PIER-LUIGI FOCARDI.

AUTOMATIC STOP FOR CRANE TROLLEYS.

APPLICATION FILED MAY 6, 1915.

1,150,003.

Patented Aug. 10, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

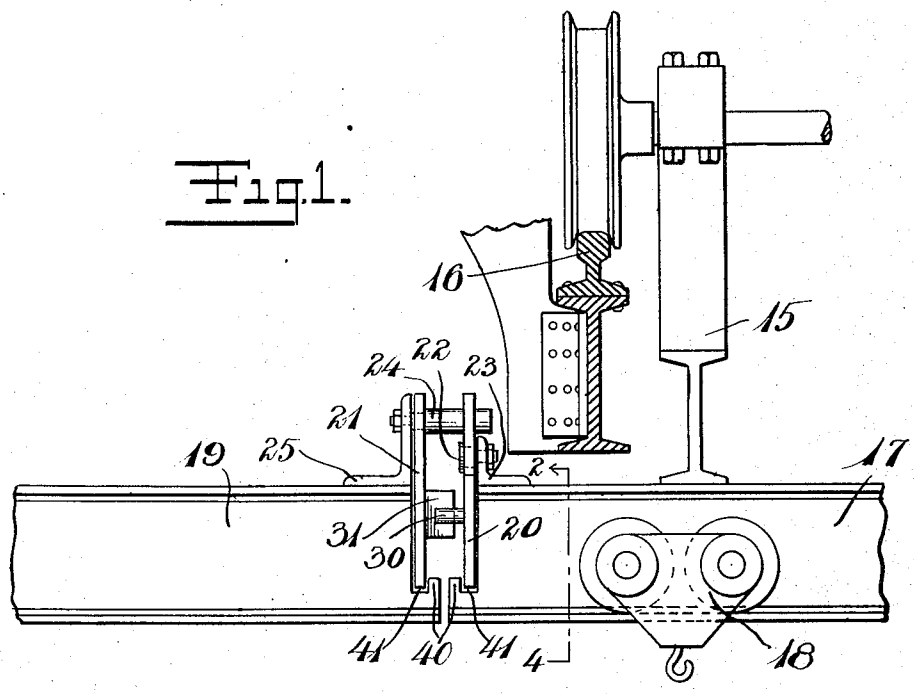


Fig. 2

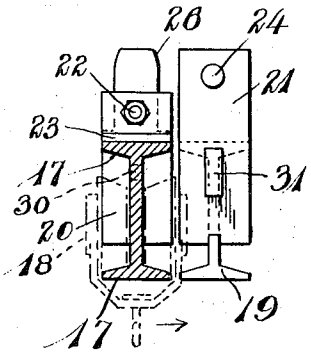


Fig. 3.

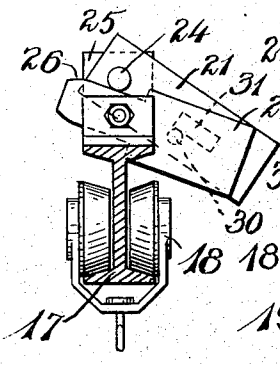
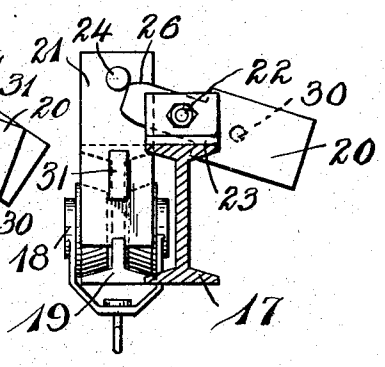


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

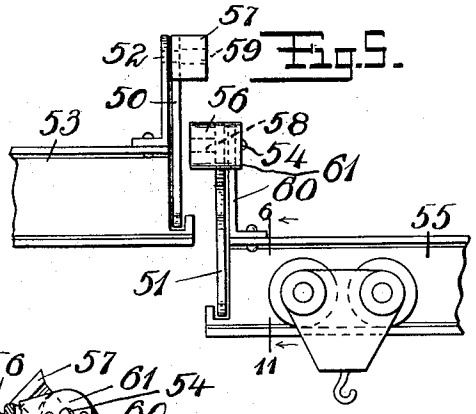


Fig. 8.

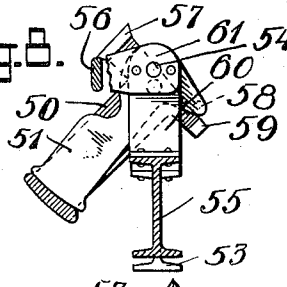


Fig. 7.

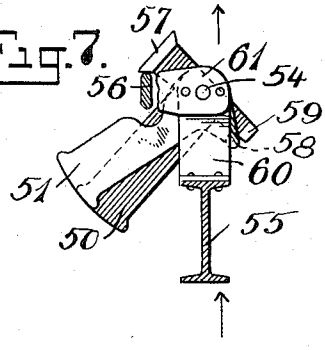


Fig. 6.

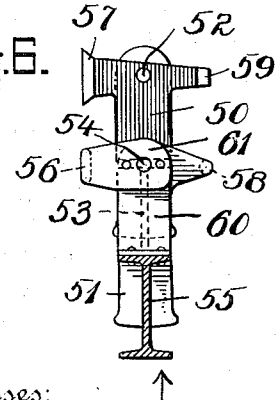


Fig. 9.

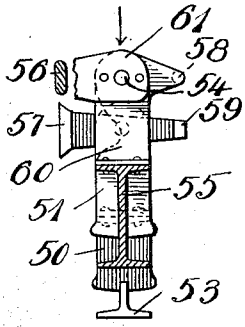


Fig. 10

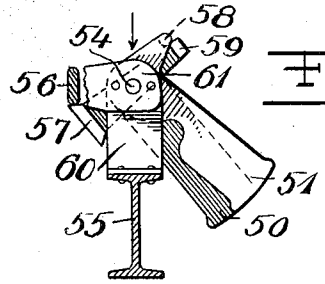
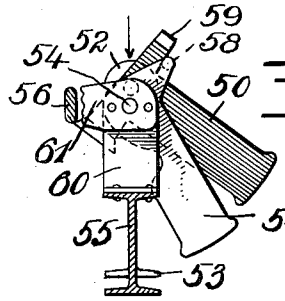


Fig. 11.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC STOP FOR CRANE-TROLLEYS.

1,150,003. Specification of Letters Patent. Patented Aug. 10, 1915.

Application filed May 6, 1915. Serial No. 26,403.

To all whom it may concern:

Be it known that I, PIER-LUIGI FOCARDI, a citizen of the United States of America, and residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Automatic Stops for Crane-Trolleys, of which the following is a specification.

This invention has reference to traveling cranes and particularly to the trolleys of such cranes, the general objects of the invention being to provide simple and effective means for preventing a trolley from leaving a track when said track is not properly registered with a track to which the trolley is to be transferred.

Other objects are to make the stop wholly automatic in operation and relatively quick in action, whereby to open up passage as soon as the tracks are in register and to close off passage practically as soon as the tracks move out of register.

In the accomplishment of these objects I provide stops or blinders hanging down over the opposing ends of the tracks to be guarded and cause one of these stops to be swung into non-guarding position by engagement with a properly located abutment and the other stop to be swung into non-guarding position by being engaged and operated by the first stop. The abutment for operating the stop on one track is preferably carried by the other track and may in some cases serve as a pivotal support for the second stop.

Another feature of the invention is the provision of guards arranged to overlie the blinders in their protecting position so as to relieve the blinders of strains such as are occasioned by the trolleys running into the blinders.

Other features will appear as the specification proceeds.

The accompanying drawings illustrate the invention as applied both to a horizontally traveling crane and a vertically traveling crane or elevator, but it will be understood that other applications may be made of the invention and that changes and modifications may be resorted to without departure from the scope and spirit of the invention.

Figure 1, is a broken view in side elevation of the invention as applied to a horizontally traveling crane track. Fig. 2, is a sectional view taken substantially on the plane of the line 2—4 of Fig. 1, showing the tracks approaching the position of registration. Fig. 3, is a view on the same plane with the tracks in registered position and the trolley run off from the movable crane track onto the relatively stationary transfer track. Fig. 4, is a similar view, the crane track having been moved on past the point of registry, the second stop having dropped down into guarding position and the first stop in the act of dropping down into guarding position. Fig. 5, is a broken side elevation of the invention as applied to a vertical lift or elevation. Figs. 6, 7 and 8 are views taken substantially on the plane of the line 6—11 of Fig. 5 showing the elevator going up and the tracks in successive non-registering, registry and non-registering positions. Figs. 9, 10 and 11 are similar views illustrating the relation of the parts on the downward travel of elevator.

In the first view an underhung crane is indicated at 15, traveling on tracks 16 and carrying a track 17 for the trolley 18. 19 designates a relatively stationary track with which the crane trolley track can be registered.

The crane trolley track carries a stop or "blinder" 20 and the track 19 carries a blinder 21. These blinders are pivoted so as to normally hang down over the ends of the tracks, thereby effectively blocking the same, as indicated in Figs. 1 and 2. In the illustration, the first stop 20 is pivoted on a stud 22 carried by a bracket 23 secured on the head of the crane trolley track 17 and the second stop 21 is pivoted on a stud 24 carried by an upstanding bracket 25 on the relatively stationary track 19. The first stop is operated by an abutment carried by or relatively fixed in respect to the other track. This abutment, is in the case illustrated, provided by the pivot stud 24, which is shown in Fig. 1, projecting out far enough to engage with the stop 20 at a point above the pivot 22 thereof. The surfaces 26 on this stop which are engaged by the abutment may be inclined or shaped as a cam to assist in the quick opening and closing effect of the blinders.

Figs. 1 and 2 illustrate the blinders in their normal position hanging down over the ends of the track and thereby completely blocking the same. As the tracks approach a position of registry, the crane

for instance traveling in the direction of the arrow in Fig. 2, the upwardly projecting end of the blinder 20 is engaged by the abutment 24 and the blinder is thereby swung to one side. This blinder carries a pin or projection 30 on its face arranged to engage with a lug or projection 31 on the face of the other blinder. Consequently as the first blinder is swung to one side by reason of engagement with the abutment 24, it serves by the engagement of its projection 30 with the projection 31 on the other blinder to swing said second blinder on its pivot. When the two tracks are in complete registry both blinders have been swung to the position indicated in Fig. 3, uncovering both tracks and permitting the trolley to be shifted from one track onto the other. As the crane travels on past the point of registry the stop 21 drops first by reason of the disengagement of its projection 31 from the projection 30 on the other stop and then when the position indicated in Fig. 4 is reached the stop 20 is allowed to fall by reason of its disengagement from the abutment 24. The stops are preferably constructed to fall before the tracks are completely out of registry, as indicated, and they may be constructed to fall simultaneously instead of one in advance of the other.

The stops are protected from injury and undue strain by guards 40 arranged to overlie the stops in their protective position. These guards are provided in the present instance by leaving upwardly projecting hook-shaped extensions on the end of the beam which forms the track, disposed parallel to the end of the beam and providing a space 41 between the guard and the plane end face of the beam, in which space the stop swings. It will be clear from this that any strain upon the stops such as would be caused by a trolley striking forcibly thereagainst, is taken care of by these guards so that breakage of the stops is practically prevented.

In Figs. 5 to 11 the invention is shown applied to the protection of tracks which are relatively movable in a vertical plane. Here the stops are designated 50 and 51, the first being pivoted at 52 to swing down over the end of the relatively stationary track 53 and the second being pivoted at 54 to swing down over the end of the elevator track 55. The elevator carries an abutment 56 to engage with an outstanding arm 57 on the first stop 50 and the second stop 51 carries a projection 58 to be engaged by a projection 59 on the stop 50. The abutment 56 may be carried by the pivot bracket 60 of the stop 51 and may be made yieldable laterally as by mounting it on a stiff flat spring 61.

In Fig. 6 the elevator is indicated "going up." As the tracks approach the position of registry the abutment 56 on the elevator track engages the arm 57 of the first stop 50, swinging that stop to one side and the projection 59 on said stop engages the projection 58 on the other stop thereby swinging that stop to one side so that when the tracks are registered both stops are out of the way and the tracks are open, as indicated in Fig. 7. As the elevator continues on its upward travel the second stop is first released by its projection 58 becoming disengaged from the projection 59 (Fig. 8) and then as the arm 57 is freed from the abutment 56 the first stop drops into protective position. In the descending movement of the elevator the operation is the same except that the stops are swung to the opposite side, as will be clear from Figs. 9, 10 and 11.

Both horizontally and vertically operating stops may be employed in the same system or not, depending upon whether only a single level or a plurality of levels are to be served. The stops are positive and entirely automatic in operation and properly designed operate to close the tracks even before the tracks are far enough separated to permit a trolley running off them. The invention also has the advantages of simplicity and adaptability to transfer systems in use at the present time.

What I claim is:—

1. In an automatic trolley stop, the combination of relatively movable trolley tracks and a trolley traveling thereon, of a blinder pivoted to swing across the end of one track and provided with a projection on its face, an abutment carried by said track and a blinder pivoted to swing across the end of the other track adapted upon relative movement of the tracks to be engaged and swung to one side by the abutment of the first track and provided with a projection to engage the projection on the first blinder whereby to swing said first blinder also to one side.

2. In an automatic trolley stop, the combination with relatively movable trolley tracks and a trolley traveling thereon, of a blinder pivoted at the end of one track and normally blocking said track, an outwardly projecting lug on said blinder, a stud at the end of the other track disposed in a plane above the pivotal center of the blinder on the first track and projecting into the plane of said blinder whereby to engage said blinder above the pivot thereof to swing the same to one side, a blinder pivoted at the end of the second track and normally blocking said second track and a projecting lug on said second blinder adapted to be engaged by the projecting lug on the first blinder.

3. In an automatic trolley stop, the combination with relatively movable trolley tracks and a trolley traveling thereon, of a blinder pivoted at the end of one track and

normally blocking said track, an outwardly projecting lug on said blinder, a stud at the end of the other track disposed in a plane above the pivotal center of the blinder on the first track and projecting into the plane of said blinder whereby to engage said blinder above the pivot thereof to swing the same to one side, a blinder pivoted on said stud and normally blocking said second track and a projecting lug on said second blinder adapted to be engaged by the projecting lug on the first blinder.

4. In an automatic trolley stop, the combination with relatively movable trolley tracks and a trolley traveling thereon, of a blinder pivoted at the end of one track and normally blocking said track, said blinder having an operating cam projecting from above the pivot thereof, a stud at the end of the other track projecting into the plane of the cam projection on the blinder to engage and operate the same, a blinder pivoted at the end of the second track and normally blocking the same and means for operating said second blinder.

5. In an automatic trolley stop, the combination with relatively movable trolley tracks and a trolley traveling thereon, of brackets on the ends of said tracks, pivot studs carried by said brackets above the tracks, blinders pivoted on said studs and swinging to opposite sides of the tracks and means operable upon relative movement of said tracks for swinging said blinders on their pivots.

6. In an automatic trolley stop for traveling cranes, a trolley track, a blinder pivoted at the end of said track and normally blocking the same, a guard at the end of said track overlying said blinder in its normal position and means for swinging said blinder on its pivot out of its blocking position.

7. In an automatic trolley stop for traveling cranes, a trolley track having a plane end face and a guarding projection spaced from said plane end face and disposed parallel thereto, a blinder pivoted at the end of said track and swinging in the space provided between the end face of the track and the guarding projection and means for swinging said blinder on its pivot.

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