

(No Model.)

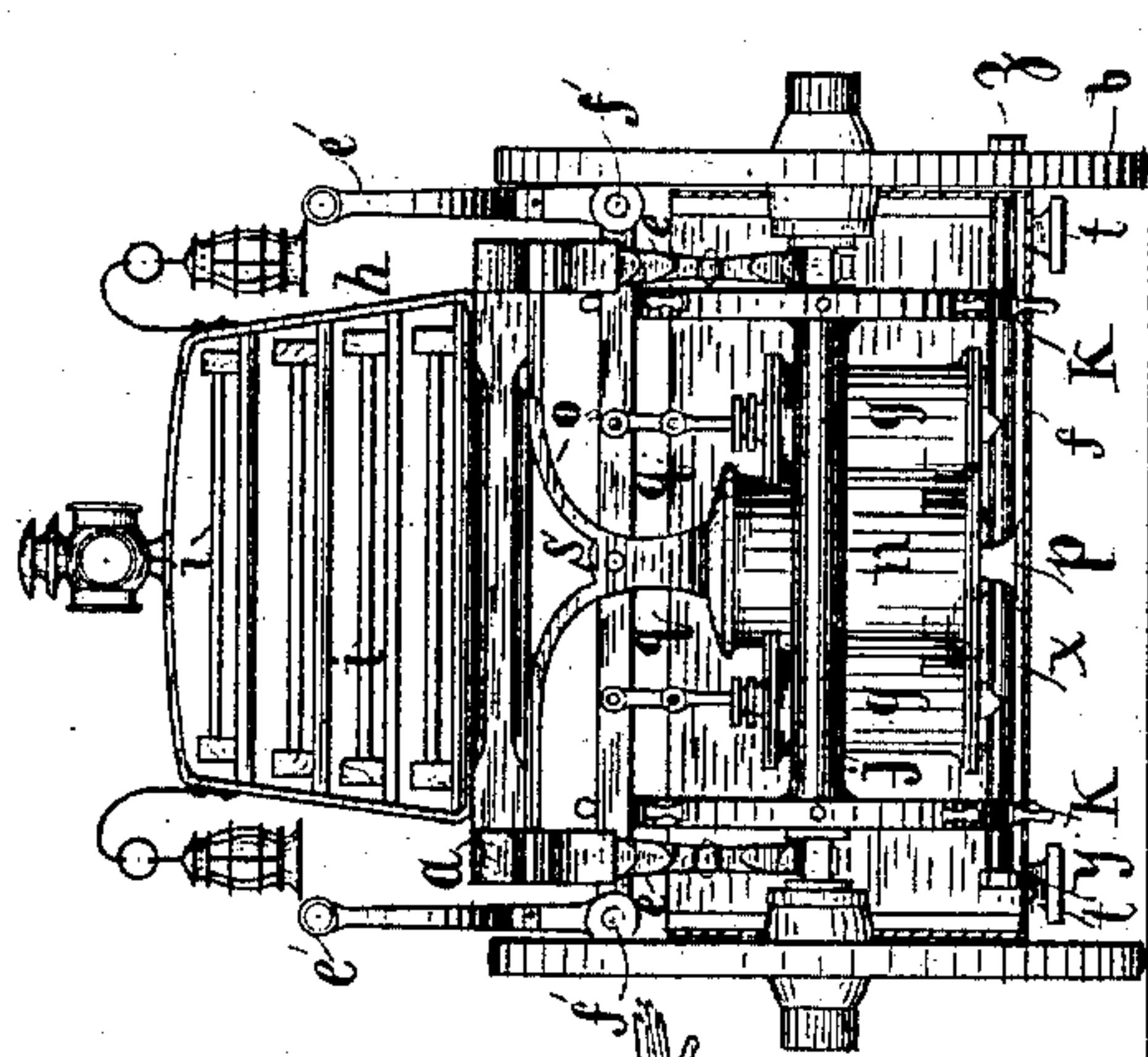
R. MORRELL.

FIRE ENGINE.

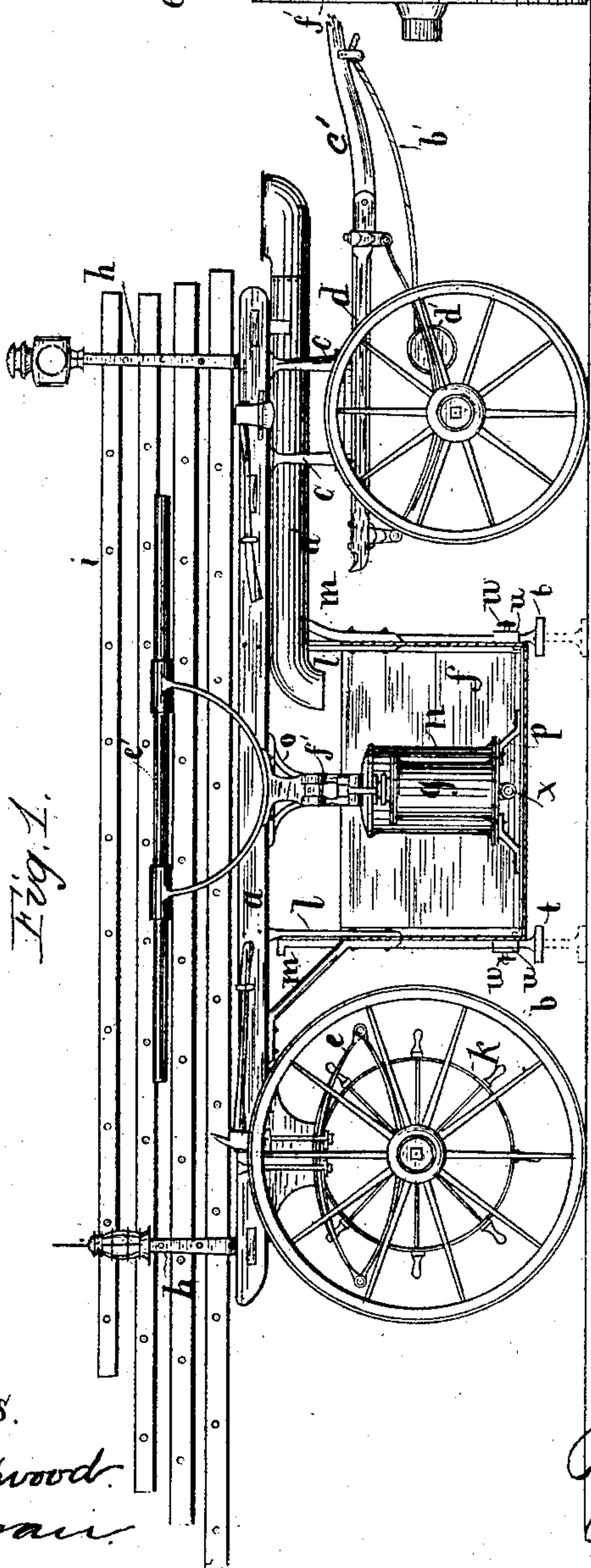
No. 371,209.

Patented Oct. 11, 1887.

*Fig. 2.*



*Fig. 1.*



Witnesses.  
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# UNITED STATES PATENT OFFICE.

ROBERT MORRELL, OF SUMMIT, NEW JERSEY.

## FIRE-ENGINE.

SPECIFICATION forming part of Letters Patent No. 371,209, dated October 11, 1887.

Application filed October 29, 1885. Serial No. 181,326. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT MORRELL, a citizen of the United States, residing at Summit, in the county of Union and State of New Jersey, have invented new and useful Improvements in Fire-Engines, of which the following is a specification.

The object of my invention is to combine a hand-power force-pump and its adjuncts and a ladder-truck in one simple, efficient, light, and inexpensive machine in a more practical arrangement than as heretofore made; also to combine the same and a hose-reel in one machine, enabling all the requisite appliances for combating fires to be available in one portable apparatus, for the convenience of small communities where it is difficult to collect help for hauling more than one machine, and also difficult to raise the money to buy the common fire apparatus, as hereinafter fully described, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved fire-engine with a section of the water-tank, and Fig. 2 is a rear elevation and section of the water-tank.

I make a four-wheel truck, consisting, essentially, of a light bed-frame, *a*, mounted on the axle of the hind wheels, *b*, by the side springs, *e*, and on the front gear, *d*, by the standards *c*; or it may be any approved equivalent device supporting said frame at a suitable height for enabling the water-tank *f* and the force-pumps *g* to be suspended beneath the frame suitably for being carried and worked thereat to allow of the use of the bed-frame as a ladder-truck, on the upper surface of which, being thus adapted for the purpose and unoccupied by any other part of the apparatus, I arrange any approved system of racks, benches, or other suitable holders, *h*, on which to carry a set of ladders, *i*, as usually carried on a ladder-truck solely contrived for the purpose, and in the space which the side-spring arrangement affords between the said springs *e*, and below the frame on the hind axle, I arrange the hose-reel, where, in consequence of the said side-spring arrangement and of the elevation of the frame, there is ample room for it without interference of any of the parts. The reel consists of the tubular shaft or drum

*j*, with the usual reel heads, *k*, fitted to turn freely on the truck-axle.

The tank *f* is suspended from the truck-frame by suitable hangers, *l*, and stays *m*, and the pumps *g*, together with the air-chamber *n*, are also suspended from said frame by suitable hangers, *o*, and are attached at the bottom to the bottom of the tank at *p*, thus making a truss of substantial rigidity, adapted to resist the thrusts of the brake-levers *q*, by which the pumps are worked, said brakes being pivoted to the hanger-stand of the air-chamber at *s*, by which their thrusts are delivered on both the truck and the frame alike; but the pump may be supported wholly by the tank.

To prevent any rocking of the truck-frame and tank on the springs, I have fitted the vertically-adjustable legs *t* to the tank by box-cleats *u* and with binding-screws *w*; or it may be in any other approved arrangement enabling the legs to be set down on the ground and made fast in that position for stays to resist the rocking.

I arrange the suction-pipe *x* for the pumps with one end, *y*, terminating within the tank, and the other end, *z*, projecting out through one side, to be used according as the water is to be drawn from the tank or from outside by a hose, with a cap to close either end, and with the end *z* adapted for connecting a hose when the water is to be received that way.

For convenience in supplying the tank with water by buckets while working the brakes, which interfere with access to the tank at the sides, I arrange a spout, *a'*, under the truck-frame, with one end extending from under the frame, preferably at the front beyond the range of the brakes, where the water may be poured in with buckets without interference of the brakes.

The essential object of the invention is the described contrivance of the force-pump, tank, and other adjuncts thereof, and the ladder-truck in one practical machine; but it is important to include the hose-reel also, and while I prefer the arrangement of the hose-reel on the truck-axle, as here shown, I may of course mount it above the ladder by a suitable supporting-rack and still accomplish the contrivance of the combination of all the three essential devices of fire apparatus in one ma-



chine; but the elevation of the truck-frame for the arrangement of the tank and the pumps under it enables me to locate the reel in the more convenient position on the axle.

5 The machine is provided with the usual draft-rope, *b'*, extended along the tongue *c'* and having the reel *d'* for rolling it up when not in use. The brakes *e'* are pivoted to the brake-lever *q* at *f'*, suitable for folding upward for  
10 lodgment out of the way when not in use.

By reference to the drawings, and from the foregoing description, it will be observed that each of the legs is rigid and inflexible, except that each is independently adjustable verti-  
15 cally, and that each is provided with a binding-screw for locking the leg in place, whether it be extended for use or shoved up against the tank out of the way when the truck is being moved. This construction of steadying de-  
20 vice is admirably adapted to the purpose, as it often occurs that the ground is uneven where the engine is being operated, and the water often makes the ground muddy, and the leg nearest the wet spot is likely to sink into  
25 the mud and allow the truck to vibrate; but by providing the independently-adjustable legs any one of them may be readily readjusted in an instant and extended sufficiently to form a firm and rigid brace for the tank, all of which  
30 will be readily understood by persons who are familiar with the difficulties experienced in the manipulation of fire-engines at a fire.

I am aware that it is old to provide the mid-  
35 dle part of a carriage-deck for fire-escape ladders with hydraulic jacks to support the weight of the said deck and escape, and I therefore disclaim such construction; but I am not aware that a tank of the character herein described has been provided with inde-  
40 pendently-adjustable legs which are rigid and inflexible, except as they are vertically adjustable; and as they are so constructed as to enable the operator to shove them up close to the bottom of the tank when not in use, or  
45 when it is desired to rest them on any projection which might happen to be in the street or under the engine where it is to be used, and as each is provided with a locking device to hold it up or down, I desire to claim this con-  
50 struction, as shown in the combination.

Having described the advantages, uses, and general construction of a preferred means of carrying out my invention, what I desire to secure by Letters Patent, and what I therefore  
55 claim, is—

1. In a combined fire apparatus, the truck-frame supported and constructed substantially as described, with a ladder-holder on the top of said truck-frame, in combination with a pump  
60 secured to the under side of the truck-frame between the front and rear axles, and entirely out of the way of the ladder-holder, as set forth.

2. In a combined fire apparatus, the truck-frame constructed and mounted substantially

as described, having a ladder-holder on its 65 top, in combination with a tank secured to the under side of the truck-frame, and a pump secured inside of said tank beneath the top of the truck-frame, said tank being provided with diagonal braces which hold it rigidly to 70 the truck-frame, to prevent the bending of the truck-frame and ladders and the wrenching of the pump as the engine is being operated, as set forth.

3. In a combined fire apparatus, the truck- 75 frame constructed with a ladder-holder and mounted substantially as described, in combination with a tank secured to the under side of the truck-frame, below the top of the truck-frame, between the axles and wheels, and pro- 80 vided with a pump, which is also secured at its upper end to the underside of the truck-frame, and which pump is secured to the tank at its lower end, thus forming a truss-support for the truck-frame and a rigid support for the 85 tank and pump, substantially as described.

4. In an improved fire apparatus, the com- 90 bination, in one portable machine, of a suitable truck and truck-frame of the character described, a pump and its adjuncts suspended from the truck-frame between the wheels and axles, the ladder-holder mounted on the top of the truck-frame, and the hose-reel mounted on the hind axle of the truck, substantially as shown and described. 95

5. In a combined fire apparatus, the truck-frame mounted and constructed with a ladder- 100 holder on its top, in combination with a tank and pump secured to the lower side of the truck-frame, said tank having diagonal braces which hold it firmly in place on the truck-frame, and said pump being secured at the top to the truck-frame and to the tank at its bottom, substantially as and for the purposes 105 specified.

6. In a combined fire apparatus, the truck-frame provided with a water-tank and a pump, in combination with a filling-spout extending out of range of the pump-brakes, substantially 110 as described.

7. In a combined fire apparatus, the truck-frame constructed and mounted substantially as described, and provided with a pump and tank on its under side, in combination with the independent vertically-adjustable legs, each 115 of which is provided with means for locking it in any desired adjusted position against movement in any direction without disturbing the leg as it rests on the ground, substantially as described. 120

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ROBERT MORRELL.

Witnesses:

W. J. MORGAN,  
L. H. MORGAN.