

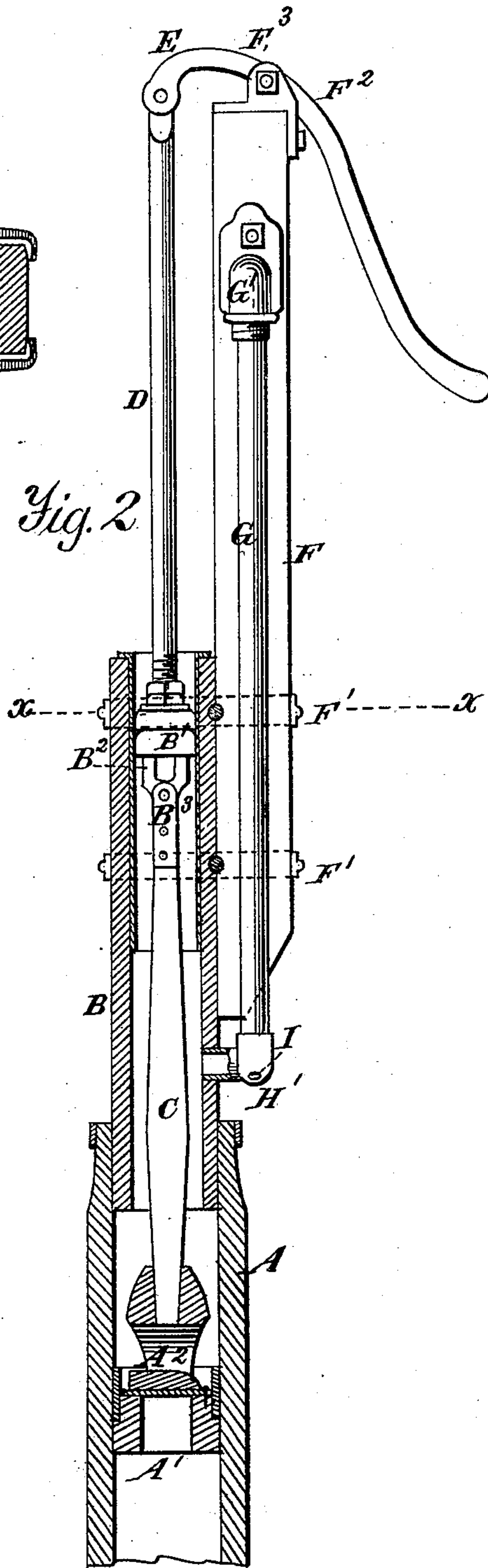
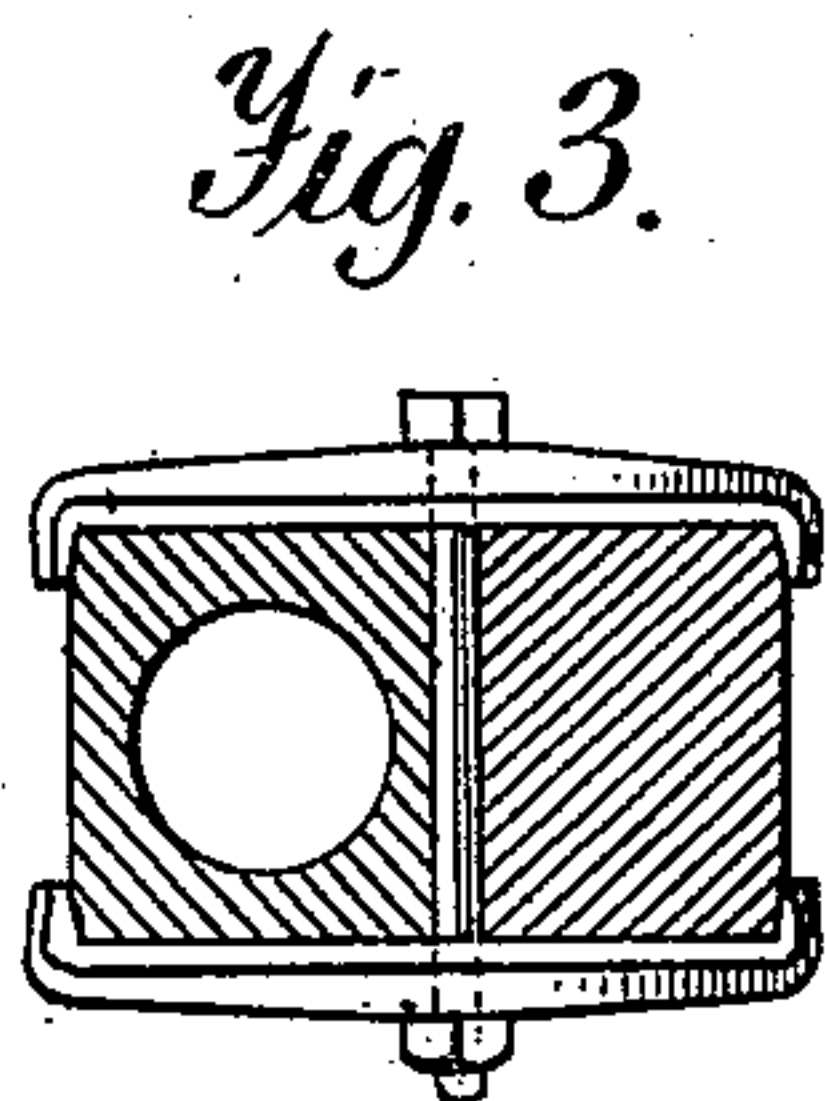
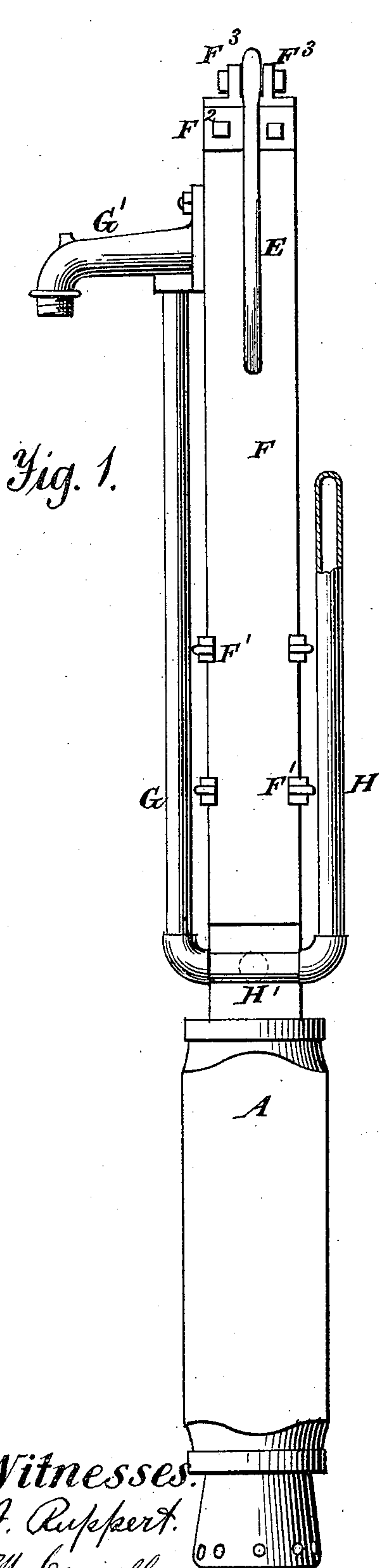
(No Model.)

D. GILBERT.

Pump.

No. 238,498.

Patented March 8, 1881.



*Witnesses.*  
*A. Ruppert.*  
*C. M. Connell*

*D. Gilbert*  
*Inventor.*  
*Holloway & Blanchard*  
*Attys*

# UNITED STATES PATENT OFFICE.

DANIEL GILBERT, OF CHAMBERSBURG, PENNSYLVANIA.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 238,498, dated March 8, 1881.

Application filed December 22, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL GILBERT, a citizen of the United States, residing at Chambersburg, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Double-Acting Pumps; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in double-acting pumps for raising water from wells, cisterns, and streams; and the objects of my improvements are, first, to provide for the continuous or even flow of water from the discharge-orifice of a pump by a novel combination and arrangement of an air-chamber and a discharge-pipe with reference to the barrel of the pump; and, second, to provide for drawing off the water from the air-chamber. I attain these objects by the devices shown in the accompanying drawings, in which—

Figure 1 is an elevation of a double-cylinder pump, showing the two cylinders, the handle for operating the plungers, and the discharge-pipe and air-chamber united and placed upon the outer surface of the upper cylinder, they being made to communicate with the space between the cylinders; and Fig. 2 is a sectional elevation, showing the parts above enumerated and also the plungers and their connections, as well as the means of uniting the upper cylinder and column or standard which supports the operating-lever and the discharge-pipe. Fig. 3 is a horizontal section on line *xx* of Fig. 2.

Similar letters refer to similar parts in both of the figures.

Pumps have heretofore been constructed in which two cylinders have been used, one of greater diameter than the other, and these have been combined with an air-chamber, discharge-pipe, and an operating-lever. I do not therefore claim, broadly, the combination of such features in a pump, irrespective of their construction and arrangement.

My improved pump differs from any with

which I am acquainted, in that the discharge-pipe and air-chamber are made to communicate with the space between the two portions by a single connection, and are placed entirely upon the outer surface of the pump, as a consequence of which they are at all times accessible, and at the same time the ready discharge of the water from said pipe and chamber is facilitated. It also differs from others in that the two pistons are connected or combined with a jointed connecting-rod, by which provision is made for preventing undue friction on the pistons in the event of the two cylinders being or becoming out of line with each other.

In constructing pumps in accordance with my improved plan I provide two cylinders of wood or any other suitable material, they being, by preference, of different diameters, designated in the accompanying drawings as A and B, the former being the larger one and the latter the smaller one, the lower end of which is inserted into or placed upon the upper end of the larger one in such a manner that a line drawn vertically through their centers shall correspond with their respective interior surfaces.

Within the cylinder A there is placed a bucket or plunger, A', which is provided with a valve, A<sup>2</sup>, for allowing water to pass when the plunger is forced downward, and for closing the aperture through which it passes when it is raised up.

To the upper surface of the plunger A' there is connected a rod, C, which extends therefrom upward, and is pivoted to another plunger, B', which moves in the cylinder B, it being without any aperture through it, for the purpose of preventing the water from passing it when it is forced down.

The cylinders A and B, when made of wood, are by preference lined with metal, as shown at B<sup>2</sup>, Fig. 2.

At the point where the rod C is united to the plunger B' there is provided a joint which is capable of allowing the rod to change its position with reference to the plunger in the event of the two cylinders becoming deranged or of their being out of line with each other. This joint consists of a metallic socket, B<sup>3</sup>, or of two plates of metal secured to opposite



sides of the rod C, whether made in the form of a socket for the reception of the upper end of the rod or of plates attached thereto. This device is provided with a hole for the reception of a bolt, which passes through it and through a projection upon the lower surface of the plunger, and thus unites the parts in such a manner as to allow the cylinder A to shift its position slightly without causing undue friction on the plungers A' and B'.

From the upper surface of the plunger B' there extends a rod, D, to the upper end of which the operating lever or handle E is pivoted, said lever or handle being pivoted to a stand or column, F, secured to the upper cylinder of the pump by means of peculiarly-formed clasps or clamps F' F', said clasps consisting of bars of metal having projections upon their ends for passing over and upon the edges of the pump-cylinder and the standard F, while at or near their centers there is formed an aperture, through which a bolt passes for securing them in position, said bolt passing between the pump-cylinder B and the standard F, one-half of its diameter being in each, as shown in Figs. 2 and 3. The clasps above alluded to have projections upon them at their ends, the inner surfaces of which are slightly beveled, as shown in Fig. 3, in order that the bolt which passes through them may, upon screwing up the nut placed thereon, press the stand or column F firmly against the cylinder B, and thus aid in holding them in their proper positions with reference to each other. Upon the upper end of the standard there is placed a cap, F<sup>3</sup>, to which the operating-lever is pivoted, as shown in the drawings.

The above-described parts, when separately considered, constitute no part of my present improvement. For the purpose of providing means for the continuous and regular discharge of the water from the delivery-pipe, as well as a convenient means of drawing the water from the same, I have added to existing pumps a discharge-pipe, G', and an air-chamber, H, both

of which are made to communicate with the cylinder A through a pipe, H', so that as the water is discharged through said pipe it shall enter both the discharge-pipe and the air pipe or chamber, in the latter of which the air contained therein will be compressed, H being closed at the top, and thus made to press upon the water in the discharge-pipe and cause a comparatively steady flow therefrom.

It will be observed that the discharge-pipe G enters a discharge-nozzle, G', near the top of the standard F, and that all of the last-named parts—namely, the discharge-nozzle, discharge-pipe G, and the air-chamber H—are upon the outside of the pump-cylinder, are easy of access, and consequently the drawing off of the water from them is rendered easy by simply forming an aperture, I, in one of the elbows by which they are attached to the pipe leading to the interior of the pump-cylinder.

Having thus described my improvements, what I claim, and desire to secure by Letters Patent, is—

1. In a lifting and forcing pump, the combination of a piston, A', having in it an aperture for the passage of water, a solid piston, B', for preventing the escape of water from the open end of the cylinder in which it works, and a jointed connecting-rod, C, whereby provision is made for preventing undue friction upon the piston should the cylinders, by accident or otherwise, be placed out of line with each other, the arrangement of the parts being substantially such as is herein described.

2. The combination of the cylinder B, standard F, and clamps F' F', whereby the standard is secured to the cylinder, substantially as set forth.

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

DANIEL GILBERT.

Witnesses:

W. A. BREUER,

D. K. WUNDERLICH.