

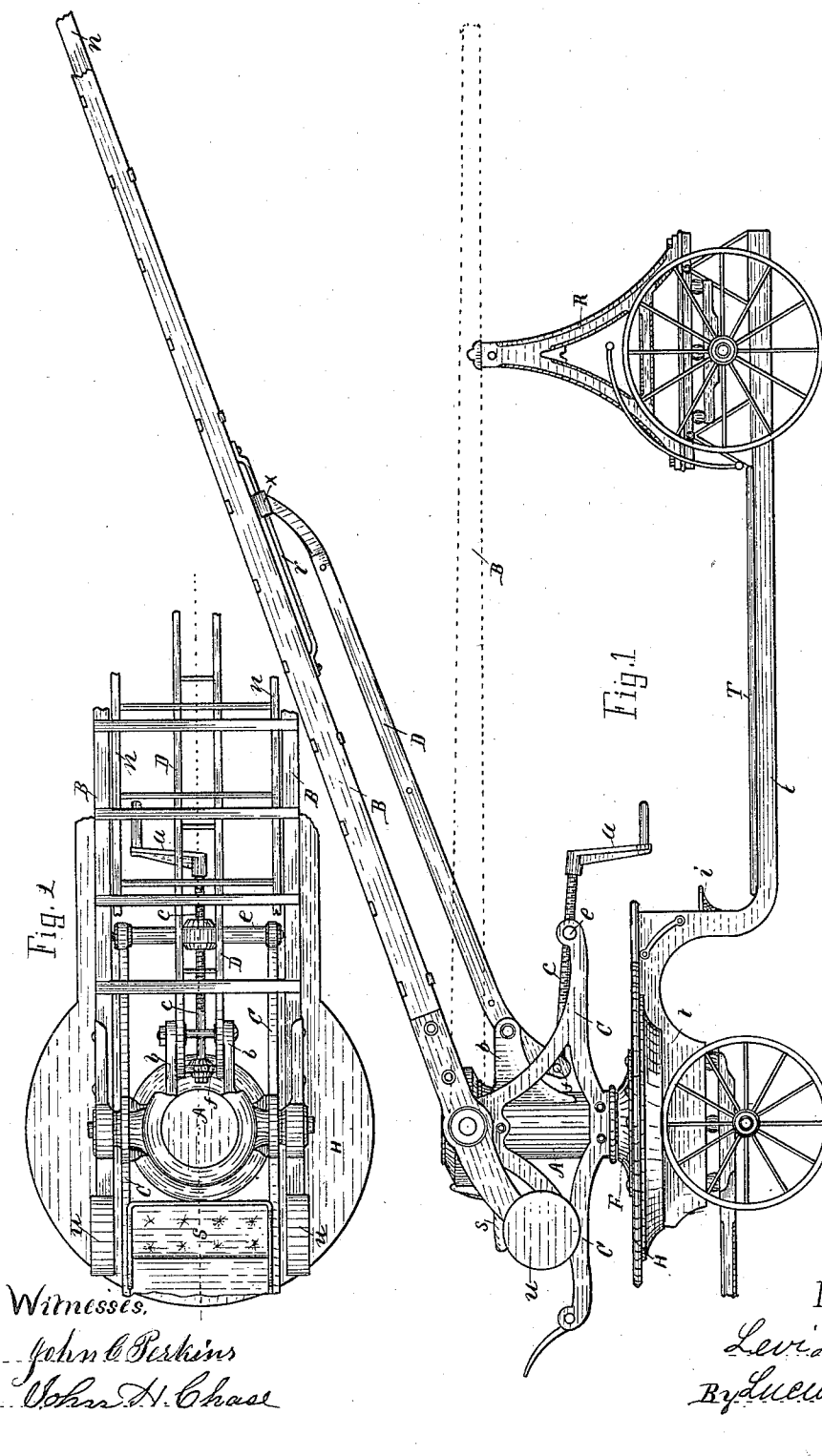
(No Model.)

2 Sheets—Sheet 1.

L. HARRIS.
FIRE LADDER.

No. 363,066.

Patented May 17, 1887.



(No Model.)

2 Sheets—Sheet 2.

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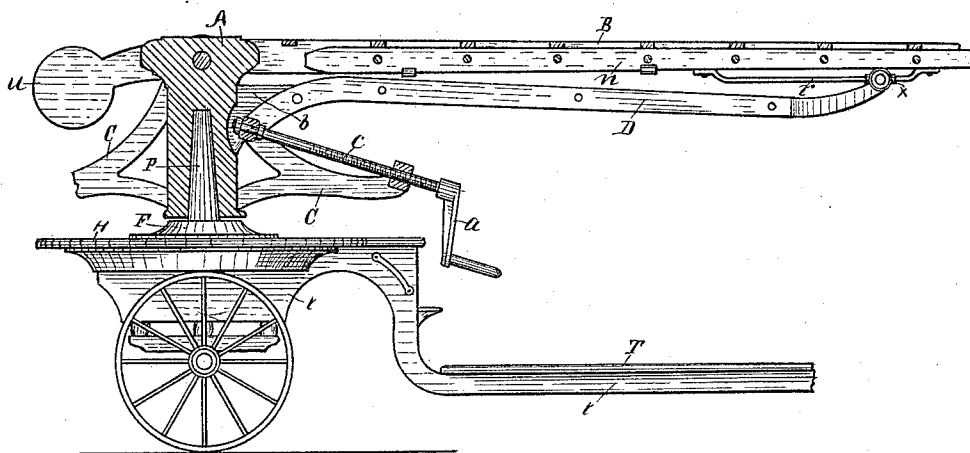


Fig. 3

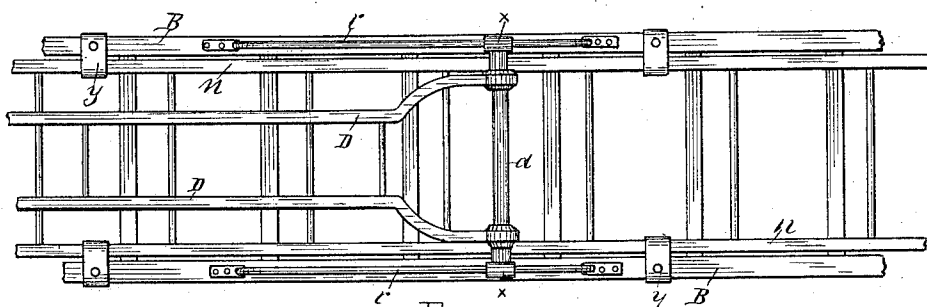


Fig. 4

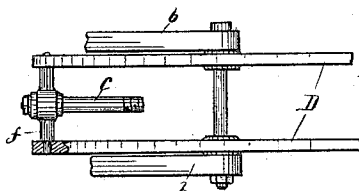


Fig. 5

Witnesses.

John B. Perkins.

John N. Chase

Inventor.

Levi Harris

By Lewis C. West

att'y.

UNITED STATES PATENT OFFICE.

LEVI HARRIS, OF KALAMAZOO, MICHIGAN.

FIRE-LADDER.

SPECIFICATION forming part of Letters Patent No. 363,066, dated May 17, 1887.

Application filed January 10, 1887. Serial No. 223,913. (No model.)

To all whom it may concern:

Be it known that I, LEVI HARRIS, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Fire-Ladder, of which the following is a specification.

This invention has for its object an improved construction in that class of fire-ladders which are raised on a fulcrum and turned on a pivot to different positions after being raised, all substantially as below described and claimed, the design being to simplify and lighten the construction, facilitate the operation, and greatly add to their utility and safety.

In the drawings forming a part of this specification, Figure 1 is a side elevation of the truck and ladder; Fig. 2, a plan of a part of Fig. 1, portions being broken away; Fig. 3, a side elevation, with portions broken away and parts in vertical section on the dotted line in Fig. 2; Fig. 4, broken details in Fig. 1, looking from a point beneath the ladder; and Fig. 5 is a plan of broken details in Figs. 1 and 2, said Figs. 4 and 5 being enlarged.

Referring to the lettered parts of the drawings, H is a platform over the forward wheels of the truck; *t*, the truck-frame; R, a support for the rear end of the ladder B, as when in transit, (see the dotted position of the ladder in Fig. 1); T, side platforms between the front and rear wheels, and *i* the steps leading from the lower platform to the platform H.

Of course the lettered parts above named are duplicated on the opposite side of the truck; but so far as the truck is concerned any style suitable may be employed.

Projecting upward from the platform H, approximately at or near the center, is a strong metal pintle, P, having a flaring base, F, Fig. 3. A pillar, A, internally cored from the base upward, sits on the pintle P and is rotatable thereon. As here shown, the upper end of the pintle P supports the weight of the pillar and its connections; but it will appear obvious that, if ever deemed advisable, roller-bearings may be placed between the lower end of the pillar A and the pintle-base F.

The ladder B is provided with the usual extensible part, *r*, held by clips *y* and sliding therein, Fig. 4. At a point a little above the base of the ladder B said ladder is fulcrumed

to the upper end of the pillar A on opposite sides, Fig. 2. The side bars of the ladder terminate below the fulcrum in weights *u u*. Thus these weights, when the ladder swings up and down on its fulcrum, play each side of the seat *s*, said seat being also supported by the pillar A.

The ladder B is raised (with the assistance of the weights) by means of the lever D and screw *c*, and is lowered and held at any given point in its elevation by said lever and screw. By making the screw of a proper length the ladder can be lowered and sustained at any point obliquely below a horizontal plane.

The lever D is composed of two bars fulcrumed near their lower end to arms *b*, projecting from the pillar A, Figs. 1 and 5. The front end of the screw *c* is swiveled to the shaft *f*, said shaft having rotatable bearings in the end of the lever D, Figs. 3 and 5. The screw *c* passes through a screw-threaded hole in the shaft *e*, said shaft having rotatable bearings in the ends of the brackets C. These brackets are secured to the pillar A—one on each side—and extend forward and rearward, preferably an equal distance from said pillar. The forward extension may constitute the foot-rest support of the seat. The rear end of the lever D is fulcrumed on a shaft, *d*, said shaft terminating at each end in thimbles *x x*, which thimbles slide on the elongated couplings *r r* of the ladder B, Figs. 1 and 4. By this means the lever D is raised and lowered, carrying the ladder B with it, by turning the crank *a* of the screw *c*, and the parts all conform to the proper angles without cramping.

It will be observed that the ladder B, lever D, screw *c*, and brackets C are all supported by the rotatable pillar A, and are carried around with it when the ladder is swung from one point to another. The brackets C serve as levers or handles for the firemen to take hold of to rotate the pillar A, and thereby swing the ladder.

I prefer to make the base of the ladder B a little curved beyond the fulcrum, as in Fig. 1, so that when the ladder stands perpendicular the weights *u* will be thrown a little forward, and will thus assist in starting the ladder down again. These weights exert the greatest lifting force at the time when most needed, and

by employing them the screw turns very easily. The weights also serve to counterbalance the ladder when it is partially raised, thus obviating undue lateral strain on the pintle P.

5 It may be here noted that the part termed a "pintle," in a full-sized construction, is very large and strong. It will be observed that leverage is applied to the ladder by means of the weights *u* and lever D on both sides of the
10 ladder-fulcrum.

I am aware that it is not new with me, broadly, to apply leverage on both sides of the ladder-fulcrum; but, so far as I know, my plan of effecting this is materially different from
15 others in prior disclosures.

Having thus described my invention, what I claim as new is—

1. The combination, with a truck, of a pillar rotatably mounted thereon, a ladder fulcrumed
20 to the upper end of the pillar and provided with a weighted base beyond the fulcrum, and a screw-actuated lever supported by the pillar to assist in raising the ladder, substantially as set forth.

2. The combination, with a truck, of a pillar rotatably mounted thereon, provided with arms for the lever-fulcrum and with rearwardly-extending brackets, a ladder fulcrumed
30 end beyond the fulcrum, a lever fulcrumed to said arms, a screw swiveled to the base of the lever beyond its fulcrum, a shaft having bearings in the brackets, and provided with a screw-threaded hole, through which the screw is
35 passed, substantially as set forth.

3. The combination, with a truck, of a pillar rotatably mounted thereon, provided with the arms for the lever-fulcrum and with the rearwardly-extended brackets, a ladder fulcrumed
40 to the pillar, provided with a weighted end beyond the fulcrum and with the elongated

lever-couplings, a lever fulcrumed to said arms and forming a sliding connection with the couplings, a screw swiveled to the base of the lever beyond its fulcrum, a shaft having bearings in the brackets, and provided with a screw-threaded hole, through which the screw passes, substantially as set forth. 45

4. The combination, with a truck, of a pillar rotatably mounted thereon, a ladder the side bars of which are fulcrumed to the sides of the pillar at the upper end, said bars each terminating beyond its fulcrum in a weighted end, and a screw-actuated lever supported from the pillar to assist the weight in raising the
50 ladder, substantially as set forth. 55

5. The combination of a truck provided with the upwardly-extending pintle, an internally-cored pillar mounted rotatably thereon, and a fulcrumed ladder and means for raising it, all supported free from the truck by the pintle, substantially as set forth. 60

6. The combination, with a truck, of a pillar rotatably mounted thereon and provided with the rearwardly and forwardly extending brackets, a ladder fulcrumed to said pillar, and a screw-actuated lever supported from the pillar, whereby the brackets form levers by which to rotate the pillar and its burden on its pintle, substantially as set forth. 70

7. The combination, with a fulcrum-support, of a ladder fulcrumed thereto and having a weighted end beyond the fulcrum, which is thrown laterally from the perpendicular plane of the elevated ladder, substantially as set forth. 75

In testimony of the foregoing I have hereunto subscribed my name in presence of two witnesses.

LEVI HARRIS.

Witnesses:

CHARLES H. BOOTH,
JOSEPH E. KELLOGG.