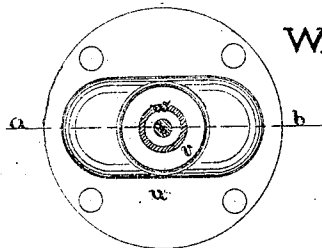
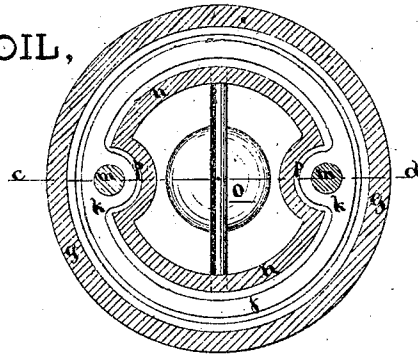
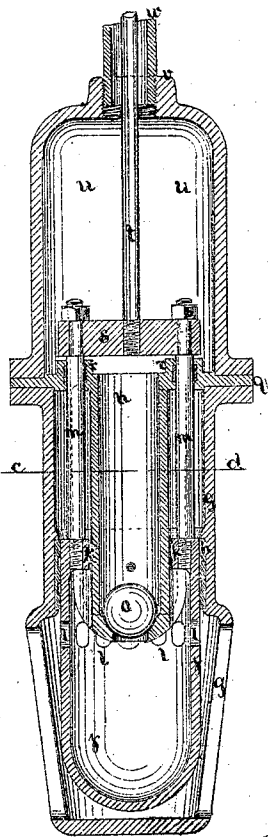
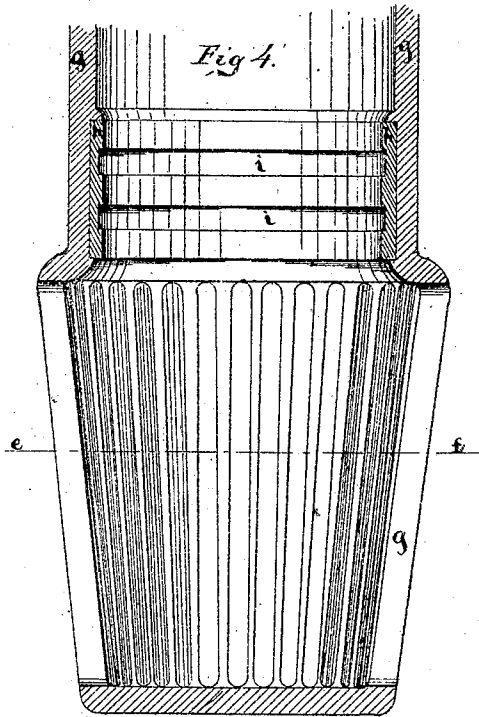


*DEEP WELL and FORCE PUMP**Fig 1*

for

*Fig. 3.*WATER, OIL,
&c.*Plan.**Enlarged Plan thro' c d Fig 2**Fig 2**Sectional elevation thro' a b**Fig 4.**Enlarged Section of Strainer
and
Barrel**Fig 5**Section thro' e f**Inventor**Julius Jonson**Witnesses**G. Jonson
H. Jonson*

UNITED STATES PATENT OFFICE.

JULIUS JONSON, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 118,859, dated September 12, 1871; antedated September 2, 1871.

To all whom it may concern:

Be it known that I, JULIUS JONSON, of Baltimore, county of Baltimore and State of Maryland, have invented a new and useful Improvement in Deep Well and Force-Pumps for Water, Oil, &c.; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, in which—

Figure 1 is a plan; Fig. 2, a sectional elevation; Fig. 3, an enlarged plan through *c d* of Fig. 2. Fig. 4 is an enlarged section of the strainer and barrel, and Fig. 5 a section of the strainer.

My invention has for its object the construction of a cheap and simple pump for deep wells of water, oil, or other substances; one that can be put up by any person of ordinary capacity; neither contains parts liable to get out of order, nor likely to be seriously affected by any foreign substance or impurities which might pass through the strainer.

It consists of a casting, *g*, Figs. 2 and 4, forming the pump-barrel and strainer in the one piece, and having on its upper end a suitable flange for connecting with the other parts of the pump. Within this barrel is cast a brass sleeve or bushing, *h*, shown in detail on Fig. 4, bored out and having turned in it a couple of shallow grooves, *i i*, Fig. 4, commonly known as packing-grooves, similar to those used in some descriptions of pump-plungers and other like work. Into this sleeve or bushing a hollow plunger, *j*, Fig. 2, is fitted, having at a suitable point a series of holes, *l l*, Fig. 2, which act as valves, as will be hereafter described. On the upper end of said plunger there are two lugs, *k k*, Figs. 2 and 3, which serve as means of attachment for the bail-rods *m m*. The pump consists further of a valve-box, *n*, Fig. 2, having in the bottom a valve opening inward, (in this case a ball of vulcanized rubber,) marked *o*, on Figs. 2 and 3. On opposite sides of this valve-box there are two grooves, *p p*, Fig. 3, to permit the lugs *k k* of the plunger *j* to pass freely when the pump is in operation. The upper end of this valve-box is provided with a flange, *q*, of suitable dimensions for securing it to the pump-barrel. On the upper side of this flange there are two bosses, *r r*, having holes through them a little larger than the diameter of the bail-rods *m m*, and recessed in a suitable

manner for the reception of Babbitt's or any other anti-friction metal. There are also two bail-rods, *m m*, fastened into the lugs *k k*, Fig. 3, which rods pass through the bosses *r r* on the flange *q*, and are connected at the top by a yoke or bar, *s*, Fig. 2, to which is fastened the lower end of the pump-rod *t*, by means of which motion is imparted to the hollow plunger *j*. The whole apparatus is surmounted by a chamber, *u*, Figs. 1 and 2, provided with a boss on its upper side tapped to receive the discharge-pipe *w*. The flange on the bottom is made to conform to the flanges on the pump-barrel and valve-box, and the whole firmly clamped or bolted together, as shown by Fig. 2. This entire apparatus is screwed to the lower end of a piece of pipe of a length sufficient to reach the bottom of the well, or to any such depth as may be desirable, the upper part projecting through the curbing, and having secured to it any of the usual mechanical contrivances in use for giving to pump-rods or plungers a vertical motion, and having also an outlet or discharge-nozzle.

At present I make no claim to any specific manner neither in the method of operating the pump-rod which passes through the pipe, nor to the manner of discharging the water, inasmuch as these points will not conflict with the objects of my invention, and will have to be made to suit special purposes and localities.

The operation of the pump is as follows: When the plunger *j* is down the water or other substance rushes through the openings *l l* of the plunger and fills it. The plunger now being raised by means of the rod *t*, the holes *l l* are closed by reason of their sliding into the sleeve *h*, and the water having no other outlet is forced to pass into the valve-box *n*, where the valve *o* retains it. Each successive stroke of the plunger repeats the operation, and eventually discharges the water at the head of the pipe. The leakage through the bosses *r r*, although but slight, will prevent the water from standing in the upright pipe when the pump is at rest, thus obviating any injury or inconvenience from freezing.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The pump-barrel and strainer *g*, cast in one piece, and provided with the flanges and the grooved bushing *h*, as herein set forth and shown, for the purpose specified.

2. The hollow plunger *j*, with holes *l l* and

lugs *k*, together with the bail-rods *m m* and yoke *s*, substantially as and for the purpose herein specified and described.

3. A valve-box, *n*, with grooves *p*, flange *q*, and bosses *r r*, as and for the purpose specified and described.

4. The combination of the pump-barrel *g*, plun-

ger *j*, bail-rods *m m*, and yoke *s*, and the valve-box *n* and chamber *u*, the whole connected and operating together substantially as herein specified and described.

Witnesses:

F. JONSON,
G. JONSON.

JULIUS JONSON.