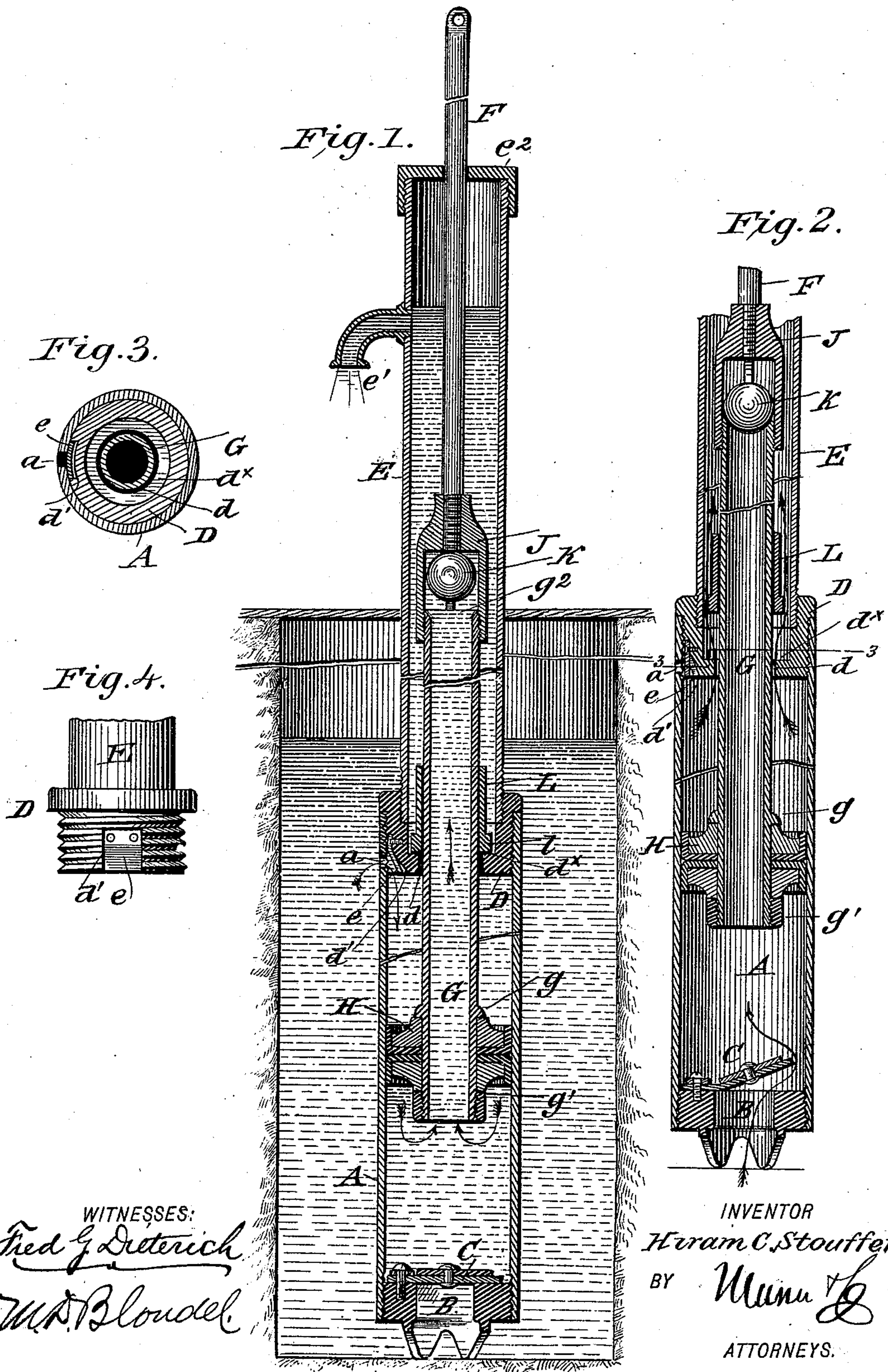


(No Model.)

H. C. STOUFFER.
DOUBLE ACTING PUMP.

No. 516,411.

Patented Mar. 13, 1894.



WITNESSES:
Fred G. Dieterich
W. B. Blouet

INVENTOR
Hiram C. Stouffer
BY *Wm. L. L.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

HIRAM C. STOUFFER, OF NEW LISBON, OHIO, ASSIGNOR OF ONE-HALF TO
DE WITT C. SPENCER, OF MOHAWK, NEW YORK.

DOUBLE-ACTING PUMP.

SPECIFICATION forming part of Letters Patent No. 516,411, dated March 13, 1894.

Application filed February 24, 1893. Serial No. 463,591. (No model.)

To all whom it may concern:

Be it known that I, HIRAM C. STOUFFER, residing at New Lisbon, in the county of Columbiana and State of Ohio, have invented certain
5 new and useful Improvements in Double-Acting Pumps, of which the following is a specification.

My invention relates to double acting pumps and it has for its object to provide a pump of
10 this kind in which a continuous stream of water is obtained, with an easy operation of the pump.

It has also for its object to provide a pump of this kind simple and inexpensive in its
15 construction, and very effective for its desired purpose.

With other objects in view which will hereinafter appear my invention consists in the peculiar and novel combination of parts, all
20 of which will hereinafter be described in the specification and particularly pointed out in the claim, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of my improved
25 pump showing the position of the parts when the piston is on its down stroke. Fig. 2 is a similar view of the same showing the parts when the piston is on its up stroke. Fig. 3 is a horizontal section of the same on the line
30 3—3 Fig. 2, and Fig. 4 is a detail side view hereinafter specifically referred to.

Referring now to the drawings A indicates the main chamber or cylinder, in the bottom of which is detachably secured a valve-seat
35 B, on the upper face of which is secured an upwardly opening valve C.

D indicates a union plug detachably secured in the upper end of the cylinder A which is centrally apertured as at d , and which has a
40 cut out or recessed portion d' in which is fitted a flap valve e which is adapted to close over an inlet a in the upper end of the cylinder A, when the piston is on its up stroke as will be presently described.

E indicates the discharge tube, which in
45 practice is a pipe section of one and one-half inches diameter, the lower end of which is screwed into the plug D, while the upper end extends above the well, forms the pump stock
50 proper and is provided at such end with the

usual discharge nozzle e' , and the upper end of such pipe closed by an apertured screw cap e^2 through which passes the plunger rod F presently referred to.

G indicates a tubular piston or sucker rod, 55 upon the lower end of which is secured the piston or sucker plug H, which is of any ordinary construction preferably as shown, and is held to the lower end of the rod by the shoulder g and nut g' . This rod G which in practice is of a length proportionate to the depth
60 of the well, passes through the aperture d of the plug D, projects up into the pipe E, and is detachably secured at its upper end to a cage J which in turn is detachably secured to
65 the lower end of the plunger rod F. It will be noticed by reference to Figs. 1 and 2 of the drawings, that the diameter of the sucker rod is less than the diameter of the opening d
70 through which it passes, (such construction providing for a water passage, between the cylinder A and the pipe E,) and the upper end of such rod has a valve seat g^2 to receive a ball valve K which is held to operate in the cage J as shown. 75

L indicates a tubular sleeve which is held
75 to slide on the sucker rod G, the lower end of which has an annular enlargement l , which rests upon a valve seat d^x formed in the plug D, and such sleeve forms a cut off valve to
80 close off the passage d , on the down stroke of the piston.

My improved pump operates as follows: When the piston is on the up stroke as indicated in Fig. 2, the water is drawn in through
85 the valve B at the bottom, and such of the water as is held in the cylinder A above the piston is forced up, its pressure serving to close the flap valve over the upper inlet a and to raise the valve L up on the sucker rod as
90 shown, which operation opens up a free communication between the cylinder A and the discharge pipe E through the passage way d , it being obvious that during such operation the ball or check valve K will be forced by
95 the back pressure of water to close off the upper end of the tubular sucker rod G. When however the piston is forced down as indicated in Fig. 1, the water beneath will be forced up through the tubular sucker rod to lift the ball 100

valve and discharge into the pipe E, and held
from flowing back at this time into the cham-
ber A, by the slide valve L which drops and
is held over the passage *d* by the weight of
5 the water above it. At the same time the up-
per part of the cylinder is refilled through the
inlet *a*. It will thus be seen that a contin-
uous supply of water is maintained in the
pipe E during the pumping operation. It will
10 be also readily understood that by using but
one cylinder, and that at the bottom of the
well, the construction and operation is much
simplified. Furthermore by securing the flap
valve for the upper inlet *a* on the plug D in
15 the manner shown, the several parts can be
the more readily connected and detached.

Having thus described my invention, what
I claim, and desire to secure by Letters Pat-
ent, is—

20 An improved double acting pump compris-
ing an upper or discharging cylinder, a lower
or piston cylinder, said lower cylinder having
a threaded upper end, and an inlet in such
threaded portion, and an inlet at its lower end,

provided with an inwardly opening valve, a 25
union plug adapted to be detachably con-
nected to the lower end of the upper cylinder,
and provided with an externally threaded por-
tion adapted to fit the upper threaded end of the
lower cylinder, said threaded portion having 30
a seat or recess, a flap valve held to open back
into such recess and to fit over the inlet in
the upper end of the lower cylinder, when the
parts are connected, said plug having a cen-
tral opening of less diameter than the upper 35
pump section, a tubular piston rod held to
move loosely through such opening, a slide
valve fitted over such piston rod and adapted
to rest over the plug opening to close it, said
piston rod having a piston at its lower end, 40
and a ball valve held over the top of such
tubular piston rod all arranged substantially
as shown and for the purposes described.

HIRAM C. STOUFFER.

Witnesses:

WM. R. LEWIS,
THOS. CRAWFORD.