

UNITED STATES PATENT OFFICE.

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TROLLEY-HANGER.

SPECIFICATION forming part of Letters Patent No. 776,535, dated December 6, 1904.

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To all whom it may concern:

Be it known that I, ROBERT WARREN McILVAINE, a citizen of the United States, residing at Hamilton, in the county of Wentworth and Province of Ontario, Canada, have invented new and useful Improvements in Trolley-Hangers, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

This invention relates to hangers for supporting a track upon which a trolley may run for overhead carriers.

It consists in the features of construction of hanger and its connections, as set out in the claims.

In the drawings, Figure 1 is a partly-sectional elevation of one form of my improved hanger and its supports, section being made through the floor and rail at a plane transverse to the latter and through the hanger at the plane of the axes of the suspending-rods to show their lodgment in the casting which immediately supports the rail. Fig. 2 is a similar view of a modified form suspended in the manner employed when the rail runs parallel with the joists overhead, by which the hangers are supported. Fig. 3 is a detail section at the line 3 3 on Fig. 2. Fig. 4 is a side elevation of an extensible tie-bar adapted for securing the hangers to the joists in whatever direction with respect to the latter the rail may run and for alining them, showing a hanger in connection therewith. Fig. 5 is a section at the line 5 5 on Fig. 4. Fig. 6 is a view similar to the lower part of Fig. 1, showing a modification in the structure at that part. Fig. 7 is a view similar to Fig. 6, showing another modification. Fig. 8 is a view similar to Fig. 6, showing a further modification.

My improved hanger comprises in the form shown in Fig. 1 a casting A, which consists of a pendent arm, to the lower end of which there is secured against the vertical race and upon a supporting ledge or shoulder A' the trolley-rail B, the upper end of the casting having overhanging the position of said rail the head-boss A², in which there is embedded in the process of casting the loop or bend C' of the hanger-rods C C, which are made in one

piece folded at the bend C' for lodgment in the sand in the process of casting the hanger, so as to embed the bend in the casting, as stated. The hanger-rods C C diverge sufficiently for bracing the hanger laterally, and being both threaded at their upper ends are secured by nuts to any suitable bar adapted to receive the rods and be bound by the nuts. When the trolley-rail runs parallel with the joists and in such position that it may be mounted approximately directly below any one joist or line of joists, the means for securing the rods may be for each hanger a short angle-iron D, bolted across the joist projecting at both sides, its horizontal flange being pierced for the rods C C, which are bound to it adjustably by nuts on both sides of the flange with preferably beveled washers between the nuts and the flange. When the joists run transversely with respect to the direction of the trolley-rail, the hangers may be supported and secured to the joists by short angle-bars D' D', two of which will then be necessary for each hanger, one for each of the rods C C, such short angle-bars being bolted securely to the joists and jutting therefrom at one side of the latter, the exposed jutting portions of the two bars thus secured at each joist underneath of which a hanger is to be supported having their horizontal flanges pierced to receive the diverging rods C C of the hanger.

For the purpose of an adjustable support for the hangers adapted by its adjustability to be secured to the joists for supporting the hangers in whatever direction the rail extends relatively to the joists—that is, whether parallel with them, at right angles to them, or obliquely across them—I employ the two-part tie-bar shown in Fig. 4, the principal part E being a channel-bar having a web vertical and upper and lower flanges horizontal, the latter being provided with an upwardly-projecting lip or bead E'. The back of the vertical web has a horizontal rib E², and the vertical web of the angle-bar F, which constitutes the other element, has a corresponding longitudinal groove F' to receive the rib E², whereby the two elements are adapted to slide longitudinally for extending and shortening the

tie-bar. Said two elements are secured together by bolts G G, taking through slots *g* *g* and the vertical webs of said elements, respectively. The horizontal web of the element F has its upper surface in the same plane as the upper surface of the upper flange of the channel-bar E and is perforated for bolting it to one or more joists, which it may cross at any angle or along which it may extend longitudinally. Tie-bars of this construction may be mounted across the joists at any angle at suitable position and intervals for supporting the hangers, and for the purpose of alining the hangers suspended from the bars without the necessity of attending to alinement in the securing of the bars to the joists I provide a slide-block H, adapted to be entered at the end of the channel-bar E and moved along in the channel to any desired position in the length thereof, said bar having a lug H', to which the upper end of the hanger-rod C may be secured in the same manner as, in the other forms illustrated, the said rods are secured to the horizontal flange of the angle-iron supports. The slide-block H is hollowed at the side toward the vertical web of the channel-bar E to clear the heads of the bolts G and G, which secure the bars E and F together, and a bolt J, set through a slide-block and protruding at the back side, so as to impinge against the vertical web, will serve to secure it firmly at any position in the length of the channel-bar to which it may be found necessary to adjust it for alining the hangers.

In Fig. 6 I have shown a modification of the casting at the lower end of the hanger-rods, consisting in broadening of the head-boss and extending from it at the outer side an arm B³, which turns inward and faces a lug B⁴, projecting from the depending arm, said lug and the inward end of the arm B' being adapted to afford seats for angle-irons K K, which constitute the tracks for a propelling-chain. (Not shown.) In this form, as in the form shown in Fig. 1, the rods C C are made in one piece and lodged in the casting at their bend. I do not limit myself to this form of construction, though I consider it specifically preferable; but in lieu thereof the form shown in Fig. 7 may be employed, in which the head-boss of the casting provided for carrying the trolley-track bar has laterally-projecting flanges or lips B⁵ B⁵ wide enough to afford secure fastening for the rods C C, which in that construction are not in one piece, but separately adjustably secured at the lower ends to said flanges or lips by nuts on the threaded ends of the rods at the opposite sides of said flanges or lips.

In any of the forms of construction above described it is contemplated that the trolley-track may be accurately alined by means of the nuts which secure the divergent hanger-rods C C at either or both ends, as the case

may be, drawing up or letting down either of them or drawing up one and letting down the other, as necessary to sway the track-bar laterally one way or the other, and drawing up or letting down both rods to adjust the bar as to height.

It will not always be either necessary or convenient to have both the suspending-rods diverging from vertical direction, and when sufficient rigidity and lateral bracing can be obtained with one of the rods vertical the form of the hanger shown in Fig. 8 may be employed, the suspending-rods being secured in the rail-carrying element, both at one side of the rail-seat, and the rod proximate to the vertical plane of the rail being extended vertically, obviating the necessity of making the lodgment or securement of the rods at a position overhanging the rail, as in the other form. This form may be employed in connection with any of the forms of supporting-plates above described.

I claim—

1. A trolley-hanger comprising a rail-supporting element and upwardly-diverging suspending-rods adapted to be rigid at their lower ends with the rail-supporting element; a supporting-plate to which the rods are connected at their upper ends, and nuts on the rods for adjusting independently their operative lengths.

2. A trolley-hanger comprising a rail-supporting element and upwardly-diverging suspending-rods formed integrally with each other, and having a bend or angle between them embedded in said element; a supporting-plate penetrated by each of the rods, and adjusting-nuts on the rods respectively above and below the plate.

3. A trolley-hanger comprising a rail-supporting element having a head overhanging the position of the rail and divergent suspending-rods secured in such head, said rods being threaded at their remote ends; a supporting-plate penetrated by each rod, and nuts on the rods above and below such plates for securing the rods and independently adjusting them.

4. A trolley-hanger comprising a rail-supporting element having a head overhanging the position of the rail; divergent suspending-rods formed integrally and having the bend or angle between them embedded in such head, the remote ends of the diverging rods being threaded; a supporting-plate penetrated by each rod and adjusting-nuts on the rods above and below the plates respectively.

5. A trolley-hanger comprising a rail-supporting element having a head overhanging the position of the rail; suspending-rods secured in such head and diverging upwardly therefrom; means for securing the upper ends of the rods and nuts on the rods for independently adjusting their operative lengths.

6. A trolley-hanger comprising, in combination with a rail-supporting element having

a head overhanging the position of the rail; diverging suspending-rods formed integrally and embedded at their bend or angle in the head; arms extending down from the head at opposite sides of the longitudinal vertical plane of the rail and protruding inward from said opposite sides toward said plane, having at their inner ends seats fitted for angle-irons at a little distance below the under side of the head, said suspending-rods being provided at their upper ends with means for independently adjusting them at their supports.

7. In a trolley-hanger in combination with a rail-supporting element and suspending-rods extending divergently therefrom, a support for said suspending-rods adapted for securement overhead, comprising a sidewardly-open channel-bar; a chair lodged in the channel-bar having a lug projecting horizontally beyond the lower flange and apertured for connection with the suspending-rod, and a clamping-screw for binding said chair in the channel-bar.

8. In a trolley-hanger, in combination with a rail-supporting element and suspending-rods extending therefrom, an extensible support for the rods comprising a channel-bar and an angle-bar, the vertical web of one having a longitudinal rib, and that of the other having a longitudinal channel to receive the rib, said web having longitudinal slots and bolts securing them together through such slots.

9. In a trolley-hanger, in combination with a rail-supporting element and suspending-rods extending divergently therefrom; a support for said suspending-rods adapted for securement overhead, comprising a sidewardly-open channel-bar; independently-adjustable chairs lodged in the channel-bar extending between the angles thereof, and having lugs projecting from the open side of the channel-bar, the suspending-rods being attached to said lugs.

10. In a trolley-hanger, in combination with a suspended rail-carrying element, a longitudinally-extensible support from which the same is suspended, comprising two structural irons having each a horizontal and a vertical web, the vertical web of one being exteriorly channeled longitudinally, and that of the other being exteriorly ribbed longitudinally to fit the channel, both having longitudinal slots and bolts taking through said slots for clamping them together with their rib and channel respectively interlocked, the horizontal flanges of said irons being in the same plane when thus interlocked, and each provided with a plurality of bolt-apertures for securing them overhead.

11. In a trolley-hanger, in combination with a suspended rail-carrying element and a longitudinally-extensible support from which the same is suspended, comprising a sidewardly-open channel-bar and an angle-bar having one web vertical and the other horizontal, the vertical webs of the channel-bar and angle-bar having at the outer side, the one a longitudinal rib and the other a longitudinal channel to receive the rib, and both having longitudinal slots; bolts taking through said slots for clamping them together at longitudinally-adjustable position, and chairs lodged in the channel-bar provided with horizontally-protruding lugs, the rail-supporting elements being suspended from such lugs.

12. In a trolley-hanger, in combination with a rail-supporting element and arms extending upwardly therefrom for suspending it, a sidewardly-open channel-bar adapted for securement overhead by its upper horizontal flange, and chairs lodged in such channel-bar provided with lugs projecting out therefrom, and means for clamping the chairs in the channel-bar, the rail-carrying element being suspended from said lugs.

13. In a trolley-hanger, in combination with a rail-carrying element and rods by which it is suspended, an overhead supporting device comprising a sidewardly-open channel-bar secured overhead by its upper horizontal flange, and having an upstanding lip at the margin of its lower horizontal flange; chairs lodged in such channel-bar spanning the same diagonally from the upper inner angle to the lower outer angle formed between the lower flange and said lip thereof, and having lugs projecting outwardly over such lip.

14. In a trolley-hanger, in combination with a rail-carrying element and rods by which it is suspended, an overhead supporting device comprising a sidewardly-open channel-bar secured overhead by its upper horizontal flange, and having an upstanding lip at the margin of its lower horizontal flange; chairs lodged in such channel-bar spanning the same diagonally from the upper inner angle to the lower outer angle formed between the lower flange and said lip thereof, and having lugs projecting outwardly over such lip, and a clamping-screw set through the chair impinging against the channel-bar at the lower inner corner.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Hamilton, this 4th day of February, 1904.

ROBERT WARREN McILVAINE.

In presence of—

FLORENCE AUSTIN,
U. E. GODARD.