M. L. FISHER.

APPARATUS FOR RAISING WATER.

No. 186,003. Patented Jan. 9, 1877.

Fig. 1.

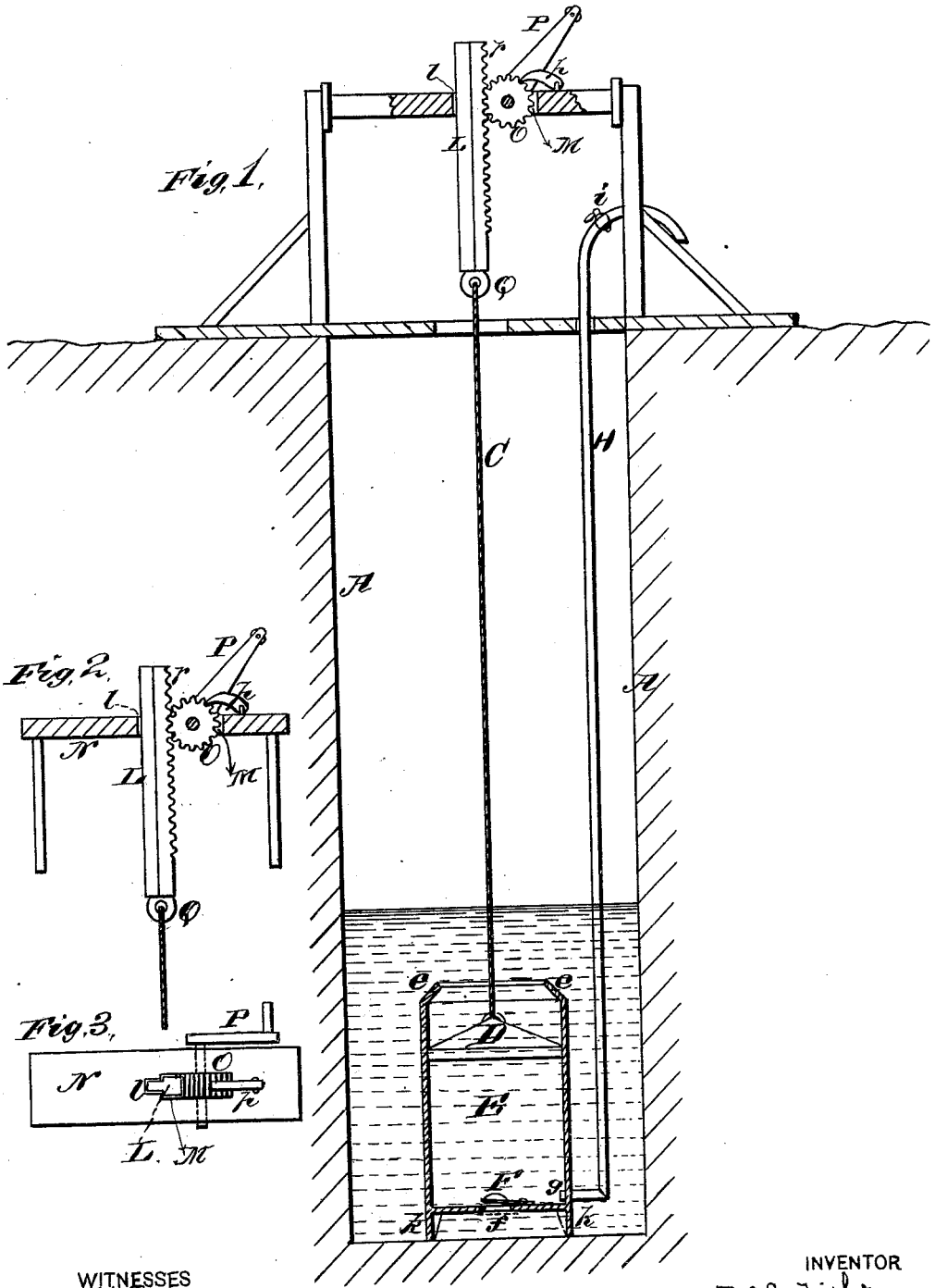

Fig. 2.

Fig. 3.

WITNESSES

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MARTIN L. FISHER, OF ARKADELPHIA, ARKANSAS.

IMPROVEMENT IN APPARATUS FOR RAISING WATER.

Specification forming part of Letters Patent No. **186,002**, dated January 9, 1877; application filed September 25, 1876.

To all whom it may concern:

Be it known that I, MARTIN L. FISHER, of Arkadelphia, in the county of Clark and State of Arkansas, have invented certain new and useful Improvements in Hydraulic Apparatus for Raising Water; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention consists in furnishing wells with a hydraulic lift, which will render unnecessary the ordinary raising and lowering of buckets or the use of pumps.

In the accompanying drawings, Figure 1 represents a vertical section of a well with my improvements attached. Fig. 2 is a detached view of the apparatus. Fig. 3 is a plane view of a part of the apparatus.

Corresponding letters indicate corresponding parts of my device.

A A is the wall or casing of a well. B is a frame crossing the well-mouth. L is a bar working up and down in slot M, cut in beam N of the frame. One edge of bar L is beveled, working in shoulder *l* of slot M, while the other is geared, by means of the teeth or rack *r*, into the pinion-wheel O, the axle of which traverses slot M transversely, and is operated by crank P, controlled by pawl *p*. The bar L terminates in the eye *g*, and it must have the exact number of teeth which will permit the cylinder-head hereinafter described to traverse its cylinder up and down without jarring it. The number of teeth upon bar L will vary, therefore, with the depth of the cylinder used. To the eye *g* of bar L is attached the rope, chain, or rod C, which is fastened at its lower end to the heavy cylinder cover or head D, working in the loose, movable, air-tight cylinder E, the upper rim of which is bent over or lipped at *e e*, to prevent the cylinder-head from escaping upward. The chamber E is of smaller diameter than the well, is not braced, fastened, or supported therein, and is furnished on its lower disk or bottom with the flap or spindle valve F, opening upward, and on one of its sides it has an orifice, *g*, opening into the discharge-pipe H, which goes up and out of the well, and is closed or opened by means of the stop-cock *i*, where the water is drawn off for use. The pawl *p* upon pinion-wheel O will regulate at pleasure the motion of the cylinder-head D and the flow of the water. This device may be used conjointly with the stop-cock *i*, or the two devices may be used interchangeably in case either of them should get out of order. The chamber E is furnished at *k k* with struts or legs of sufficient length to keep the valve F above any mud or gravel at the bottom of the well, which might interfere with its play or foul the water drawn. The valve F is still further protected from the intrusion of sand or gravel by the small wire screen *f*, placed directly beneath it and upon the bottom of the chamber E.

I do not limit myself to any particular materials in the construction of the various parts of my device, as the chamber, for example, may be made of metal, wood, leather, rubber, &c., and the discharge-pipe H might very conveniently be made of rubber hose, secured at the top of the well by means of a suitable collar, and furnished with a discharge-nozzle armed with a stop-cock.

Having thus described at length the various parts of my invention, I will now proceed to explain the methods by means of which it can best be brought into proper effect. The chamber E, with its cylinder-head D and attached pipe H, is lowered into the well by means of the racked-bar apparatus already described, until it rests at the bottom upon the legs *k k*. When the chamber has reached the bottom of the well the cylinder-head must be wound up to the top of the chamber. If the stop-cock be then opened or the pawl raised—either or both, according to whether either or both be used—the cylinder-head will sink in the chamber, and, by its weight, force the water downward, when, having no outlet through valve F, which its downward pressure closes, the water will rise in the discharge-pipe H, and continue to flow out at *i* until the cylinder-head reaches the bottom of the chamber. The cylinder-head being again raised, the pressure of the air upon the surface of the water in the well will force the water up through the valve F until the chamber is again full, and the wa-

ter may be drawn off at pleasure by means of the devices already described, until the chamber is once more emptied.

The weight of the cylinder-cover must, of course, be determined by the depth of the well and the height above its mouth at which the water is to be discharged, because the pressure of the cover must counterbalance the weight of the water in the discharge-pipe H.

It may be advisable in some cases to carry the water farther than the well—as, for instance, into a barn or the upper floors of a house—in which cases the weight of the cylinder-cover will have to be suitably increased. Where the water is required to be delivered alternately or simultaneously at the head of the well and at other points, proper pipes and stop-cocks can be used.

The many advantages secured by my invention are obvious. By its use a supply of water sufficient for a day, or longer, can be obtained by winding up the cylinder-head once, if the chamber is made large enough. It is cheaper and more simple than the ordinary well with windlass and buckets, or the ordinary pump, for the cost and wear and tear of buckets, with the trouble of landing and emptying them, the continuous labor of pumping, with the liability of the pump to get out of order, are all alike obviated by it. By using my apparatus, moreover, the mouth of the well can always be kept closed and accidents avoided, while on farms and in country places, where the males of a family have to be absent during the day pursuing their vocations, they can secure on hand, before leaving, an ample supply of water for the household.

I claim as new and desire to secure by Letters Patent—

In an apparatus for raising water, the loose movable cylinder E, with its cylinder-head D, valve F, valve-screen *f*, feet *k k*, discharge-pipe H, stop-cock *i*, and attachment C, in combination with the racked bar L, pinion-wheel O, and crank P, all substantially as set forth and described.

In testimony that I claim the foregoing as my own invention I hereto affix my signature in presence of two witnesses.

MARTIN L. FISHER.

Witnesses:
ROBT. R. ROSS,
W. C. ADAMS.