

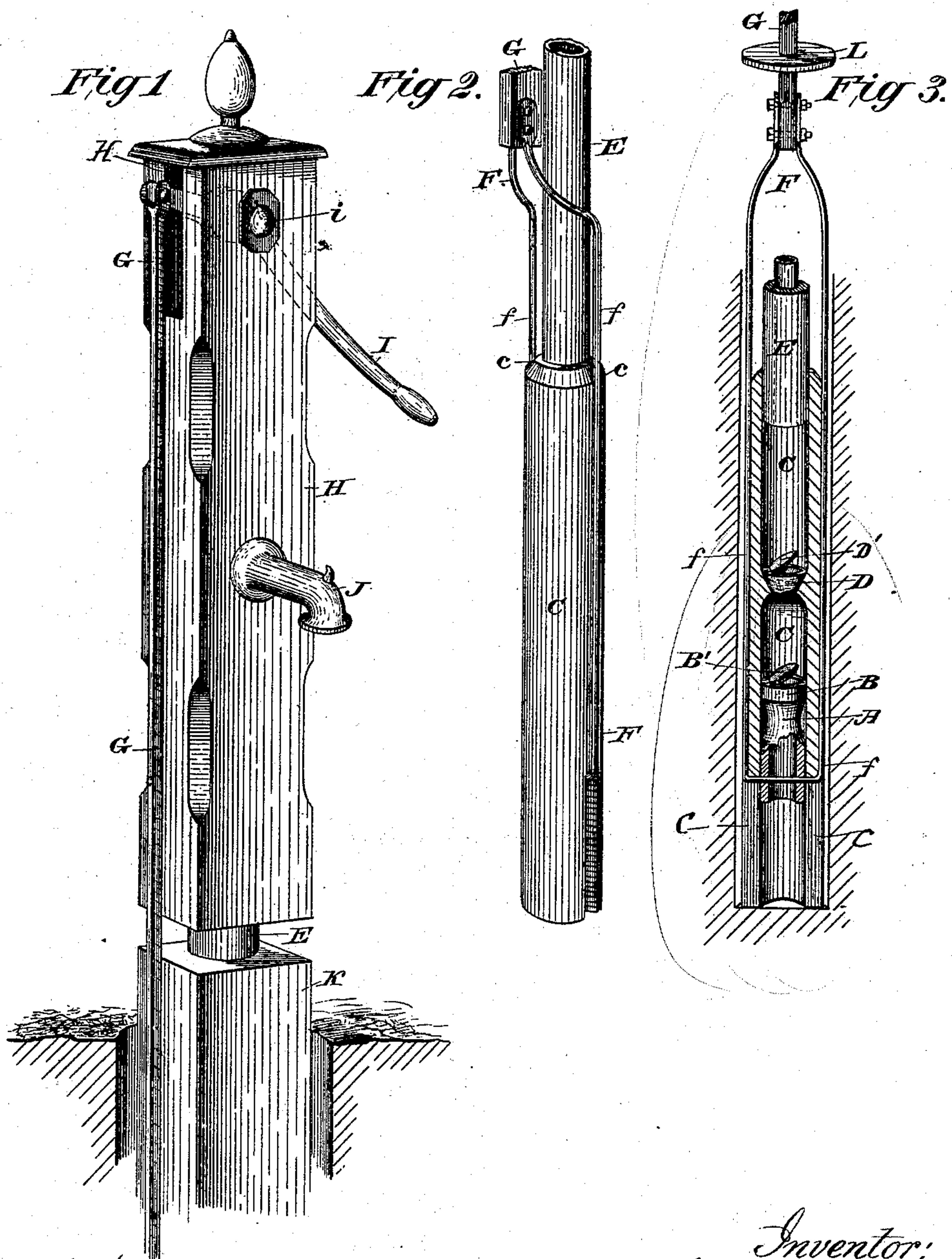
(No Model.)

J. BEDFORD.

FORCE PUMP.

No. 268,984.

Patented Dec. 12, 1882.



Attest:
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UNITED STATES PATENT OFFICE.

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FORCE-PUMP.

SPECIFICATION forming part of Letters Patent No. 268,984, dated December 12, 1882.

Application filed April 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN BEDFORD, a citizen of the United States, residing at Rossville, in the county of Fayette and State of Tennessee, have invented a new and Improved Force-Pump, of which the following is a specification.

The subject of my invention is a force-pump designed (especially though not exclusively) for bored or Artesian wells, the pump being of compact construction and of small diameter in proportion to its capacity, adapting it to be contained within the well-tube, and to be immersed in the water of a well of any depth. To this end my pump is constructed with a submerged cylinder, secured by its upper end to the lower end of the pump-tube, and provided with a check-valve and a valved piston working in the pump-cylinder, and connected by its lower end to a stirrup working in slots in the pump-cylinder below the water-level and in external grooves above, so as to avoid projection beyond the circumference of the cylinder.

In the accompanying drawings, Figure 1 is a perspective view of the external head of the pump, with the hand-lever and the upper part of the lifting-rod, and showing the top of the well in section. Fig. 2 is a perspective view of the pump-cylinder, which is located at the bottom of the well. Fig. 3 is a sectional perspective view of the same.

A represents the plunger of the pump, having at its upper end a packing, B, fitting in a cylinder, C, which is made to fit easily within the well or well-tube in which it is to be used, so that it may be passed to the bottom of the well and immersed in the water. The packing B of the plunger is surmounted by a valve, B', permitting the passage of water as the piston descends, and closing so as to force the water up by the ascent of the piston. Above the chamber of the cylinder in which the piston works is the seat D of the check-valve D', which retains the water forced up by the piston. In the top of the cylinder C is fixed the pump-tube E. The lower end of the piston A is attached by a stirrup, F, to an external pump-rod or plunger, G, of any necessary length, hinged at its upper end to the extremity of a handle, I, fulcrumed at i in the head H

of the pump. The pump-tube E connects at top with a customary spout, J. A section of wooden casing is shown at K in Fig. 1, with the pump-tube E passing between it and the head H of the pump.

In order to permit insertion of the cylinder C in a bored well or well-tube about equal in internal diameter to the external diameter of said cylinder, the arms *f f* of the stirrup work within vertical grooves prepared for them in the outside of the cylinder, as shown in Figs. 2 and 3, so that they will move freely without projecting beyond the surface of the cylinder, and without any communication with the interior above the tops of the slots *c c* in the sides of the cylinder in which the horizontal bar of the stirrup works.

For use in cisterns, an agitator, L, is attached to the plunger-rod G near its lower end.

By the use of the external plunger-rod and submerged piston and valves I provide a complete force-pump operated by a hand-lever, and without any packing above the water-line. It is especially adapted for use in bored wells of any depth. The pump shown is made entirely of wood, with the exception of the stirrup and the connections. This wooden pump works in a six-inch well. A metal pump made on the same principle works in a three-inch well.

I am aware that it is not broadly new to operate a plunger located at the bottom of a pump-cylinder, having an upwardly movable valve, through the medium of a stirrup sliding in grooves of a strainer applied to said pump-cylinder and passing in an upward direction outside the latter, and connected with an operating-rod arranged in line with an offset or lateral branch at the junction of the pump-cylinder and stock or barrel leading to the surface of the ground. I am also aware that a pump-cylinder has heretofore been provided with vertical bottom slots for the reception of a vibrating lever, which is fulcrumed at one end in a bracket of the pump-cylinder, connected at its center with a vertically-movable plunger and at its other end with a rod leading to an actuating-handle. The pump, as above set forth, cannot be used in straight-bored or Artesian wells.

Having thus described my invention, the

following is what I claim as new therein and desire to secure by Letters Patent:

In a pump for Artesian or bored wells, the combination of the vertically-sliding bail or stirrup F, having an offset at its top and a horizontal bottom portion, and the hollow plunger A, having a transverse opening for the passage of the horizontal portion of the bail, with the pump-cylinder C, provided with

vertical bottom slots, *c*, for the reception of the sliding bail, the check-valve D', the rod G, the tube E, the stock H, and the lever I, all constructed and relatively arranged as herein set forth, for the purpose specified.

JOHN BEDFORD.

Witnesses:

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