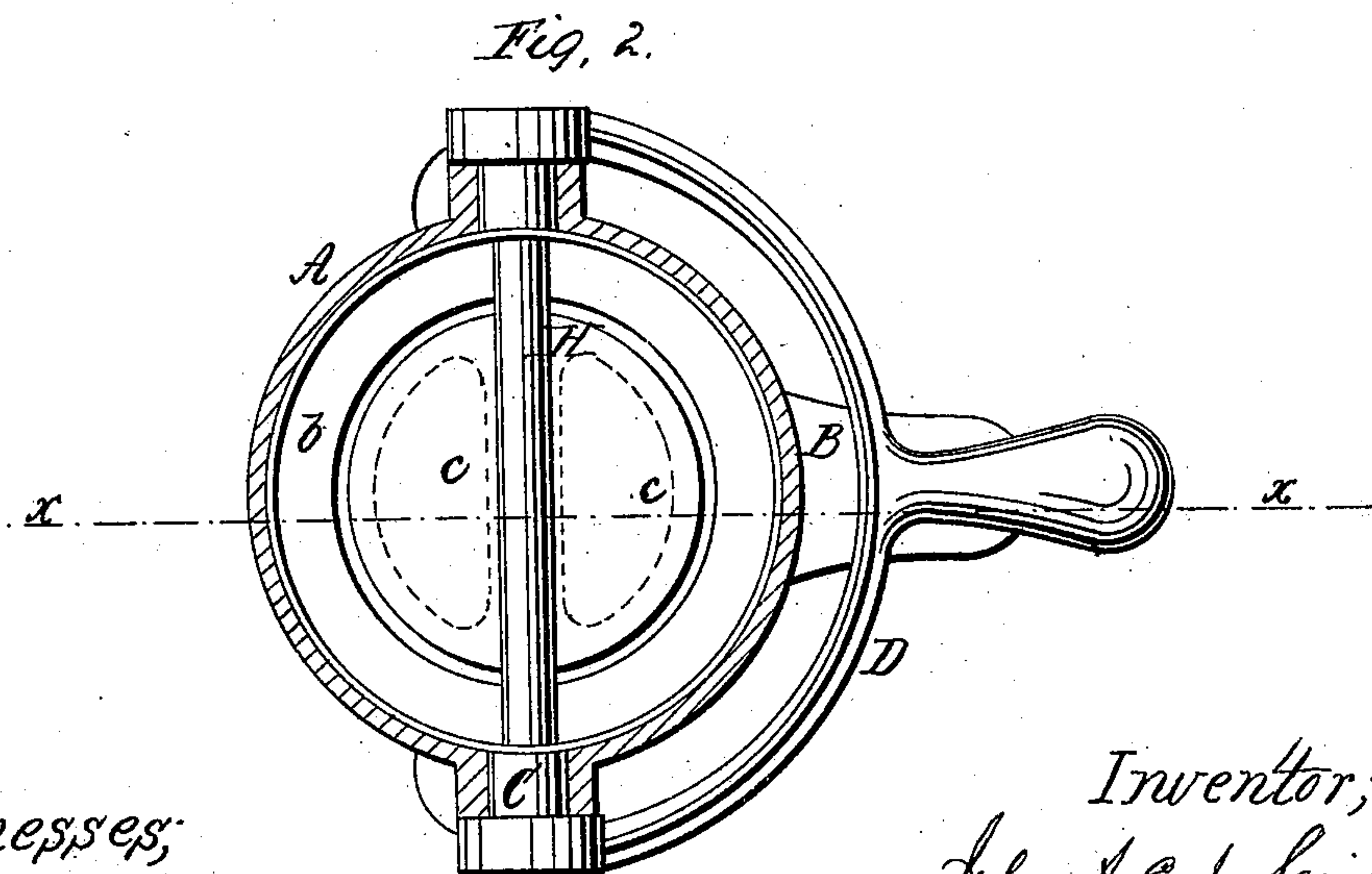
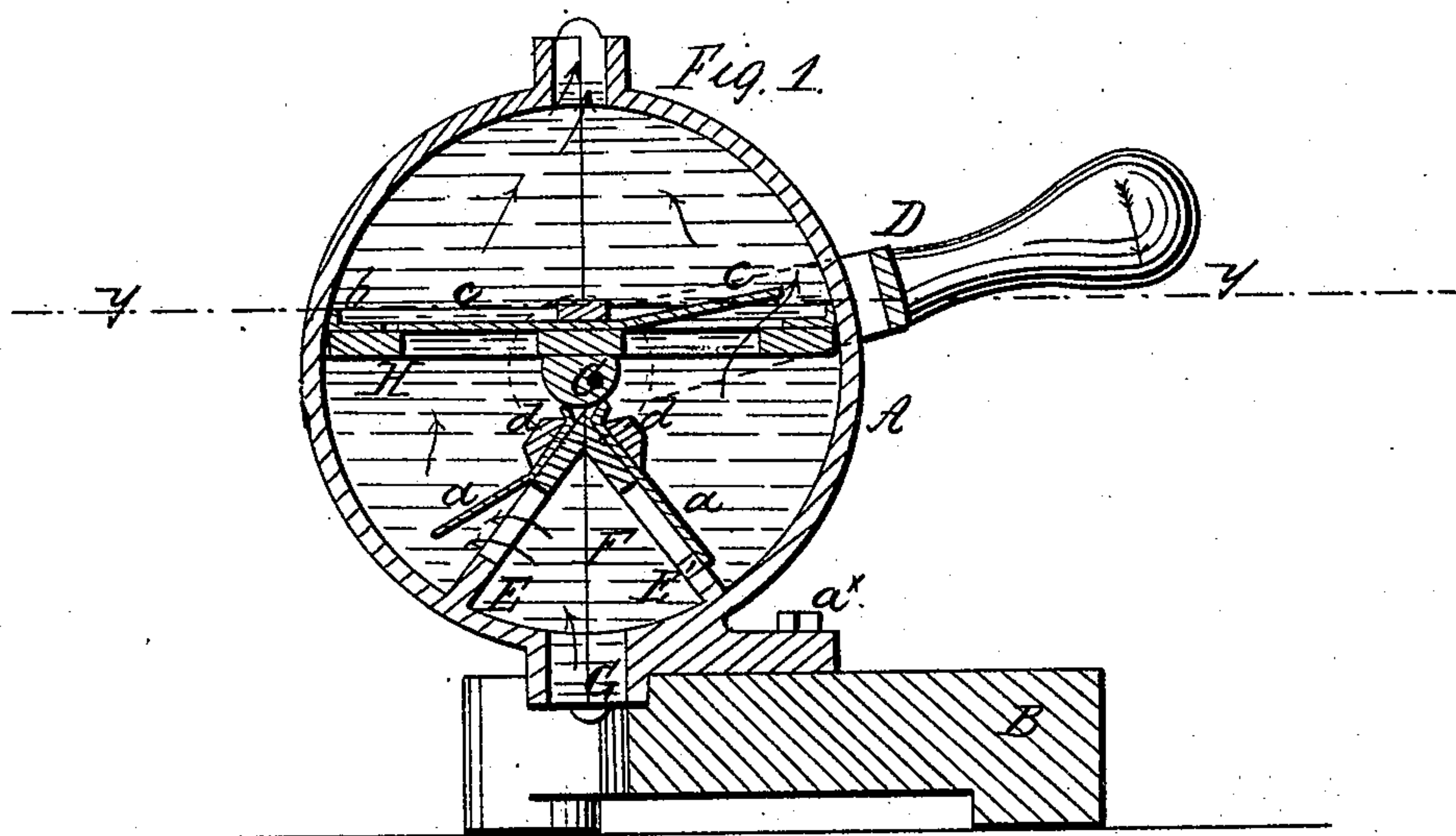


J.A.C. Smith,

Oscillating Pump,

Nº 29,110.

Patented July 10, 1860.



Witnesses;
J.W. Coombs.
R.S. Spencer

Inventor;
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UNITED STATES PATENT OFFICE.

JOHN A. C. J. SMITH, OF PHILADELPHIA, PENNSYLVANIA.

PUMP.

Specification of Letters Patent No. 29,110, dated July 10, 1860.

To all whom it may concern:

Be it known that I, JOHN A. C. J. SMITH, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Force-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical section of a pump constructed according to my invention; x, x , Fig. 2, is the line of section. Fig. 2, a vertical section of the same taken in the line y, y , Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a hollow cast metal sphere which forms the body or chamber of the pump. This body or chamber is formed of two equal parts connected together by bolts which pass through proper flanches cast with the parts. One of the parts of the body or chamber is secured by bolts a^x , to a suitable base B. The body or chamber A, may be of any suitable size and it has a shaft C, passing horizontally through its center, the ends of the shaft, having a bail or handle D, connected to it as shown clearly in Fig. 2.

Within the body or chamber A, at its lower part there are two inclined partitions E, E'. These partitions are in contact at their upper ends and they form a chamber F, with which the induction pipe G, communicates as shown clearly in Fig. 1. Each partition E, E', is provided with a valve a , opening upward.

To the shaft C, a circular disk H, is attached. This disk forms the plunger or piston, and it may be cast with the shaft or, if the latter be of wrought iron the former may be cast separately and secured to the shaft. The plunger or piston has a central position on shaft C, and its upper surface is covered with leather b , or other suitable material which will form a packing around its edge between it and the inner side of the body or chamber. The plunger or piston has a valve c , at each side of the shaft C, said valves opening upward. The valves c , may be formed by having openings in the piston and having the leather b ,

or other material cut so as to form flaps. I do not however confine myself to this mode of forming the valves.

The valves a , also of the partition E, E', may be formed by having proper sized openings in the partitions and having the same covered by leather flaps, formed on strips d , which extend upward and form a packing between the shaft C, and the upper ends of the partitions E, E', as shown clearly in Fig. 1.

It will be seen by referring to Fig. 1, that the partitions E, E', divide the lower part of the body or chamber A, below the piston H, into two compartments and it will also be seen that if the handle D, be moved up and down the piston H, will be vibrated, and the water will be drawn up the pipe G, into the chamber F, between the partitions E, E', and will be drawn alternately through the valves of the partitions E, E', and forced alternately through the two valves c , of the piston, and out through the elevation opening e , at the top of the body of the chamber. The pump throws a continuous stream, and it may be readily kept in proper working order as an annular packing is only required around the piston to insure its perfect operation. This packing is not liable to get out of proper working condition there being no angles or corners in which it is required to be adjusted. In consequence also of the spherical form of the pump the water is forced through it, with less friction and resistance, than if abrupt angles were required to be turned and the pump also may be cheaply, and at the same time perfectly constructed.

I do not claim broadly the employment of partitions as my invention; nor the use of vibrating pistons; but as far as I am aware the employment of a spherical shaped shell and corresponding partitions and plunger are new. This improvement presents the following new and useful results:

1st. It has less friction than the square cornered shell on account of the plunger having less surface to travel over to discharge the same amount of water. 2d. It has no square corners to the plunger, which are very difficult to pack etc. 3d. My improvement has no heads to spring into corners like the square shape. 4th. My improved pump can be manufactured for about one half the cost of the square cornered form, the shape of my shell does not require to be so strong or

heavy; one set of bolts answers, and only
one half of the shell requires to be finished,
no heads to be turned off, etc. 5th. A brass
pump made on my plan can be got up for
5 one third of the cost of the round and square
form for the latter form would have to be
made wholly of brass or lined with brass
which would be very expensive, whereas by
the globe shape as in my improvement it is
10 not necessary to have the whole pump of
brass; all that is required of brass is the top
chamber or shell the bottom shell may be of
cast iron as it does not require any finishing
whatever. By my improvement I also gain

great advantages in capacity and frictional 15
surfaces over the round and square form.

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

The employment of the spherical shell A, 20
in combination with the rounded partition
E, E', and rounded piston H, as and for the
purpose herein shown and described.

JOHN A. C. J. SMITH.

Witnesses:

I. PLANKINTON,
HENRY SCHELL.