M. COOK.

PUMP.

No. 189,924. Patented April 24, 1877.

Fig. 1.

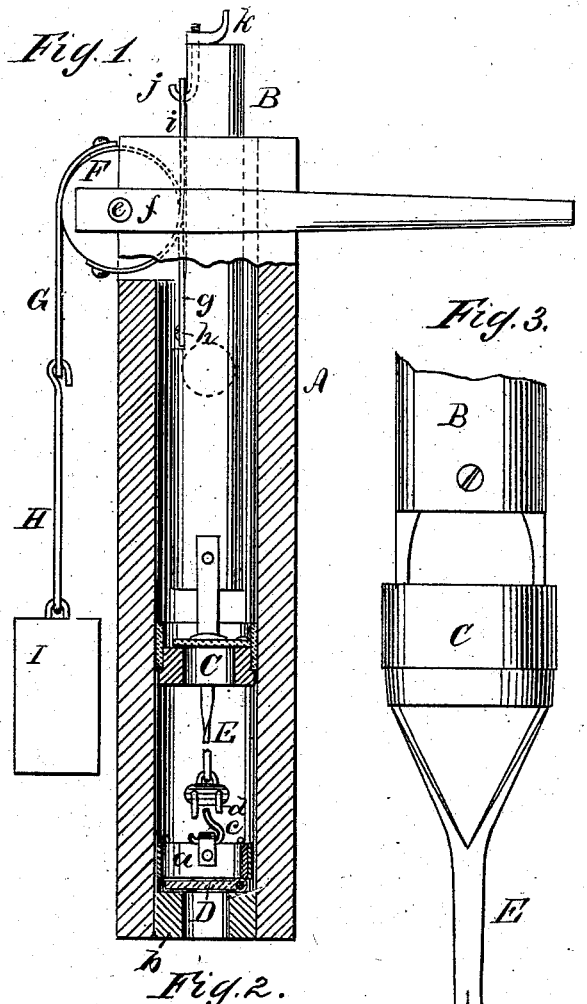


Fig. 2.

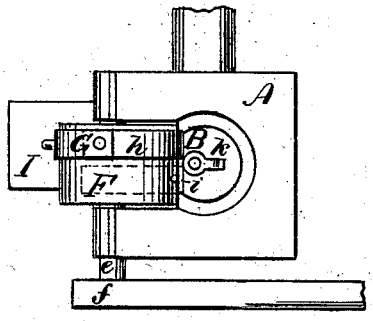
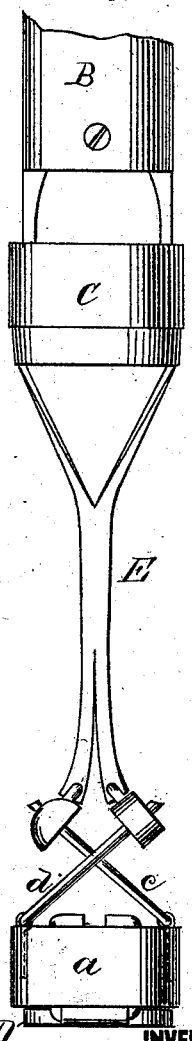


Fig. 3.



WITNESSES:

E. Wolff

J. H. Scarborough

INVENTOR:

M. Cook.

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

MICHAEL COOK, OF WEST LE ROY, MICHIGAN.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **189,924**, dated April 24, 1877; application filed February 10, 1877.

To all whom it may concern:

Be it known that I, MICHAEL COOK, of West Le Roy, in the county of Calhoun and State of Michigan, have invented a new and Improved Pump, of which the following is a specification:

Figure 1 is a central vertical section. Fig. 2 is a plan view. Fig. 3 is an enlarged detail view of the lower end of the piston and the lower pump-valve.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide an improved means for giving motion to the piston, and also for counterbalancing the same, and to provide a means for readily removing the lower valve of the pump without removing the pump from the well.

In the drawing, A is the stock of the pump, containing the piston-rod B, having at its lower end the piston C. D is the lower pump-valve, which is hinged to a hoop, *a*, and closes against a seat, *b*, placed at the lower end of the pump-stock.

The hoop *a* fits the bore of the stock loosely, and is provided with two weighted levers, *c d*, having points which engage the side of the pump-stock when the said levers are allowed to drop toward the hoop *a* and retain the hoop and valve in position.

E is a strap of leather, the upper end of which is split, and the ends so formed are attached to opposite sides of the piston C. The lower end of the strap E is also split, and its ends are attached to staples projecting from the weights of the levers *c d*. The strap E is of sufficient length to permit of a full stroke of the piston without raising the levers *c d*.

F is a drum placed on a shaft, *e*, to which the handle *f* is also attached. To the upper side of the drum a metallic strap, *g*, is attached, which extends over a portion of its surface, and is attached to the piston-rod B at *h*, the piston-rod being cut away or flattened from this point upward. A metallic strap, *i*, is attached to the lower side of the drum F, and extends upward and is engaged by a hook, *j*, that projects from a slot in the side of the piston-rod. The hook *j* extends through the top of the piston-rod, and is provided with a nut, *k*, by turning which the straps *g i* are tightened.

G is a strap fastened to the upper surface of the drum F, and extending downward is connected with a rod, H, that extends through the platform of the well, and is attached to a weight, I, which counterbalances the weight of the piston and a portion of the water raised by it.

The size of the piston-rod B is such that its downward stroke displaces about the same quantity of water that the piston raises in making its upward stroke, so that the flow of water from the pump is continuous.

The reciprocating rotary motion of the drum F is converted into rectilinear reciprocating motion in the pistons by the straps *g i*.

The piston-rod B may pass through a stuffing-box placed just above the pump-spout, when the pump may be used for forcing water.

When it is desired to remove the lower valve the straps *g i* are detached from the piston-rod B, when the latter may be drawn from the pump, bringing with it the hoop *a* and valve D.

As the levers *c d* are drawn upward their pointed ends are disengaged from the sides of the bore of the pump-stock before the hoop *a* is moved.

The advantages gained by my improvement are the facility with which the pump may be repaired, and its efficiency in operation.

A further advantage gained by the peculiar construction of my pump is, that the displacement of water by the enlarged piston-rod reduces the weight of the water resting on the piston of the pump.

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

1. The combination of the piston C, strap E, levers *c d*, hoop *a*, and valve D, substantially as herein shown and described.

2. The combination of the counter-weight I, drum F, straps *g i*, and piston-rod B, substantially as herein shown and described.

MICHAEL COOK.

Witnesses:
F. E. BUSH,
LEE LAY.