No. 818,262. PATENTED APR. 17, 1906.

H. T. KINGSBURY.

AUTO-AERIAL LADDER TRUCK.

APPLICATION FILED SEPT. 29, 1905.

2 SHEETS—SHEET 1.

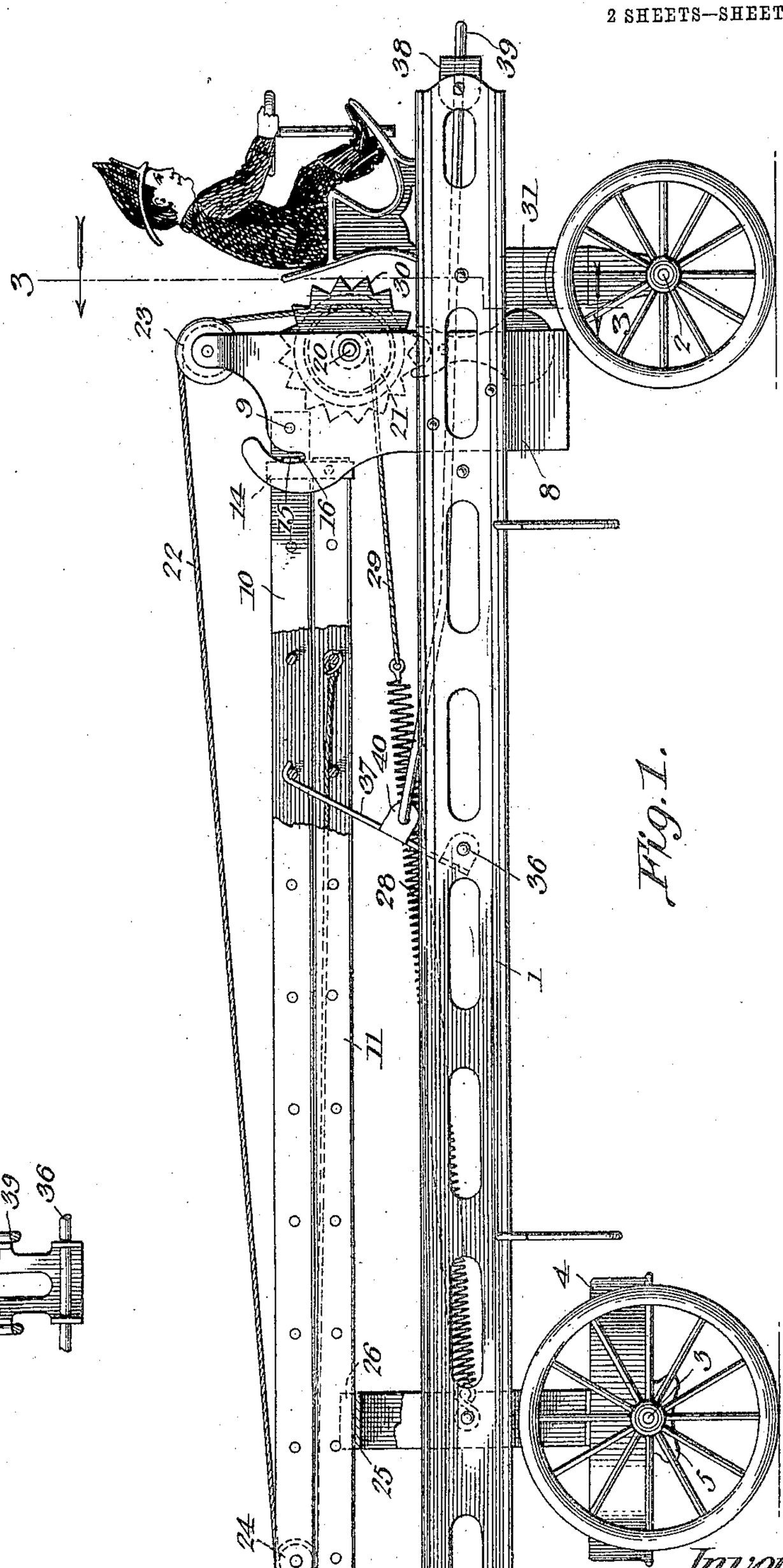

Fig. 1.

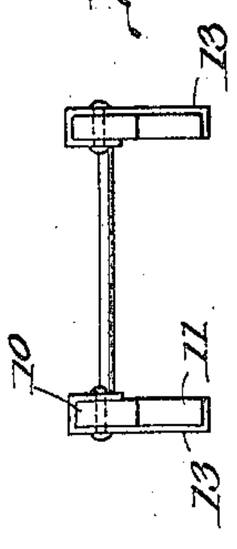

Fig. 4.

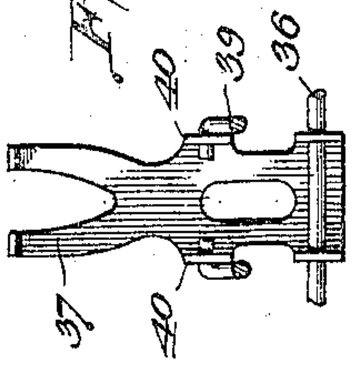

Fig. 5.

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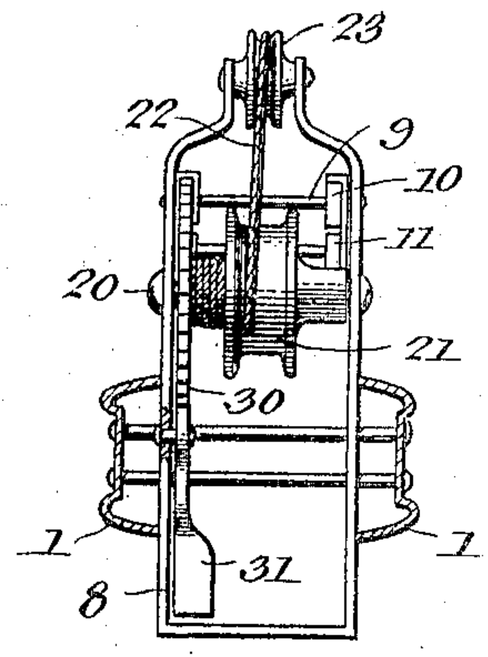
2 SHEETS—SHEET 2.

Fig. 3.



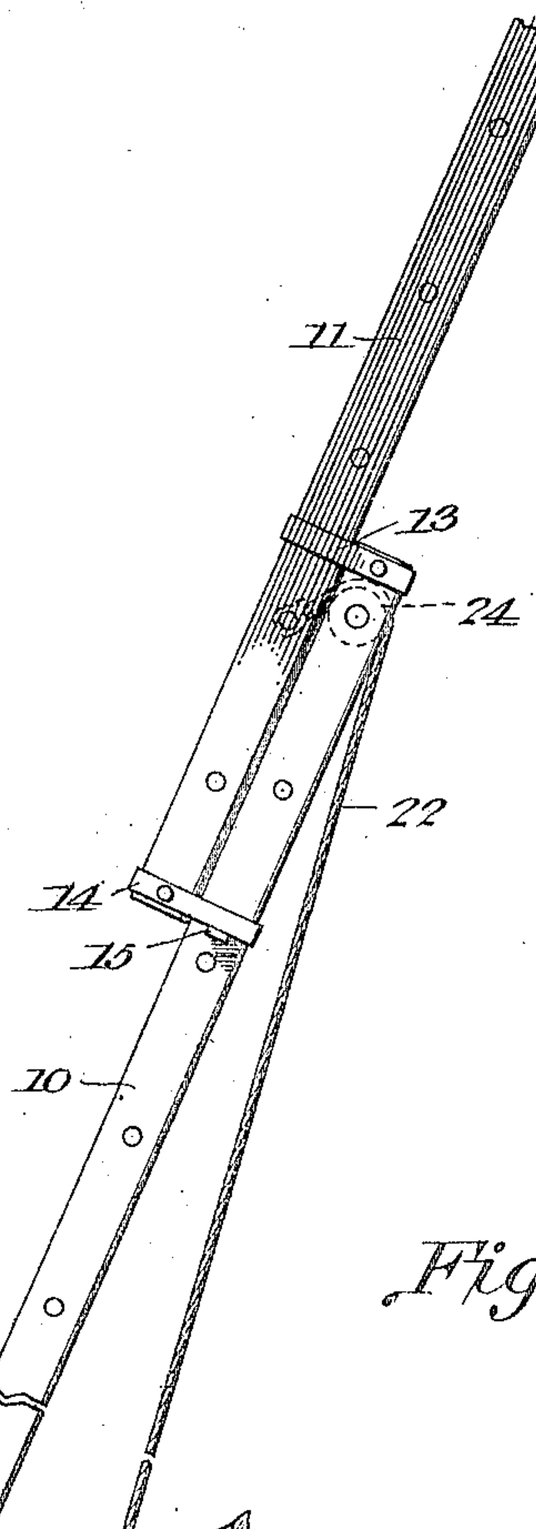


Fig. 2.

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UNITED STATES PATENT OFFICE.

HARRY T. KINGSBURY, OF KEENE, NEW HAMPSHIRE.

AUTO-AERIAL LADDER-TRUCK.

No. 818,262. Specification of Letters Patent. Patented April 17, 1906.

Application filed September 29, 1905. Serial No. 280,642.

To all whom it may concern:

Be it known that I, HARRY T. KINGSBURY, a citizen of the United States, risiding at Keene, in the county of Cheshire, State of New Hampshire, have invented certain new and useful Improvements in Auto-Aerial Ladder-Trucks, of which the following is a description, reference being had to the accompanying drawings, and to the figures of reference marked thereon.

The principal object of the present invention is to provide a novel and attractive toy in the form of a ladder-truck in which the truck is propelled by a suitable motor and carries an automatically-raised ladder.

A further object of the invention is to provide such a device with a novel form of sectional ladder so arranged as to enable one section to slide lengthwise on the other and to provide a novel mechanism for elevating said ladder.

A still further object of the invention is to provide a sectional ladder so constructed that both sections may be raised from an approximately horizontal to an approximately vertical plane before the upper section is allowed to slide upward.

A still further object of the invention is to provide a cheap and efficient form of ladder-elevating mechanism and to employ means for controlling the speed at which it operates.

With these and other objects in view my invention consists in the construction and combination of elements hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation, partly in section, of a toy constructed in accordance with the invention. Fig. 2 is a similar view of the front end of the device, the ladder being elevated. Fig. 3 is a section on line 3 3, Fig. 1; and Fig. 4 is a rear end elevation of the ladder-sections. Fig. 5 is a detail face view of the catch 37.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The truck is preferably formed of stamped sheet metal and comprises longitudinal sills 1, mounted on suitable front and rear wheeled axles 2 3. The rear axle includes a driven member that is propelled by a spring-motor 4, having a suitable winding-key 5, the motor driving one or both of the rear wheels, and thus propelling the truck.

Secured between the longitudinal sills, near the front of the truck, is a U-shaped metallic frame 8, carrying a cross-bar 9, on which are pivoted the lower ends of the side rails of a ladder-section 10. The ladder includes also a section 11, which slides on the section 10 and is uppermost when the ladder is fully elevated.

The ladder-sections are slidably connected by two sets of guide-clips 13 14, one set 13 being secured to the section 10 and embracing the side rails of the section 11, while clips 14 are secured to the section 11 and embrace the side rails of the section 10. The clips 14 are further provided with laterally-projecting lugs 15, that enter arcuate slots 16, formed in the arms of the frame 8. The slot is on an arc struck from the axis of the cross-bar 9, and its function is to prevent sliding movement of the upper ladder-section until both sections have been swung up to an approximately vertical position.

In the frame 8 are openings for a transversely-extending spindle 20, carrying a winding-drum 21, to which is secured one end of a cord or chain 22, that extends over a guiding-sheave 23, journaled at the top of the frame, and over a second sheave 24, mounted on the end rung of the ladder-section 10. The opposite end of the cord is secured to one of the lower rungs of the ladder-section 11.

When the ladder is lowered, its rear end is received on a rest 25, which may form a part of the motor-carrying frame, and the sides of the rest have upturned lips or flanges 26 to prevent lateral movement of the ladder.

The ladder-sections are elevated by a spring 28, the rear end of which is secured to the frame, while the front end of said spring is secured to a cord 29, that extends around and is secured to the hub of the winding-drum 21.

To one end of the winding-drum is secured an escapement-wheel 30, with which engages a weighted anchor 31, pivoted to the frame, the weight being sufficient to retard the upward movement of the ladder, so that it will rise gradually to position. When fully raised, the ladder is tilted forward at a slight angle to the vertical, and the lowermost rung of section 10 abuts against the sheave 23 to prevent excessive movement.

Extending across the frame is a pivot-pin 36, on which is mounted a catch 37, arranged to engage one of the rungs of the ladder-section 10. The front cross-bar 38 of the frame has guiding-openings for the passage of the

parallel arms of a U-shaped trip 39, the rear ends of said arms being pivoted in ears 40 on the catch. The front cross-bar of the trip projects beyond the front of the frame, so that when it touches a wall, desk, table-leg, or other obstruction the catch will be thrown back, automatically releasing the ladder and allowing it to rise to the vertical position. The elevating-spring cannot act to throw the ladder up suddenly, the speed being governed by the escapement mechanism previously described.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A toy ladder-truck, a ladder pivoted thereto, formed of a number of slidably-connected sections, and means for elevating said ladder, and automatic mechanism for controlling the speed of the elevating means.

2. A toy ladder-truck, a ladder pivoted thereto and formed of a number of slidably-connected sections, and a single operating means for first swinging the ladder to upright position, and then sliding the upper section on the lower.

3. A toy ladder-truck, a ladder pivoted thereto, said ladder being formed of a number of sections, guide-clips connecting said sections, a ladder elevating and extending means, and means for preventing sliding movement of the upper section until both sections have been swung to approximately vertical position.

4. A toy ladder-truck, a U-shaped frame carried thereby and provided with arcuate slots, a ladder pivoted to the frame and comprising slidably-mounted sections, guide-clips connecting the sections, lugs projecting from one set of clips and arranged to enter said actuate slots, a winding-drum, a cord passing from the drum to the lower portion of the upper ladder-section, an elevating-spring and a cord extending between the spring and the hub of the winding-drum.

5. A ladder-truck, a pivoted ladder carried thereby, a ladder-elevating means including a winding-drum, an escapement-wheel secured to the winding-drum, and a weighted anchor engaging said escapement-wheel.

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

HARRY T. KINGSBURY.

Witnesses:

W. L. MASON,

G. H. SHERWIN.