W. H. KACY.
Force-Pump.

No. 213,757. Patented April 1, 1879.

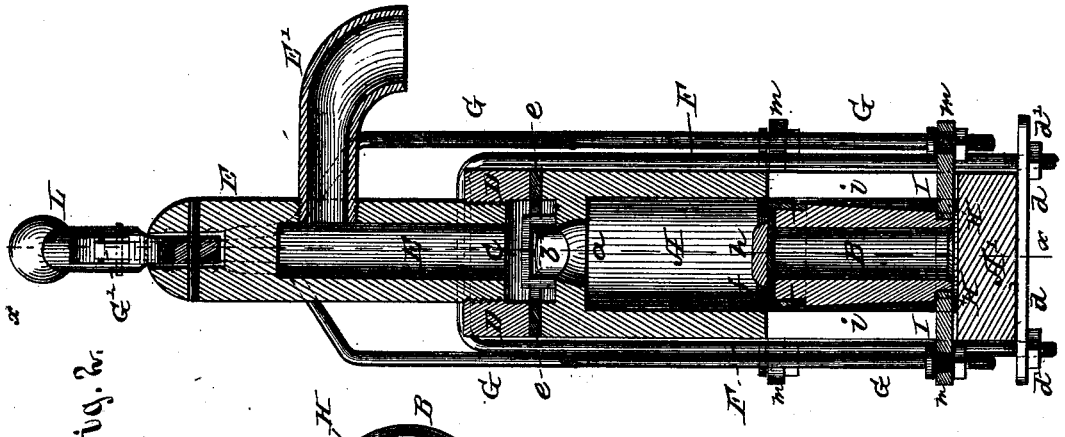

Fig. 2.

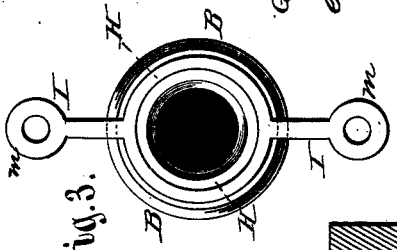

Fig. 3.

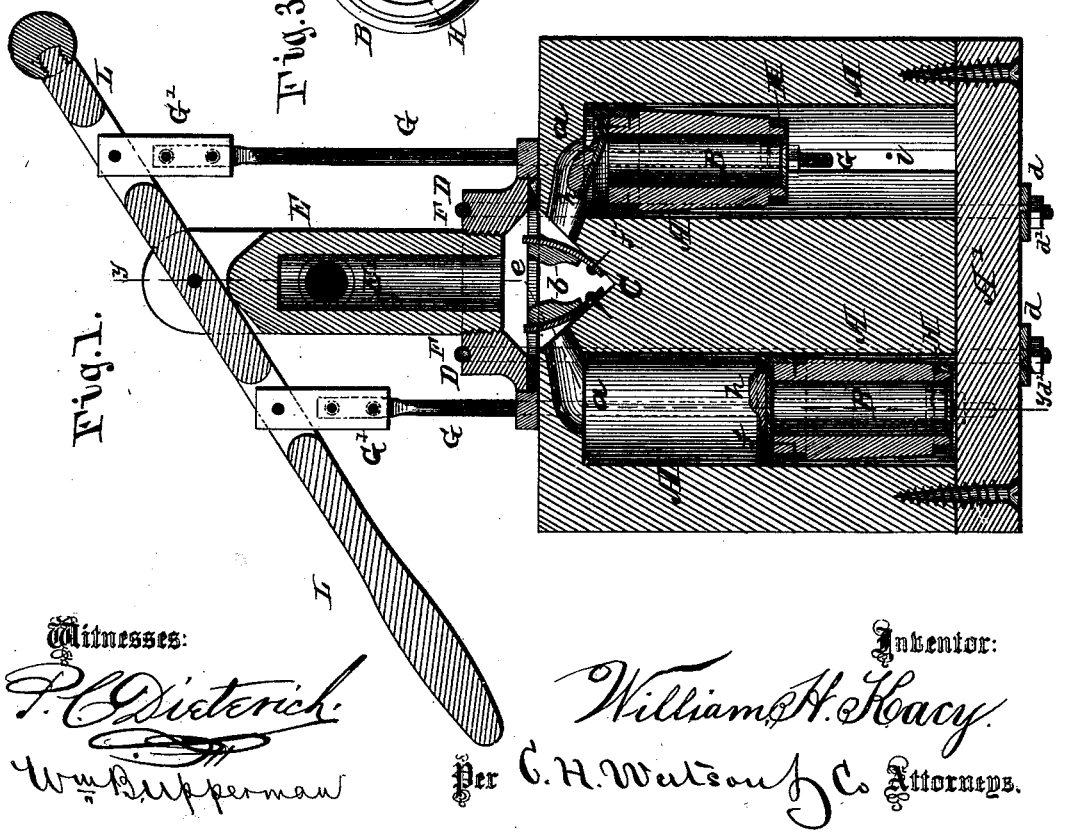

Fig. 1.

Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM H. KACY, OF BIRD IN HAND, ASSIGNOR TO HIMSELF AND C. SNYDER, OF CAMP HILL, PENNSYLVANIA.

IMPROVEMENT IN FORCE-PUMPS.

Specification forming part of Letters Patent No. **213,757**, dated April 1, 1879; application filed January 15, 1879.

To all whom it may concern:

Be it known that I, WM. H. KACY, of Bird in Hand, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Force-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the invention, 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.

The nature of this invention consists in the construction and arrangement of a force-pump which is simple in construction, cheap and durable, and not liable to get out of order.

In the annexed drawings, which fully illustrate my invention, and to which reference is made, Figure 1 is a central vertical section on line *x x*, Fig. 2. Fig. 2 is a transverse vertical section on line *y y*, Fig. 1; and Fig. 3 is a bottom view of one of the plungers B.

A A represent the two barrels or cylinders in which the suckers or plungers B B are worked up and down, said barrels or cylinders being made in a single block, as shown, or in any other suitable or convenient manner.

The cylinders A A communicate at the top, through ports *a a*, with a chamber, C, and in said chamber, over each port, is a valve, *b*. D is the cap or cover of the chamber C, from which the exit-pipe E extends to any suitable height, said pipe or stock being provided with a spout, E′. Between the cover D and the edges around the chamber C is introduced rubber packing *e*, as shown.

It will be seen that the two barrels A A, ports *a a*, and chamber C are all formed in one solid block by boring or otherwise cutting out the same. This method I prefer, as by that means the pump can be made in a cheap and compact manner.

The cover D, with the stock attached thereto, is held down by means of bent rods F F, one over each end of the cover, as shown. The ends of each rod F pass down on the sides of the pump, below the same, and below a bar, A′, which is placed against the under side thereof. On the ends of each rod F is placed a bar, *d*, and nuts *d′ d′* screwed on the ends thereof, and thereby firmly holding the parts together.

Each plunger or sucker B is made in inverted conical or tapering form, with a valve, *h*, on its upper end, and packing *f* around the same end. The lower end of the sucker is turned down to receive a metal collar, H, which is provided with arms I I, extending in opposite directions through vertical slots *i i* in the sides of the pump.

The tapering form of the plunger or sucker prevents undue friction, and prevents wear, except at the point where the packing is located, and this packing can easily be renewed when worn out.

The outer ends of the arms I are placed on the lower ends of two rods, G G, and held against shoulders *m* thereon by nuts *n*. The upper ends of the rods G are connected to a bar, G′, which is pivoted in a mortise in the operating-lever L, said lever being pivoted in the upper end of the stock E, and the bars G′ pivoted in it, one on each side of the pump-stock.

Each sucker or plunger B, it will thus be seen, is connected on opposite sides with the operating-lever, which insures a steady vertical movement thereof, which would not be the case if connected on one side only, as then there would be a liability of the plunger tilting and causing undue friction, and perhaps binding, to prevent any movement of the plunger.

It will be seen that the suckers in this pump are double-acting, and work side by side near the bottom of the well, thus having an advantage over the ordinary or suction pump, for should the lower sucker in the suction-pump leak in the least, as is frequently the case from many causes, the water will sink in the stock, and cannot be raised without the application of water on the upper sucker every time water is needed. This pump will raise the water under all circumstances by simply working the handle.

By having two suckers to play, only half the distance is required for them to work; consequently the same amount of water as is

thrown by a suction-pump can be thrown by half the force.

A regular stream can be thrown, and a hose can be attached and made to answer all purposes necessary in case of fire. This pump can be made entirely of wood or entirely of iron, or the stock only of iron, with or without bushing for the suckers to play in.

The irons are to be made of galvanized iron, or any material that will not rust in water.

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

1. In a force-pump, the cylinders or barrels A A, ports *a a*, and chamber C, all formed in a single block, in combination with the cover D, stock E, bent rods F, bottom bar, A′, bars *d*, and nuts *d′*, all substantially as herein set forth.

2. The combination of the single block forming the cylinders A A, ports *a a*, and chamber C, the suckers B B, having bottom collars, H H, each collar provided with arms I I, projecting in opposite directions through mortises in the block, and connected by side rods, G G, to the operating-lever, which is pivoted in the stock E, connected to the cover of the pump, substantially as and for the purposes herein set forth.

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

WILLIAM H. KACY.

Witnesses:
CALVIN COOPER,
I. KACY.