

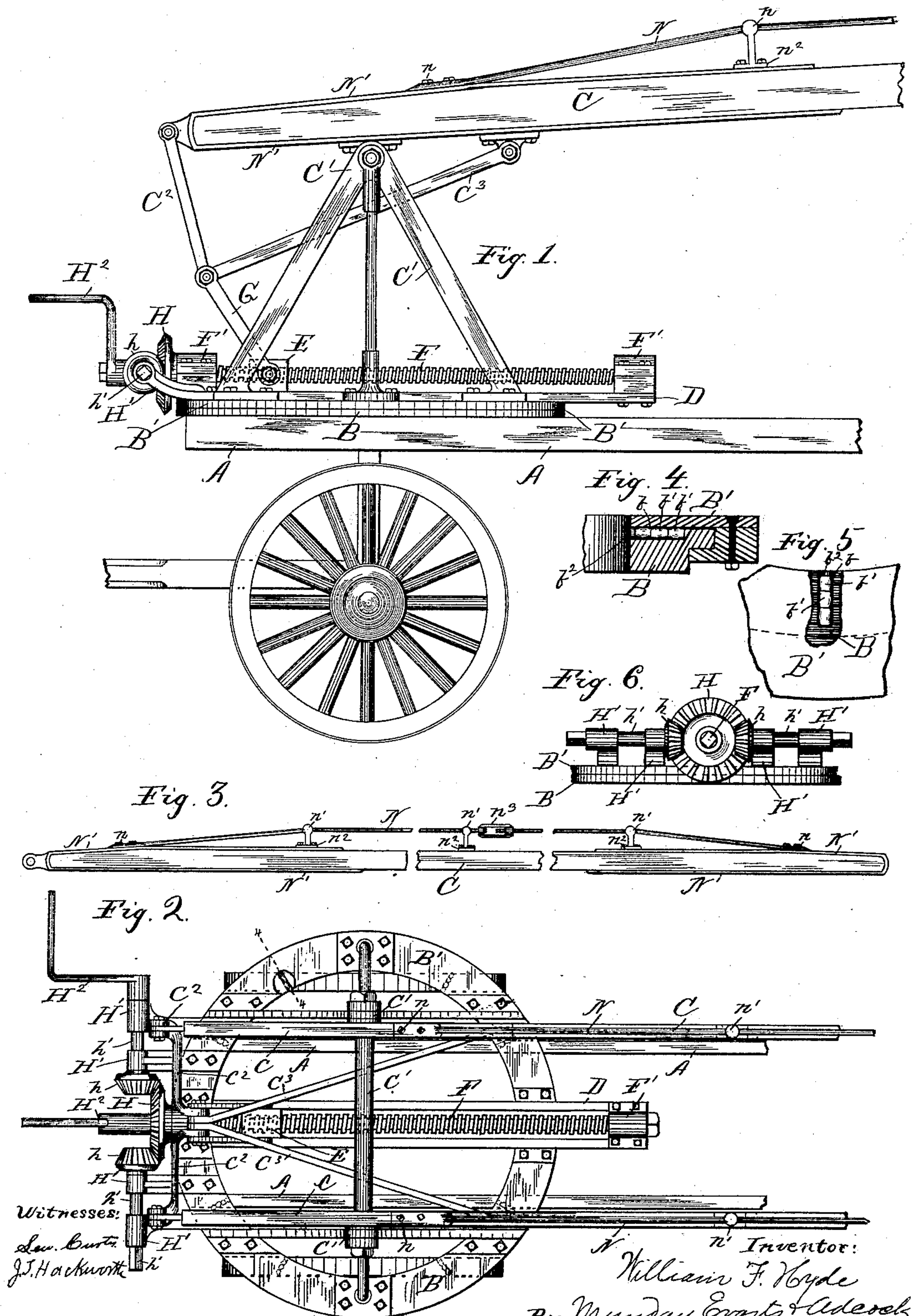
(No Model.)

W. F. HYDE.

TURN TABLE TRUCK FIRE EXTENSION LADDER.

No. 336,519.

Patented Feb. 16, 1886.



UNITED STATES PATENT OFFICE.

WILLIAM F. HYDE, OF CHICAGO, ILLINOIS, ASSIGNOR TO EVERETT B. PRESTON AND GEORGE E. PRESTON, BOTH OF SAME PLACE.

TURN-TABLE TRUCK FIRE EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 336,519, dated February 16, 1886.

Application filed November 30, 1885. Serial No. 184,250. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FREDERICK HYDE, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Turn-Table Truck Fire Extension-Ladders, of which the following is a specification.

This invention relates to turn-tables for fire extension-ladders, and more particularly to certain improvements upon the fire extension-ladder shown and described in Letters Patent No. 319,047, of June 2, 1885; and it consists in the novel devices and novel combinations of devices herein shown, and more particularly pointed out in the claims, whereby the operation of raising and lowering the ladder and turning and adjusting it to different positions is facilitated.

The accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, show at Figure 1 a side elevation of a device embodying the invention. Fig. 2 is a plan view. Fig. 3 is a detail side view of the ladder. Fig. 4 is a cross-section through the turn-table. Fig. 5 is a detail view showing the friction-rollers, the upper plate of the turn-table being broken away; and Fig. 6 is an end view of the screw and its operating side shafts.

In said drawings, A represents the truck or wagon upon which the ladder is mounted; B, the stationary ring of the turn-table secured to said truck, and B' the revolving ring or plate thereof, upon which the ladder is mounted.

C represents the main ladder; C', the standards or supports upon which it is pivoted near its lower end; C² C³, braces to support and strengthen the ladder on each side of its pivot.

D is a slideway secured to the upper ring of the turn-table; E, a traveling nut or block moving back and forth in said slideway; F, the operating-screw journaled at each end in suitable bearings, F', on the slideway, and G is a pivotal link connecting the traveling nut or block E with the lower end of the ladder or its braces.

H is a bevel-gear keyed or otherwise secured to the operating end of the screw F,

and *h h* are bevel-gears meshing therewith on shafts *h' h'*, which are journaled on suitable brackets, H' H', secured to the upper or revolving ring of the turn-table.

H² H² H² are cranks with which the shafts *h' h'*, and also the end of the screw F, are provided. The bevel-gears *h h* are or should be of smaller diameter than the gear H, with which they mesh, so as to give additional leverage or power to the operating-crank. The side shafts, *h' h'*, and their cranks afford a means of raising or lowering the ladder without removing the horses or the tongue from the wagon, and also when the end of the truck abuts against buildings or is in such positions that the crank at the end of the screw F cannot be used. This is often a matter of great convenience as well as dispatch in raising the ladder, and for this reason is of great importance, because a few moments' delay may result in losing life in a burning building; and in such positions where the crank can be applied to the end of the screw F the three cranks afford means for more men to work at the same time, so that the ladder can be raised or lowered much more quickly. When the ladder is elevated in an inclined position, a considerable binding strain is thereby thrown upon the two rings or plates of the turn-table, so that it is often very difficult to turn or swing the turn-table and ladder into different positions.

To facilitate the revolution of the revolving ring B' of the turn-table without in any manner interfering with its flat and firm bearing upon the stationary ring B, so that the ladder mounted upon the former will not be subject to any rocking or vibration on account of any looseness between the two rings of the turn-table, a number of holes or slots, *b*, are bored or otherwise formed in one of the rings, as B, and small friction-rollers *b'* inserted therein, so that the movable ring of the turn-table will have a bearing thereon. These little friction-rollers may preferably be about one inch in length and a half or three-quarters of an inch in diameter, with slightly rounding or tapering ends, as indicated in Figs. 4 and 5. The rollers *b'* may be secured in place by a plug or screw, *b²*, in the end of the slot or hole *b*. The hole *b* should preferably extend radially nearly across the upper face of

the ring B, and two, three, or more friction-rollers should be inserted in each slot. By making the friction-rollers short and employing several in each slot they can accommodate themselves in their revolution to the different positions they severally occupy from the center of the turn-table. The holes or slots *b* should preferably be about twelve in number, and should be located equidistant apart around the turn-table rings B B'. A greater or less number of slots may however be employed when desired. As the main ladder C is often of considerable length, and has also to support one or more extension-ladders, it is difficult to so construct the main ladder that it will not sway and bend when in an inclined position, especially when one or more men have ascended the ladder and its free end has no support against the building, and such vibration of the ladder tends to produce an irregular or jerky strain upon the raising and lowering mechanism, and thus interfere with its easy and proper operation; and to prevent this as much as possible without adding materially to the weight of the ladder, which would render it much more difficult to raise and lower, I provide the main ladder with tie-rods or trusses N N, extending along each rail or side of the ladder, on the top thereof, and secured at each end by suitable bolts, *n*. These trusses or tie-rods pass over a number of knees or projections, *n'*, by which they are separated from the ladder-rails, so as to more effectually strengthen and brace the same. The lower end of the truss-rods should be secured to the wrought-iron or steel socket or heel-piece N', which embraces and strengthens the pivoted end of the ladder. By this means a very rigid construction is given to the whole ladder.

The knees or projections *n'* are provided with flanges *n''*, fitting flat upon the top edge of the ladder-rails, and may be secured thereto by screws. A turn-buckle, *n'''*, near the middle of each tie-rod serves to tighten the same. By this means the main ladder may be made very stiff and strong, and at the same time comparatively light, so that it can be easily and quickly elevated or lowered, and any ir-

regular or jerky strains upon the raising and lowering mechanism will be prevented.

While the improvements herein have been shown and described in connection with the extension-ladder patented in said Letters Patent No. 319,047, they are capable of use upon other turn-table extension-ladders.

The upper or movable ring, B', of the turn-table is composed of two parts bolted together, so as to receive or embrace the shoulder on the ring B.

In the drawings I have only shown the main ladder, as the construction and operation of the upper or extension ladders which slide on the main ladder are well known, and my invention does not pertain thereto.

I claim—

1. The combination, with a turn-table truck and a ladder mounted thereon, of a screw for raising and lowering the said ladder, provided with a gear near one end and a crank-shaft having a gear meshing therewith, said crank-shaft extending to the side or at an angle to said screw, said screw and crank-shaft being both mounted on the revolving ring of said turn-table, substantially as specified.

2. The combination, with a turn-table truck and a pivoted ladder mounted thereon, a screw for raising and lowering the ladder, provided with a beveled gear, and a crank-shaft having a beveled gear meshing with the beveled gear on said screw, said screw and crank-shaft being both mounted on the revolving ring of said turn-table, substantially as specified.

3. The combination, with a turn-table truck and a pivoted ladder mounted thereon, of a screw, F, bevel-gear H, secured thereto, crank-shafts *h' h'*, and bevel-gears thereon, *h h*, substantially as specified.

4. The combination, with a turn-table truck and a pivoted ladder mounted thereon, of a screw, F, having a crank, H', on its end, bevel-gear H, shafts *h' h'*, having bevel-gear *h h*, and cranks H' H', substantially as specified.

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Witnesses:

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