

(No Model.)

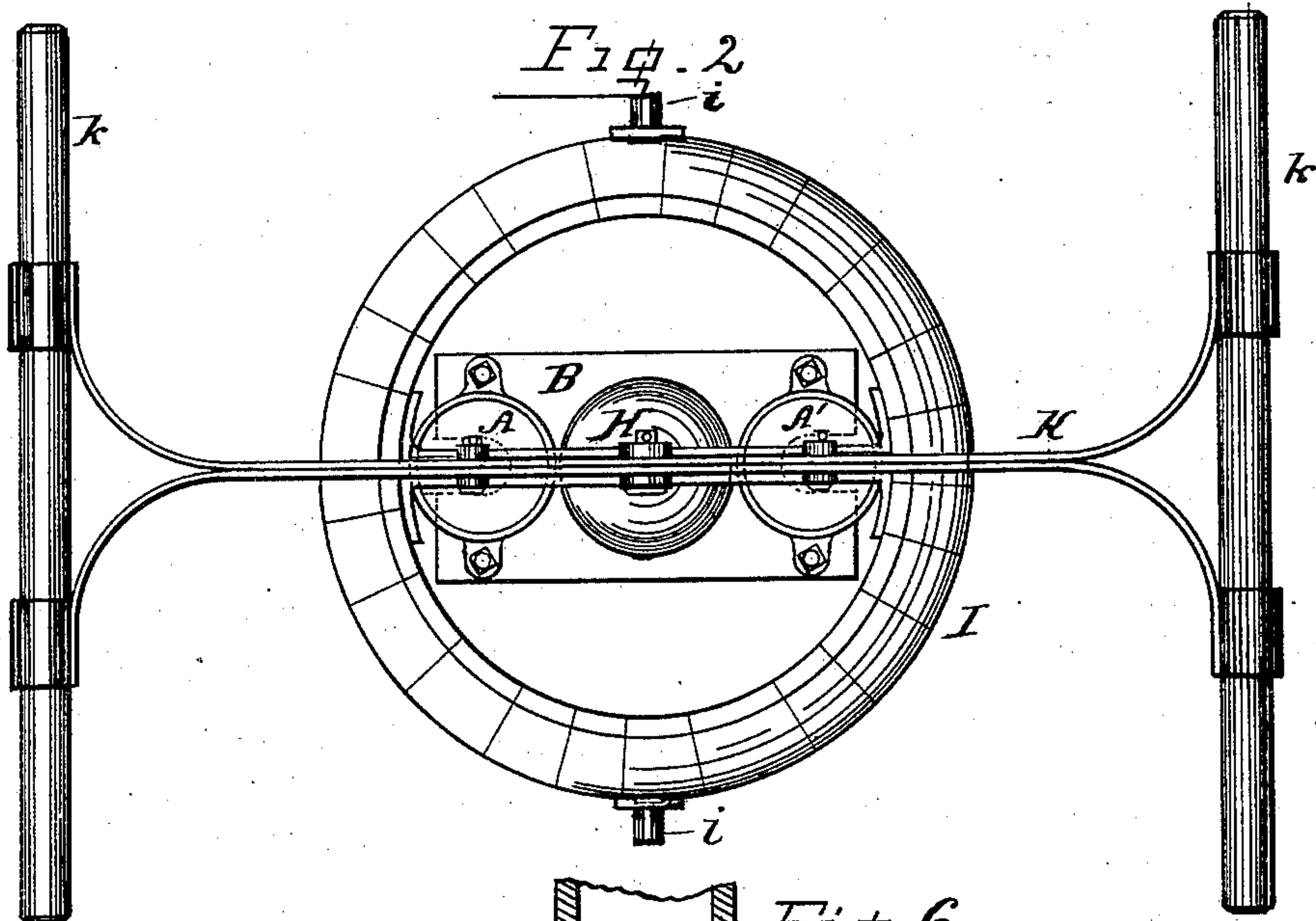
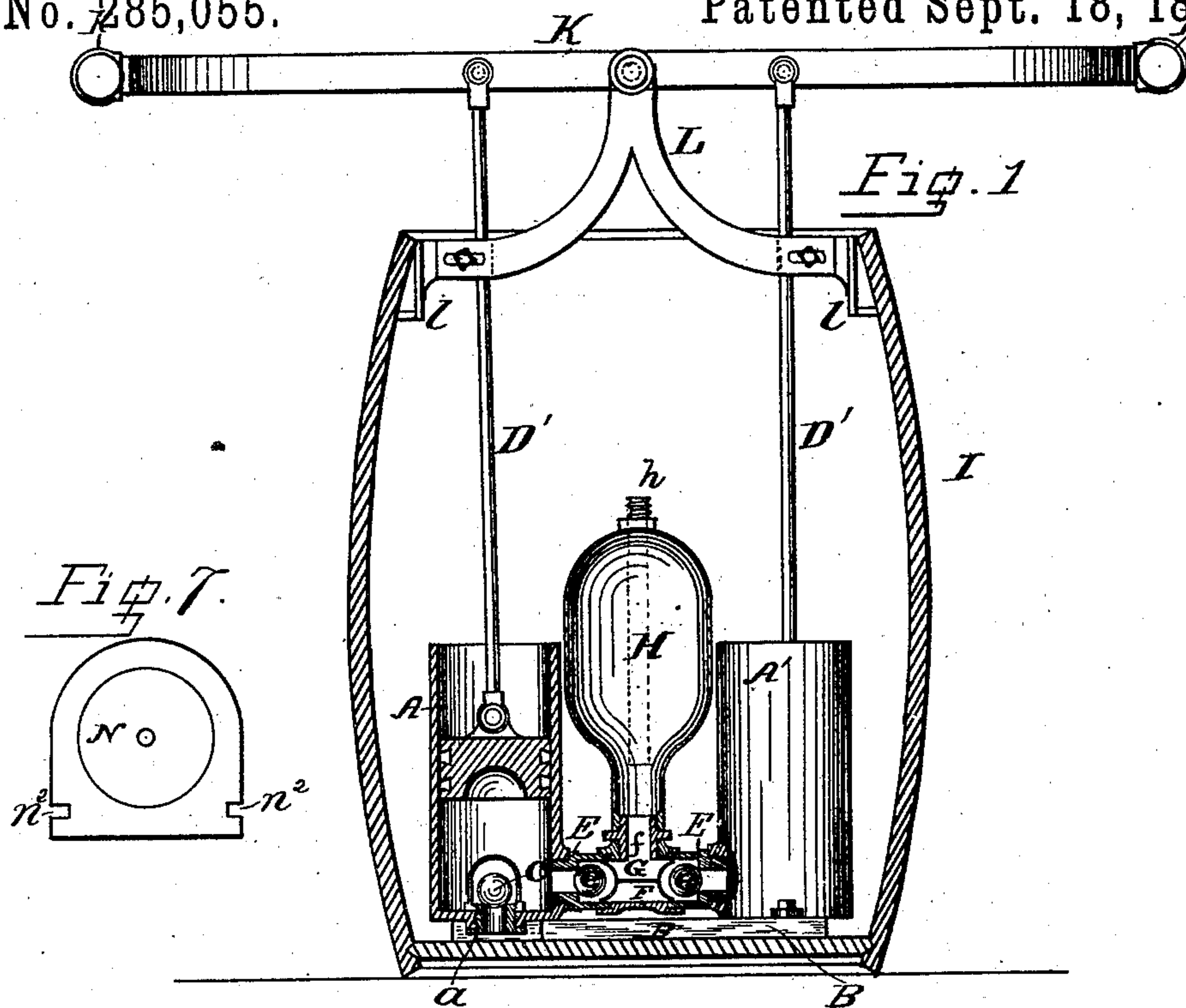
2 Sheets—Sheet 1.

R. MORRELL.

FIRE ENGINE.

No. 285,055.

Patented Sept. 18, 1883.



WITNESSES:
E. Walker
Gomer Jones

INVENTOR:
Robert Morrell
by his attorney
J. H. Hitt

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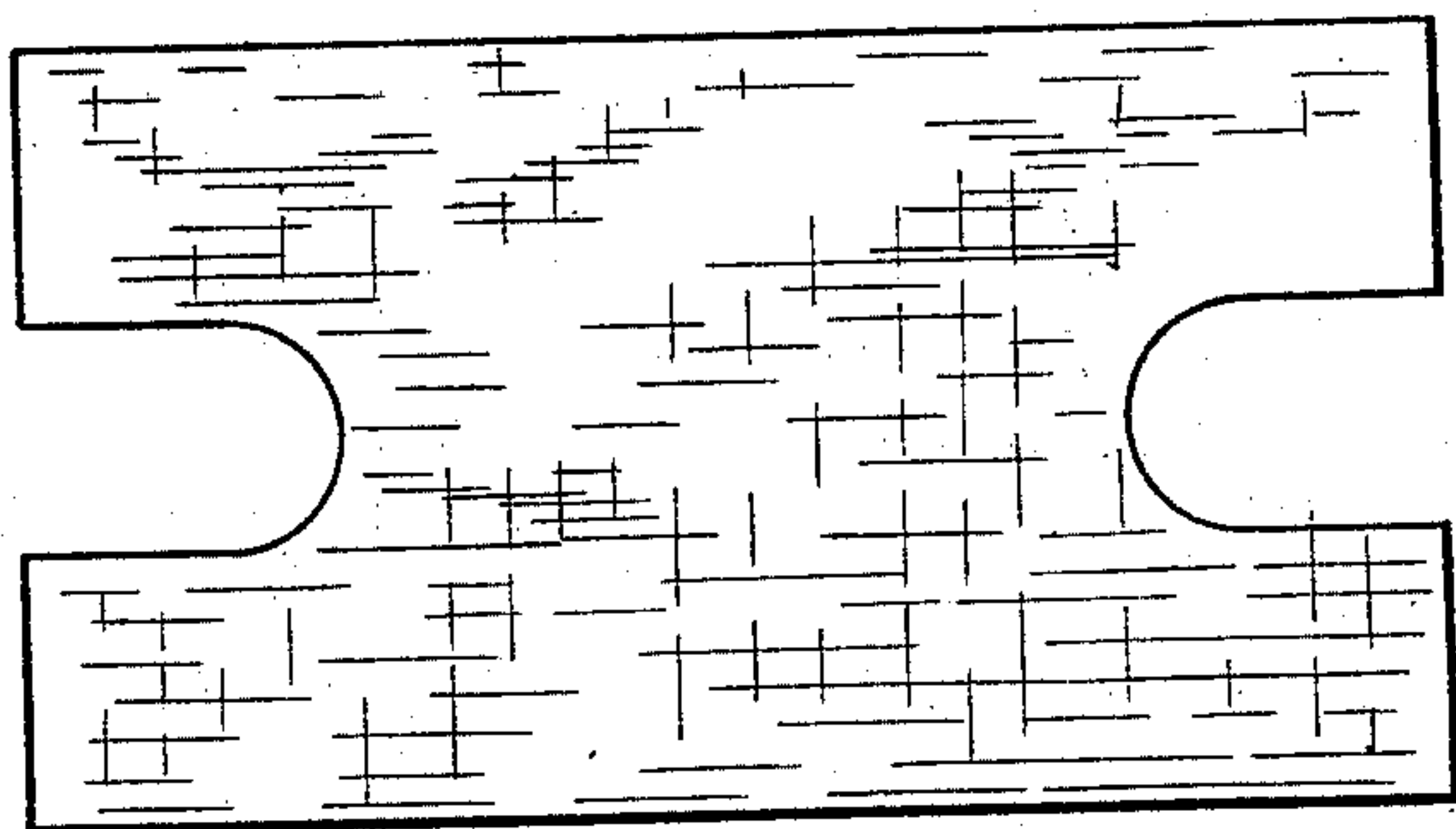
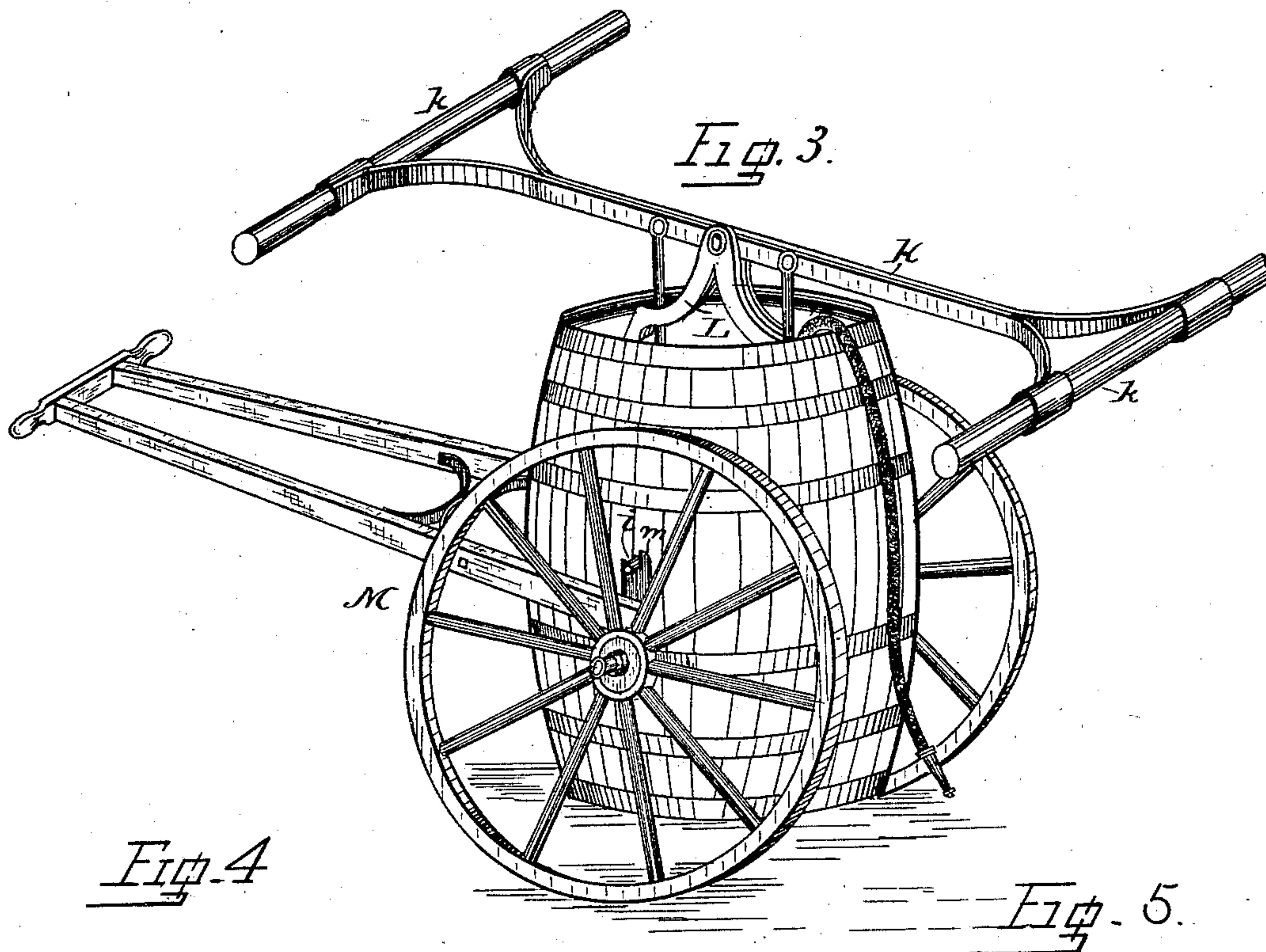
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INVENTOR
Robert Morrell
by his attorney
O. F. Pitts

UNITED STATES PATENT OFFICE.

ROBERT MORRELL, OF SUMMIT, NEW JERSEY.

FIRE-ENGINE.

SPECIFICATION forming part of Letters Patent No. 285,055, dated September 18, 1883.

Application filed April 25, 1883. (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 certain new and useful Improvements in Fire-Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The main object of this invention is to furnish an easily-managed, compact, and portable fire-engine, particularly well adapted for use in villages, flour-mills, manufactories, and on farms and plantations.

To this end my invention consists of a fire-engine the pumping apparatus of which is arranged in a tank, or cask, or barrel, combined with a detachable truck or cart, which is adapted for picking up said barrel from the ground to transport it.

It further consists of certain details of construction of the pump, which will be clearly explained in the ensuing description and specifically pointed out in a separate claim at the close of this specification.

In order that my invention may be clearly understood I have illustrated it in the annexed drawings, and will proceed to describe the best form thereof at present known to me.

Figure 1 is a sectional elevation of the double-acting pump of my improved fire-engine. Fig. 2 is a plan view thereof. Fig. 3 is a perspective view, showing the pump and its water-cask hung on the truck or cart, ready to wheel from place to place. Figs. 4 and 5 illustrate details of the pump. Figs. 6 and 7 illustrate a modification of the induction-valve arrangement of the pumps.

The same letters of reference indicate identical parts in all the figures.

A A' refer to the upright pump-cylinders, which I prefer to make of cast-iron with an interior lining of brass, said lining being provided to prevent rusting of the working-surfaces and to lessen the wear of the piston-packing. The upper ends of the pump-cylinders are left open, but their lower ends are constructed with heads provided with suitable lugs or flanges for bolting them to the wooden plank B. The heads of the cylinders are pro-

vided at the center with a suitable-sized opening, which is screw-threaded to receive a thimble, *a*, the upper end of which projects beyond the inner face of the cylinder-head, so as to serve the twofold purpose of a seat for ball-valve C and of a screw-threaded projection, onto which the cage *c*, for confining the ball-valve C, may be screwed. A slot of suitable size is cut in the plank B, at each end or side, so as to allow the water to reach the thimble *a*, the lower end of which is left open in case the pump is placed in a cask or barrel, as shown; and in order to adapt the pump for drawing water from a cistern and other source of supply, the thimble *a* is internally screw-threaded, to the end that a suction-pipe may be readily screwed into it at any time. The piston D, composed of solid cylinders, is provided with dovetailed grooves in its periphery, in which dovetailed grooves strips of rubber, leather, and other suitable packing material is inserted. The dovetailed character of the grooves is better adapted to hold packing in place on the piston without increasing the difficulty of inserting or removing the packing to any considerable extent. A screw-threaded opening is formed in one side of each pump-cylinder, near the bottom. Into each of these screw-threaded holes a horizontal valve-seat, E, is screwed, and the valve-seats E are connected by a T-coupling piece, F, the diameter of the horizontal bore of which is about equal to that of the exterior ends of the valve-seats E. Each valve-seat E is provided with a loose ball-valve, *e*, and a loose cage, G, is arranged in the coupling-piece F, between the ball-valves *e e*, for confining and limiting the play of said ball-valves in such a way that they can at no time pass or obstruct the vertical exit-opening *f* from the T-coupling piece F. This vertical exit-opening *f* is the bore of a nipple, which is screwed into the T-coupling, and to which the air-chamber H is screwed. It will be understood that all the parts may be connected by flanges instead of by screw-connections. The air-chamber is provided with a suitable dip-pipe, *h*, for the attachment of a discharge pipe or hose.

Instead of the ball-valves *e e* and cage G, the induction-valve arrangement shown in Figs. 6 and 7 may be used, whereby a freer flow

to the air-chamber is secured. In this arrangement a single oscillating valve, N, is used, pivoted in the bottom of the horizontal portion of the T-coupling, as shown, so that it may oscillate from inclined seat *n* to inclined seat *n'*, on opposite sides of the exit-opening *f*. The valve N is provided with notches *n² n²*, to engage curved ribs *n³* in the coupling, to hold the valve in position without a pivot-pin. In order that the oscillating valve may be properly applied, the horizontal part of the T-coupling is divided at the point where the valve is hung.

This double-acting pump is arranged in a water barrel or cask, I, as clearly shown. The piston-rods D D' are pivoted at their upper ends to a walking-beam, K, which is centrally pivoted to the upper end of the standard L, and is provided at its extremities with suitable handles, *k*. The standard is made of suitable form, so that it may be secured to the top of the water barrel or cask I. In order to adapt the standard to casks or barrels varying in diameter, it is advisable to construct it with separate and adjustable feet *l*, securable to the legs of the standard by bolts passing through slots in either the standard or the feet, as indicated in Fig. 1. The water barrel or cask I is provided with trunnions *i*, in order that it may be hung upon open bearings on the frame of the cart or truck M, as shown in Fig. 3. The bearings *m* on the frame of the truck are so constructed that by lifting the handle or bail of the truck they will be thrown into such a position that they may be backed under the trunnions of the water barrel or cask, after

which the trunnions of said barrel may be engaged by the bearings on depressing the bail of the truck and the barrel lifted from the ground and wheeled from one place to another. 40

The pump thus constructed and mounted forms a very convenient portable means for distributing water, and it is particularly valuable for use on farms and plantations as a fire-engine, since it carries a supply of water and can be carried to any point at a moment's notice ready for use. 45

I would recommend that a second barrel, constructed with trunnions like barrel I, be kept on hand by persons using this pump, so that in case of fire this extra barrel can be used to carry water to the one containing the pump. To this end I also prefer to make the truck M detachable, so that it can be used in transporting the extra barrel. 50

Having thus described my invention, what I claim is— 55

1. The combination substantially as before set forth, of a pump, the water cask or barrel provided with trunnions or bearings, and the detachable truck, adapted for picking up said barrel from the ground to transport it. 60

2. The combination, substantially as before set forth, of the two pump-cylinders, the valve-casing connecting them, the two reduction-valves, and the loose cage between said valves. 65

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

ROBERT MORRELL.

Witnesses:

C. A. NEALE,

E. T. WALKER.