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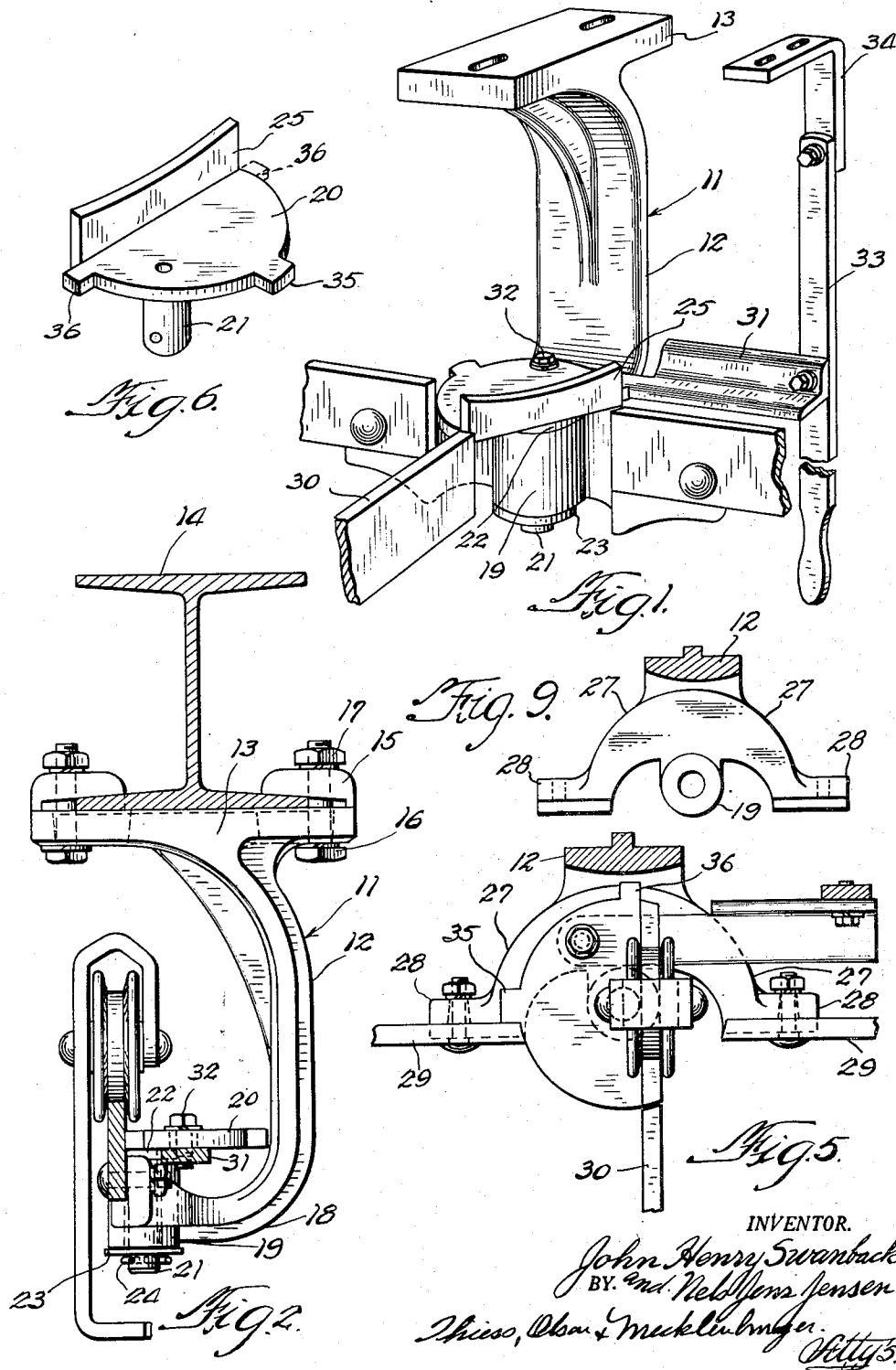
J. H. SWANBACK ET AL

2,657,643

OVERHEAD SWITCH

Filed Feb. 17, 1950

2 Sheets-Sheet 1



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Patented

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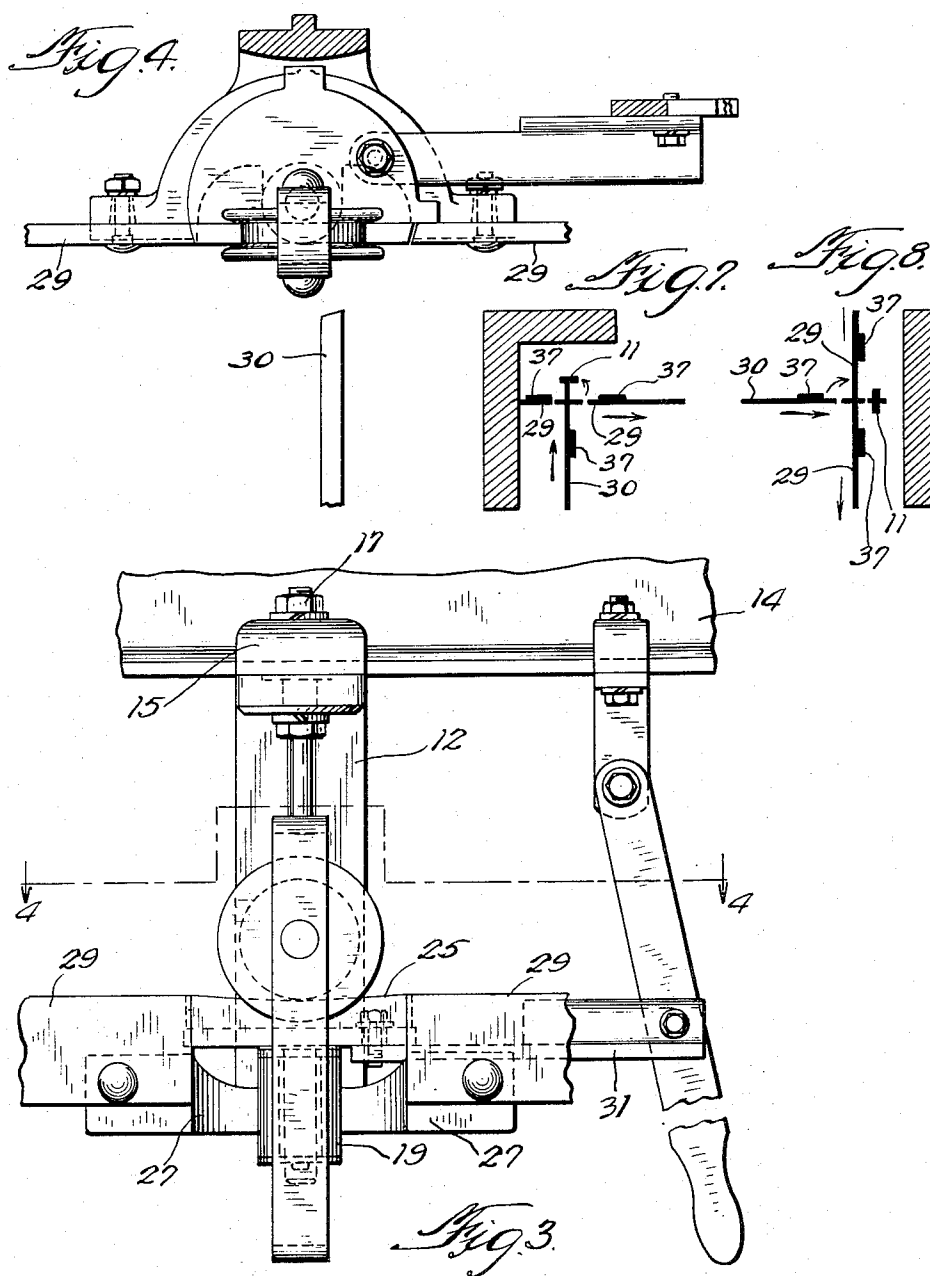
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UNITED STATES PATENT OFFICE

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OVERHEAD SWITCH

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3 Claims. (Cl. 104—99)

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The present invention relates to a switch and has special reference to a turntable type of switch. More particularly, this invention relates to a switch intended for use in an overhead tracking system for switching trolleys from one track or rail to another.

It is common practice to employ overhead tracking conveyors in plants, such as packing plants, wherein the products being treated are conveyed through the plant on an overhead tracking system.

Such a system may comprise rails suspended from the overhead or ceiling together with suitable switches. The rails generally include both straight and curved sections and may be formed from members of various sizes and shapes. One type consists of steel bars of suitable dimensions for the intended load, such, for example, as $2\frac{1}{2}$ " or 3" in width, and $\frac{3}{8}$ " to $\frac{3}{4}$ " in thickness. The articles to be conveyed are suspended from trolleys comprising a wheel for riding on the upper surface of the rails and a depending frame having at its lower end a hook or other device for supporting the articles to be conveyed. The wheel is journaled in the upper portion of the trolley frame and the hook may be pivotally connected to the lower end of the depending frame at a point directly beneath the trolley wheel.

Due to the depending trolley frame, the track hangers are all arranged on the same or corresponding sides of the track, so that one side always remains unobstructed to permit the passage of the trolley frame.

The present switch is for use in an overhead tracking system having tracks arranged at an angle to each other for readily switching trolleys from one track to another. The switches may be easily operated and are of simple, durable construction, requiring substantially no servicing.

An object of the present invention is to provide a switch for an overhead tracking system for readily transferring a trolley from one track to another without the necessity of backswitching.

Another object of this invention is to provide a switch having sufficient clearance for the depending trolley frames.

A further object is to provide such a switch which is of simple, durable construction.

A still further object is to provide a switch of the above type which is positive-acting and may be readily and accurately set to desired position.

Further objects and advantages will be ap-

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parent from the following description and claims when considered with the accompanying drawings, in which:

Fig. 1 is a perspective view of a switch embodying the present invention, mounted in an overhead tracking system;

Fig. 2 is a side elevational view of the switch shown in Fig. 1, suspended from the lower flange of an I-beam, the operating handle of the switch being omitted;

Fig. 3 is a front elevational view of the switch shown in Fig. 1;

Fig. 4 is a top plan view of the switch partially in section, with the switching member set to direct a trolley straight through;

Fig. 5 is a view similar to Fig. 4 with the switching member in changed position;

Fig. 6 is a perspective view of the movable switching member employed in the switch;

Figs. 7 and 8 are diagrammatic views illustrating possible applications of the switch in an overhead tracking system; and

Fig. 9 is a view similar to Fig. 5 with the turntable and its pivot removed.

Referring more particularly to the drawings, there is shown a turntable-type switch embodying the present invention intended for use in an overhead tracking system. The switch comprises a hanger 11 having a vertically arranged portion 12 with means, such as the plate 13 at its upper end, to facilitate securing the hanger to the I-beam 14 shown in Fig. 2 or other overhead construction. The plate 13 engages the lower face of the I-beam. Clamps 15 are positioned over the lower flanges thereof and secured to the plate 13 by bolts 16, passing through suitable apertures therein and being held in place by nuts 17. The vertical portion 12 is preferably offset so as to extend downwardly from one end of the plate 13. At the lower end of the hanger 11 there is a transverse portion or arm 18 extending to one side of the vertical portion 12, preferably in the general direction of the plate 13. The outer end of the arm 18 is provided with a vertically extending sleeve 19 having a suitable inner bearing surface, such as a bronze bushing, preferably formed integrally therewith.

The switching member may comprise a turntable 20, such as shown in Fig. 6. This turntable consists of a plate which is substantially semi-circular, although including slightly more than half a circle. Thus, it is rounded on one side and cut straight across at the other side. The plate 20 is supported on a shaft 21 of a size to fit into the bushing of sleeve 19. A washer 22 of bronze

or other suitable material is preferably positioned about the shaft 21 between the upper face of the sleeve 19 and the lower face of the turntable 20. A second washer 23 may be positioned about the lower end of the shaft 21 and held in place by any suitable means, such as a cotter pin 24 inserted in the shaft 21. The axis of the shaft 21 is preferably at the point where the radii of the curved portion intersect, being adjacent the middle of the straight side of the turntable but spaced therefrom.

Along the straight side of the turntable there is provided a guide member 25, in the form of a rail, with the central portion depressed below the two ends. Thus, when a trolley is positioned on the rail 25 it will tend to remain there until intentionally moved. Other suitable guide means arranged to maintain a trolley thereon against accidental displacement may be employed if desired.

Extending forwardly from adjacent the rear side of the sleeve 19, on each side thereof are a pair of wing portions 27. These wing portions 27 are curved outwardly and forwardly so as to leave a substantial space between them and the sleeve 19, except at the rear of this sleeve. Flanges 28 are provided at the outer ends of the wing portions 27 to which aligned, spaced track portions 29 may be secured. In the embodiment disclosed, the track portions 29 are aligned, although if desired they could be at a slight angle to each other. In securing the track portions 29 to the flanges 28, such as by nuts and bolts, the inner ends of the track portions may be substantially flush with the inner surface of the wing portions 27. Accordingly, there is a substantial distance between the inner ends of the track portions 29 and the sleeve 19. This distance is sufficient to provide clearance for the depending frame of a trolley supported by the guide member or rail 25 as the turntable 20 is moved to its various operative positions. As explained more fully hereinafter, in some installations only one track portion 29 is required.

In the embodiment illustrated, the track portions 29 of the overhead tracking system are connecting to the flanges 28 of the switch. However, if desired, the track portions 29 may be provided as a part of the switch and connected to the tracks of the overhead tracking system. The operation of the switch would be the same in either arrangement.

When the turntable is positioned as shown in Figs. 2, 3 and 4 with the rail 25 aligned with and substantially abutting the track portion 29, the switch is in what may be termed a "straight-through" position.

An additional track portion 30 at an angle to the track portions 29 is supported adjacent the switch in position to be aligned with the guide means or rail 25 on the turntable 20. The track portion 30 may be supported from the overhead or ceiling by the usual hangers arranged on one side thereof, and need not be physically connected to the remainder of the switch, other than to substantially abut the rail 25 in one position of the latter.

The track portion 30 as shown in the drawings may be substantially normal to the track portions 29, although the angularity of the track portions may be varied. As the rail 25 on the turntable 20 is preferably arranged to one side of the axis of rotation of the turntable, the track portion 30 is not equi-distant from the track portions 29 but is arranged closed to one than to the other, as

shown in Fig. 5, depending upon the direction of rotation of the turntable in being moved from straight-through position to alignment with the track portion 30, which, for convenience, may be termed "switching position." This in turn will be determined by the location of the hangers for the track portions.

The hangers 37 for the track portions 29 and the continuations thereof are usually positioned on the same side of the tracks as is the hanger 11 of the switch. If the hangers 37 for the track 30 are on the left-hand side of the track, as illustrated in Fig. 8, the track portion 30 will be closer to the right-hand track portion 29, as viewed in Fig. 5, and the depending frame of a trolley moving along the track portion 30 toward the switch will be on the right-hand side of the track 30. Accordingly, to transfer a trolley from the track portion 30 to the track portions 29, the turntable will be rotated from the position of Fig. 5 in a clockwise direction to the position shown in Fig. 4. Thereafter the trolley may be moved to either of the track portions 29. During the movement of the turntable 20 with the trolley thereon, there is nothing to obstruct the depending frame of the trolley, as the wing portions 27 are spaced some distance from the sleeve 19.

If the hangers for the track portion 30 are on the opposite or right-hand side thereof, the track 30 will be closer to the opposite or left-hand track portion 29, and the turntable 20 will be rotated in a counterclockwise direction to transfer a trolley from the track portion 30 to either of the track portions 29.

Means are provided for rotating the turntable 20. As illustrated in the drawings, this may comprise a link 31 pivotally connected at one end to the underside of the turntable 20 by means of a pin or bolt 32, and pivotally connected at the other end to a lever 33, the latter in turn being pivotally mounted on a suitable support 34. With this construction, movement of the handle to the left, as viewed in Figs. 1 and 3, rotates the turntable in a counterclockwise direction, and movement of the lever to the right rotates the turntable in a clockwise direction, these directions being determined by viewing the turntable from above.

Stop means are preferably provided for limiting the movement of the turntable in either direction when the rail 25 is aligned with the track portions 29 or track portion 30. The stop means may consist of projecting lugs or members 35 and 36 on the rounded periphery of the turntable 20. The lug 35 limits the movement of the turntable 20 when the rail 25 is aligned with the track portion 30 by abutting against the rear side of the left-hand track portion 29 as shown in Fig. 5. The lug 36 limits the movement of turntable 20 in the opposite direction by abutting the rear side of the right-hand track portion 29 when the rail 25 is aligned with the track portions 29, as illustrated by Fig. 4.

In a construction wherein the track portion 30 is supported by hangers on the right side thereof (Fig. 7), the turntable 20 will be moved in a clockwise direction from straight-through to switching position, and the lug or stop member 36 will be arranged at the opposite side of the turntable, shown by dotted lines in Fig. 6, for abutment against the rear of the left-hand track portion 29. In this arrangement the stop or abutment member 35 will engage the right-hand track portion 29 instead of the left-hand track portion, as

shown in Fig. 5.

Figs. 7 and 8 show diagrammatically two applications of the present switch. In Fig. 7 the switch is arranged adjacent a corner. The hanger 11 and the track hangers 37 supporting the track portions 29 are positioned adjacent one of the walls. The hangers 37 for the track portion 30 are positioned on the right-hand track side of the track away from the intersecting wall. With this construction, the left-hand track portion 29 is not essential. In transferring a trolley from the track portion 30 to the right-hand track portion 29, the turntable will rotate in a counter-clockwise direction as indicated by the arrow in Fig. 7. It is to be noted that it would not be possible merely to provide a curved track between the track portions 29 and 30 due to the opposite arrangement of the hangers therefor.

Referring to Fig. 8, a layout is shown in which the switch hanger 11 and the hangers 37 for the track portions 29 are adjacent one wall, and the track portion 30 runs normal thereto. In this arrangement the hangers 37 for the track portion 30 are on the left side of the track. Therefore, in transferring a trolley from the track portion 30 to either of the track portions 29, the turntable will rotate clockwise as indicated by the arrow, permitting the trolleys to be moved on the track portions 29 in either direction from the switch. In transferring trolleys from the track portions 29 to the track portion 30 the procedure above described would be reversed.

While we have shown a particular embodiment of our invention, it will be understood, of course, that we do not wish to be limited thereto since many modifications may be made, and we, therefore, contemplate by the appended claims to cover any such modifications as fall within the true spirit and scope of our invention.

Having thus described our invention, what we claim and desire to secure by Letters Patent is:

1. A switch for an overhead tracking system having at least three spaced angularly arranged track portions, comprising a support having an upright portion for being connected at its upper end to overhead construction, said support having adjacent its lower end a substantially horizontally arranged bifurcated portion for connection at its outer spaced ends to two of said track portions and a turntable supporting portion intermediate the legs of said bifurcated portion, a turntable, means associated with said turntable and turntable support for pivotally mounting the turntable on its support, said mounting means and turntable support being spaced a substantial distance from the sides of said bifurcated portion, said turntable having a substantially straight side positioned outwardly from the axis of said turntable at least as far as said pivotally mounting means, a single substantially straight guide member on said turntable adjacent the straight side arranged to be moved into substantially abutting alignment with either of said track portions to receive therefrom or guide thereto a trolley having depending frame, the distance between the flat side of said turntable and said track portions being sufficient to provide clearance for the depending trolley frame of a trolley thereon.

2. A switch for an overhead tracking system

having at least three spaced angularly arranged track portions, comprising a support having an upright portion for being connected at its upper end to overhead construction, said support having adjacent its lower end a substantially horizontally arranged bifurcated portion for connection at its outer spaced ends to two of said track portions and a turntable supporting portion extending forwardly from the lower end of said support intermediate the legs of said bifurcated portion, a turntable, means associated with said turntable and turntable support for pivotally mounting the turntable on its support, said mounting means and turntable support being spaced a substantial distance from the sides of said bifurcated portion, said turntable having a substantially straight side positioned outwardly from the axis of said turntable at least as far as said pivotally mounting means, a single substantially straight side arranged to be moved into substantially abutting alignment with either of said track portions to receive therefrom or guide thereto a trolley having depending frame, the distance between the flat side of said turntable and said track portions being sufficient to provide clearance for the depending trolley frame of a trolley thereon.

3. A switch for an overhead tracking system having at least three spaced angularly arranged track portions, comprising a support having an upper portion for being secured to an overhead construction, an upright portion extending downwardly at the rear of said upper portion, a substantially horizontally arranged bifurcated portion extending forwardly from the lower end of said upright portion for connection at its outer spaced ends to two of said track portions and a turntable supporting portion extending forwardly from the lower end of said upright portion intermediate the legs of said bifurcated portion, a turntable, means associated with said turntable and turntable support for pivotally mounting the turntable on its support, said mounting means and turntable support being spaced a substantial distance from the sides of said bifurcated portion, said turntable having a substantially straight side positioned outwardly from the axis of said turntable at least as far as said pivotally mounting means, a single substantially straight guide member on said turntable adjacent the straight side arranged to be moved into substantially abutting alignment with either of said track portions to receive therefrom or guide thereto a trolley having depending frame, the distance between the flat side of said turntable and said track portions being sufficient to provide clearance for the depending trolley frame of a trolley thereon.

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