

Keeley & Beck,

Oscillating Pump,

Nº 24,032,

Patented May 17, 1859.

Fig. 8.

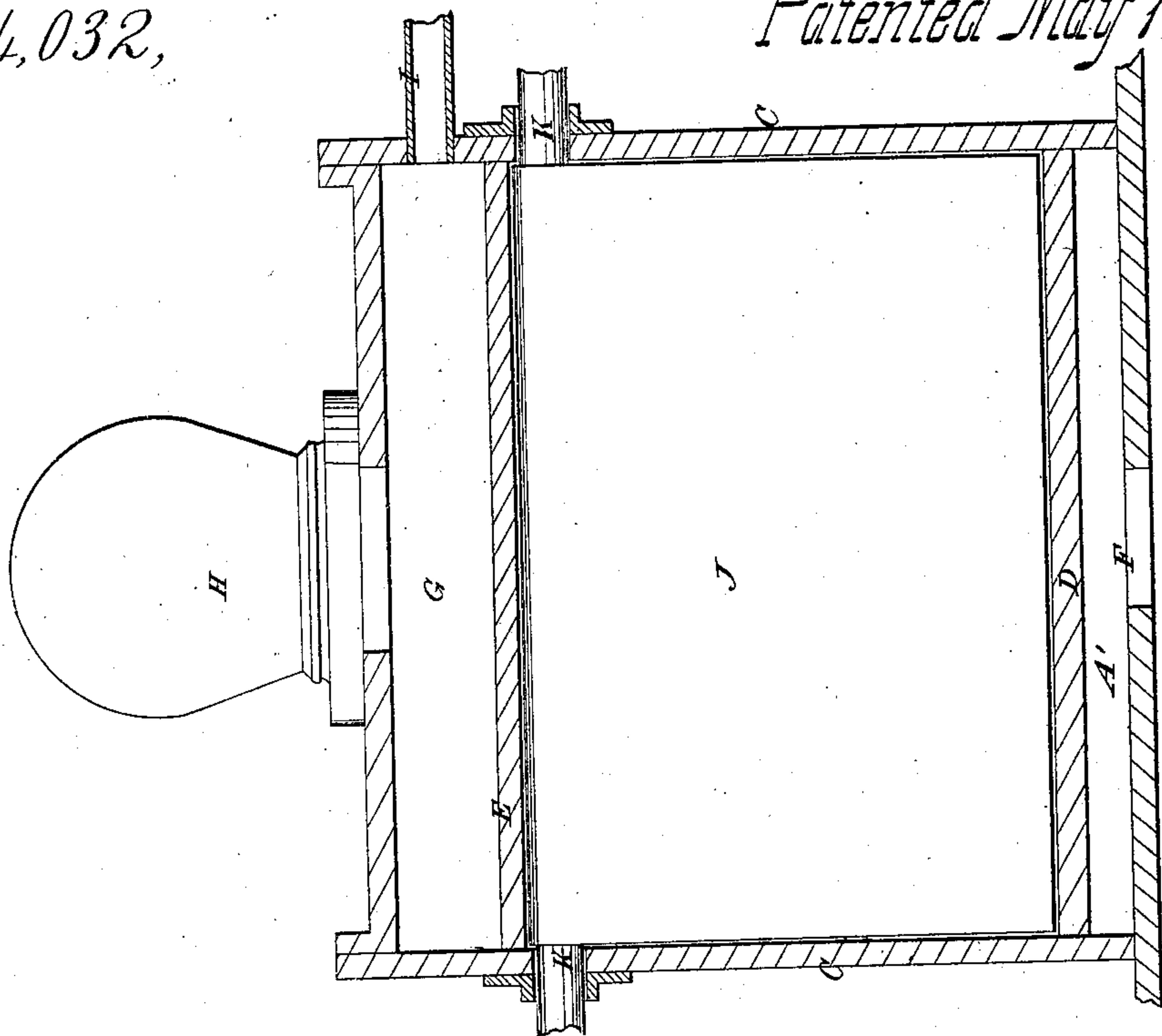
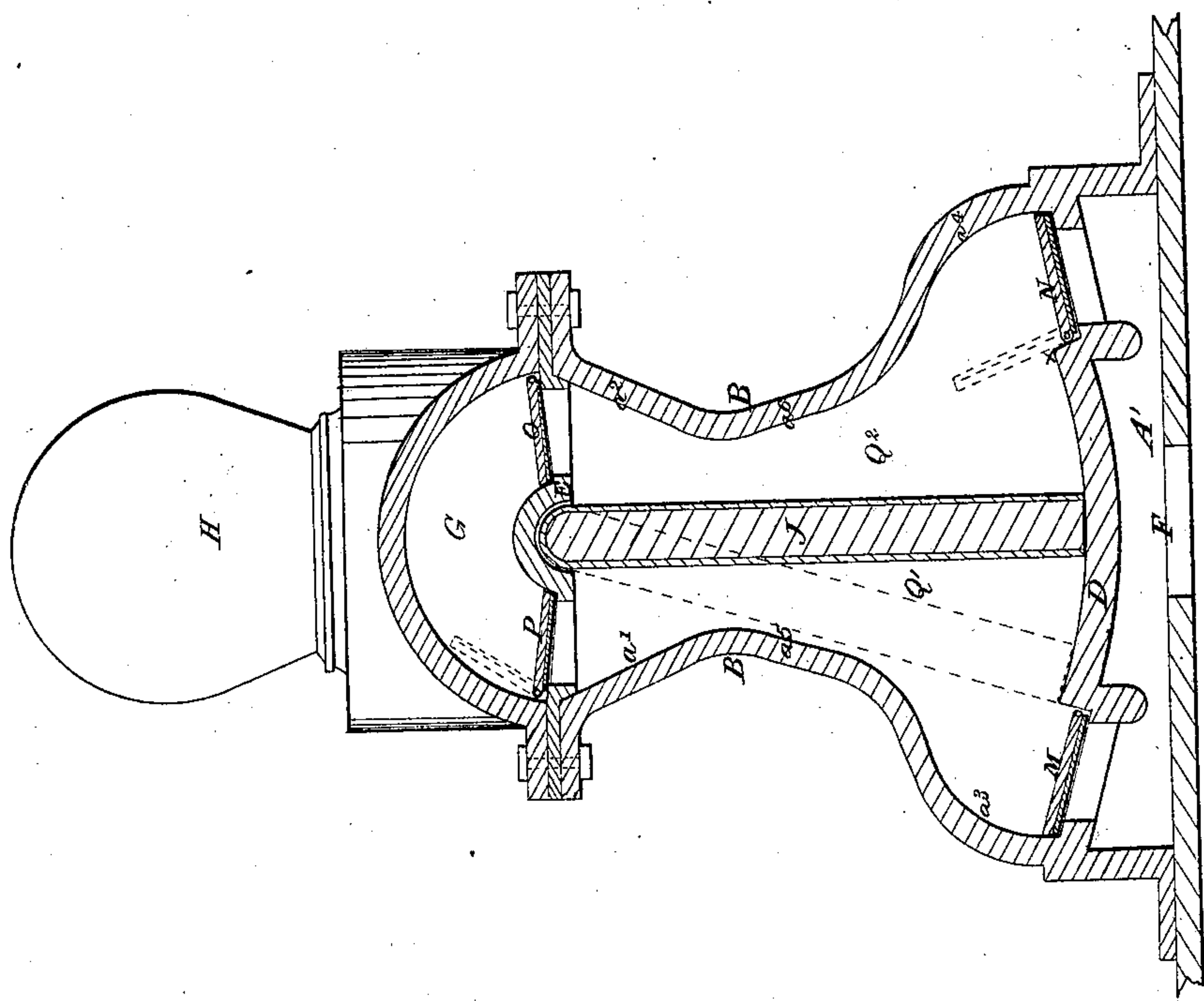


Fig. 7.



UNITED STATES PATENT OFFICE.

ALBERT B. KEELEY AND JAMES S. BECK, OF PHILADELPHIA, PENNSYLVANIA.

PUMP.

Specification of Letters Patent No. 24,032, dated May 17, 1859.

To all whom it may concern:

Be it known that we, ALBERT B. KEELEY and JAMES S. BECK, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Double-Acting Force and Lift Pumps; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1, represents a perspective view of the pump, one of the end plates being removed. Fig. 2, represents a vertical transverse section in perspective of the same. Fig. 3, a perspective view of valve plate. Fig. 4, a perspective view of the upper valve plate. Fig. 5, an elevation of one of the end plates. Fig. 6, an elevation of the handle. Fig. 7, a vertical section in elevation of the pump. Fig. 8, a longitudinal section.

Similar letters of reference in each of the several figures indicate corresponding parts.

The nature of our invention consists in the combination of a solid or valveless oscillating piston with the peculiar shaped piston chamber, and with the upper and lower valves, all arranged and operating substantially as hereinafter specified.

To enable others, skilled in the art, to make and use our invention, we will proceed to describe its construction and operation.

A, represents the base of the pump on which rest the body of the piston chamber which is at its upper part a' , a^2 , Fig. 7, shaped similarly to an inverted truncated cone in section, at its middle a^5 , a^6 , similar to a truncated cone in section, and in right position, and at its base a^3 , a^4 , shaped somewhat similar to a semisphere in section; all for a purpose made evident hereafter.

B, B, are side plates which are firmly secured with bolts to the lower valve plate D, and upper valve plate E, and end plates C, C.

F, is where a pipe is secured for a suction to lower receiving chamber A'.

G, is the dome secured with bolts to the upper valve plate E and side plates B, B; upon the dome is placed the air chamber H.

I, is the discharge pipe.

J, is the solid valveless plunger secured to the center pin K, and set in the end plates C, C, with stuffing boxes to make it air tight and having a bearing from end to end

in the center of the upper valve plate E, which has a semi-circular recess corresponding to the pin K, formed in it, said recess being ground to make a water tight joint.

L, is the lever to be secured to the center pin K, and serves for operating the piston.

Operation: As the water flows in opposite sides of the piston alternately, and the operation on both sides is the same, we will suppose the pump to have been started and water ready to enter the pump. Now by continuing the operation and giving the piston a movement from x to the position shown in red in Fig. 7, water will flow through the suction pipe F, into the receiving chamber A', from thence through the valve N, into the section Q^2 of the piston chamber, it being prevented from entering through valve M, by reason of its being held down by the water which is supposed to be confined by the piston in the space a^2 , above said valve. Now by moving the piston back from the position shown in red in Fig. 7 to the position indicated by x , the valves N and P, will be closed and M, and O, will be opened, and water will enter through the former into the section Q' of the piston cylinder, and a portion of the water which is in section Q^2 , of said cylinder will be forced up through the open valve O, and discharged into the dome G, and expelled therefrom by the force of the air in chamber H, and the action of the piston, through the pipe I, while the other portion of the water remains in the spaces a^2 , a^3 and that in the space a^4 , acts with the piston as a weight to keep the valve N, closed while that in a^2 , serves no purpose except as a cushion for O to close against, and therefore it would be as well to discharge it and also that in the space a^4 , by the last movement of the piston, but this is not possible as it is necessary to have the middle or cone sides a^5 , a^6 , of the piston chamber extend under the valves O, P, and over those M, N, in such a manner that the piston shall always strike against the said cone sides and thus perfectly force the water out of the piston chamber into the dome without interfering with the valves M N. Now by again moving back the piston, the water in Q' , will be expelled through the valve P, and be discharged as just described, while the valve M, will be held closed by the water confined in the space a^3 and by the piston. The valve O,

of course closed, that N, opened and prevented the return of water into the piston section Q², of said cylinder with this last movement of the piston. Thus the operation
5 continues with the most gratifying results.

What we claim as our invention and desire to secure by Letters Patent, is—

The combination of a solid or valveless oscillating piston, with the peculiar shaped
10 piston chamber and with the upper and lower valves all arranged and operating

substantially as and for the purposes set forth.

The above specification of our improvement in oscillating pumps signed by us this 15
5th day of April 1859.

ALBERT B. KEELEY.
JAMES S. BECK.

Witnesses:

EDWIN A. SCOTT,
HENRY SHEARER.