W. ROTHE.

OVERHEAD SWITCH AND STOP.

APPLICATION FILED SEPT. 22, 1915.

1,180,080.

Patented Apr. 18, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

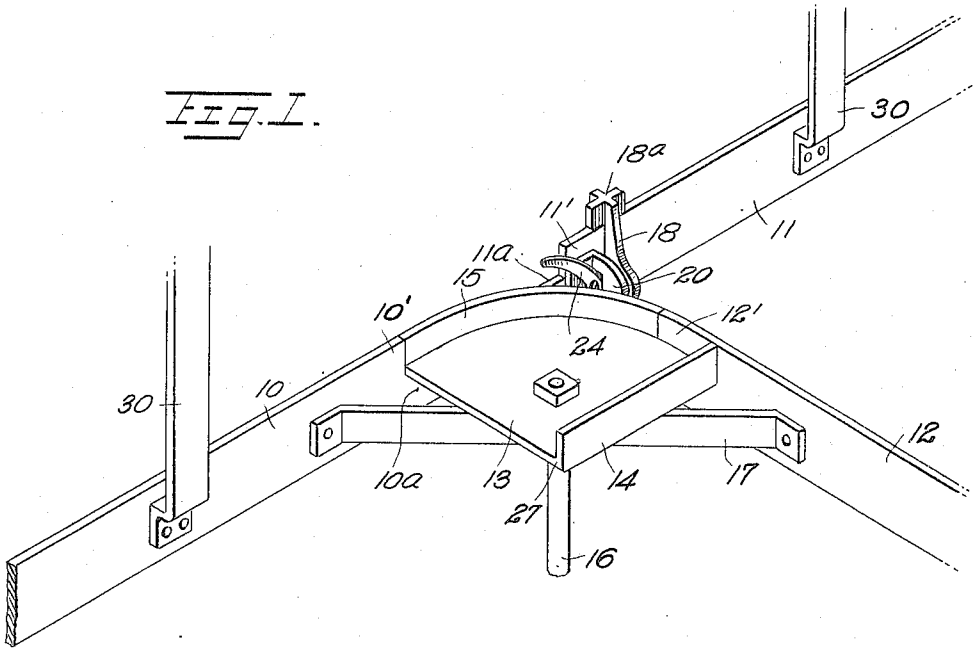
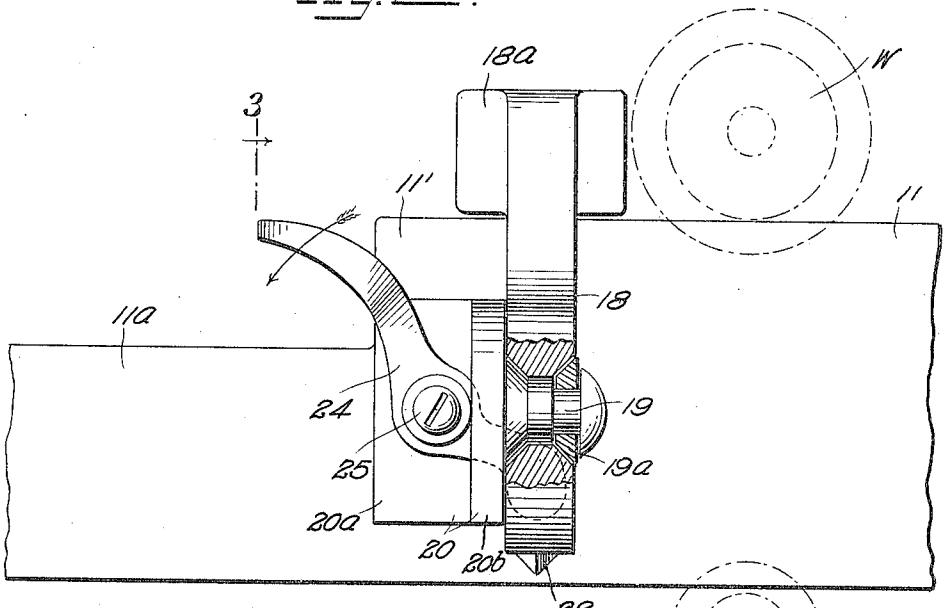


Fig. 2.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

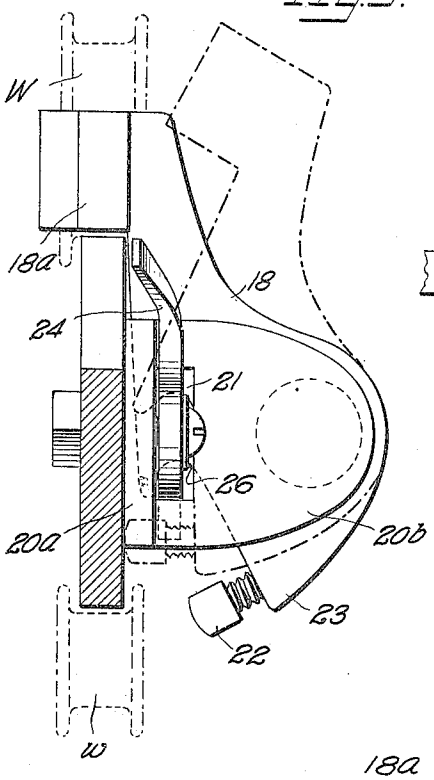


Fig. 4.

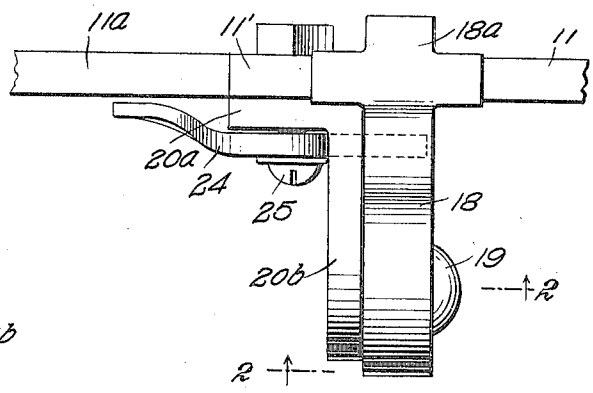
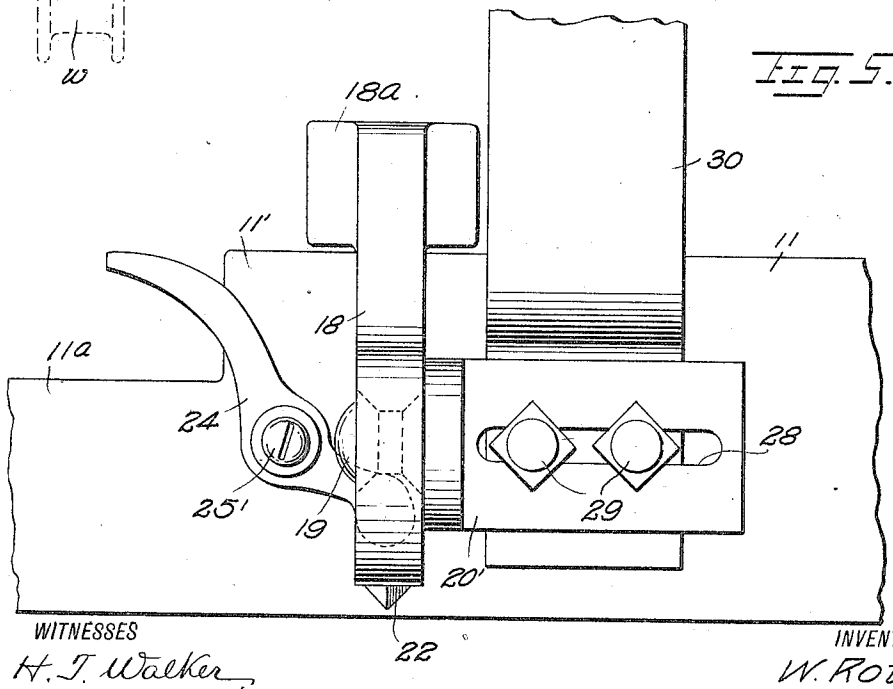


Fig. 5.



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OVERHEAD SWITCH AND STOP.

1,180,080. Specification of Letters Patent. Patented Apr. 18, 1916.

Application filed September 22, 1915. Serial No. 52,014.

To all whom it may concern:

Be it known that I, WILLIAM ROTHE, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Overhead Switch and Stop, of which the following is a full, clear, and exact description.

This invention relates to overhead trackways such as are in use in warehouses, meat markets and similar places, and has particular reference to safety appliances for use in connection with such switches.

Among the objects of the invention is to provide an improved automatic stop device for use in connection with a switch, said stop device becoming functional simultaneously with the shifting of the switch to make it impossible for a trolley to accidentally run into an open switch.

The invention has special reference to simplicity of construction and the facility for attaching the improvement to existing trackways.

With the foregoing and other objects in view, the invention consists in the arrangement and combination of parts hereinafter described and claimed, and while the invention is not restricted to the exact details of construction disclosed herein, still for the purpose of illustrating a practical embodiment thereof reference is had to the accompanying drawings in which like reference characters designate the same parts in the several views, and in which—

Figure 1 is a perspective view of a switch portion of an elevated trackway indicating the stop mechanism in position guarding the open portion of the switch; Fig. 2 is a side elevation of the stop in operative position, parts being in section on the broken line 2—2 of Fig. 4; Fig. 3 is an end view of the stop, the track being in section on the line 3—3 of Fig. 2; Fig. 4 is a plan view; and Fig. 5 is a side elevation corresponding substantially to Fig. 2 but indicating a slight modification.

For convenience of illustration and description of the improvement, I show in Fig. 1 a portion of a common form of overhead track and switch. At 10 and 11 are indicated portions of the main track in horizontal alinement with each other, and 12 represents a side track adapted to connect with the main line portion 10. The switch comprises a flat web 13 practically quadrant shaped and having at one side a vertical straight flange 14. Opposite the flange 14 the plate is arc-shaped and bounded by an upstanding arc-shaped flange 15. Each of the track members has a shoulder, the several shoulders being indicated at 10′, 11′ and 12′ corresponding to the several track members. Each track member also has a tongue shown at 10^a and 11^a, corresponding to the track members 10 and 11, the tongues being in effect extensions of the track members beyond the several shoulders and below the same. The switch has a vertical pivot stem 16 journaled in a bracket 17. The operator, in order to move the switch, lifts bodily upwardly upon the stem and thereby lifts the switch clearing it from the track members and permitting free rotation in the bearing bracket. The switch plate or ends of the flange portions thereof may rest squarely upon the upper edges of the tongues and the flange 14 is of a length and size adapted to fill the space between the shoulders 10′ and 11′ constituting a straight trackway from 10 to 11, and the arc-shaped flange 15 in like manner is adapted, when the switch is turned, to span the space between the shoulders 10′ and 12′ making a trolley connection between the track members 10 and 12.

When the switch is turned, as shown in Fig. 1, leaving the main line 11 open, it is desirable that some means be provided to make it impossible for the trolley or other carrier rolling upon the track 11 to accidentally roll therefrom. This fact, furthermore, is typical of any one of the track members, and means may be provided to guard each or all of them.

While the general purpose and broader characteristics of the invention correspond somewhat to devices previously proposed, yet the improvement relates to a simplified construction and has several advantages with respect to strength and reliability of operation, it being kept in mind that this device when once installed is subjected to rough usage and must be absolutely automatic in both directions for guarding an open switch and for immediate removal from blocking or stopping position when the switch is shifted.

The main element of the improvement

consists of a tumbler 18 pivoted at 19 upon a bracket 20 riveted or otherwise secured to one side of the track member to be guarded and preferably adjacent the shoulder thereof. The bracket is of strong rigid construction and comprises two parts, one part 20^a being secured squarely against the track member and the other part 20^b formed at a right angle thereto in a vertical plane. The latter portion is formed with a vertical slot 21 adjacent the angle or closely adjacent the plane of the part secured to the track member.

The pivot 19 is of double conical formation and comprises a stud rigidly secured and supported by the bracket member 20^b, the axis of the stud lying horizontal and parallel to the direction of the trackway. The pivot portion of the tumbler is likewise provided with a double conical seat or bearing and when the tumbler is secured in position on the pivot by means of a conical washer 19^a and upsetting or otherwise securing the end of the stud, the tumbler is given absolutely free rotation around the stud, but because of the double conical formation of the pivot, a considerable amount of looseness may be provided for insuring such free movement without permitting very much, if any, lateral tilting of the tumbler with respect to the axis of the stud.

The tumbler comprises a head 18^a cruciform in plan, the head being formed at the upper end of the shank portion of the tumbler. This head in the operative position of the stop lies squarely upon the upper edge of the track member with two of the ends of the cross in vertical alinement with the track and in position for one end thereof to receive the flanged trolley wheels as indicated at W in dotted lines. In other words, the drum portion of the trolley wheel receives the impact of the tumbler head and thereby the flanges are relieved from damage which results from their striking against the stops as heretofore used. The other end of the cross opposite the one struck by the wheel provides an extended bearing for the tumbler upon the upper edge of the track member, thereby stiffening the general construction. The head also constitutes a counterbalance which, together with the main portions of the tumbler below the head, lies always at one side of the axis of the stud 19 when in either position. A set screw 22 is adjustably secured to the heel 23 of the tumbler. The head of this screw is adapted to strike against the side of the track member when the tumbler is inoperative, whereby the extent of movement of the tumbler away from the track is limited. This screw 22 strikes against the track member above the line of movement of the safety trolley wheel *w*, as indicated in Fig. 3, so that no obstruction to either of the trolley wheels results or to any part of the device when the stop member is inoperative.

At 24 is a trip lever, the same being a lever of the first class and pivoted at 25 on a horizontal axis perpendicular to the trackway and hence perpendicular to the axis of the stud 19. As shown in Figs. 1 to 4, the trip lever pivot is secured to the base portion 20^a of the bracket and substantially in the plane of the vertical slot 21 through which one end of the lever projects. This projecting end of the lever engages in a notch 26 in the lower inner portion of the tumbler. The opposite end of the lever projects beyond the shoulder 11′ and closely adjacent the space above the tongue 11^a in position to be engaged by the switch member at about the point 27 when the switch is moved and dropped into position to connect the main line portions 10 and 11. The weight of the switch coming into proper position is sufficient to swing the forwardly projecting end of the lever downwardly around the pivot 25 and thereby cause the tumbler to be thrown out of the way of the trolley as shown in dotted lines in Fig. 3, where it will be held so long as the switch remains in the position just stated. When, however, the switch is moved again and the weight is relieved from the lever 24, the tumbler will automatically return to locking position due to its own weight at one side of the axis of the pivot 19.

In some instances it is convenient to secure the stop device to the trackway through the main suspension devices and hence the convenience of installation is very much simplified. In Fig. 5 I show a bracket 20′ having a slot 28 for adjustable connection through the holes 29 serving to support the trackway upon the main bracket 30. The tumbler 18 is or may be just the same in structure and operation as has already been described, but the lever 24 may be pivoted directly at 25′ to the track member instead of to the bracket. In this form of the invention the only labor for installation lies in the necessity for tapping the track member for the pivot 25′. The slot 28 provides for any necessary adjustment longitudinally of the track to effect the proper coöperation between the trip lever and the tumbler.

The principal parts of the improvement are so made and formed that they are adapted to be fitted to either a left or right hand switch, an item of vast practical importance in view of the fact that such switches are arranged in practice in various ways, making it important that provision be provided to stop or protect an open switch from any direction.

I claim:—

1. The combination with an overhead track and switch, of an automatic stop car-

ried by the track and adapted to be operated by the switch, said stop comprising a tumbler having a cruciform head having two of its ends lying upon the upper edge of the track member, one of the head ends being adapted to project between the flanges of a wheel and impinge against the drum portion of such wheel, and means actuated by the switch to remove the tumbler from stopping position.

2. In an automatic stop for overhead switches, the combination of a tumbler having a cruciform head at its upper end extending across the trackway and also having extensions in vertical longitudinal alinement with the trackway, means freely supporting the tumbler for movement into and out of locking position but preventing movement longitudinally of the trackway, and means to positively remove the stop from stopping position when the switch is closed.

3. In an automatic stop for overhead switches, the combination of a bracket having a part arranged in a vertical plane perpendicular to the side of the trackway, a double conical pivot carried by the bracket member and having an axis parallel to the track member, a tumbler pivoted upon said pivot and having a double conical bearing seat corresponding to the form of the pivot, said tumbler being arranged to gravitate automatically into one position, and means actuated by the switch for moving the tumbler around its pivot in the other direction.

4. In an automatic stop for overhead switches, the combination with a track member and a switch coöperating therewith, of a tumbler having a head movable into or out of vertical alinement with the upper edge of the track member, means acting between the switch and the tumbler to cause movement of the latter out of stopping position, and an adjustable member carried by the tumbler and adapted to coöperate with the side of the track member to regulate the extent of movement of the last mentioned tumbler.

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Witnesses:
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GEORGE H. EMSLIE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."