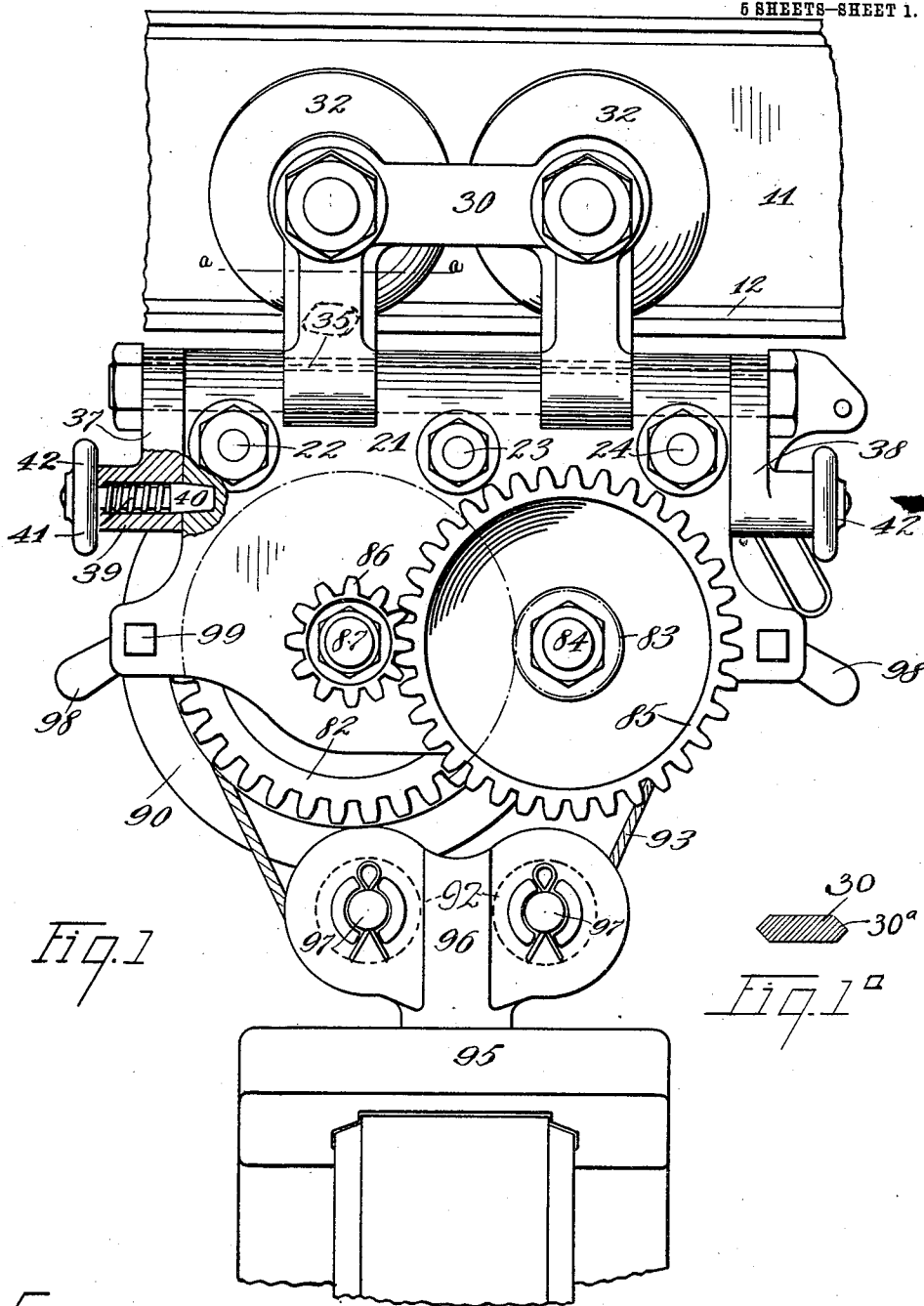


E. Y. MOORE.
TROLLEY HOIST.
APPLICATION FILED MAR. 3, 1910.

1,005,452.

Patented Oct. 10, 1911.

5 SHEETS—SHEET 1.



Witnesses

Brennan Bedest.
Elmer A. Caspell

Inventor

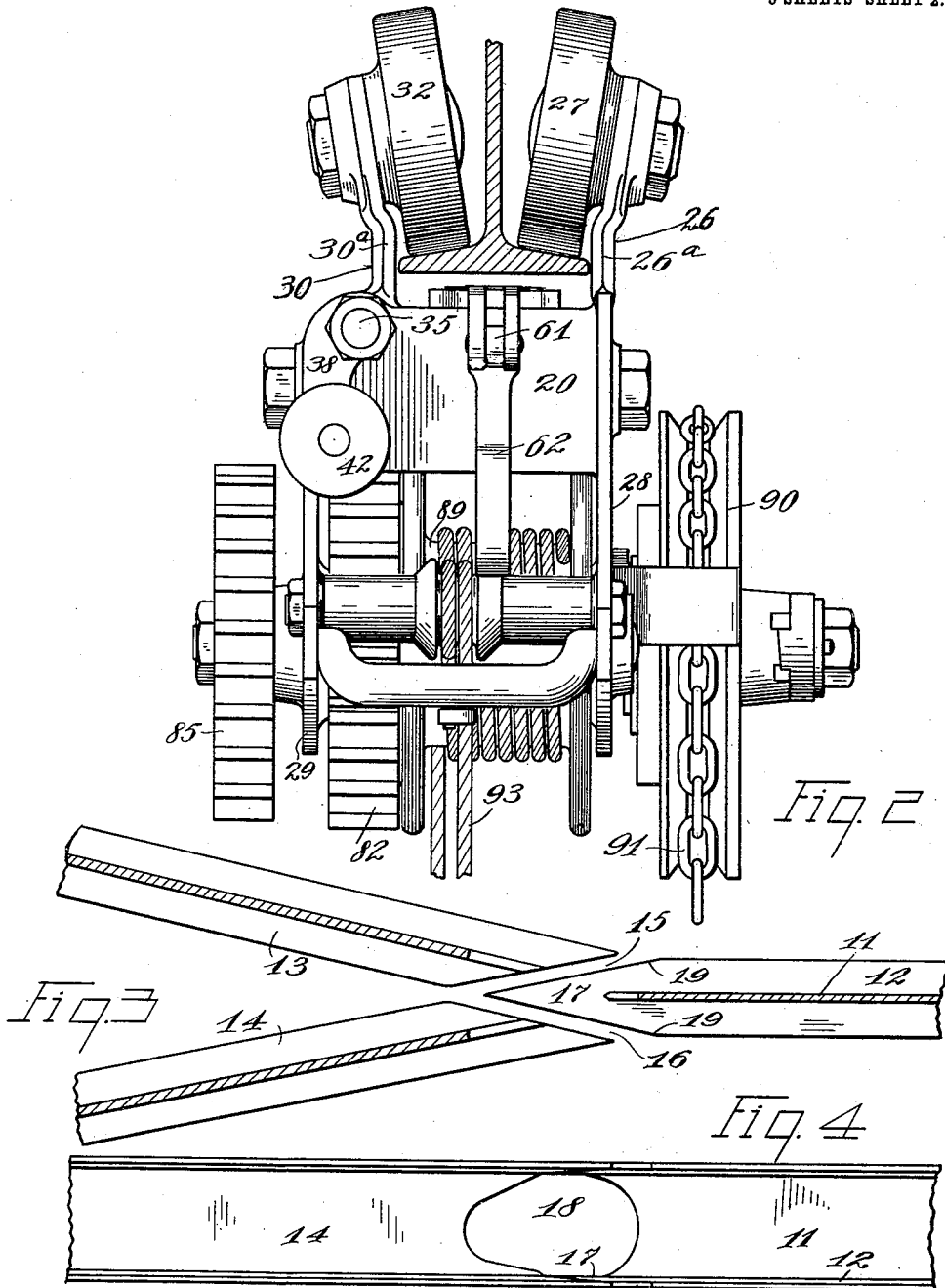
By Edward Y. Moore,
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5 SHEETS-SHEET 2.



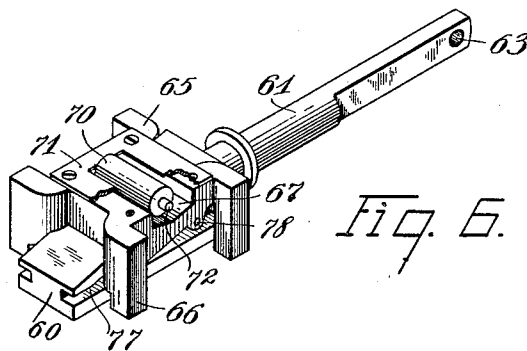
Witnesses
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6 SHEETS—SHEET 3.



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5 SHEETS—SHEET 4.

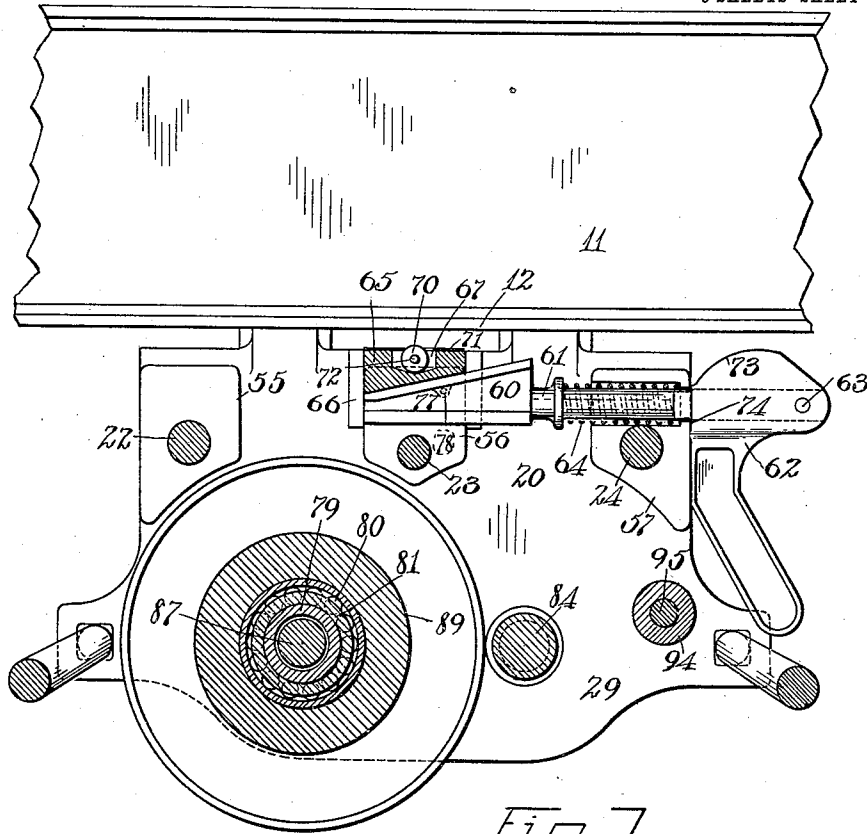


Fig. 7

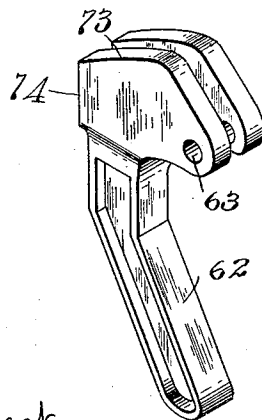


Fig. 8

Witnesses:

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6 SHEETS—SHEET 5.

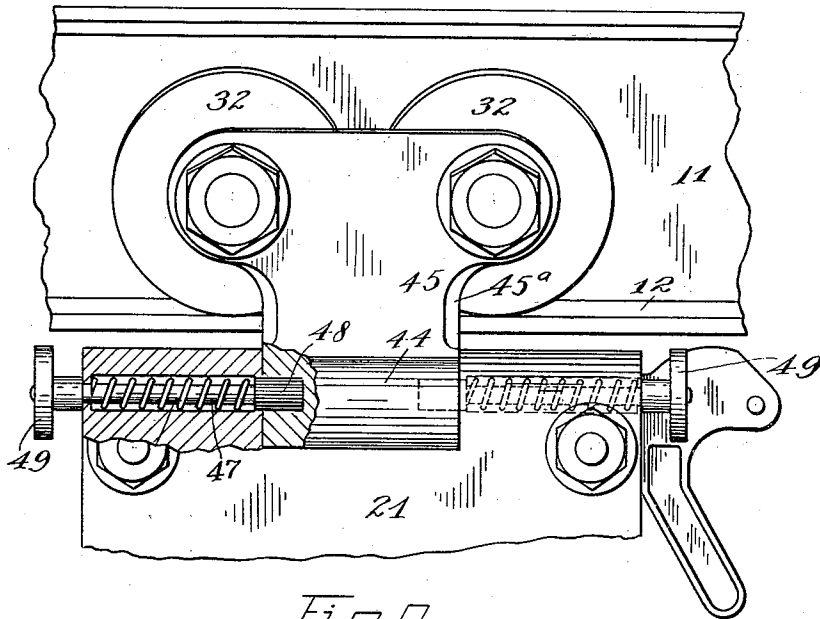


Fig. 9

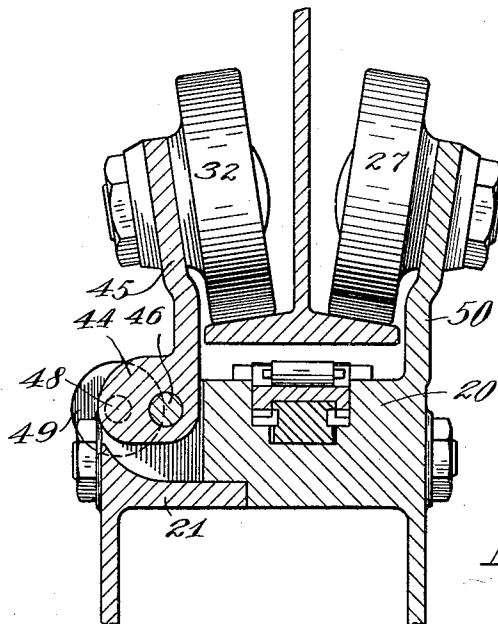


Fig. 10

Witnesses

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UNITED STATES PATENT OFFICE.

EDWARD Y. MOORE, OF CLEVELAND, OHIO.

TROLLEY-HOIST.

1,005,452.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Application filed March 3, 1910. Serial No. 547,001.

To all whom it may concern:

Be it known that I, EDWARD Y. MOORE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Trolley-Hoists, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to a trolley or trolley hoist adapted to travel on a trackway and support a load.

The primary object of the invention is to provide the trolley in such form that it may be easily and conveniently removed from the trackway whenever desired without the necessity of shifting it beyond the end of the trackway.

To this end, the invention comprehends the combination with the other members of the structure, of a movable side member carrying a supporting wheel, whereby the structure may be freed from the track by the movement of such member. The particular means herein shown and their equivalents for carrying out this operation are also included within my invention.

My trolley is well adapted for combination with a hoisting mechanism carried thereby, though it is to be understood that the invention is not limited to such construction.

The drawings clearly disclose my invention embodied in a combined trolley and hoist. The complete structure shown includes an efficient device for clamping the trolley to a trackway, and includes also a coöperative arrangement of the trolley with branch tracks whereby it may be thrown without the use of a switch. These additional features are not claimed herein, but in my divisional applications Serial Numbers 579,326 and 579,327, respectively, filed August 27th, 1910.

Figure 1 is a side elevation of the combined trolley and hoist, including the upper portion of a suitable grapple carried by the hoist; Fig. 1^a is a sectional detail on the line *a-a* of Fig. 1; Fig. 2 is an end view of the trolley and hoist; Fig. 3 is a horizontal section through the web of an I-beam support at the junction of two branches; Fig. 4 is a side elevation of the supporting track shown in Fig. 3; Fig. 5 is a vertical section through the trolley and hoist and through the supporting track; Fig. 6 is a

perspective view of the clamping mechanism removed; Fig. 7 is a longitudinal central section through the hoist mechanism, showing the clamping device; Fig. 8 is a perspective view of the clamping lever; Figs. 9 and 10 illustrate a modified form of the trolley side, Fig. 9 being a sectional side elevation of the upper portion of the trolley, Fig. 10 being a cross section through the trolley.

Referring, by numerals, to the structures shown in the drawing, 11 represents the web and 12 the lateral bottom flanges of a suitable I-beam support for the trolley. This I-beam is adapted to have branches, as illustrated at 13 and 14 in Fig. 3. At the junction of the branches with the main trackway, the track is peculiarly formed in a way which coöperates with the peculiar trolley structure, as will be hereinafter more fully explained.

The trolley frame comprises a pair of members 20—21 which are adapted to stand beneath the I-beam flange 11 and carry the load-supporting mechanism. These members are rigidly secured together, as for example, by the bolts 22, 23 and 24, which pass through the members and abutting bosses formed on their inner sides. The frame portion described is supported by upwardly extending side members 26 and 30, which carry two pairs of wheels 27 and 32, adapted to ride on the flanges 12. The rigid body 20—21 supports the load-holding or raising mechanism. Such mechanism, in the form shown, is of a hoisting character and is carried by downward extensions 28 and 29, of the members 20 and 21, respectively. The hoisting mechanism shown will be hereinafter described.

The trolley, as shown, is carried by two wheels 32 on one side of the I-beam, and two wheels 27 on the other side. The member 26, which carries the wheels 27 is rigid with the member 20, and may be an integral portion thereof. The member 30, however, which carries the wheels 32, is hinged to the member 21 to allow the wheels, on that side, to be turned down so that the mechanism may be removed from the trackway at any desired point. As shown in Figs. 1, 2 and 5, the supporting member 30 is a U-shaped structure carrying two studs, which constitute the wheel axles and having portions depending beneath such axles. These two depending portions are keyed on a lon-

itudinal rock shaft 35, journaled in the block 21. On the end portions of this shaft, beyond the block 21, are keyed two rock arms 37 and 38, each of which has a boss 39 in which is mounted a plunger 40. This plunger is pressed inwardly by a spring 41 surrounding its shank, and in its innermost position, occupies a recess in the corresponding end of the block 21. On the outer end of each plunger is a suitable knob or handle 42. When the plungers are in their respective recesses, the hinged structure, comprising the arms 37, 38, the rock shaft and the side member 30 is rigidly locked to the frame block 21, and accordingly the wheels 32 are held in the same presentation to the supporting track as the wheels 27 carried by the rigid side member 26. The plungers 40 have their engaging ends preferably tapered, as shown, so that, under the action of their springs they cause a firm locking of the pivoted side.

The construction described enables the hoist to be conveniently removed from the track at any point. It is simply necessary to pull outwardly on the two knobs 42, withdrawing the plungers 40 from their respective sockets and allowing the pivoted side structure to swing away from the track. This is a valuable feature, as it enables the track to be continued clear up to a transverse wall, it being unnecessary to provide any clear space at the end of the track for installation and removal of the trolley.

As heretofore stated, one of the objects of this invention is to provide the trolley and track in such form that the trolley may be enabled to pass with the greatest ease from a main portion of the trackway to different branches. I achieve this result, partly by arranging the track as shown in Figs. 3 and 4, and partly by the trolley structure. As shown in Fig. 3, two branches 13 and 14 of the track are I-beams having their flanges separated from the flange 12 by gaps, designated 15 and 16, the flange of the main track portion being brought to a point, as 17, between the two diagonally cut ends of the flanges of the track portions 13 and 14. By this means the passageways 15 and 16, referred to, are formed. The edge of the point portion 17, adjacent to the passageway 16, is parallel with the corresponding edge of the track portion 13. The same is true with the other edge of the point 17 and the track portion 14. Adjacent to the track junction, the web 11 is cut away, while, on the branches, the web is also cut away. The combined opening through the main and branch webs may take the form illustrated at 18, in Fig. 4. The opening 18 and the passages 15 or 16 enable the trolley traveling on the main track to be passed to either of the branch tracks, the corresponding side member 30 or 26 of the trolley pass-

ing through the opening 15 or 16, as the case may be. The angles of the gaps 15 and 16 are so arranged, with reference to the trolley wheels, that in passing across these gaps, only one wheel passes at a time, so at least three of the wheels are always supporting the load. When the trolley on the main track arrives at the entrance to the passageways 15 and 16, it is simply necessary to push or pull it by hand, one side or the other, to determine which passageway is to be entered. As soon as the corresponding side has come into engagement with the end of the flange of the corresponding branch track, the pathway is determined. In the movement from either branch to the main trackway, the passage is automatic without the necessity of lateral hand shifting. The depending members of the frames 26 and 30 are beveled at their edges, as shown at 26^a and 30^a, which facilitates the passage of the trolley from the main track to a branch track.

To enable the trolley to stand closely alongside of the track at all times, and, at the same time, to easily pass the salient angles 19 of the main flange, where the point 17 begins, I may form the side supports in a U-shape, as heretofore described with reference to the support 30 and as shown in Fig. 1. With such structure, when the wheel base is twisted out of alinement with the main trackway in passing to or from a branch, the projecting point 17 will stand within the space between the depending arms of the side members so that there is no binding at such points. It is to be understood that the side members 26, though rigid with the blocks 20, are formed in correspondence with the side members 30, being U-shaped in the structure shown in Figs. 1, 2 and 5.

In place of making the trolley supports 20 and 26 U-shaped, they may be made T-shaped, as shown in Figs. 9 and 10, the distance across the shank portion of the T being short enough so that the frame can twist about the track points 19 without binding. Referring to Figs. 9 and 10, the T-shaped side member 45 is shown as carrying the wheels 32 and as pivoted to the block 21 by a hinge pintle 46. The side member 45 is locked in place by plungers 48, mounted in the block and adapted to occupy recesses in the ends of the outwardly extending boss 44 on the side member. These plungers are shown as pressed inwardly by springs 47 and may be drawn outwardly by heads 49.

The above described construction, it will be seen, is very simple, and, of course, a similar arrangement may be employed, if desired, with the U-shaped side member shown in Fig. 1. The member 50, in Fig. 10, which carries the wheels 27 on the oppo-

site side, is a rigid and preferably integral portion of the main frame block 20. It is to be understood that this plate 50 partakes of the same T character as the plate 45.

5 The members 45 and 50 will have beveled edges, as indicated at 45^a, for the same purpose as the beveled edges 26^a and 30^a.

To efficiently lock the trolley at any desired point, I provide mechanism carried by the frame 20 and 21 and adapted, when actuated, to rise into binding contact with the under side of the I-beam flange. This mechanism is best shown in Figs. 5 to 8 inclusive. The inward projections of the frame members 20 and 21, which abut each other and embrace the through bolts, heretofore referred to, may conveniently comprise separated blocks or bosses—Fig. 7 showing three of such bosses, designated 55, 56 and 57. Mounted in the two intermediate bosses 57 of the two frame members 20 and 21, is a slidable wedge 60 which is guided laterally by the vertical walls of the recess which it occupies in the bosses. This wedge has a shank 61 extending through the boss 57 and carrying at its end a cam lever 62 which is bifurcated, as shown in Fig. 8, and extends onto opposite sides of the shank and is pivoted to it at 63. A helical spring 64, surrounding the shank and bearing against a collar thereon and against the base of the socket, which the shank occupies in the boss 57, tends to force the wedge inwardly. Seating on the wedge 60 is a vertically movable block or rider, designated 65. This rider has an inclined lower face complementary to the incline of the wedge. It has four legs 66 which stand respectively on the right and left sides of the wedge and on the front and rear sides of the bosses 56. The rider is accordingly held against lateral displacement, but is adapted to be raised whenever the wedge is forced inwardly. In the upper surface of the rider 65 is a recess 67 which has its bottom inclined from the front and rear, downwardly to an intermediate central line. Occupying the recess is a roller 70. The roller is preferably permanently retained in the recess by means of a cap plate 71 secured on top of the block and overhanging gudgeons 72 projecting from the roller.

When the parts of the clamp, as described, are in their normal position, as shown in Fig. 7, the clamp is idle. When, however, the lever 62 is forced outwardly and upwardly and the portion 73 of the lever comes opposite the boss 57, the spring 64 forces the wedge inwardly, thereby raising the rider and bringing the roller 70 up against the under side of the I-beam flange. This locks the trolley in place, the slightest movement in either direction rolling the roller up one or the other of the inclines provided by the base of the recess 67 and tightening the clamp. Accordingly, to throw on the clamp,

it is only necessary to throw out the lever 62, and the clamping takes place at once, automatically, and very effectively, as has been demonstrated by actual practice. When the parts are in their normal unclamped position, the flat portion 74 of the lever 62 stands against the face of the bosses 57, thereby preventing any accidental application of the clamp, the first outward movement of the clamp drawing the shank 61 outwardly a short distance before the curved portion 73 of the lever comes into action. The sides of the wedge 60 are preferably grooved, as shown at 77, and suitable pins 78, 78^a, carried respectively by the rider and the frame 20, occupy these grooves, the pin 78 preventing accidental displacement of the rider and roller when the trolley is removed from the track and the pin 78^a preventing lifting of the wedge.

As heretofore stated, my trolley may have combined with it hoisting mechanism. The drawings show such hoisting mechanism mounted on the plate members 28 and 29, depending from the rigidly connected intermediate portion of the frame members 20 and 21. As shown, the hoisting mechanism comprises a cable drum 89 between the frame members and mounted on a stationary sleeve 79 (through the intermediacy of rollers 80, separated by a spacer 81); a gear 82 is rigid with the cable drum; a pinion 83 (shown at dotted lines in Fig. 1) on a shaft 84 and meshing with the gear 82; a gear 85 on the shaft 84; a pinion 86 meshing with the gear 85 and mounted on a shaft 87, which is journaled within the sleeve 79; and a suitable hand wheel 90 on the shaft 87. The hand wheel 90, instead of being rigidly connected with the shaft 87 may have a ratchet and brake connection therewith, such as is shown in my prior Patent #794,997, issued July 18th, 1905. Such connection need not be further described than to say that it makes the hoist self-locking, but allows the load to be lowered at will by keeping the hand wheel 90 (by its chain 91) ahead of the natural turning thereof given by the lowering load. The load, in the structure shown, is carried by a suitable cable 93 anchored to a cross member of the frame consisting of a distance sleeve 94 mounted between the frame plates and occupied by a through bolt 95. The cable 93 is shown as passing diagonally downward in a bight in which rides the support of a suitable grapple. Parts of this grapple are shown at 95, in Fig. 1. At its upper portion is a swiveled block 96, carrying a pair of studs 97, on which are a pair of sheaves 92 which ride on the cable.

98 designates a pair of cross bars at the two ends of the hoist respectively and furnishing suitable handles by which the hoist may be shifted in either direction. These cross bars are rendered conveniently accessi-

ble by being cranked, as shown, the cranked ends being squared, as at 99, and mounted in corresponding openings in the frame members 28 and 29.

5 It will be seen that, by the construction described, I have provided a very simple and compact trolley hoist. This hoist requires a minimum amount of head room and is very efficient in raising the load. The
10 trolley enables the hoist to be shifted about on the track, as desired, and, by reason of the clamp, may be locked at any point. By drawing out the spring pressed plungers described, the hinged side of the trolley may
15 be turned down to remove the structure from the track. If this removal is accomplished by turning down the hinged side while the other side is standing within the opening 16 where the track branches, the removal may
20 be very conveniently accomplished by one man, for the branch track will hold the hoist on the flange after the opposite side is turned down, and then the operator may take hold of the hoist on the other side and shift it
25 lengthwise until it is free from the holding influences of the branch track, when he can let it slide off the flange.

Having thus described my invention, what I claim is:

30 1. In a trolley, the combination of a frame adapted to stand beneath a supporting trackway, a side member rising from the outer side of the frame, a pair of supporting wheels carrying said side member, a second
35 side member pivotally secured to said frame at its other side and beyond the trackway, and a pair of supporting wheels carrying said second side member.

40 2. In a trolley adapted to travel on the lower flanges of an I-beam, the combination, with a frame extending beneath the I-beam, of wheels riding on the flanges, and a member hinged to one part of said frame adjacent to the outer edge of one of the
45 I-beam flanges and carrying the wheels on that side of the I-beam web, and a member rigidly connected with the other part of the frame and carrying the wheels on the other side.

50 3. In a trolley, the combination, with the supporting wheels, of a hinged member carrying the wheels to one side, and a spring controlled plunger adapted to lock said member.

55 4. In a trolley, the combination of a frame, a member extending therefrom, a second member hinged to the frame, wheels carried by the respective members, the hinged member having an extension adjacent to its

hinge, and a bolt mounted in the frame and adapted to engage the extension to lock the hinged member to the frame.

5. In a trolley, the combination with supporting wheels and a frame carried thereby, of a member movably secured to said frame
65 and carrying the wheels on one side of the support, and a spring-pressed plunger for locking the member to the frame.

6. In a trolley, the combination with the frame and supporting wheels, of a member
70 hinged to the frame and carrying at least one of the wheels, and a spring-pressed plunger adapted to lock the hinged member to the frame member, said plunger being carried by one of said members and adapted
75 to have its end occupy a socket in the other member.

7. In a trolley, the combination with the frame and supporting wheels, of a member hinged to the frame and carrying at least
80 one of the wheels, a plunger adapted to lock the hinged member to the frame member, a spring for pressing said plunger toward a cooperating socket, and a handle on the end of the plunger whereby it may be drawn out
85 of the socket.

8. In a trolley, the combination with a frame member, of a hinged side member, a pair of spring-pressed plungers carried by parts which are rigid with one of said mem-
90 bers and engaging sockets in the ends of the other of said members, said plunger and sockets being out of alinement with the hinge axis.

9. In a trolley adapted to travel in the
95 lower flange of an I-beam, the combination of a frame portion adapted to stand beneath the I-beam and made in separable parts abutting and connected, with a rigid side member rising from one of said parts, a
100 hinged side member rising from the other part, and wheels carried by said parts.

10. In a trolley, the combination with a frame member having separable parts joined beneath an overhead support and held by
105 bolts, said frame member having depending portions, load-supporting mechanism carried by such depending portions, supporting wheels, and side members carrying the journals of the wheels and connected with
110 the frame, at least one of the said members being hinged to the frame.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

EDWARD Y. MOORE.

Witnesses:

ROBT. RUBLE,
C. A. PAGE.