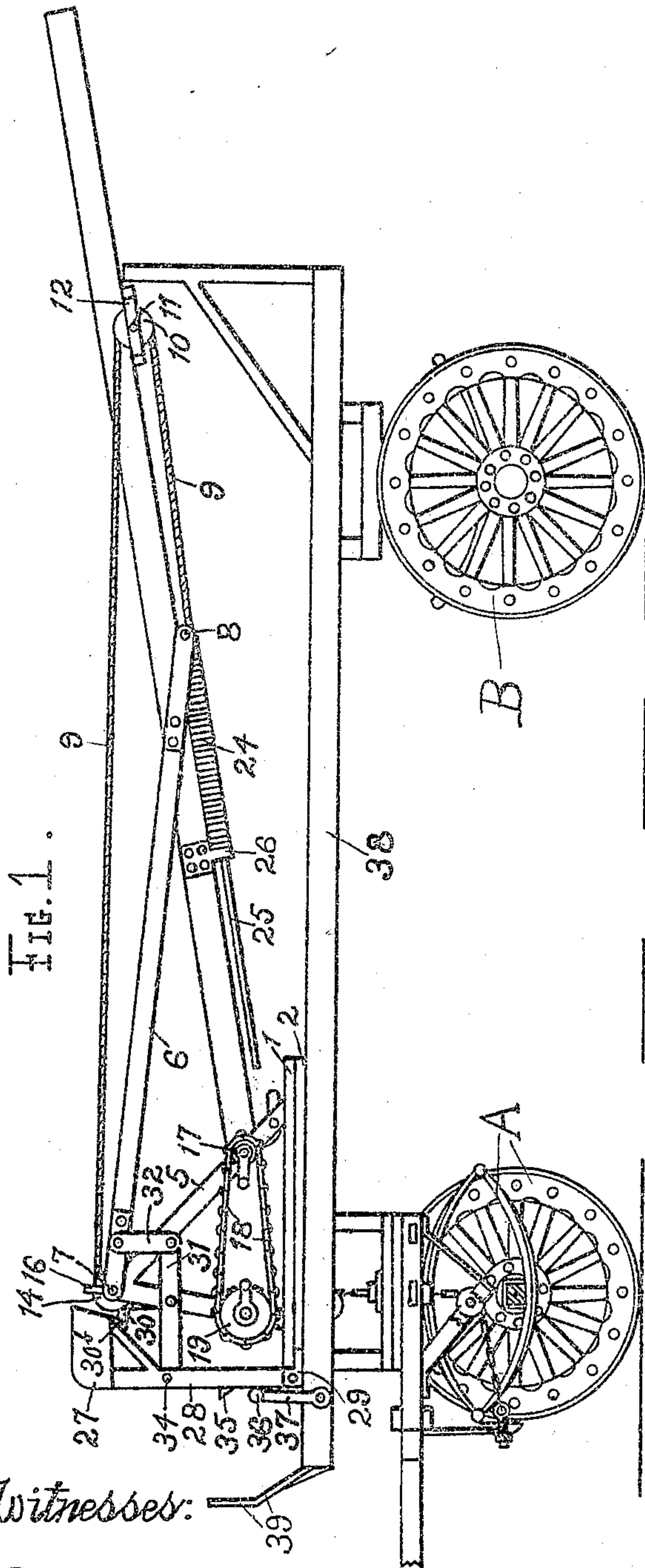


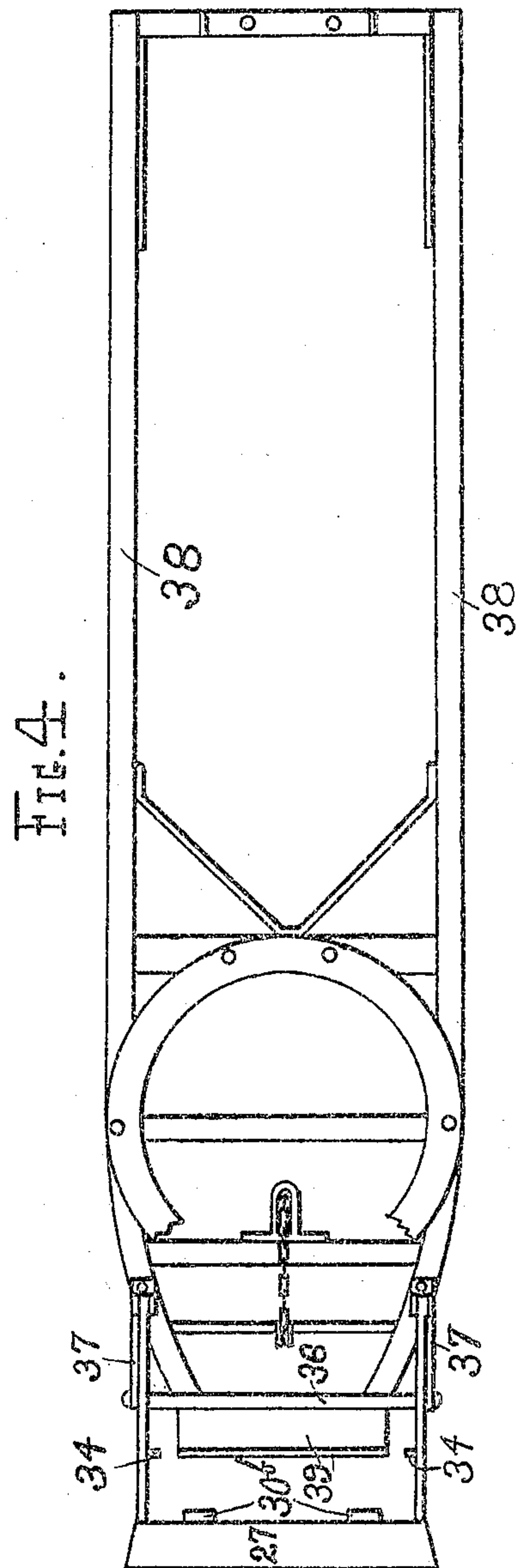
B. B. BRIGGS.
FIRE APPARATUS.
APPLICATION FILED SEPT. 17, 1904.

2 SHEETS—SHEET 1.



Witnesses:

Samuel H. Kieger.
John G. Burlingham.



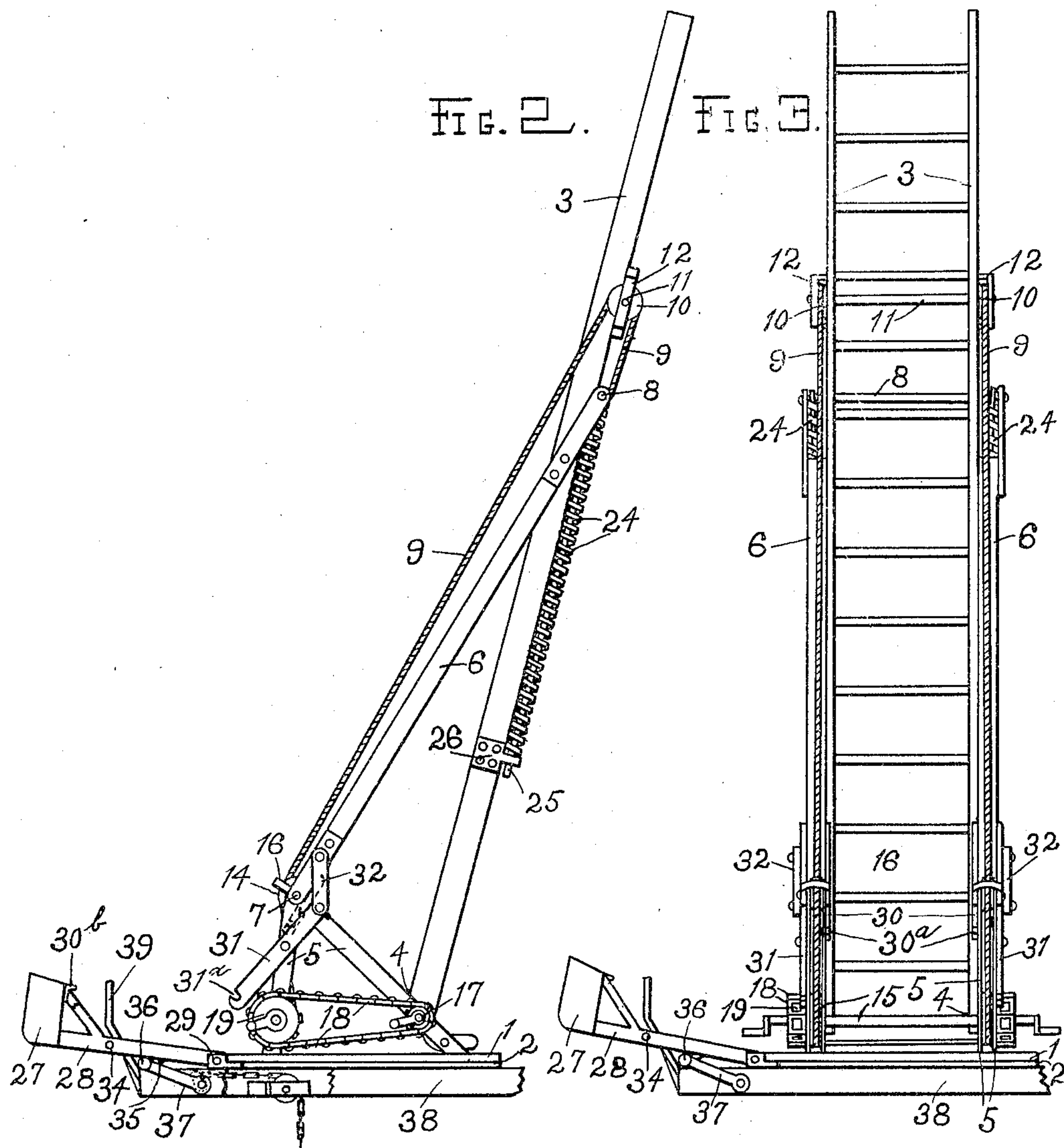
Inventor:
Burdett B. Briggs.

No. 794,486.

PATENTED JULY 11, 1905.

B. B. BRIGGS.
FIRE APPARATUS.
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2 SHEETS—SHEET 2.



Witnesses:
Samuel H. Kinsler.
John G. Bushong.

Inventor:
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UNITED STATES PATENT OFFICE.

BURDETT B. BRIGGS, OF CRESTON, IOWA.

FIRE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 794,486, dated July 11, 1905.

Application filed September 17, 1904. Serial No. 224,923.

To all whom it may concern:

Be it known that I, BURDETT B. BRIGGS, a citizen of the United States, residing at Creston, in the county of Union and State of Iowa, have invented certain new and useful Improvements in Fire Apparatus; and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the invention.

My invention relates to improvements in fire-trucks, more especially to that class in which raising mechanism is employed to raise and support a ladder; and the objects of the same are, first, to provide an improved means for raising the ladder with lifting-levers and cables; second, to provide an improved driver's seat which is locked into position by the raising mechanism when the ladder is lowered and automatically released when the ladder is elevated; third, to provide improvements whereby the brake of the truck will be locked or set when the driver's seat is swung over forward; fourth, to provide an improved spring appliance to assist in raising the ladder which will be more safe and free from accident should the spring break.

To this end the invention consists in the details of construction hereinafter more fully described and claimed and as shown in the accompanying drawings, which form part of this specification, wherein—

Figure 1 is a side elevation of the entire apparatus, certain parts of the front running-gear being cut away to show the brake construction. Fig. 2 is a side elevation of a portion of the truck-frame removed from the running-gear and the ladder raised and showing the seat swung over forward and brake set. Fig. 3 is a similar view to that of Fig. 2, but the ladder turned so as to be viewed from the front side. Fig. 4 is a top view of the truck-frame removed from the running-gear and showing the seat and brake in the position shown in Fig. 2.

Referring to the drawings, similar characters of reference refer to similar parts throughout the several views.

A designates the front and B the rear run-

ning-gears of the truck, such as usually forms part of the fire equipment of large cities.

A turn-table 1 is mounted upon the front end of the truck and is constructed, as usual, so that the upper half or section may turn upon a lower section 2.

The ladder 3 is pivoted at one end to the turn-table or, as at 4, to the uprights 5, which are secured upon the turn-table. A pair of lifting-levers 6 are hinged at one end at 7 to the uprights 5 at a point which is above the pivot of the ladder and in front thereof. The free ends of the lifting-levers are connected together by a cross-rod 8, movable on and under the ladder, as seen in Figs. 1, 2, and 3.

A hoisting-cable 9 is attached at one end to the free end of each lifting-lever or to the cross-rod 8 and passes upward or to pulleys 10, mounted on a stationary cross-rod 11, fastened on the under side of the ladder, as shown in Figs. 2 and 3. A bracket 12 extends from the ladder around to the outside of the pulleys 10, so as to form a yoke to keep the cable from leaving the pulley and also to brace the pulleys.

The cables 9 pass from pulleys 10 to and over friction-pulleys 14, which are mounted on the upper ends of the uprights 5 and on the hinge-bolt 7 of the lifting-levers. The cables pass down from these friction-pulleys 14 to a windlass 15, and which is also mounted on the brackets 5, as shown in Figs. 1, 2, and 3. I have also provided a yoke 16 for the pulley 14. This yoke or bracket is fastened on the hinge end of the lifting-levers 6, and, as will be noted in Fig. 1, the yoke is moved out of the way of the seat when the ladder is down, but is thrown over forward out of the course of the cable when the ladder is elevated, as best seen in Fig. 2.

Each upright 5 is made double or two uprights set side by side with a space left between them sufficient for the friction-pulleys 14 and a drum for winding the cable on each preceding coil, as seen in Figs. 2 and 3.

A secondary windlass or sprocket-wheel is mounted on the rear side of the turn-table, so as to be distant from the main windlass. A chain belt 18 gears the sprocket-wheel 17

on the secondary windlass with a larger sprocket-wheel 19 and on the shaft of the main windlass, as shown in Figs. 1, 2, and 3. The two different-sized sprocket-wheels give
 5 two speeds and two leverages to elevate the ladder, and the smaller sprocket-wheel might be on the main windlass.

It will be observed that when the turn-table is turned one side of the main windlass will
 10 be swung around to the opposite side of the truck, and which would necessitate an operator to change positions to the other side of the truck should the front of the ladder be turned from the operator; but this objection
 15 is overcome by the secondary windlass, which I have mounted on the rear part of the turn-table, as shown in Figs. 1, 2, and 3.

Compression-springs 24 encircle the piston-rods 25, which are attached at one end to the
 20 lifting-levers 6 or the cross-rod 8. The other ends of said piston-rods pass through a bracket 26, which is fastened to the side of the ladder. The spring 24 is placed between the bracket and the cross-rod 8, as seen in Figs. 1, 2, and
 25 3. This spring appliance overcomes the defects of the contractile spring employed heretofore for this purpose, as the contractile spring is liable to break and by so doing cause the ladder to fall or render the same inopera-
 30 tive, and the spring in breaking is liable to strike some one nearby. This appliance overcomes all of these defects, for should the spring break the loss in power would be a very small amount and could be easily repaired by insert-
 35 ing a washer between the broken parts. It will be noted that the spring must stay on the piston-rod under all conditions.

A driver's seat 27 is supported on stand-ards 28, and which are hinged at their foot
 40 ends to brackets 29, fastened to the main frame of the truck, so as to adapt the seat to be swung forward, as shown in Figs. 3 and 4. The seat is held in position by short arms or catches 30, fastened on the hinge end of the
 45 lifting-levers 6. These arms extend to and under the seat and are provided with a recess 30^a, which engages with a catch 30^b on the under side of the seat, as seen in Figs. 2 and 4. The seat is further held in position by an
 50 arm 31, pivoted between its two ends to the upright 5. A link 32 connects the rear end of the arm to the lifting-lever 6, and the free end of the arm 31 extends forward and is provided with a recess 31^x, which engages a pin
 55 or catch 34, as seen in Figs. 1, 2, 3, and 4.

When the ladder is raised, the catch-arms that hold the seat are released from their re-
 spective catches on the seat and the seat is free to be swung forward, as shown in Fig. 2.

60 The catch-arms 30 are fastened on the inside of the lifting-levers, as shown in dotted lines in Fig. 2, and the elbow catch-levers located on the outside of the lifting-levers and to the outside of the uprights 5, so that one

set of catches will not interfere with the other; 65 but the arms can be arranged otherwise.

A catch 35 is provided on each seat-stand-ard at points which will engage the foot-rod 36, connecting the free ends of the brake-le-
 70 vers 37 when the seat is swung forward and operating to lock the brake-levers while the ladder is elevated; as seen in Figs. 2 and 3.

The brake is of about the usual construc-tion used on such trucks, and most any brake can be made to operate in combination with 75 the seat herein described.

The front ends of the side sills 38 of the truck-frame are curved inward, so as to make the toe-board 39 shorter and allow the seat-standards to pass down to the outside of same 80 and give the operators more room to operate the ladder, besides making a more rigid frame for the truck, as will be seen in Fig. 4.

Having thus described my invention, what I claim as new, and desire to secure by Letters 85 Patent, is—

1. The combination with a support, a ladder pivoted at one end to the support, uprights on the support, lifting-levers pivoted at one end to said uprights at points above the pivot of 90 the ladder and to the front thereof, a cross-rod connecting the free ends of the lifting-levers and movable under the ladder, pulleys mounted on opposite sides of the ladder, a yoke extending from the ladder over the out- 95 side of said pulleys, a cable attached to the lifting-levers and passing over said pulleys, and a windlass adapted for winding said cable.

2. The combination with a support, a ladder pivoted at one end to the support, uprights on 100 the support, lifting-levers pivoted at one end to said uprights at points above the pivot of the ladder and to the front thereof, a cross-rod connecting the free ends of the lifting-levers and movable on the ladder, a rod at- 105 tached at one end to said cross-rod and the free end of the rod movable through a bracket on the side of the ladder, a compression-spring mounted on said rod between the bracket and said cross-rod and adapted to assist in raising 110 the ladder.

3. The combination with a support, a ladder pivoted thereon, uprights on the support, lifting-levers pivoted at one end to said up- 115 rights at points above the pivot of the ladder and to the front thereof, the free ends of the lifting-levers movable on the ladder, a bracket on the side of the ladder, a rod attached at one end to the lifting-lever and movable in said bracket, a spring encircling said rod be- 120 tween the lifting-lever and said bracket, and adapted for assisting in raising the ladder, as set forth.

4. The combination with a support, a ladder pivoted thereon, lifting-levers pivoted at one 125 end to the support at points above the pivot of the ladder and to the front thereof, the free ends of the lifting-levers movable on the

ladder, a cross-rod fastened on the ladder and extending out from the sides of the ladder, pulleys mounted on the ends of the cross-rod, cables attached to the lifting-levers and passing over said pulleys, and a windlass mounted on the support and adapted for winding said cables, as set forth.

5. The combination with a support, a ladder pivoted thereon, lifting-levers pivoted at one end to the support at points remote from the pivot of the ladder, and the free ends of the lifting-levers movable on the ladder, brackets on the ladder, rods extending through said brackets and attached to the lifting-levers, a compression-spring mounted on the rods between the lifting-levers and said brackets, all for the purpose set forth.

6. The combination with a support, a ladder pivoted thereon, uprights on the support, lifting-levers pivoted at one end to said uprights at points above the pivot of the ladder and to the front thereof, the free ends of said lifting-levers movable on the ladder, a cross-rod fastened under the ladder, pulleys mounted on the ends of the cross-rod, a brace fastened to the ladder and to the end of said cross-rod, cables attached to the free ends of the lifting-levers and passing over said pulleys, and a windlass adapted for winding said cables.

7. The combination with a support, a ladder pivoted thereon, uprights on the support, lifting-levers hinged at one end to said uprights at points above the pivot of the ladder, and the free ends of the lifting-levers movable on the ladder, a windlass mounted on the support, friction-pulleys mounted at the hinge end of the lifting-levers, a yoke over said pulleys and fastened onto the lifting-levers, cables wound on said windlass and passing over said pulleys to the ladder, all for the purpose set forth.

8. The combination with a support, a ladder pivoted thereon, a windlass mounted on the support for raising the ladder, a secondary windlass mounted upon the support at a point to the rear of the first windlass, a sprocket-wheel on said secondary windlass, and a chain belt gearing said sprocket to a sprocket-wheel on the first windlass, and each windlass having crank-levers to operate the same, substantially as set forth.

9. The combination with a support, uprights on the support, a pair of lifting-levers pivoted at one end to said uprights at points above the pivot of the ladder, a cross-rod connecting the free ends of said lifting-levers and movable on the ladder, pulleys mounted on the ladder, cables attached to the lifting-levers and passing over pulleys mounted on the ladder, and a windlass adapted for winding said cables.

10. The combination with a support, a ladder pivoted thereon, a pair of lifting-levers pivoted at one end to the support at points above the pivot of the ladder and to the front

thereof, the free ends of said lifting-levers having movable bearing on the ladder, pulleys mounted on the sides of the ladder, flexible draft-lines attached to the lifting-levers and passing over said pulleys, and a windlass mounted on the support and adapted for winding said draft-lines.

11. The combination with a support, a ladder pivoted thereon, a pair of lifting-levers pivoted at one end to the support at points above the pivot of the ladder and to the front thereof, a cross-rod connecting the free ends of said lifting-levers and movable on the ladder, pulleys mounted on opposite sides of the ladder, cables attached to the lifting-levers and passing over said pulleys, and a windlass mounted upon the support and adapted for winding said cables.

12. In a fire-apparatus truck, a turn-table mounted thereon, a ladder pivoted to the turn-table, uprights on the turn-table, lifting-levers pivoted to said uprights at a point above the pivot of the ladder, a seat mounted on standards pivoted at their foot ends to the truck-frame, a brake-lever passing in front of said seat-standards, a catch on the seat-standards adapted to lock the brake-lever when the seat is swung forward, a seat-retaining catch attached to said lifting-levers and engaging a cooperating catch on the seat, and means to actuate the lifting-levers and disengage said retaining-catch, for the purpose set forth.

13. In a fire-apparatus truck, a ladder mounted on the truck, and mechanism for raising the ladder, a seat hinged to the truck, a catch to retain the seat in position and means to disengage said catch and release the seat, a brake-lever in front of said seat and adapted to be actuated by the seat, when the seat is swung forward, as set forth.

14. In a fire-apparatus truck, a ladder mounted thereon, mechanism adapted for elevating the ladder secured on the truck, a seat hinged to the truck-frame, a catch to hold the seat in position, means to disengage said catch and release the seat, and a brake-lever adapted to be set by the seat, when the seat is swung forward, as set forth.

15. In a fire-apparatus truck, a turn-table mounted thereon, a ladder pivoted to the turn-table, uprights on the turn-table, lifting-levers hinged at one end to said uprights at a point above the pivot of the ladder and the free ends of the lifting-levers movable on the ladder, a seat hinged to the truck-frame, a catch on said seat, a catch-arm on the hinge end of said levers and engaging said seat-catch, and means to actuate said levers and disengage the catch-arm from said seat-catch.

16. In a fire-apparatus truck, a turn-table mounted thereon, a ladder pivoted on the turn-table, uprights on the turn-table, lifting-levers pivoted at one end to said uprights at a point above the pivot of the ladder, and the free

ends of said levers movable on the ladder, a seat hinged at its foot ends, a catch on said seat, jointed arms pivoted to the uprights and to said levers and adapted to engage said seat-catch, substantially as described.

17. A turn-table mounted on a truck, a ladder pivoted on the turn-table, mechanism for elevating the ladder, a seat pivoted at its base and adapted to be swung forward, a catch on the seat, retaining-hooks pivotally fixed to the ladder mechanism and adapted to engage said seat-catch, and means to disengage said hooks from said catch.

18. A turn-table mounted on a truck, a ladder pivoted on the turn-table, lifting-levers pivoted at one end to the turn-table at a point remote from the pivot of the ladder, the free ends of said levers movable on the ladder, a seat pivoted at its base and adapted to be swung forward, seat-retaining hooks attached to said levers, and devices carried by said seat adapted to engage said hooks from the upper side thereof, for the purpose set forth.

19. A turn-table mounted on a truck, a ladder pivoted on the turn-table, mechanism for raising the ladder, a seat pivoted to the truck-frame and adapted to be swung forward, horizontal seat-retaining hooks pivoted on the turn-table, and devices carried by said seat adapted to engage with said hooks.

20. In a fire-apparatus truck, a ladder mounted thereon, and mechanism for raising said ladder, a seat mounted on standards and hinged at their base ends to the truck-frame and adapted to be swung forward, the front ends of the side sills of the truck converging at the front end of the truck, a footboard thereon and adapting the seat-standards to pass to the outside thereof, substantially as described.

21. A ladder pivoted at its base end to a support, lifting-levers pivoted at one end to said support at points remote from the pivot of the ladder, and the free ends of the lifting-levers movable on the ladder, a bracket fastened on the ladder, a rod secured at one end to the bracket and at the other to the free ends of the said levers, and a spring mounted on said rod and adapted to assist in raising the ladder.

In testimony whereof I have hereunto subscribed my name to this specification, at Creston, in the county of Union and State of Iowa, this 14th day of September, 1904, in the presence of two subscribing witnesses.

BURDETT B. BRIGGS.

Witnesses:

SAMUEL H. KINGERY,
JOHN G. BURLINGHAM.