

(No Model.)

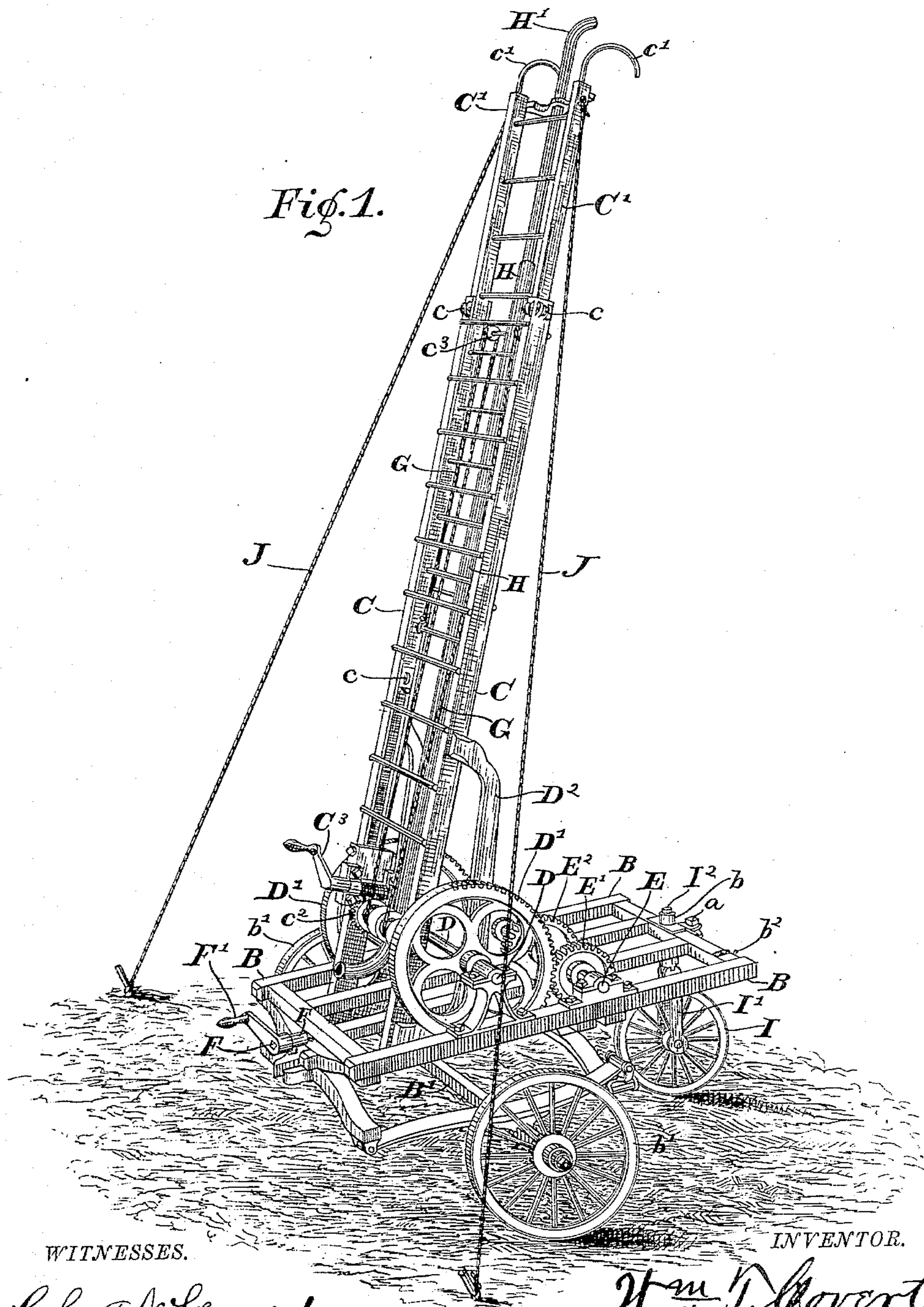
3 Sheets—Sheet 1.

W. T. COVERT.

FIRE TRUCK.

No. 321,342.

Patented June 30, 1885.



WITNESSES.

Chas. N. Leonard.

E. M. Bradford.

INVENTOR.

Wm. T. Covert,

PDF

PER *C. Bradford.*  
ATTORNEY.

ATTORNEY



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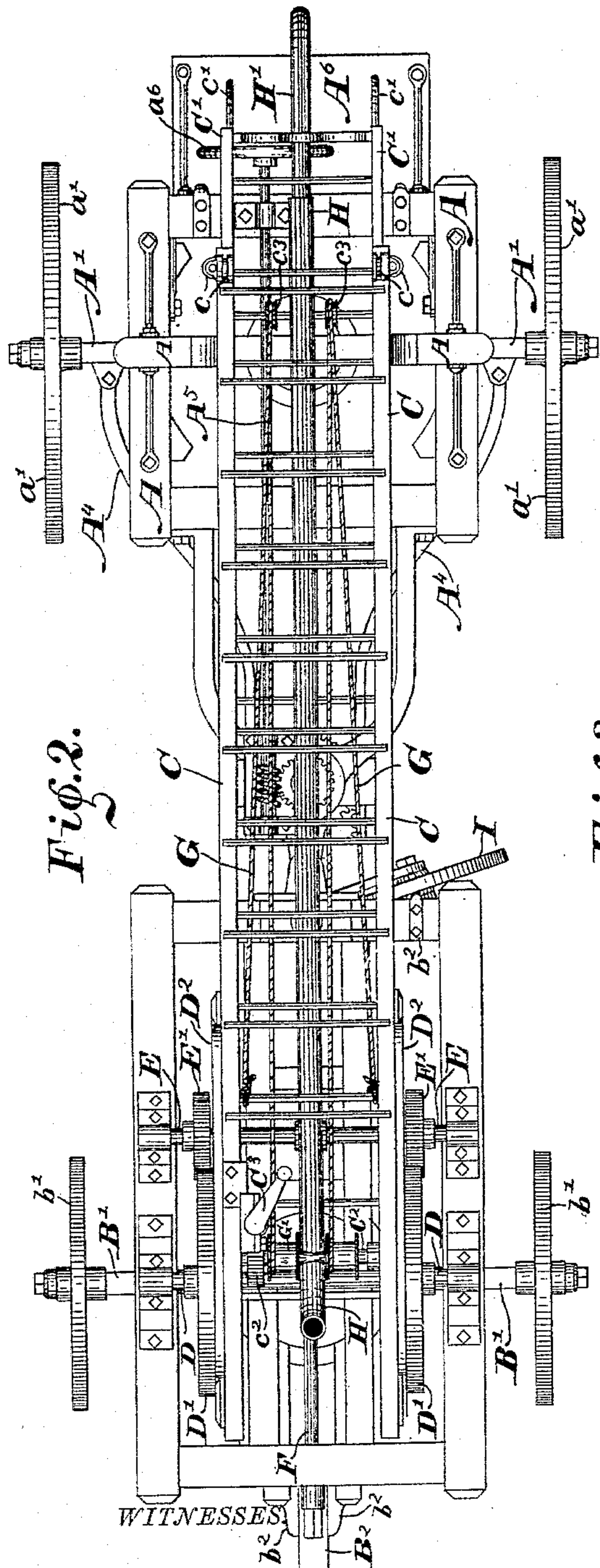
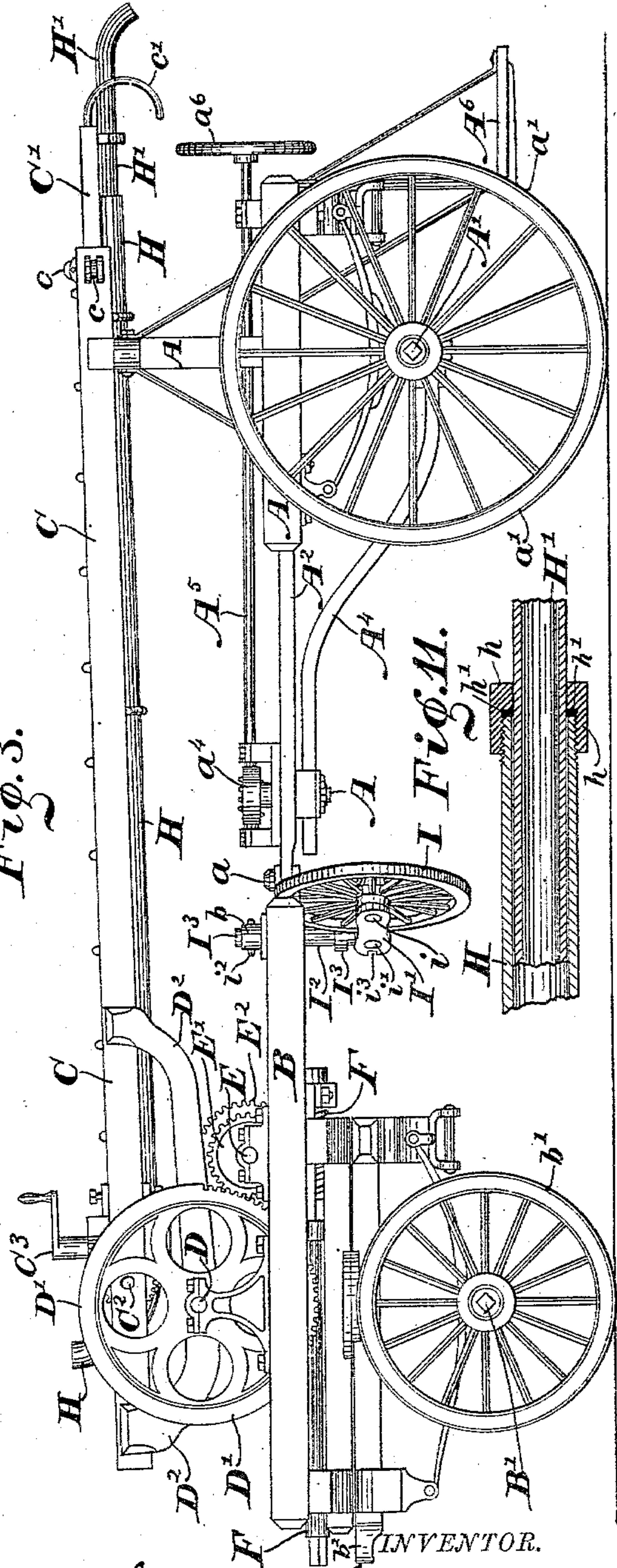


Fig. 2.

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*Fig. 3.*

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(No Model.)

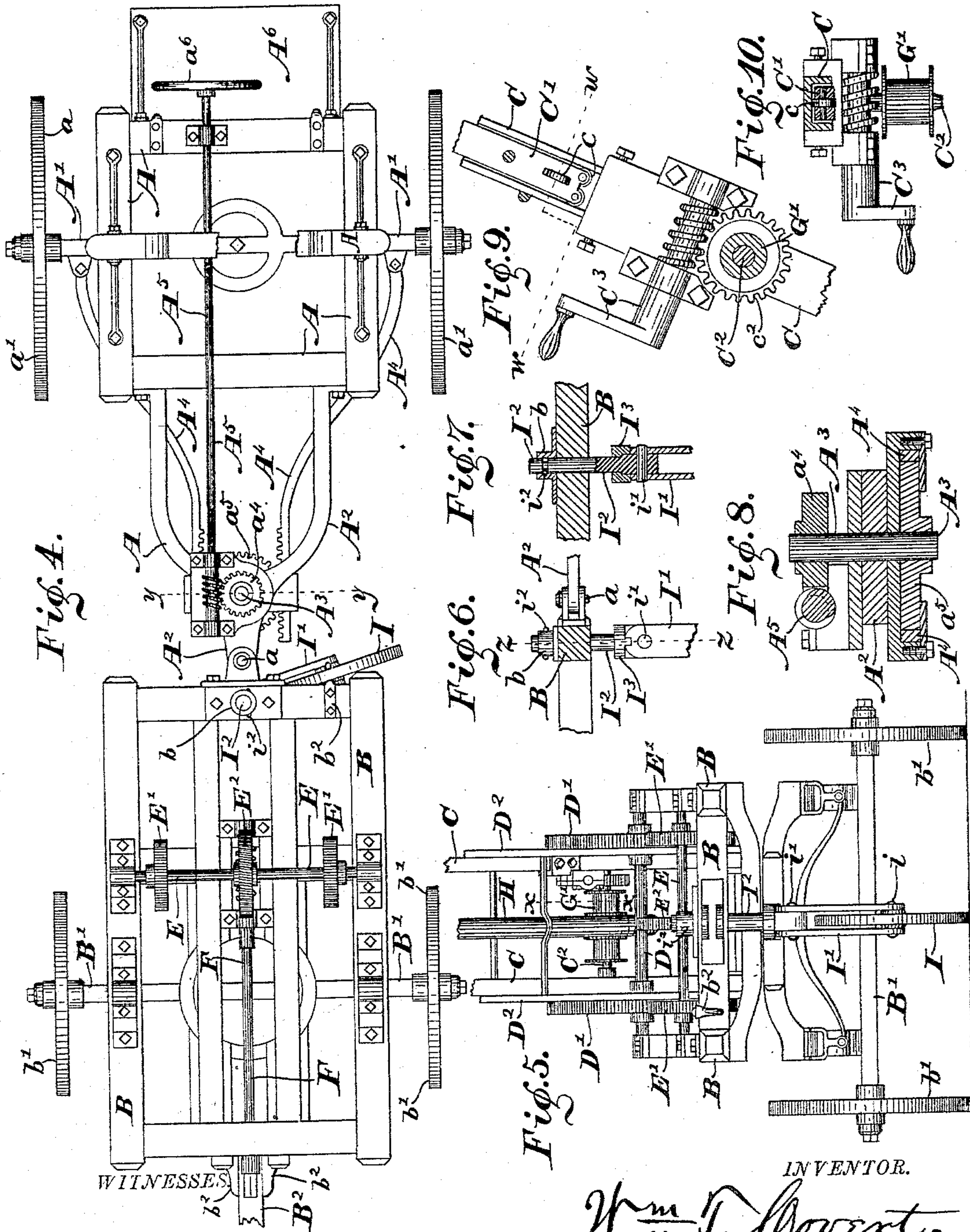
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# UNITED STATES PATENT OFFICE.

WILLIAM T. COVERT, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE  
COVERT TELESCOPIC FIRE LADDER AND STAND PIPE COMPANY, OF  
SAME PLACE.

## FIRE-TRUCK.

SPECIFICATION forming part of Letters Patent No. 321,342, dated June 30, 1885.

Application filed October 13, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM T. COVERT, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Fire-Trucks, of which the following is a specification.

My present invention consists of certain improvements upon that for which Letters Patent of the United States, No. 281,342, were granted me, bearing date July 17, 1883, whereby various advantages in the matter of handling and operating the machine are obtained, as will be presently more fully described.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a perspective view of a fire-truck embodying my invention in position for use; Fig. 2, a top or plan view of the same in position to be transported from place to place; Fig. 3, a side elevation of the same; Fig. 4, a top or plan view of the running-gear with the ladder removed; Fig. 5, a rear elevation of the lower part of the machine when in the position shown in Fig. 1; Fig. 6, a side elevation of the top of the middle wheel-housing and its connections; Fig. 7, a central vertical section of the same on the dotted line  $z z$  in Fig. 6; Fig. 8, a transverse vertical section of the forward portion of the steering apparatus on the dotted line  $y y$  in Fig. 4; Fig. 9, a detail sectional view looking toward the right from the dotted line  $x x$  in Fig. 5; Fig. 10, a sectional view looking downwardly from the dotted line  $w w$  in Fig. 9; and Fig. 11, a detail section through the upper end of the pipe, showing the stuffing-box.

In said drawings, the portions marked A represent the rear carrying-frame of the running-gear; B, the front frame, upon which the ladder is permanently mounted; C C', the ladder-sections; D, the shaft on which the ladder is mounted; E, a counter shaft through which the same is operated; F, a screw-shaft for operating the same; G, ropes for elevating the upper ladder-section; H H', the pipe sections; I, a carrier-wheel for the rear end of the frame B when the frame A is disconnected therefrom; and J, guy-ropes, which may be used with the ladder, if desired.

The frame A carries the upper end of the ladder and of the pipe when said parts are

lowered in position for transportation, (the upper portion of said frame being formed into a rest, as shown,) and also the apparatus by which the running-gear of the machine is steered while being moved from place to place. It is supported by the usual axle A' and wheels  $a'$ , springs and a fifth-wheel being interposed between said axle and said frame, as shown. The forward portion or reach, A<sup>2</sup>, is pivoted to the front frame, B, by a pivot bolt or pin,  $a$ .

The steering apparatus consists of a vertical shaft, A<sup>3</sup>, mounted in suitable bearings on the reach A<sup>2</sup> near its forward end, and provided with a spur-pinion,  $a^4$ , and a screw-gear,  $a^5$ , two rack-bars, A<sup>4</sup>, running forward from the axle and engaging with said spur-pinion, and a screw-shaft, A<sup>5</sup>, engaging with said screw-gear and running back to a point convenient to be operated, preferably over a foot-board, A<sup>6</sup>, at the rear, as shown. The front frame, B, is provided with bearings, in which the several shafts D, E, and F are mounted, and thus carries the ladder and water-pipe and the mechanism by which they are raised and lowered. It is mounted on an axle, B', having wheels  $b'$ , preferably with springs and a fifth-wheel interposed, as shown. A tongue, B<sup>2</sup>, is removably secured to small hounds  $b^2$ , which project slightly in front of this frame. This tongue is usually removed when the apparatus is in use. (See Fig. 1.)

The ladder-sections C and C' are in the main like those shown and described in the Letters Patent referred to, being of the "telescopic" order, as shown. They are, however, provided with anti-friction trucks  $c$ , and are thus enabled to be made so far different in size as to permit the upper section to pass up and down the lower without coming in direct contact therewith. There are preferably twelve of these anti-friction trucks—three attached to the upper end of each side of the lower section, and three to the lower end of each side of the upper section, whereby the upper section is held steadily at any position it is placed.

The shaft D is mounted in bearings on the frame B, as shown, and carries wheels or segments D' and arms or brace-bars D<sup>2</sup>, by the former of which it is rotated, and to the latter of which the ladder is connected, and



through which it operates said ladder, as will be hereinafter described. The counter-shaft E is mounted on the frame B parallel to the shaft D, and has spur-pinions E', which en-  
 5 gage with the wheels or segments D', and a screw-gear wheel, E<sup>2</sup>, through which it is operated. The screw-shaft F runs forward from the screw-gear E<sup>2</sup> to the forward portion of the frame, where it is adapted to receive a crank,  
 10 F', by which it may be operated, and through it and the other gearing the ladder raised and lowered. This crank is ordinarily removed when the ladder is in position for transportation, so as to be out of the way of the tongue.  
 15 The ropes G are secured at one end to the lower end of the ladder-section C', passed up over sheaves c' on the upper end of the ladder-section C, and down to spools G' on a spool-shaft, C<sup>2</sup>, on said ladder-section C. Said  
 20 spool-shaft also carries a screw gear-wheel, c<sup>2</sup>, with which a screw on a crank, C<sup>3</sup>, engages. Said crank is also mounted in suitable bearings upon one side of the ladder-section C, as shown. By turning this crank the upper sec-  
 25 tion, C', of the ladder, and with it the upper section of the water-pipe which is secured thereto, are extended or withdrawn, as may be desired, through said gear, spools, sheaves, and ropes, as will be readily understood.  
 30 The water-pipe sections H and H' are similar to those shown and described in the Letters Patent referred to, and are secured to the ladder-sections in a similar manner.

In order to permit a free movement of one  
 35 pipe-section within the other, it is necessary that the inner one shall be sufficiently smaller to not come in close contact with the outer; and in order to allow this, and at the same time prevent leakage, I have applied a stuff-  
 40 ing-box, consisting, preferably, of a cap, h, and a rubber packing, h', to the upper end of the outer section, (see Fig. 11,) which will permit the inner section to freely descend when the device is not in use, but will form a tight joint  
 45 and prevent leakage of the water when in use.

The wheel I is mounted on an axle, i, in a housing, I', which is secured by a pivot, i', to the swivel-pin I<sup>2</sup>, which is journaled in a vertical bearing, b, in the frame B, where it is  
 50 secured by a transverse pin, i<sup>2</sup>, engaging in a circumferential groove therein. The upper end of the housing I' has notches i<sup>3</sup> formed therein, with which corresponding projections on a vertically-sliding ring, I<sup>3</sup>, on the swivel-  
 55 pin are adapted to engage.

When the apparatus is out of use or in position for transportation, the ring I<sup>2</sup> is raised up, the wheel and its housing raised, and said wheel hooked onto the projection b<sup>2</sup> on the  
 60 frame B, where it is held up out of contact with the ground, as shown in Figs. 2, 3, and 4. When the apparatus is in position for use, the wheel I is usually unhooked and dropped down in the position shown by Figs. 1 and 5, the  
 65 projections on the ring I<sup>3</sup> engaging with the notches i<sup>3</sup> in the upper end of the housing I<sup>2</sup>, (see particularly Fig. 6,) which holds said

wheel and housing upright, and the frame A uncoupled from the frame B by removing the pin a and wheeled off out of the way. The  
 70 apparatus is thus much more easily handled than if the frame A were left connected thereto, as the wheel I can be swiveled to run in any direction, and the apparatus thus faced  
 75 about at pleasure, which could not be so easily done were the frame A left attached. The guy-ropes J are similar to any ordinary guy-ropes, and serve, when used, to steady the ladder in position.

The operation of my said invention may be  
 80 briefly recapitulated, as follows: When out of use, or in position for transportation, the several parts are arranged as shown in Figs. 2 and 3, the wheel I hooked up, the upper lad-  
 85 der and pipe sections withdrawn within the lower, and the whole lowered and resting on the frame A, which is connected to the frame B by the pin a. Upon arriving at the scene of action the wheel I is dropped and fastened,  
 90 the ladder raised by means of the shafts D E F and the gearing thereon, the upper ladder and pipe sections elevated by means of the ropes and gearing G G' C<sup>2</sup> c<sup>2</sup> C<sup>3</sup>, and the frame A uncoupled and run off. Hose is then or pre-  
 95 viously connected to the lower and upper ends of the pipe, and the apparatus is ready for use. It may, if desired, be steadied by the guy-rope J, or, if leaning against a building, by the hooks c' on the top ends of the upper  
 100 ladder-section. During the progress of the apparatus through the streets its course is guided by the steering apparatus A<sup>3</sup> A<sup>4</sup> A<sup>5</sup> by turning the hand-wheel a<sup>6</sup> on the end of the shaft A<sup>5</sup>, this being accomplished by a man  
 105 who stands on the foot-board A<sup>6</sup>.

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

1. The combination, in a fire-truck, of a double frame-work coupled by a pivot-con-  
 110 nection, the rear frame-work being pivotally mounted on the running-gear, and a steering apparatus consisting of a vertical shaft, A<sup>3</sup>, carrying two gears, rack-bars A<sup>4</sup>, extending forward from the axle to and engaging with  
 115 one of said gears, and a shaft, A<sup>5</sup>, engaging with and extending back from the other of said gear-wheels, substantially as described, and for the purposes specified.

2. The combination, with a fire-truck, of a  
 120 steering apparatus consisting of a vertical shaft, A<sup>3</sup>, carrying two gears, rack-bars A<sup>4</sup>, extending from the axle and engaging with one of said gears, and a screw-shaft, A<sup>5</sup>, engaging with and extending from the other of said  
 125 gears, and means for operating the same, substantially as set forth.

3. In a fire-truck, the combination of the double frame-work A B, coupled by a pivot-  
 130 connection, the rear frame-work, A, being pivotally mounted on the running-gear, and a steering apparatus consisting of a vertical shaft, A<sup>3</sup>, mounted in bearings on the reach A<sup>2</sup>, carrying a spur-pinion, a<sup>4</sup>, and a screw-



gear,  $a^5$ , two rack-bars,  $A^4$ , running forward from the axle and engaging with said spur-pinion, and a screw-shaft engaging with said screw-gear and running back to a point convenient to be operated, where it is preferably provided with a hand-wheel,  $a^6$ , for operating the same, substantially as set forth.

4. The combination, in a fire-truck, of a double frame-work coupled by a detachable connection whereby the rear frame-work can be uncoupled and separated from the front frame-work, and a middle wheel, I, hinged to the front frame-work and adapted to be raised up off the ground when the rear frame-work is attached, and let down onto the ground when the rear frame-work is detached, substantially as described, and for the purposes specified.

5. In a fire-truck, the combination of two mounted frames, A and B, detachably secured together, a middle wheel, I, and a pivoted housing therefor, whereby when one of said frames is detached the end of the other may be supported by said wheel, and when the two frames are connected said wheel may be raised up out of the way, substantially as set forth.

6. The combination, in a fire-truck, of the two frames A and B, the wheel I, pivoted housing I', swivel-pin I<sup>2</sup>, and locking device I<sup>3</sup>, substantially as set forth.

7. The combination, in a fire-truck, of the ladder, the frame on which it is mounted, the shafts D, E, and F, and the gears thereon, substantially as described, and for the purposes specified.

8. The combination, in a fire-truck, of the ladder, the frame on which it is mounted, the shaft D, having gears or segments D' and braces or arms D<sup>2</sup>, the shaft E, having pinions E' and screw-gears E<sup>2</sup>, and the screw-shaft F, having a screw-pinion which engages with said screw-gear wheel, and a crank, F', substantially as set forth.

9. The combination of the ladder-sections C C', one within the other, the ropes G, the shaft C<sup>2</sup>, carrying spools G' and screw-gear  $c^2$ , and the screw-crank C<sup>3</sup>, substantially as described, and for the purposes specified.

10. The combination, in a fire-truck, of the ladder-section C, having grooves in the sides of the side pieces which face each other, anti-friction trucks at the upper ends of said side pieces which enter said grooves, the ladder-section C', which rests in the grooves in the section C, and anti-friction trucks on the lower end of said section C', which come in contact with the inner sides of said grooves, all substantially as described, and for the purposes specified.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 11th day of October, A. D. 1884.

WILLIAM T. COVERT. [L. S.]

In presence of—

C. BRADFORD,  
E. W. BRADFORD.