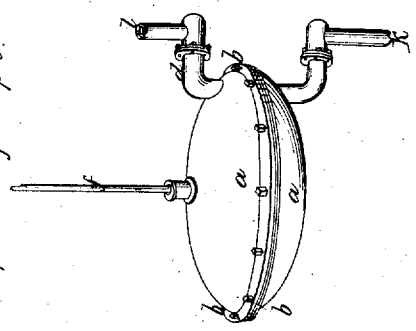
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B. Lapham,

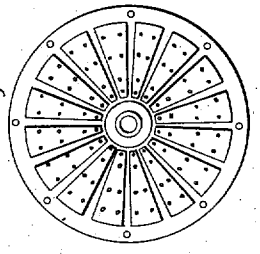
Force Pump,

Patented Nov. 19, 1833.

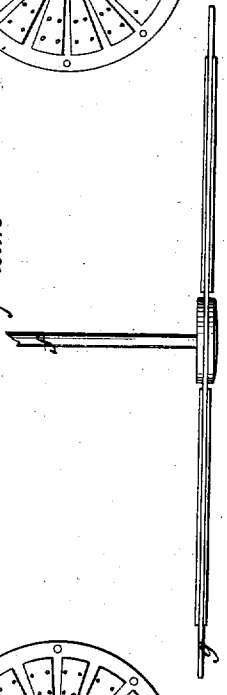
Perspective view of Pump C.



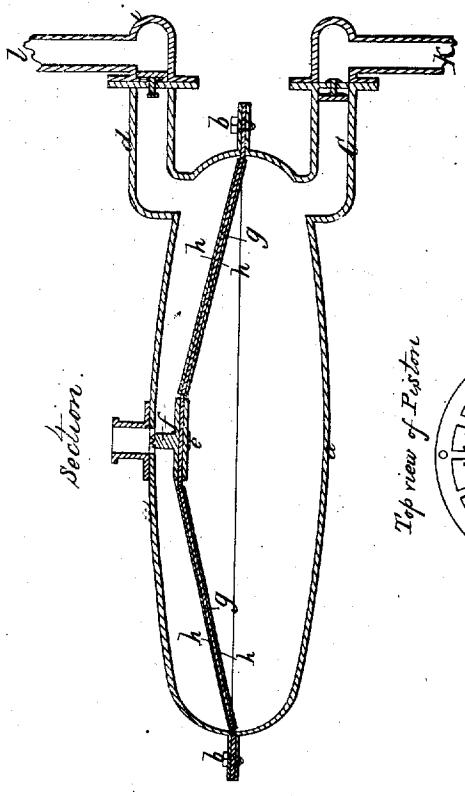
Bottom view of Piston.



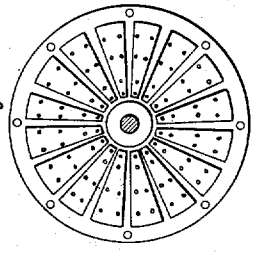
Side view of Piston



Section.



Top view of Piston



Benjamin Lapham of Waterford New York.

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Benjamin Lapham himself of his improvement in the forcing pump

To all persons to whom these presents shall come Benjamin Lapham of Waterford in the County of Saratoga and State of New York sends Greeting Know Ye that I the said Benjamin Lapham have invented constructed made and put to use a new and useful improvement to wit, an improved forcing pump calculated to lessen, or nearly dispense with the friction occasioned by the pistons in the common pumps now in use; and also to prevent entirely or very nearly the loss of water escaping between the piston and the sides of the pump. which improved pump by varying its size and some other slight variations applies with equal strength to all the purposes of raising water from the common house pump for domestic use, to the fire engine or forcing pump for extinguishing fire. The chief component parts of this pump like all other pumps, are the body or chamber which receives and discharges the water and the piston.

The body or chamber of this Pump may be of block tin, of Pewter or of cast iron or any other suitable metal or mixture of metals, and is cast or formed in two halves, each half being nearly in the form of the common basin. Each half having a flange round the edge, through which the two halves are screwed together by screw bolts, so that when the two are screwed together the whole is somewhat in form of a watch. But two opposite edges of this chamber have each a cylindrical projection, each projection extending in length a little beyond the edge of the flange. and on the end of each projection is a circular flange. One half of each projection and flange being attached

to, and making part of the half of the chamber to which it respectfully belongs. The Piston consists of a circular piece of strong and pliable leather inserted between the two flanges, which extending throughout divides the said body or chamber into two equal halves. To the centre of this piece of leather is attached by proper flanges, nut & screw the end of the piston rod, which piston rod passes from said leather at right angles, and through the ends of the chamber, which has a projection in the centre in which it is made tight with proper stuffing, so that the said piston rod can act and work without suffering the water to escape. Said piston or circular piece of leather is supported on each side by ~~two~~ angular pieces, of steel iron, brass or any other suitable metal, which pieces are so placed and of such size and such angles, that while the base of each piece rests against a shoulder on the inside of its respective basin, each of the other two sides describes a radius from the insertion of the piston in the centre to the said shoulder or base, and each shoulder making a chord of about sixty degrees, or any aliquot number, into which the circle of the inside of the basin can be divided; the said plates of metal cover the leather on each side, except that the jambs are so far open as to suffer the leather to bend a sufficient distance between the plates, the jambs on the opposite sides being exactly opposite each other. Thus a double chamber is formed by the piston one half being on each side of it. A kind of dome with a flange round its base is fastened by screws through the flanges to the ends of the above mentioned cylindrical projections, and each dome terminates in a cylindrical neck to which the receiving and discharging tubes of the pump are coupled by connecting screws. In each of these domes are two valves, one on each side of the piston or division of the two chambers, those on the receiving side opening inward, and those on the discharging side opening outward. When the piston or partition of leather above described is moved alternately towards each side by the piston rod. The respective chambers are thereby alternately enlarged and

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combustion, and by means of the valves, each chamber fills from below as it expands and discharges above, as it contracts. As the altitudes or positions in which this pump may be placed, and the modes in which the lever or handle may be applied, are so various, it is unnecessary to specify any one in particular. The plates of metal are screwed on each side of the leather by rivets passing through both plates and through the leather. When the above is constructed on a large scale for extinguishing fire, the chambers will be best made of cast iron or of sheet copper, but to whatever purpose applied, I hereby claim the double chamber and leather partition pistons, supported by plates of metal as above specified, as essential parts of this my invention. In witness that the above is a true specification, I have hereunto set my hand and seal in Walsford aforesaid on the Seventeenth day of June in the year one thousand eight hundred and thirty three.

Witness
Henry Edson
Sam.l Blydenburgh

Benjamin Lapham.

(924 words)

(Patented 19 November 1833)