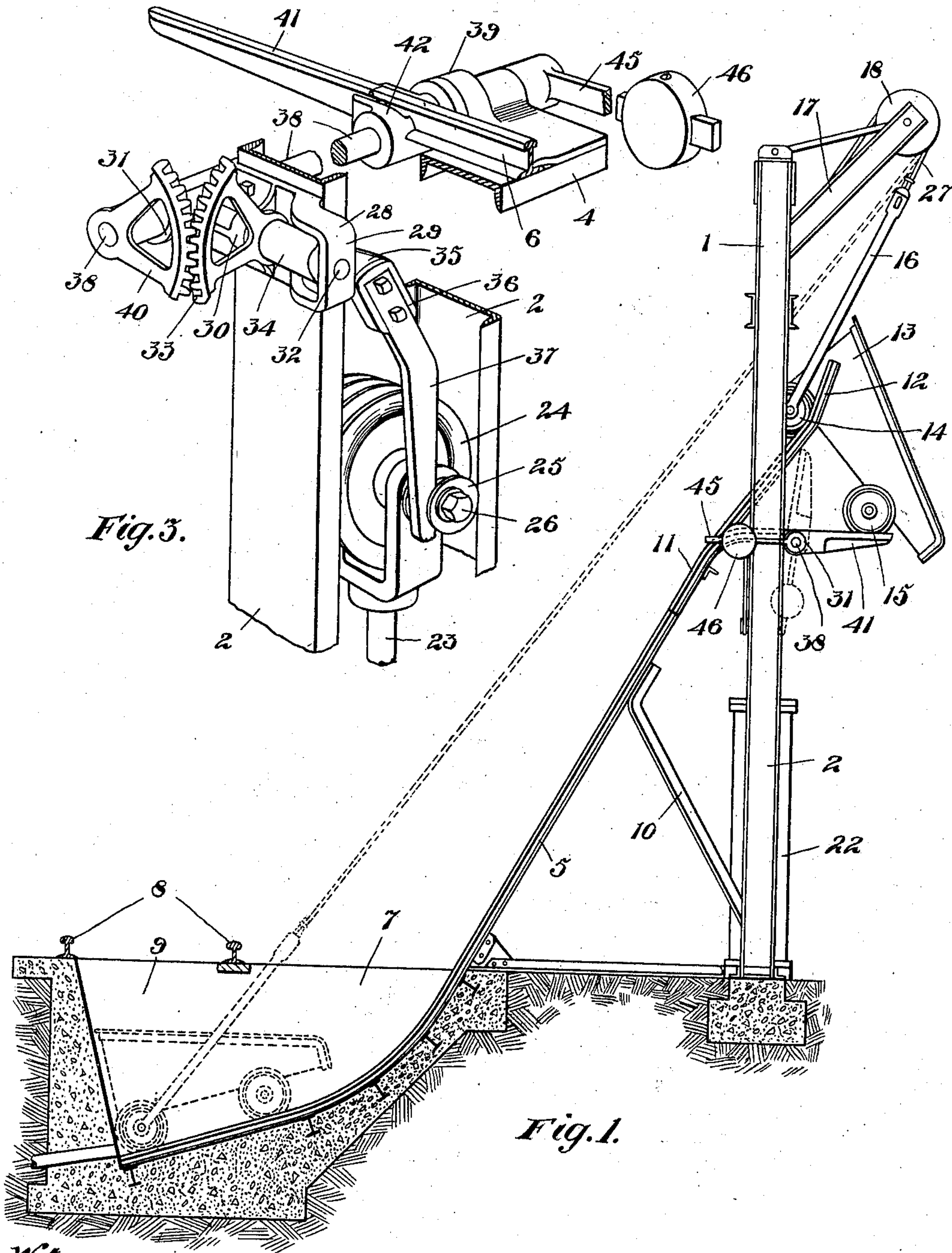


W. A. HARE.
HOIST.
APPLICATION FILED AUG. 9, 1909.

963,435.

Patented July 5, 1910.
2 SHEETS—SHEET 1.



Witnesses
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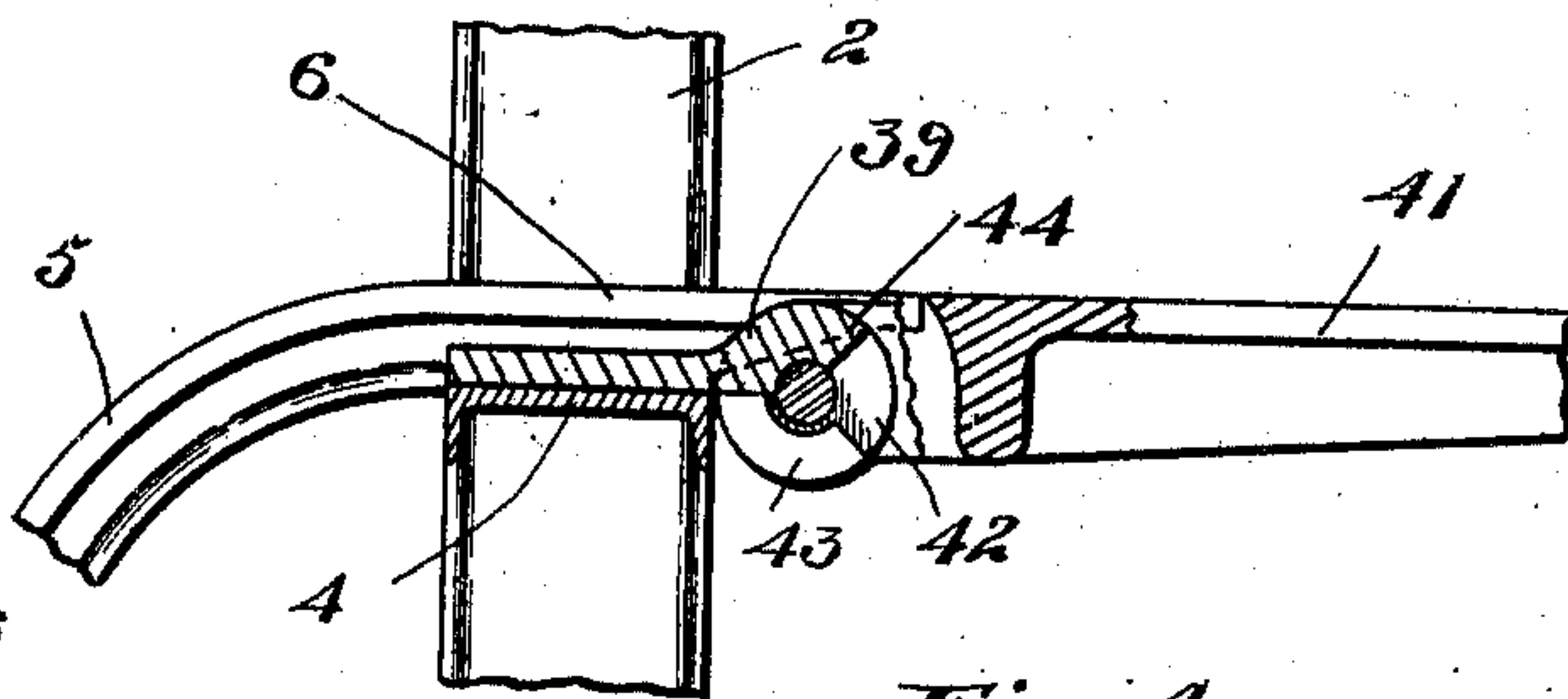
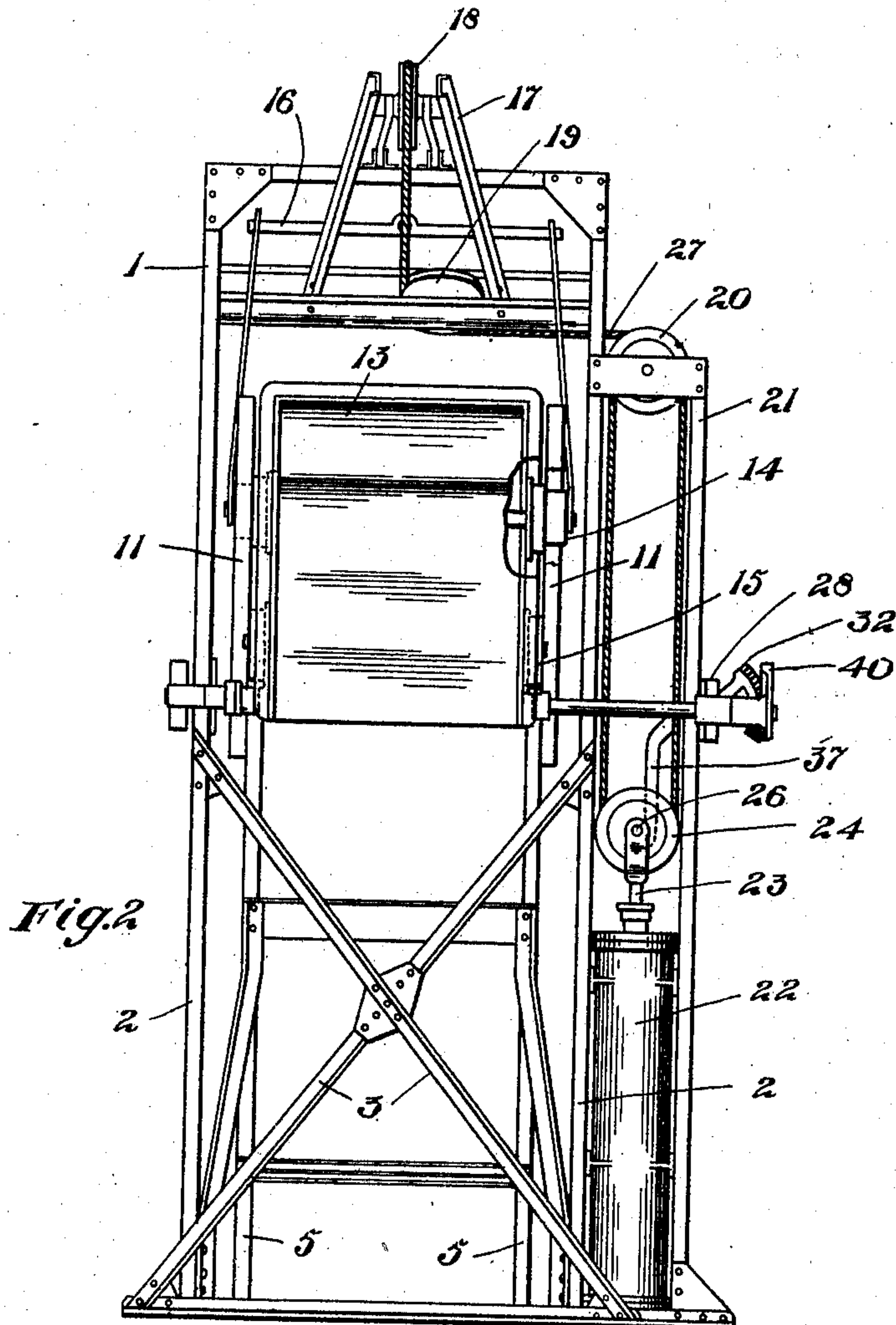
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Witnesses

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Fig. 4.

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UNITED STATES PATENT OFFICE.

WILFRED ALMON HARE, OF TORONTO, ONTARIO, CANADA, ASSIGNOR TO THE
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HOIST.

963,435.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed August 9, 1909. Serial No. 511,968.

To all whom it may concern:

Be it known that I, WILFRED ALMON HARE, a subject of the King of Great Britain, and resident of the city of Toronto, county of York, Province of Ontario, in the Dominion of Canada, have invented certain new and useful Improvements in Hoists, of which the following is a specification.

The invention relates to improvements in hoists, as described in the following specification and illustrated in the accompanying drawings that form part of the same.

The invention consists essentially in the novel construction and arrangement of parts, whereby members for supporting the front end of the car and pivotally supported from the frame are operated to swing outwardly by the operation of the hoist mechanism.

The objects of the invention are, to facilitate the removal of ashes from railway locomotives and the loading of same into ash cars, to provide an elevated structure for raising the ash car which will not interfere with the passage of another car or locomotive past the hoist, and to devise a neat, strong and simple form of hoist which may be used for loading ashes, coal or other loose materials.

In the drawings, Figure 1 is a side elevation of the hoist showing the car in its unloading position in full lines and in its lowermost position in dotted lines. Fig. 2 is a front elevation of the device, the flange of the car being partly broken away. Fig. 3 is an enlarged perspective detail showing the means for operating the extension track-way. Fig. 4 is a sectional detail showing the stop for limiting the movement of the extension track-way.

Like numerals of reference indicate corresponding parts in each figure.

Referring to the drawings, 1 is the main frame of the hoist formed of the side uprights 2 rigidly supported at the top and bottom and braced toward the bottom by the cross braces 3.

4 is a cross beam extending between the uprights 2 intermediate of their height.

5 are the rails forming a permanent track-way for the ash car secured at their ends 6 to the upper side of the cross beam 4, the extremities of said rails projecting outwardly slightly beyond said cross beam. The rails 5 are curved downwardly from the inner side of the cross beam 4 and extend angu-

larly downward to the pit 7 arranged beneath the rails 8 on which the locomotive, discharging its ashes, runs. The said rails 5 are curved outwardly toward the lower end to bring the car beneath the opening 9 between the rails 8. The rails 5 are braced from the uprights 2 by the struts 10.

11 are short lengths of rail rigidly secured to the outside of the rails 5 and extending angularly upward beyond the curved portions of the said rails 5 and rigidly supported from the main frame, the upper ends 12 of said rails being bent at an angle upward from the main portion.

13 is the ash car formed of a long scoop shape having the double flanged rear wheels 14 and the single flanged front wheels 15 journaled on suitable axles.

16 is a bail pivotally secured to the outer ends of the rear axle of the car 13.

17 is a rigid boom structure extending outwardly from the front side of the frame 1 and carrying the grooved sheave 18 in suitable journals at the outer end thereof.

19 is a sheave suitably supported from the frame 1 in angular arrangement therewith and below the sheave 18.

20 is a double sheave journaled in suitable bearings in the side extension frame 21 secured to one side of the frame 1.

22 is an air cylinder secured between the extension frame 21 and the main frame 1 at the bottom thereof having the piston rod 23 extending from its upper end and supporting a double sheave 24, said piston rod having a suitable piston secured to its opposite end.

25 is a grooved roller journaled on the outwardly extending end of the shaft 26 supporting the double sheave 24.

27 is a flexible cable, at one end secured to the bail 16 of the ash car 13 and extending around the sheave 18 under the sheave 19 and around the double sheaves 20 and 24 and secured at its other end to the frame.

The operation of the piston of the air cylinder 22, through the cable 27, operates the car 13 to be raised or lowered on its tracks. In the upward travel of the car the front wheels and the inner flanges of the rear wheels travel on the rails 5, and the forward end of the car follows the upper curve of the said rails 5 leading to the ends 6. The rear wheels of the car having the flanges extending outwardly beyond the

rails 5 engage the rails 11 and rise upwardly past the curved upper portion of said rails 5, the bail 16 swinging freely on the axle as the car changes its position in relation to the angle of inclination of the rails 5.

28 is a bracket rigidly secured to one of the uprights 2 of the main frame 1 opposite one end of the cross beam 4, said bracket having the lugs 29 and 30 extending therefrom and the journal bearing 31.

32 is a shaft rigidly secured in the lugs 29 and 30 and extending therebetween.

33 is a beveled gear segment having the sleeve portion 34 journaled on the shaft 32.

35 is an arm extending from the sleeve 34 at the opposite end to the segment 33 and having a socket 36 formed on its outer end.

37 is a bent arm rigidly secured in the socket 36 of the arm 35 and adapted to engage the grooved roller 25 in its downward movement.

38 is a shaft journaled in the journal bearing 31 at one end and in the bearings 39 supported from the cross beam 4.

40 is a beveled gear segment fixedly secured to one end of the shaft 38 and meshing with the segment 33.

41 are the extension rails having the hub portions 42 fixedly secured to the shaft 38, said hub portions having the stops 43 projecting from one end thereof, said stops being adapted to engage the corresponding stop portions 44 extending from the ends of the journal bearings 39.

45 is a lever fixedly secured to the shaft 38, at the opposite end to the segment 40 and having the counter balance weight 46 adjustably secured thereto. The counter balance is arranged to normally hold the extension rails in the upright position shown in dotted lines in Fig. 1 and when said rails are in this position the arm 37 is swung through the inter-meshing gear segments to its upper position.

In the operation of this device the locomotive is brought over the ash pit and the ashes and cinders from the fire box are discharged into the car 13. The air cylinder is then operated to draw downwardly on the cable, pulling the car upwardly over the rails 5. As the car approaches the curved upper end of the rails 5 the grooved roller 25 engages the arm 37 swinging said arm downwardly and consequently swinging the gear segment 33 on the shaft 32. The swinging of the segment 33 turns the shaft 38 in its bearings through the segment 40, elevating the counter balance weight and throwing the extension rails 41 downwardly to their horizontal position, the stops on the hubs of said extension rails engaging the stops on the bearings 39. The roller 25 continues in engagement with the straight portion of the bent arm 37 during the remainder

of its downward travel, thus holding the extension rails securely to their position and as the said roller travels downwardly through the operation of the piston the front wheels of the car 13 pass over the curved portion of the rails 5 and continue on to the extension rails 41. The extension flanges of the rear wheels of the car engage the rails 11 and traveling upwardly along said rails elevate the back end of the car, thus holding the said car so that the back end is elevated to cause the contents to slide out into the ash car or other receptacle brought underneath the said extension rails. The return movement of the air piston allows the rear end of the car to drop and as the front wheels withdraw from the extension rails the grooved roller 25 passes the shoulder on the arm 37 and allows the said extension rails to swing upwardly on their pivots, the counter balance weight returning the parts to normal.

A device such as described may be placed beside a railway track and utilized for the unloading of loose materials of any kind from one vehicle and loading it upon another and does not in any way interfere with traffic on other lines as no part of the device extends over the track except when the conveyer car is actually discharging its load. The extension rails, provided to carry the car a sufficient distance outwardly to discharge its load, return immediately to their normal position after discharging its load.

The preferred form of construction is herein shown and described but it must be understood that many of the parts may be changed considerably without departing from the spirit of the invention.

What I claim as my invention is:—

1. In a hoist, a rigid frame, a sloping track-way leading upwardly to said frame, a car arranged to operate on said track-way, a movable extension track-way adapted to be projected outwardly from said frame to carry the front end of the car outwardly beyond said frame, means for normally holding said extension track-way in a withdrawn position, means for projecting said extension track-way, means for guiding the rear end of said car upwardly above the level of said extension track-way, and means for operating said car.

2. In a hoist, a rigid upright frame, a sloping track-way leading upwardly to said frame and secured thereto intermediate of the height thereof and rounded outwardly, a rigid extension track-way extending above the outwardly turned ends of the aforesaid track-way, an extension track-way pivotally supported at the upper ends of the first mentioned track-way, means for normally holding said extension track-way in a substantially vertical position, and means for supporting said extension track-way in a

substantially horizontal position, a car arranged to operate on said track-ways, means for operating said car, and means for swinging said pivotal extension track-way on its pivots operated by said car operating means.

3. In a hoist, a rigid upright frame, a sloping track-way leading upwardly to said frame and secured thereto at its extremities intermediate of the height of said frame, the ends of said track-way turning outwardly, short rail lengths rigidly secured to the sloping portion of said track-way to the outside of each track and extending upwardly therefrom, said extension tracks having their upper ends bent slightly back toward the frame, an extension track-way pivotally supported at the ends of the outwardly turned portions of the rails of the aforesaid track-way and forming the continuation of said rails, means for normally holding said extension track-way in a substantially vertical position, and means for supporting said extension track-way in a substantially horizontal position, a car having double flanged rear wheels and arranged to operate on said track-ways, the outer flanges of said rear wheels being adapted to engage the rigid extensions secured to the outer sides of the sloping portion of said track-way, means for operating said car, and means for operating said pivotal track-way operated from said car operating means.

4. In a hoist, a rigid upright frame, a sloping track-way leading to said frame and secured thereto intermediate of the height thereof, said track-way turning outwardly, a shaft journaled in suitable bearings and arranged at the extremity of said track-way, a pair of tracks rigidly secured to said shaft and forming an extension to said track-way and arranged to project beyond said frame, a car arranged to operate on said track-way, means for operating said car, means operatively connected to said shaft arranged to engage the means for operating said car and adapted to rotate said shaft, means for normally holding said extension track-way in a substantially vertical position, and means for supporting said extension track-way in a substantially horizontal position.

5. In a hoist, a rigid upright frame, a sloping track-way leading to said frame and secured thereto intermediate of the height

thereof, said track-way turning outwardly, a shaft journaled in suitable bearings from the frame at the ends of said track-way, extension rails rigidly secured to said shaft and forming a continuation of said track-way, means for normally holding said extension track-way in a substantially vertical position, means for supporting said extension track-way in a substantially horizontal position, a gear segment secured to said shaft, a gear segment suitably journaled and co-acting with the aforesaid gear and turning said shaft, an arm projecting from the latter gear segment, and means for operating said car arranged to engage said arm and rotate said shaft.

6. In a hoist, a rigid upright frame, a sloping track-way leading to said frame and secured thereto intermediate of the height thereof, said track-way turning outwardly, a track-way extending above the outwardly turned end of the aforesaid track-way and of a broader gage than the aforesaid track-way, a shaft journaled in suitable bearings from the frame adjacent to the ends of said track-way, extension rails rigidly secured to said shaft and forming a continuation of the outwardly turned track-way, and having projecting stops therefrom arranged to engage corresponding stops on the bearings of said shaft and supporting said pivotal track-way in a horizontal position, an arm rigidly secured to said shaft, a counter balance weight adjustably secured to said arm and holding said extension rails in a raised position, a car arranged to operate on said track-way having its front wheels adapted to run on the main track-way and said pivotal extension and its rear wheels adapted to run on said main track-way and the broader gage track-way, a pivotal arm rigidly connected to the shaft carrying said pivotal track-way, and means for operating said car arranged to engage said rigid arm and swing said pivotal track-way to its horizontal position.

Signed at the city of Toronto, county of York, Province of Ontario, in the Dominion of Canada, this 27th day of July 1909.

WILFRED ALMON HARE.

Witnesses:

H. DENNISON,
WM. C. MUIR.