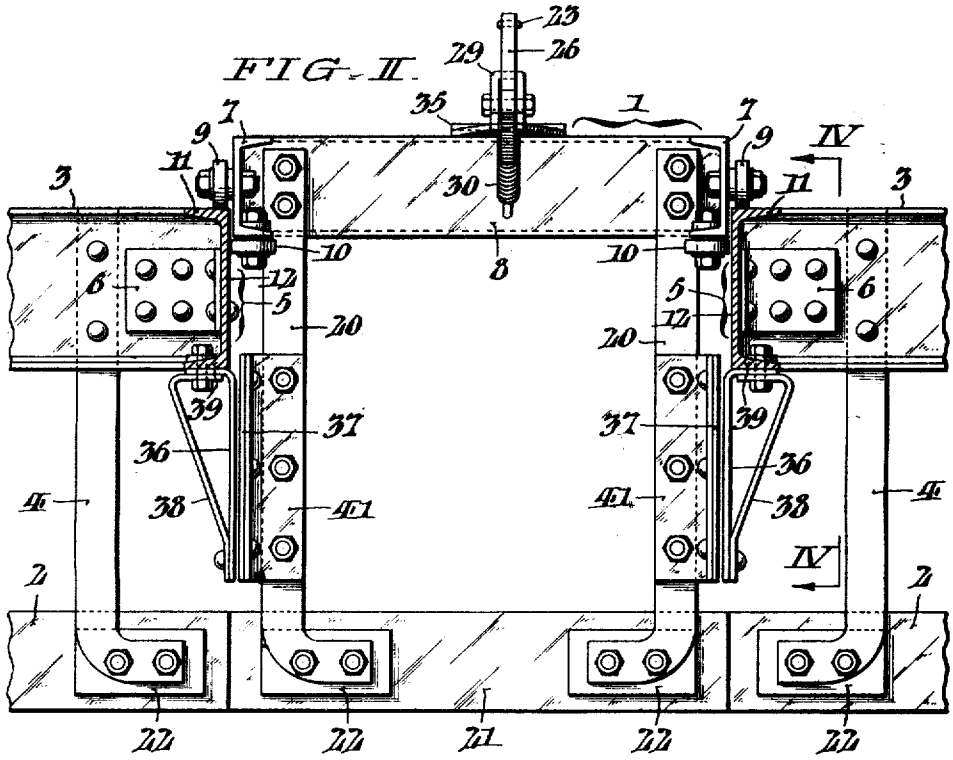
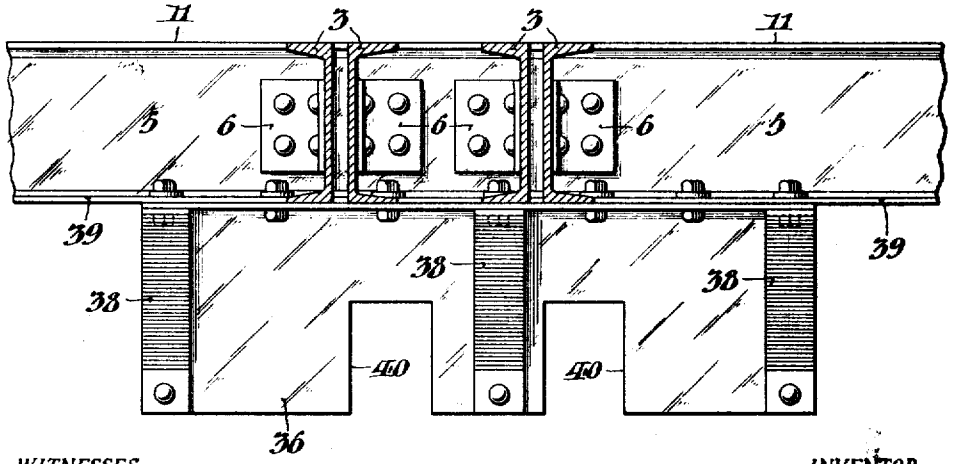


FIG. IV.



WITNESSES

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TRANSFER DEVICE FOR OVERHEAD TRACK SYSTEMS

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FIG. III.

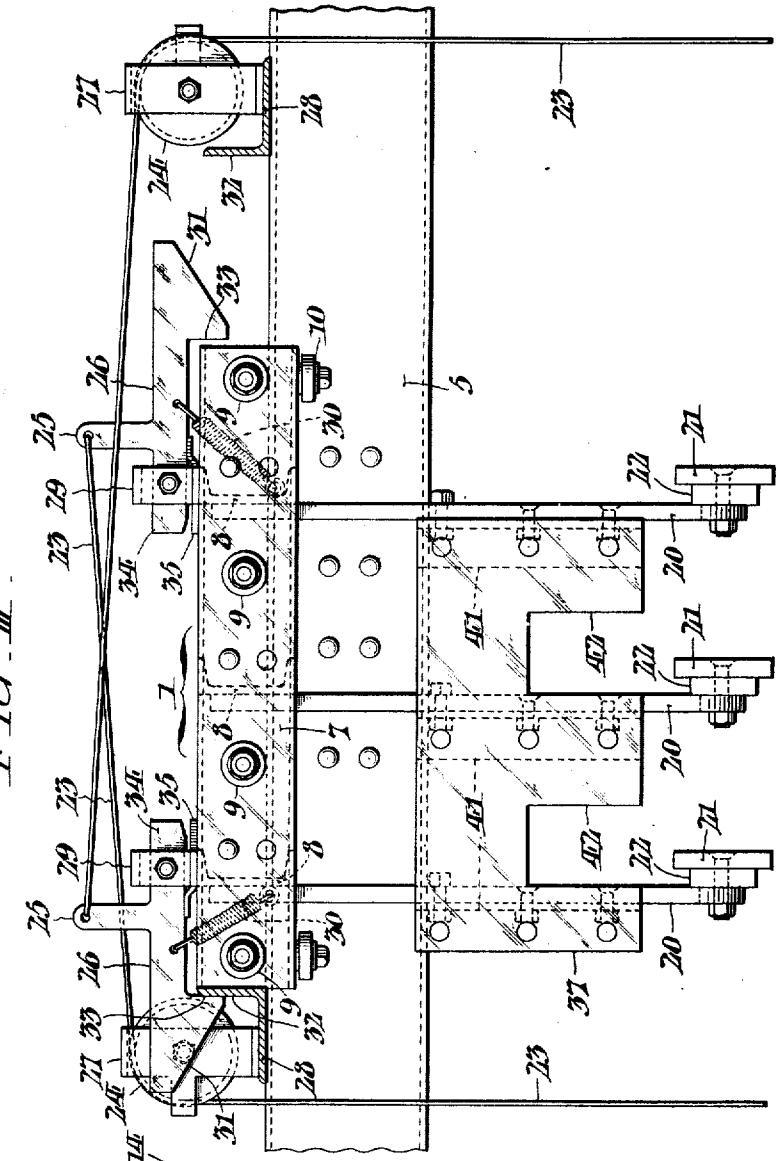
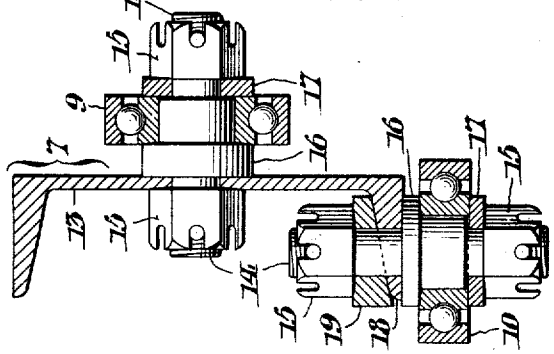


FIG. V.



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Patented Jan. 19, 1932 1,841,640

UNITED STATES PATENT OFFICE

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TRANSFER DEVICE FOR OVERHEAD TRACK SYSTEMS

Application filed July 27, 1931. Serial No. 553,350.

This invention relates to overhead track systems, such as used in factories or foundries for conveying materials by means of suspended carriers, and is particularly directed to a transfer device for shifting a carrier from one lane of traffic to another. In a plant, for example, where the overhead tracks are arranged to provide a number of complete circuits operated independently of each other, it may be occasionally desirable to shift a carrier from one circuit to another without disturbing the continuity of the lanes of traffic of the separate circuits.

The primary object of our invention is to provide means of a comparatively simple and inexpensive nature for thus effecting a transfer of a carrier from one overhead track circuit to another. Differing, however, from a switch, the transfer device of this invention, in either of its alternate operative positions, maintains the several lanes of traffic which pass through it, and hence permits the uninterrupted progression of other carriers along the prescribed routes.

A further object of the invention is to provide means for locking the transfer device when it reaches either of its alternative operative positions; together with means preventing the movement of a carrier onto the transfer device, or onto the stationary tracks from the transfer device, when the device is in any position other than a locked position at either limit of its travel.

Other objects and advantages characterizing our invention will become more fully apparent from the description hereinafter of one embodiment or example thereof as illustrated in the accompanying drawings. Of the drawings:

Fig. I is a plan view of a part of a monorail system and a transfer table used therein.

Fig. II is an end view of the transfer table.

Fig. III is a side view of the same.

Fig. IV is a cross-section of the same, taken as indicated by the lines IV—IV of Fig. II; and,

Fig. V is a cross-section of the same, taken as indicated by the lines V—V of Fig. I.

In the drawings the transfer device is indicated comprehensively at 1 and this device we preferably designate a "transfer table". It will be apparent, however, that the form of the table will in the practice of the invention be varied considerably to meet the special conditions in the particular plant in which the monorail system is installed, and that the name "transfer table" is used herein to denominate the function rather than the form of the device.

At each side of the transfer table 1 there are stationary tracks 2 suspended from I-beams 3, which form part of the overhead structure of the building, by means of hangers 4. The stationary tracks 2 are in the present example arranged in parallel spaced formation to afford two lanes of traffic designated at A and B. It may be assumed that the lanes A and B are parts of complete independent circuits over which carriers are progressed and that in the normal routing of the carriers there is no occasion to transfer a carrier from one circuit to another but that at times this is desirable. The I-beams 3 supporting the stationary tracks 2 terminate at transverse channel beams 5 to which they are riveted by means of angle plates 6. Between the channel beams 5 the transfer table 1 is movably supported, the table being adapted to travel thereon in a direction transverse to lanes of traffic.

The transfer table 1 comprises a framework consisting of a pair of parallel channels 7 cross-connected by three beams 8 which are spaced from each other at a distance corresponding to the distance between the lanes of traffic A and B. On each channel 7, as shown in Fig. V, there are mounted a series of ball bearing rollers 9 and 10. One set of

these rollers 9 is adapted to bear upon the upper flanges 11 of the channel beams 5, and the other set of these rollers 10 is adapted to bear upon the inner faces of the webs 12 of the channel beams 5 so as to guide the travel of the transfer table. The vertical rollers 9 are mounted on the webs 13 of the channels 7 of the transfer table by means of bolts 14 each having at their ends lock nuts 15 and intermediate the lock nuts 15 a spacing member 16, the fixed part of the ball bearing, and a washer 17. The horizontal rollers 10 are similarly mounted on the lower flanges 18 of the channels 7 by means of bolts 14 each having lock nuts 15, a spacing member 16, a washer 17 and an additional bevelled washer 19 fitting the inclined surface of the flange 18.

Suspended from each cross beam 8 of the transfer table there are a pair of hangers 20 carrying at their lower ends the movable track sections 21. Both the stationary tracks 2 and the movable track sections 21 are spaced from their respective hangers 4, 20 by means of blocks 22 so that the hangers will not interfere with the passage of the carrier trolleys. The three movable track sections 21 are of such length as to bridge the gaps between the stationary tracks 2, and they are arranged in parallel spaced relation with the distance between them corresponding to the distance between the stationary tracks 2.

For moving the transfer table 1 to its alternate operative positions, two depending hand-operated cables 23 are employed. Each cable 23 passes over a sheave 24 to an arm 25 on a latch member 26. The sheaves 24 are mounted in brackets 27 supported on angles 28 which extend from one stationary channel beam 5 to the other and define the limits of travel of the transfer table. The latch members 26 are pivotally mounted on brackets 29 which are secured to the cross beams 8 of the transfer table. Associated with each latch member 26 there is a coil spring 30, one end of which is attached to the lower part of a cross beam 8. As the transfer table 1 approaches either limit of its travel the inclined face 31 on one of the latch members 26 engages the flange 32 of the angle 28 and rides up on this flange against the pressure of the spring 30 until the perpendicular face 33 of the latch member has cleared the flange 32, whereupon, under the influence of the spring 30, the latch member is forced downward on the outer side of the flange 32, as shown at the left hand of Fig. III, and the transfer table is locked in one of its alternate operative positions. To unlock the transfer table 1 and move it to the other position, the cable 23 associated with the latch 26 which is locked is pulled. This causes the latch to swing upward until its inner end 34 strikes a plate 35, whereupon further pull on the cable causes the transfer table to move in the direction of the pull until the table strikes the angle 28 nearest the operator and the latch 26 associated with the opposite cable 23 catches upon the flange 32 of that angle. Each sheave 24 and latch 26 is disposed slightly to one side of the center line of the table 1.

When the transfer table 1 occupies the locked position as shown in Fig. III, two of the movable track sections 21 are in registry with the stationary tracks 2. When the transfer table 1 has been moved to its other locked position, a different pair or group of movable track sections 21 is in registry with the stationary tracks 2. The center track section 21 is, however, common to both pairs or groups and serves as the means for shifting a carrier from lane A to lane B or vice versa.

To prevent the trolley of a carrier from leaving the track or jamming, in case through inadvertence the transfer table 1 should be left in any position other than a locked position at its limit of travel, two sets of perforated plates 36 and 37 are employed. The plates 36 are secured to the stationary structure by means of brackets 38 bolted to the lower flanges 39 of the channel beams 5. As shown in Fig. IV, each plate 36 is provided with openings 40 of a size to permit the passage therethrough of a trolley when, and only when, the trolley is aligned with one of the stationary tracks 2. Accordingly, if a carrier is suspended from the center movable track section 21 of the transfer table 1, and if the table is not at either limit of its travel, passage from the track section 21 to either stationary track 2 will be blocked or obstructed by the plate 36. The plates 37 are secured to the hangers 20 by means of angles 41. As shown in Fig. III, each plate 37 is provided with openings 42, corresponding in size to the openings 40 of the stationary plates 36. Whenever the transfer table 1 is at either limit of its travel, passage of a trolley from a stationary track 2 to a movable track section is unobstructed; but whenever the transfer table is in any position mid-way between its alternate operative positions, the openings 42 in plates 37 will not be in registry with the openings 40 in plates 36, and passage of a carrier trolley from a stationary track 2 towards the transfer table 1 will be obstructed.

The operation of the transfer table 1 will be apparent from the above description, and need therefore be only briefly described. If it is desired to move a carrier from lane A to lane B, the cable 23 nearest to lane A is pulled, and the transfer table 1 is moved to that side. After the table has reached its limit of travel, one of the movable track sections 21 will be in registry with the stationary track 2 of lane A. Furthermore, the openings 42 of plates 37 will be in registry with the openings 40 of plates 36. Accordingly, the carrier will be free to move beyond the

ends of the stationary tracks 2 onto the aligned movable track section 21. Thereupon, by pulling the opposite cable 23, the transfer table may be moved to its other operative position. When it has reached its limit of travel, the center track section 21 will be in registry with the stationary tracks 2 of lane B, and passage from the transfer table 1 to the stationary tracks 2 will be permitted. Movement of a carrier from lane B to lane A is accomplished in the reverse manner.

From the above description it will be apparent that the movement of the transfer table 1 to either of its operative positions does not cause an interruption in the circuits of which the stationary tracks 2 form a part, but on the contrary their continuity is at all times preserved. Furthermore, carelessness in the operation of the transfer table cannot result in causing a trolley to jam or to leave its track.

While we have described a particular embodiment of our invention, it will be apparent that various changes may be made in the form of the apparatus herein described and illustrated without departing from the spirit of our invention. For example, the transfer table, while shown with three movable track sections thereon, may obviously be provided with additional track sections and may be associated with more than two sets of stationary tracks for the purpose of enabling the transfer of carriers from any lane of traffic to another lane. It will also be apparent that the transfer table of this invention may be adapted, as to the nature of the tracks employed, for use with various types of monorail, double rail, or other overhead track systems; and that while we have shown a hand operated cable for shifting the position of the transfer table, other mechanical or electrical devices may be used for this purpose.

Having thus described our invention, we claim:

1. In an overhead track system, stationary tracks forming a number of lanes of traffic, and a transfer table movable to alternate positions transversely of said stationary tracks, said transfer table having thereon spaced track sections, one group of which is adapted to register with said stationary tracks to complete the lanes of traffic when the transfer table is in one position, and another group of which is adapted to register with said stationary tracks to complete the lanes of traffic when the transfer table is in the other position, one of said track sections being common to both of the groups aforesaid.

2. In an overhead track system, stationary tracks forming two parallel lanes of traffic, and a transfer table movable to alternate positions transversely of said stationary tracks, said transfer table having thereon three parallel spaced track sections, the outer track sections being adapted to be alternately paired with the center track section, according to the position occupied by said transfer table, to register with said stationary tracks for completing both lanes of traffic.

3. In an overhead track system, stationary tracks forming a number of lanes of traffic, a transfer table movable to alternate operative positions transversely of said stationary tracks, said transfer table having thereon spaced track sections adapted to be alternately grouped to register with said stationary tracks for completing the lanes of traffic, and means on said transfer table for obstructing the ends of said stationary tracks when said transfer table is in any position other than one of its alternative operative positions.

4. In an overhead track system, stationary tracks forming a number of lanes of traffic, a transfer table movable to alternate operative positions transversely of said stationary tracks, said transfer table having thereon spaced track sections adapted to be alternately grouped to register with said stationary tracks for completing the lanes of traffic, and means fixed with relation to said stationary tracks for obstructing the ends of said movable track sections when said transfer table is in any position other than one of its alternative operative positions.

5. In an overhead track system, stationary tracks forming a number of lanes of traffic, a transfer table movable to alternate operative positions transversely of said stationary tracks, said transfer table having thereon spaced track sections adapted to be alternately grouped to register with said stationary tracks for completing the lanes of traffic, means for automatically locking said transfer table when it reaches either of its alternative operative positions, and means preventing movement of a carrier on said stationary tracks beyond the ends thereof when said transfer table is unlocked.

6. In an overhead track system, stationary tracks forming a number of lanes of traffic, a transfer table movable to alternate operative positions transversely of said stationary tracks, said transfer table having thereon spaced track sections adapted to be alternately grouped to register with said stationary tracks for completing the lanes of traffic, means for automatically locking said transfer table when it reaches either of its alternative operative positions, and means preventing movement of a carrier on said movable track sections beyond the ends thereof when said transfer table is unlocked.

7. In an overhead track system, stationary tracks forming a number of lanes of traffic, a transfer table movable to alternate operative positions transversely of said stationary tracks, said transfer table having thereon spaced track sections adapted to be alter-

nately grouped to register with said stationary tracks for completing the lanes of traffic, and perforated plates on said stationary tracks and on said movable track sections, the perforations of said plates being in registry only when said transfer table is in one of its operative positions, and the plates otherwise blocking the passage of traffic between said movable track sections and said stationary track sections.

In testimony whereof, we have hereunto signed our names at Altoona, Pennsylvania, this 20th day of July, 1931.

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HARRY A. BRENAMAN.