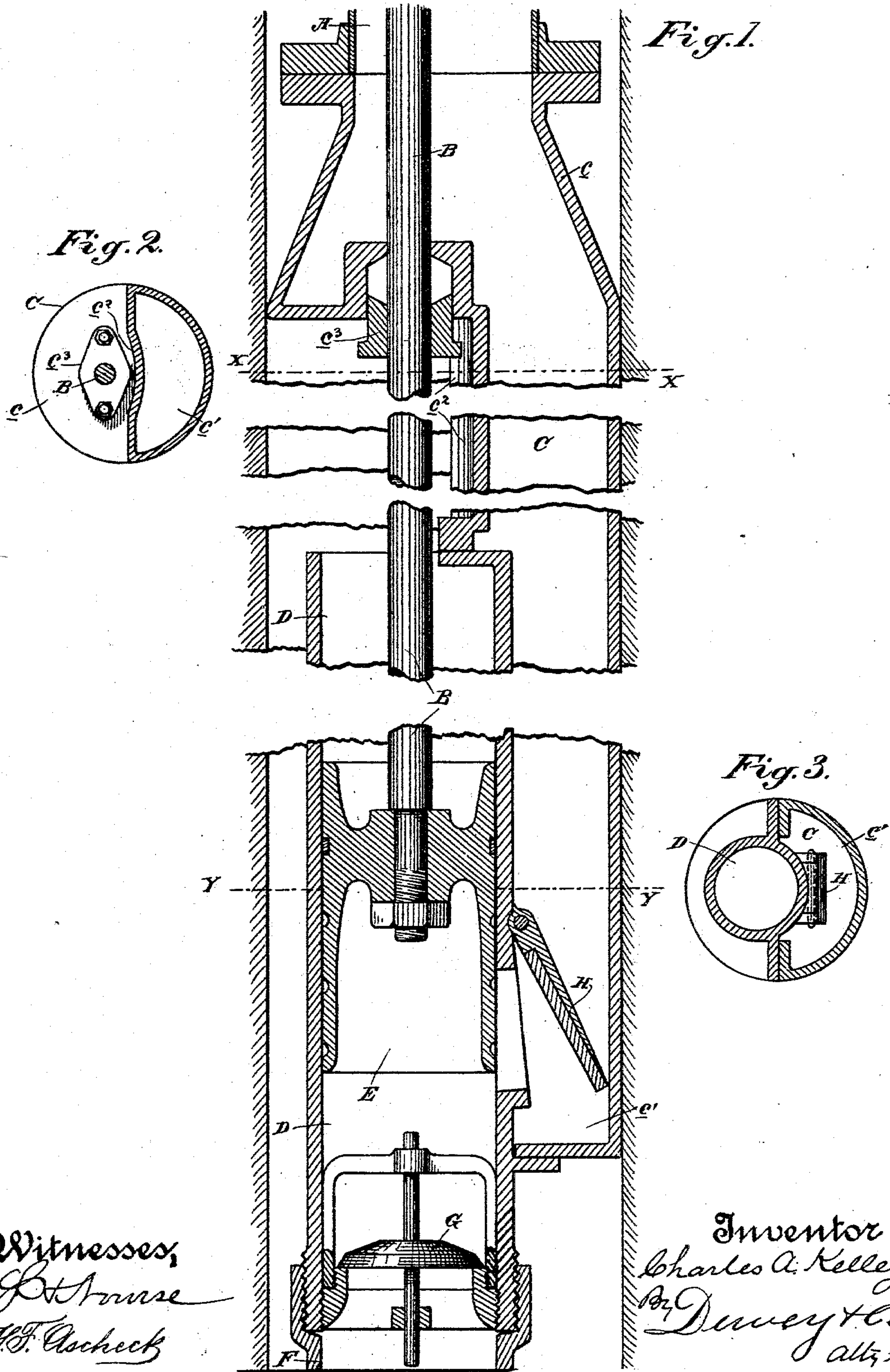


(No Model.)

C. A. KELLEY.
DEEP WELL PUMP.

No. 515,475.

Patented Feb. 27, 1894.



UNITED STATES PATENT OFFICE.

CHARLES A. KELLEY, OF OAKDALE, CALIFORNIA.

DEEP-WELL PUMP.

SPECIFICATION forming part of Letters Patent No. 515,475, dated February 27, 1894.

Application filed March 21, 1892. Serial No. 425,811. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. KELLEY, a citizen of the United States, residing at Oakdale, Stanislaus county, State of California, have invented an Improvement in Deep-Well Pumps; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of deep well pumps, and it consists in the novel construction of parts hereinafter fully described and specifically pointed out in the claim.

The object of my invention is to provide a force pump which is especially adapted for use in connection with deep wells.

Referring to the accompanying drawings for a more complete explanation of my invention,—Figure 1 is a vertical section of my pump. Fig. 2 is a cross section on line X—X of Fig. 1. Fig. 3 is a cross section on line Y—Y of Fig. 1.

A is a pump pipe extending down into a well, and having within it the vertical reciprocating piston rod B. To the lower end of the pump pipe is secured a pipe C the head *c* of which is full round either cylindrical or conical, here shown as tapering, and provided with a flange by which it is bolted to the bottom flange of the pipe A. The lower portion *c'* of pipe C is half or part round as shown, with its face *c²* concaved or dished. The half round portion *c'* of the pipe C below the concave portion *c²* is open to receive the cylinder D as will be presently described. The bottom of pipe C is closed.

D is the cylinder or working barrel of the pump. This is secured to pipe C and below the concave *c²* and fits at its inner side within the open side of the portion *c'* as shown clearly in Fig. 3, its upper end being open and separated from the bottom of the full round head *c* of said pipe. The cylinder is formed or provided with external longitudinal flanges *D' D'* for securing it to the part *c'* of said pipe C.

Cylinder D is small enough in diameter that lying as it does in the concave of the part round portion of pipe C, it does not increase the general diameter of the parts, and will, therefore, fit the well. Moreover it lies

in position to receive the piston-rod B which passes through the full round head of pipe C, and through a stuffing-box *c³* in the bottom of said head. It emerges from the head C, extends alongside of the part round portion *c'* and enters the open upper end of the cylinder D, in a straight line. Within the cylinder is a piston E of suitable character, to which rod B is attached.

The lower end of the cylinder D is provided with a suction pipe F, and with an upwardly opening suction valve G. An outlet valve H is located in the side of the cylinder and controls a communication between said cylinder and the part round portion of the pipe C.

The operation of the pump is that of a force pump. On the up-stroke, the water is sucked in through the valve G, and on the down stroke it is forced out through the valve H, and up through the pipes C and A. Being a force pump, it is best adapted for deep wells in that the work is done on the down stroke, whereby the weight of the parts is of assistance, while on the up stroke, the windmill or other power does not have to lift the column of water as in lift pumps, but only to raise the piston-rod. I am enabled to provide a force pump for this purpose by reason of the peculiar construction employed, namely, the pipe C which is adapted to be connected to the lower end of any pump pipe containing and guiding the piston-rod, and by reason of its shape will receive the working barrel or cylinder in its side without increasing its own diameter which perfectly adapts it for use in narrow wells, and locates the cylinder in proper position to receive the piston-rod. The upper end of the cylinder being open, prevents any pressure of water above the piston.

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

The herein described pump comprising the half round pipe C, formed with a round head *c* having a packing gland in its lower side, a half round portion *c'* therebelow and having a closed bottom, the upper portion of said part *c'* being closed on its inner side as at *c²* and the lower portion of said inner side be-

ing open, the separate and independent pump
cylinder fitting at its inner side into the open
side of the part c' with its longitudinal cen-
ter in vertical alignment with the said gland,
5 an opening in the side of the cylinder com-
municating with the interior of the half round
part c' through the open side thereof, an out-
wardly opening valve on the cylinder for said
opening, the inlet valve in the lower end of
10 the cylinder, and the external longitudinal
flanges on said cylinder for securing it to said

part c' , the piston in the cylinder and the rod
extending therefrom alongside the closed por-
tion c^2 up through said gland, substantially
as herein described. 15

In witness whereof I have hereunto set my
hand.

CHARLES A. KELLEY.

Witnesses:

A. B. COOMBS,
J. W. JONES, Jr.