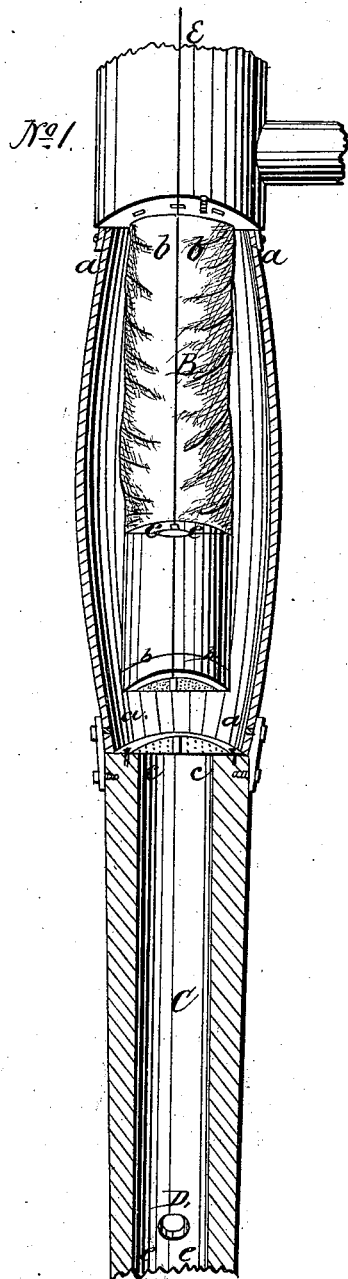


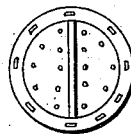
87

# C. V. Card, Pump Lift.

Patented Nov. 26, 1836.



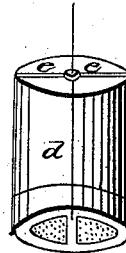
N<sup>o</sup> 2.



N<sup>o</sup> 4.



N<sup>o</sup> 3.



# UNITED STATES PATENT OFFICE.

CHARLES V. CARD, OF NEW BEDFORD, MASSACHUSETTS.

## FRICTIONLESS PUMP.

Specification of Letters Patent No. 87, dated November 26, 1836.

*To all whom it may concern:*

Be it known that I, CHARLES V. CARD, of New Bedford, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Frictionless Pumps, by means of which said pump is rendered more effective than those heretofore constructed, which pump, as improved by me, I denominate the "Ne Plus Ultra Frictionless Pump"; and I do hereby declare that the following is a full and exact description thereof, reference being had to the drawing which accompanies and makes part of this specification.

No. 1 represents a vertical section of the pump and its appendages. A, with the outline *a, a, a, a*, is a cylinder, or other formed chamber within which is contained a bag or hose made of leather, or any other watertight flexible substance; which bag or hose is marked, B, with its outline *b, b, b, b*. The cylinder or chamber A, may be ordinarily from three to four feet in length, with the bag or hose extending its whole length, the upper end of this bag or hose is attached to the chamber by having its edging inclosed between a metallic flange, and collar confined together by screws, or fastened in any other convenient way. The lower end of it is furnished with a ring, and valve seat, sustaining a valve, in any of the usual forms; I however prefer the double or butterfly valve as best adapted to the purpose. The pump or piston rod E, is attached to the middle of this valve seat or to a bow or bail rising from it, which rod is to be worked by a brake, or in any other suitable way. In order to keep the lower end of the bag or hose, in its proper position, and to check any tendency to its coming into contact with the inside of the chamber I apply a metallic tube as shown at *d, d*, in the drawing. This tube extends about one-third of the way from the bottom of the bag, the piston rod passing through it; there is a crossbar *e, e*, at its upper end through which the piston rod passes, said tube is secured by a hoop, and screws on the outside of the bag, or in any other convenient manner.

The part C, with the outline *c, c, c, c*, represents the lower part of the pump tree or tube, having at its upper end where it joins the chamber A, or in any other con-

venient part a valve seat, and valve forming the lower pump box. The chamber A, and the lower part C may be attached to each other at the place of the lower valve seat by means of flanges, and screws, by hoops or otherwise. At *f*, an opening is made through the cap of the cylinder, or chamber A, or that part to which the bag B, is attached, into the space between the chamber A, and the bag B, which is kept closed by a valve or otherwise until by exhausting the air in the pump tree C, and part of the air in the chamber A, through the upper valve, and bag B, the water is brought up so as to cover said valve, when the valve at *f*, will open, the air will be forced out, water admitted to fill the space between the cylinder A, and bag B, which space will be kept full of water by the action of the pump. D, is a hole through the side of the pump tree to admit the water, E, is a piston rod attached to the upper valve.

No. 2, represents the lower box plate detached with the valves closed. No. 3, represents the ring, and valve seat, and valves attached to the lower end of the bag or hose, together with the tube *d, d*, and a crossbar *e, e*, and part of the hose or bag. No. 4 represents a section of a metal or other hoop or ring and the lower box plate, and valves, which hoop or ring is intended to connect the upper chamber or cylinder with a metal or other tube, or leather, or other hose instead of a bag.

I do not claim to be the inventor of the frictionless pump acting by means of a hose or bag; but

What I do claim as my improvements therein is:

1. The attaching the upper end of the said hose or bag to the upper end of the chamber, as herein described, with the provision for working the same in an air-tight or closed chamber, and for filling the said chamber with water in the manner set forth.

2. I also claim the tube in the inside of the bag, furnished with a cross bar, and hoop for keeping the lower end of the bag in a proper position in the way described.

CHARLES V. CARD.

Witnesses:

E. W. TOLMAN,  
OLIVER PRESCOTT.