(Model.)

C. POWELL.

Pump.

No. 238,155. Patented Feb. 22, 1881.

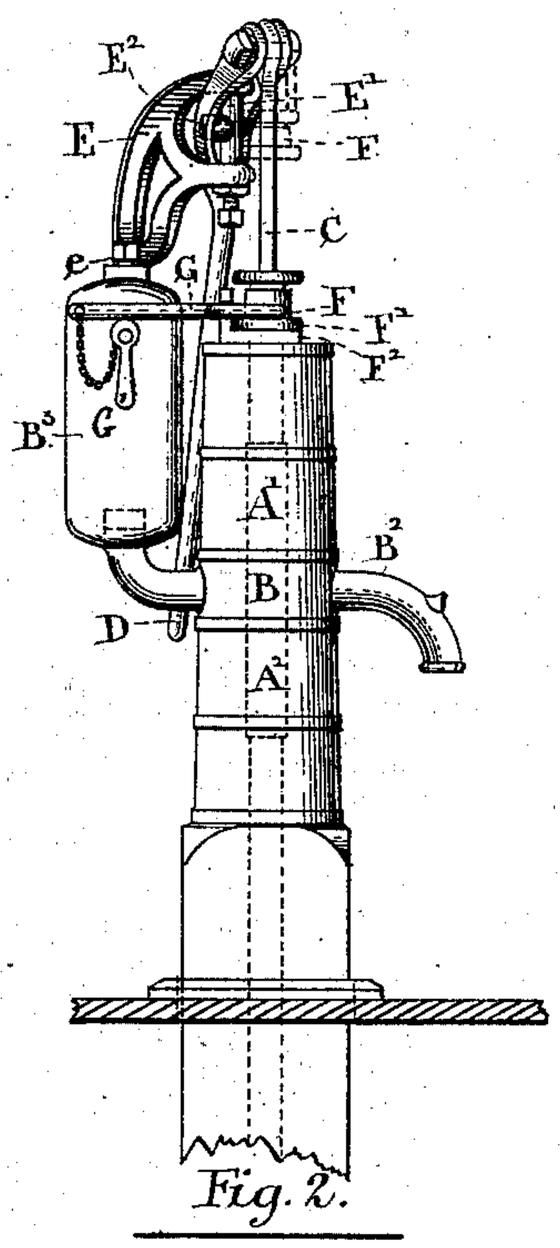

Fig. 2.

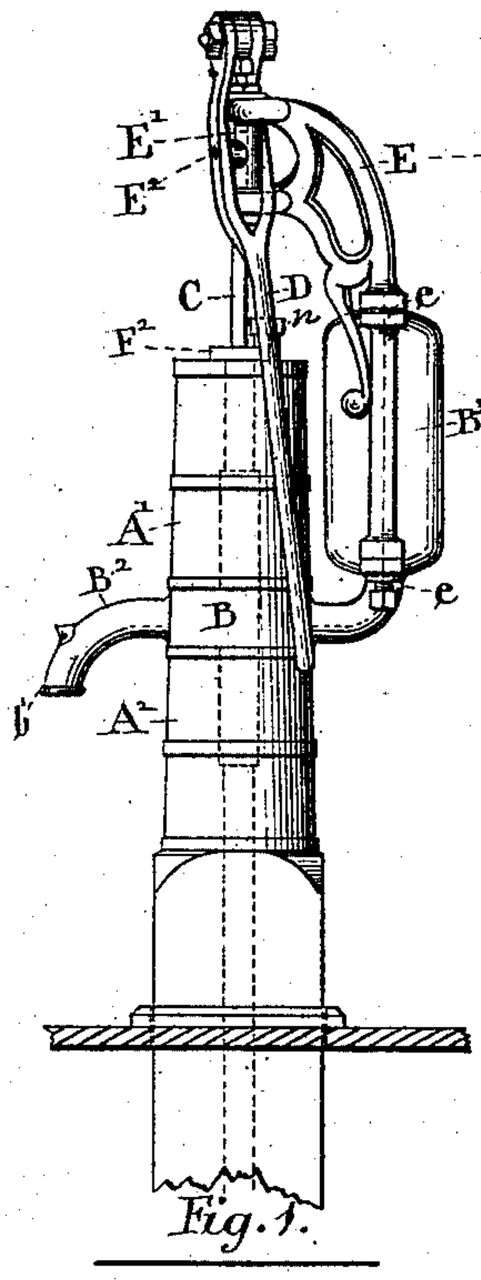

Fig. 1.

Fig. 9.

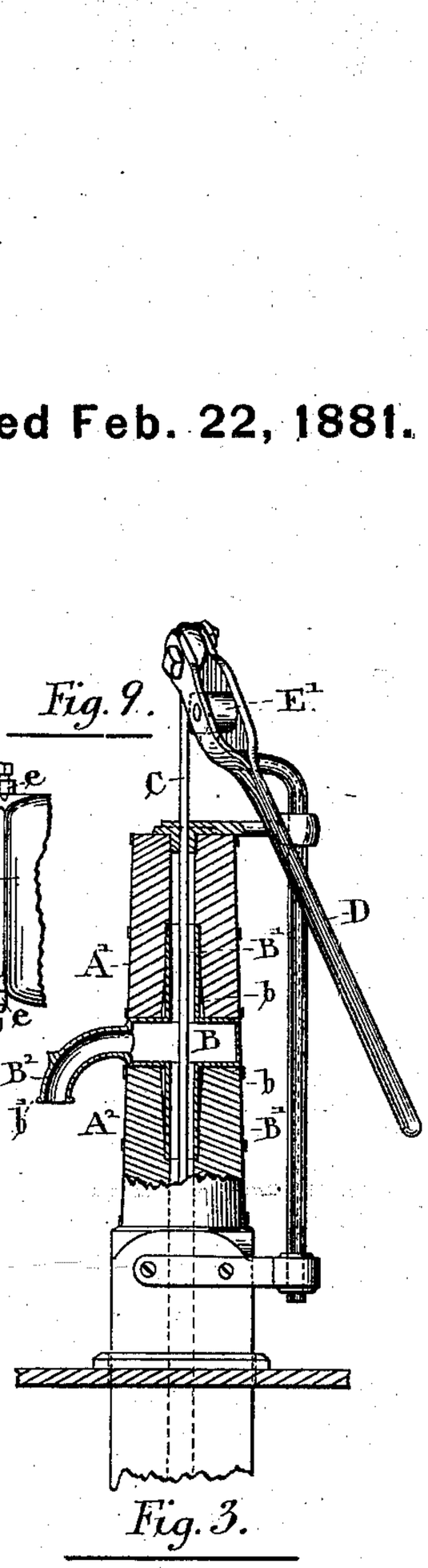

Fig. 3.

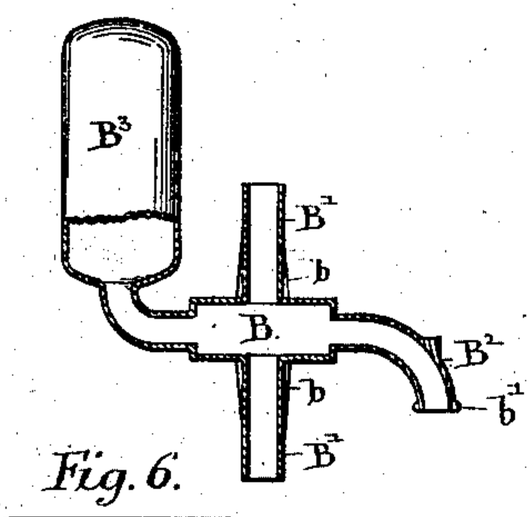

Fig. 6.

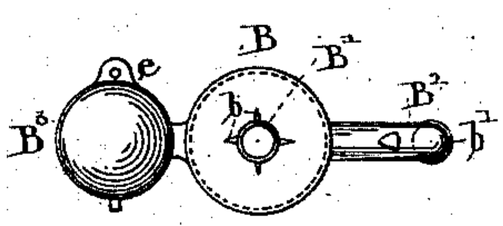

Fig. 7.

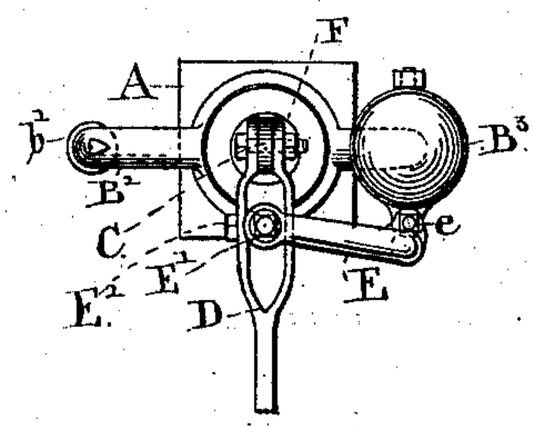

Fig. 4.

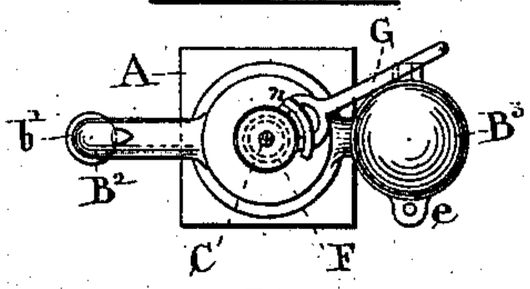

Fig. 5.

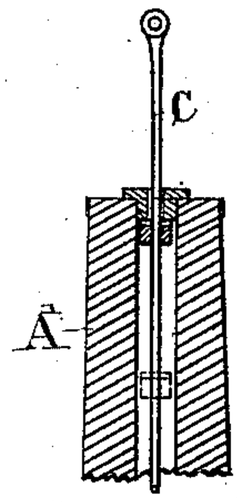

Fig. 8.

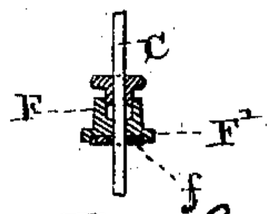

Fig. 9.

Witnesses:

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by Ridout, Aird & Co.
Attys.

UNITED STATES PATENT OFFICE.

CHARLES POWELL, OF TORONTO, ONTARIO, CANADA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 238,155, dated February 22, 1881.

Application filed March 1, 1880. (Model.)

To all whom it may concern:

Be it known that I, CHARLES POWELL, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented new and useful Improvements in Pumps, of which the following is a specification.

My invention relates more particularly to improvements in the construction of wooden pumps for household and other purposes; and the object of my invention, apart from improvements in construction, is to provide a pump which can be used either as a force-pump or as an ordinary lift-pump, as occasion may require, and shall be free from the defects of construction of the combined pumps now in use.

Referring to the accompanying drawings, Figure 1 is a side view of my pump when arranged as a lift-pump; and Fig. 2 is a side view of the same converted into a force-pump. Fig. 3 is a view of a modified construction. Figs. 4 and 5 are plans, and Figs. 6, 7, 8, and 9 are details of construction.

A is the pump-head, connected to the tubing in the well, and provided with a surrounding platform in the ordinary way. This head is made in two sections, A′ A², which are fastened together and coupled by a cast-metal water-chamber, B. The diameter of this water-chamber corresponds substantially with the diameter of the adjacent ends of the wooden sections A′ A², and the upper and lower sides of the chamber are provided with tubular extensions B′ B′, forming a tubular core having fins *b* on each extension B, which pass into recesses formed in the wooden sections of the pump, and serve as the means whereby the sections of the pump-head are fastened solidly together.

To the water-chamber casting and forming an integral portion thereof is connected on the one side the curved spout B², and on the opposite side may be connected the air-chamber B³, as shown in Figs. 1 and 2, the whole forming a single piece of cast metal; but in pumps which are designed to lift only the spout is connected directly to the tubular extension, as shown in Fig. 3. This manner of connecting the spout to a central metallic core is a great improvement over the ordinary construction of pumps, in which the spout is driven or fitted into a hole bored in the wooden head, and is liable to work and rot loose and to give great annoyance, so much so, indeed, that it is the practice with some makers to increase the thickness of the head for the sole purpose of procuring a longer and better hold for the spout.

C is the pump-rod, and D the pump-handle. The end of the handle is connected to the pump-rod by a pin or bolt in the usual way; but the construction of the fulcrum of the handle is novel. It consists of a metallic crane, E, which is pivoted at two points, *e e*, on the air-chamber, and at the upper end is provided with an offset and a swinging head-block, E′, to which the handle is pivoted by the pin or bolt E².

While I prefer the construction of the crane E, as shown in Figs. 1, 2, and 4, I am aware that many modifications in the manner of mounting it on the pump-head and in its construction can be made, of which I show example in Fig. 3, in which the operation of the crane is the same as in Figs. 1 and 2, although its construction is somewhat different. The crane and the swinging block at its head form a compensating fulcrum for the pump-handle, which allows the pump-rod to work in truly vertical lines with but little friction, and without the objectionable vibration or shaking found in compensating fulcrums as now commonly used.

F is a stuffing-box placed on the pump-rod for the purpose of closing the orifice in the pump-head around the pump-rod when it is desired to use the pump for forcing water against pressure, or for fire, or other purposes. This stuffing-box is not permanently connected to the pump-head, being made detachable therefrom, and when the pump is used for lifting water only it is held stationary on the rod by the pressure of the packing, or by a bail, as shown by dotted lines, or any equivalent device, and works up and down with the rod.

The object in making the stuffing-box detachable is, first, to prevent the wearing of the packing while the pump is being used for lifting water only; second, to prevent the freezing of the stuffing-box and pump-rod, which invariably occurs with a fixed stuffing-box in

winter, and to avoid the annoying delays and breakages which result therefrom; third, to prevent splashing of water when the pump is used for lifting water into a pail or other vessel.

In order that the stuffing-box may be properly connected to the pump-head to close the orifice around the rod when the pump is required to force water, the lower end of the box is provided with a flange, F′, and is recessed to receive a packing-washer, *f*, which is adapted to fit upon the face of a collar, F², placed in the head of the pump around the rod. The box is then clamped down on the collar, to make a water-tight joint, by means of the forked clamping-bar G passing under a T-shaped projection, *n*, attached in any convenient manner to the pump, which holds the forked end of the clamping-bar down upon the coupling, its other end being held up by an eccentric locking-lever, G′; or any other suitable clamping device may be used which is readily detachable. The clamping-bar shown is coupled to the head of the pump by a chain, to prevent it being detached or accidentally mislaid. The stuffing-box could be arranged to screw on the collar F², if desired, and, if preferred, it could be placed in the interior of the pump, as shown in Fig. 8, and work by the action of the water. In this latter case the packing is secured to a wooden float, which floats as the water rises in the bore of the pump, causing the packing to bear against the under side of the collar F² and the rod, and preventing the escape of water.

The advantages resulting from my improvements are combined to produce a pump which can be used either for lifting or forcing water with the best results, and which is cheap in construction, easily operated, and durable.

I claim as new and desire to secure by Letters Patent—

1. A wooden pump-head formed in sections, which are coupled together by an enlarged water-chamber, provided with a tubular core, composed of two tubes projecting in opposite directions from the centers of the upper and lower faces of the water-chamber, each of said tubes being driven into a section of the pump-head, substantially as described, and for the purpose set forth.

2. A wooden pump-head formed in sections which are coupled together by a water-chamber provided with a spout, and a tubular core, composed of two opposite transverse tubes, each of the latter being driven into a section of the pump-head, substantially as described, and for the purpose set forth.

3. A pump-head consisting of two sections, A′ A², coupled together by a water-chamber, B, having the transverse tubes B′ and spout B², the coupling and spout being cast in one piece, substantially as described, and for the purpose set forth.

4. A pump-head constructed in sections, which are coupled together by a tubular core having a water-connection with the spout, and an air-vessel, substantially as described, and for the purpose set forth.

5. The water-chamber B, having the transverse tubes B′ B′, spout B², and air-vessel B³, all cast in one piece, substantially as described, and for the purpose set forth.

6. The combination, with the handle and pump-rod of a pump, of the swinging crane E, said crane being pivoted in connection with the pump-head in any suitable manner, and adapted to move to permit the self adjustment of the fulcrum of the handle, as and for the purpose set forth.

7. The combination of the handle, pump-rod, swinging crane, and the air-vessel, said crane being pivoted to the air-vessel, substantially as shown.

8. The combination, with the flanged stuffing-box F and the pump-rod C, of the T-shaped projection *n* on the pump-head, clamping-bar G, and eccentric locking-lever G′, substantially as described, and for the purpose set forth.

9. The stuffing-box F, provided with the flange F′ and a recess in its bottom face, in combination with the pump-rod C, circular collar F², fitting in the bore of the pump-head, and the packing *f*, substantially as described, and for the purpose set forth.

CHARLES POWELL.

Witnesses:
GEO. A. AIRD,
LOUIS M. L. WHITEHEAD.