

W. B. MANWARING.
Siphon Pump.

No. 232,525.

Patented Sept. 21, 1880.

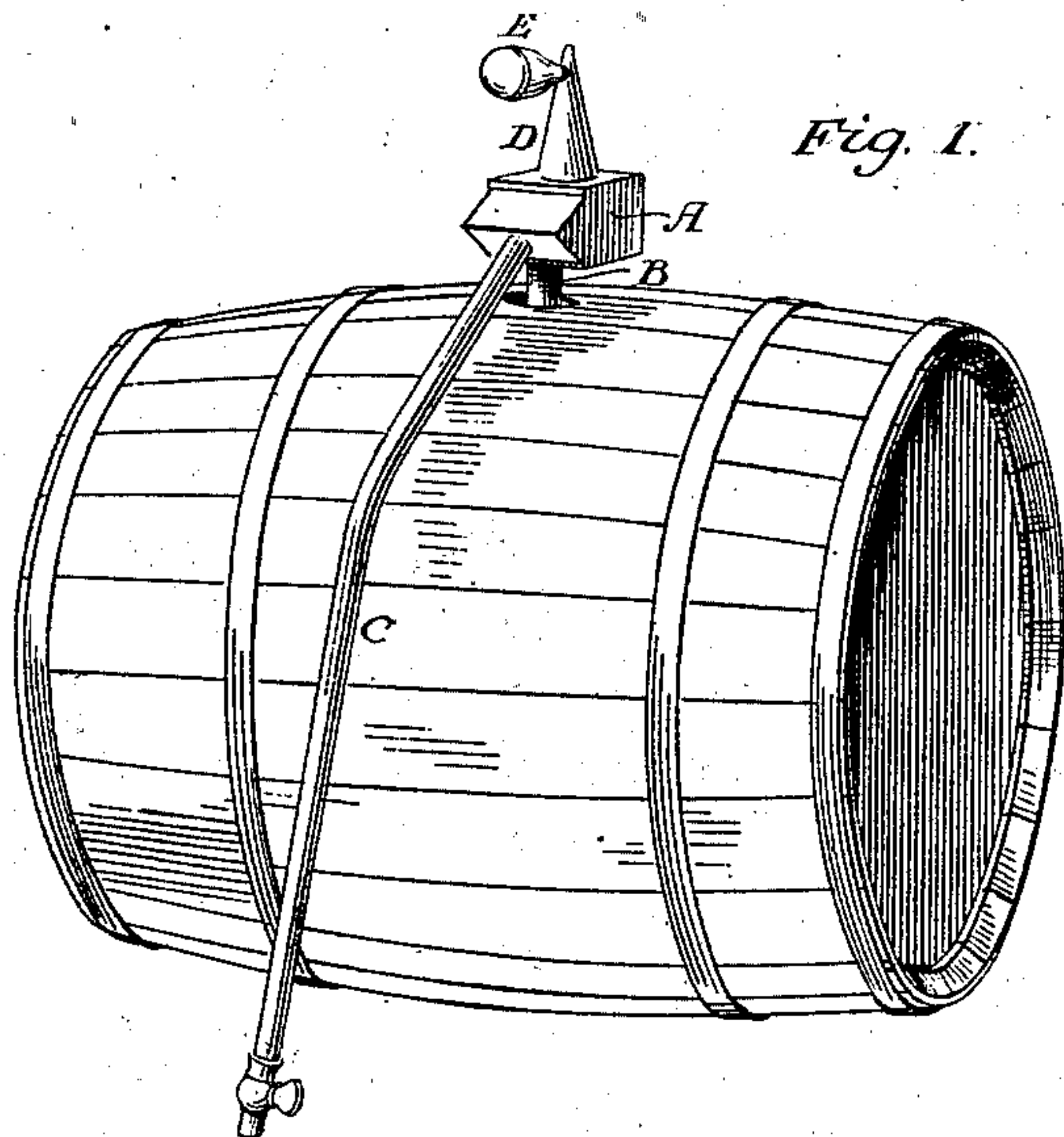


Fig. 1.

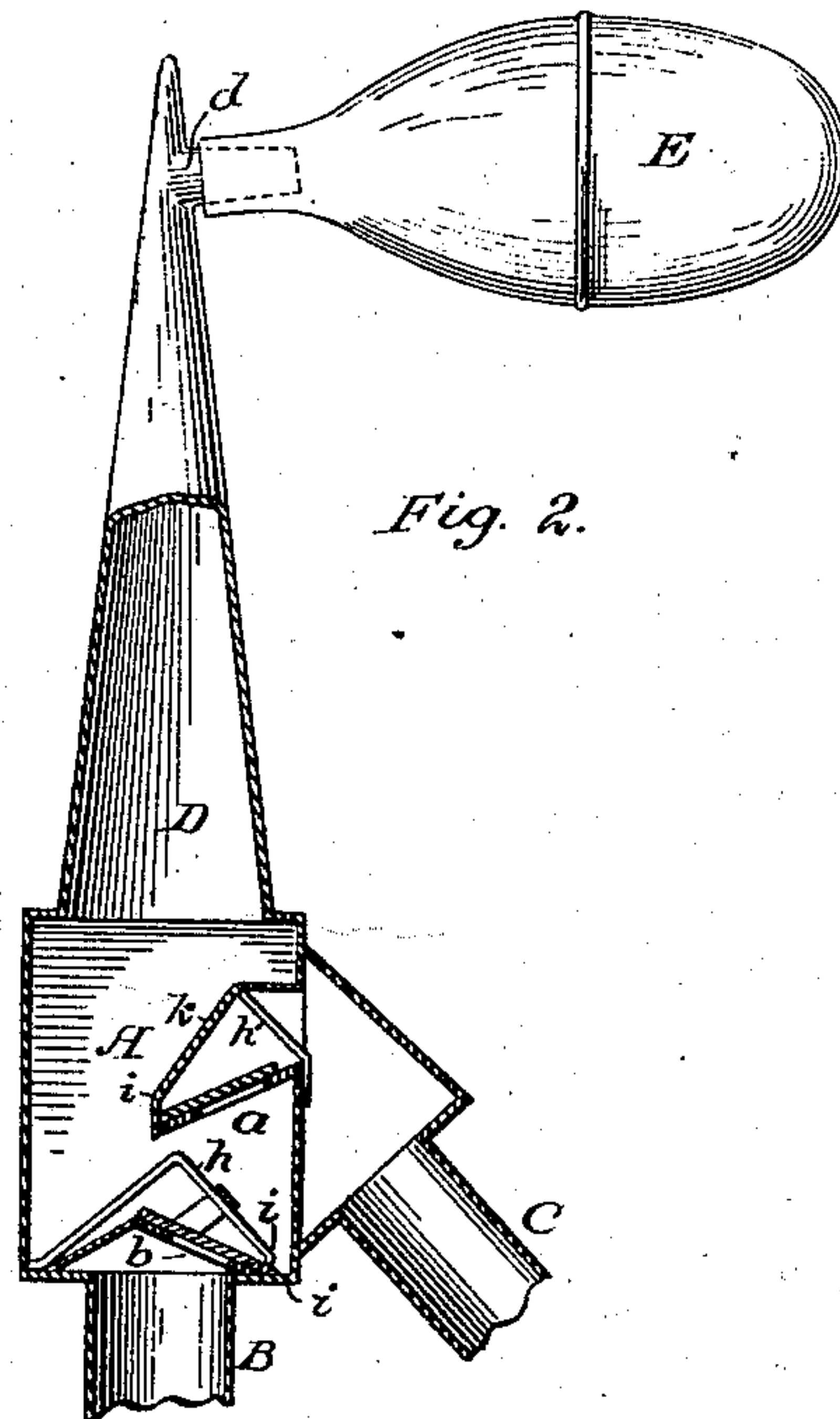


Fig. 2.

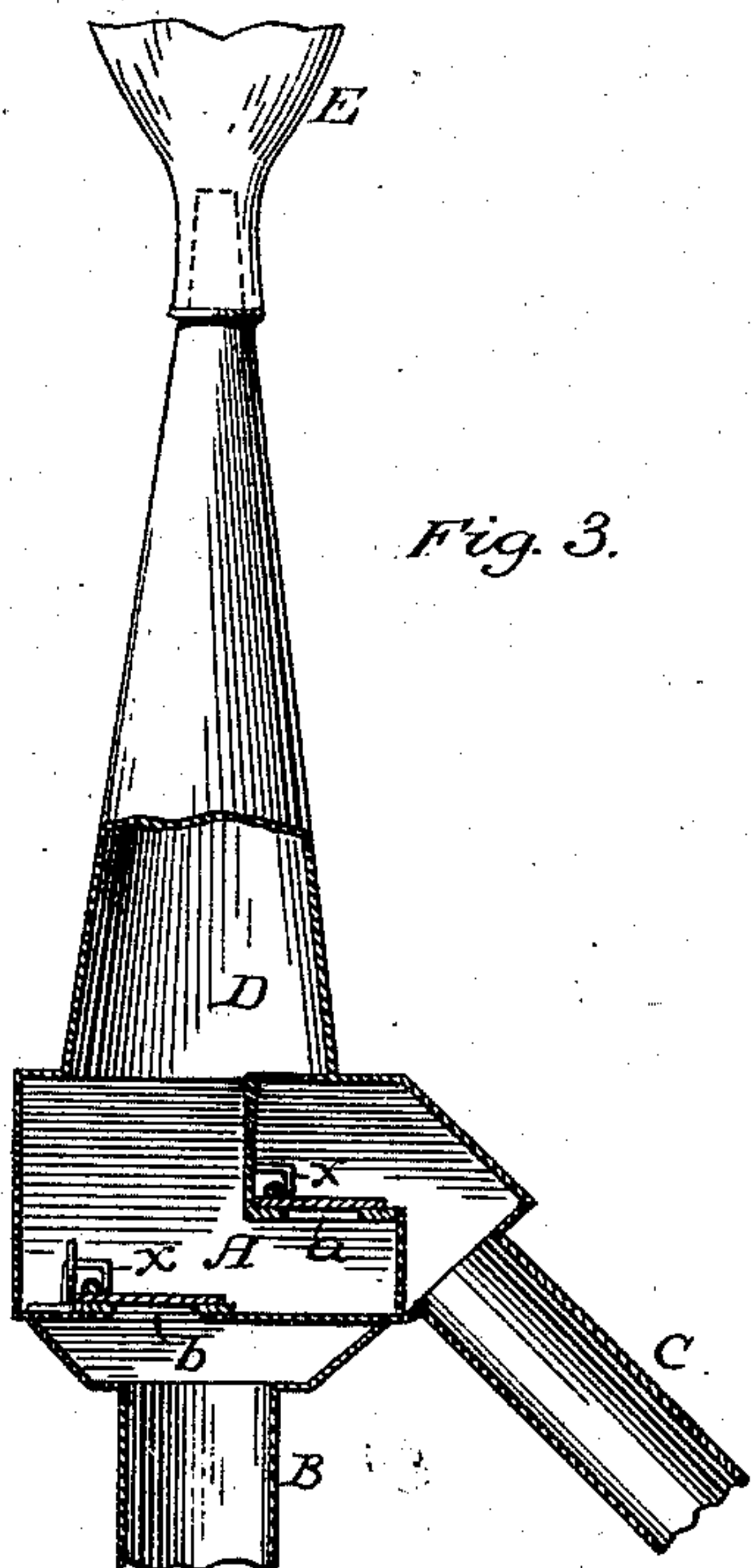


Fig. 3.

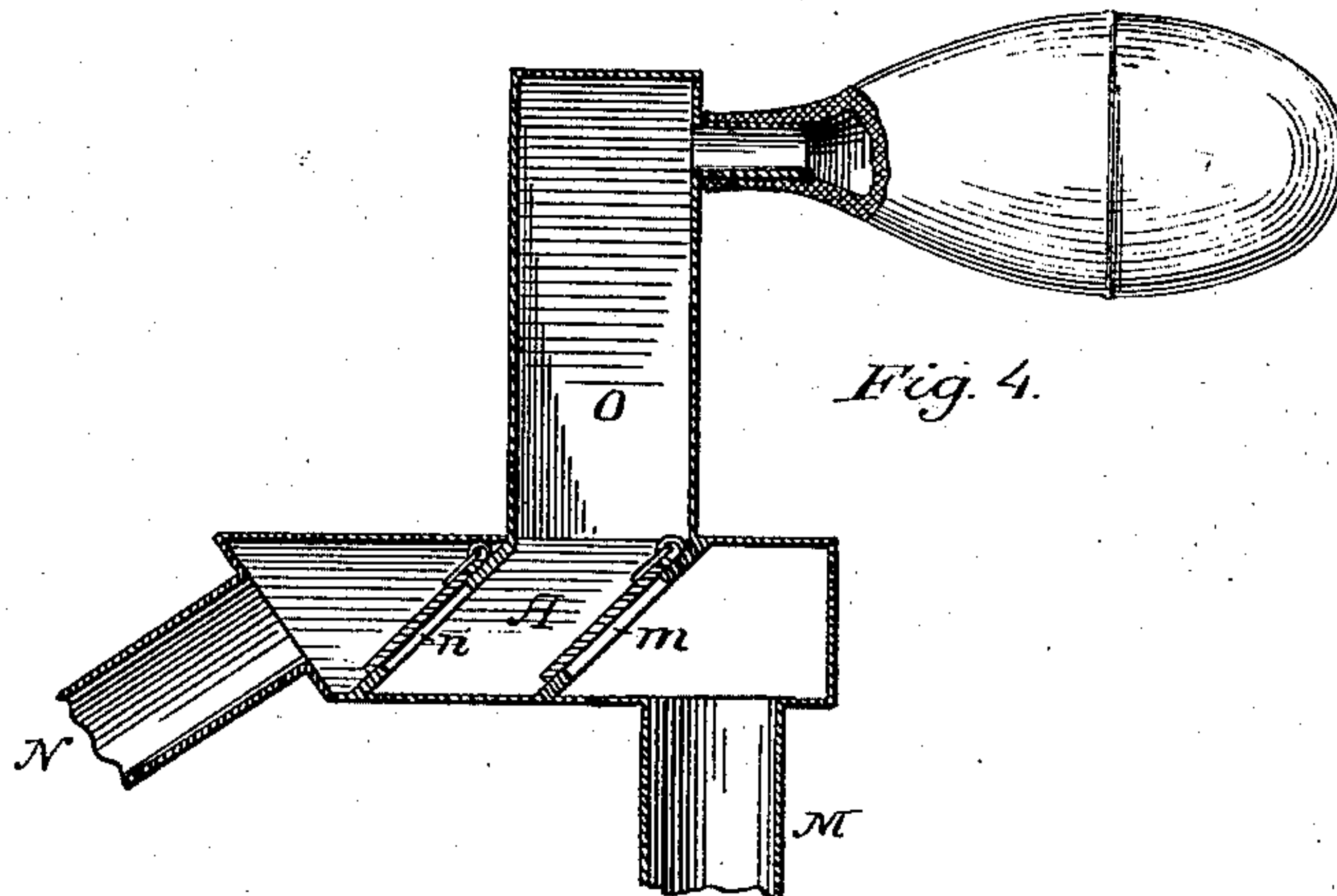


Fig. 4.

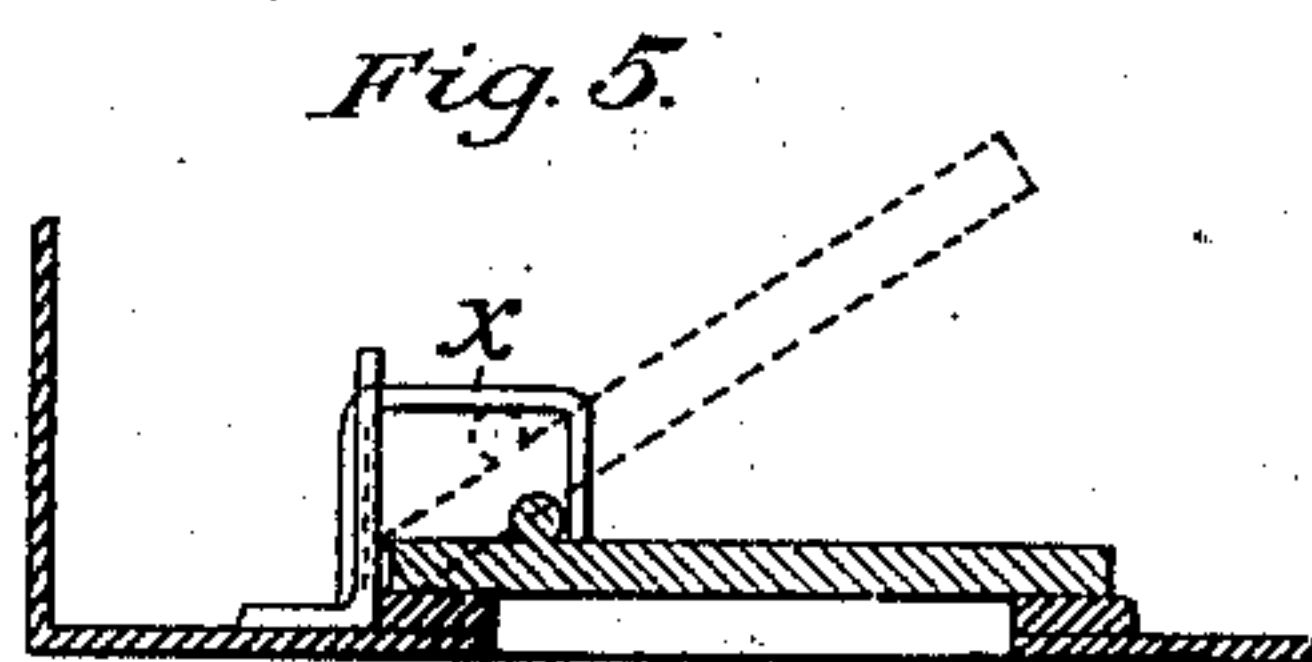


Fig. 5.

Witnesses:

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UNITED STATES PATENT OFFICE.

WOLCOTT B. MANWARING, OF NEW LONDON, CONNECTICUT.

SIPHON-PUMP.

SPECIFICATION forming part of Letters Patent No. 232,525, dated September 21, 1880.

Application filed January 7, 1880.

To all whom it may concern:

Be it known that I, WOLCOTT B. MANWARING, of New London, in the county of New London and State of Connecticut, have
5 invented a new and useful Improvement in Siphon-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to siphon-pumps of
10 that class in which a collapsible bulb or similar exhausting device is used to give the first impulse to the liquid to be moved, the liquid continuing afterward to follow by the action of the siphon, and said air-exhausting device
15 being separated from the flow of the liquid.

The object of the invention is to simplify the details and to render the parts more efficient in operation.

The apparatus is more especially designed
20 for use in connection with kerosene-oils or corrosive liquids, which would injure the air exhausting or pumping device.

The details of construction I have fully set forth hereinafter, and specifically pointed out
25 in the claims.

In the drawings hereunto attached, and forming part of this specification, Figure 1 is a perspective of my improved pump, showing the mode of use. Fig. 2 is a section taken
30 across the valves. Figs. 3 and 4 represent modifications, and Fig. 5 shows a modified form of valve-stop.

In these drawings, A represents a rectangular chamber, in which are located the clack-
35 valves *a b*. Of these two valves, *b* is located at the mouth of the pipe B, through which the liquid enters into the liquid-chamber A, and C represents the exit-pipe opposite the valve *a*, from which the liquid is discharged.
40 The valve *b* opens inwardly toward the chamber, and the valve *a* outwardly from the chamber.

On the top of the box or chamber A is placed a conical tube or air-chamber, D, having at its
45 upper and smaller end a hollow lug, *d*. The conical tube or chamber opens into the chamber A, and upon the lug *d* is placed a hollow collapsible bulb, E, of ordinary construction, and adapted to expand forcibly after collapse.

50 The valves *a b* are located on proper seats, preferably at an inclination to the opening

through which the liquid is drawn. Instead of being hinged the valves may be held in place by straps *h h* or by the partition K. These straps are of a shape as shown particularly in Fig. 2. They are inclined at an angle to the valve-seat at a distance sufficient to allow the valve to open, in order to admit free flow of the liquid. These guards or straps *h* may be made so as not to approach the valve-seat in a direct line, but may be provided with an offset, *i*. The object of this is to allow the valve, when lifted by the liquid, to rise clear from the seat, whereby its action is more free and there is less liability to clog. It will also
55 be observed that the valves are simply plain plates made long and narrow, in order to be acted upon more readily, and that they are located on continuous sides of the chamber. Instead of the guard or strap *h* the upper
60 valve, *a*, is covered by a close hood, *k*, having the shape in cross-section similar to that of the strap *h*, heretofore described.

The modification of the pump shown in Fig. 3 contains also a modified form of the valve.
75 In this modification, instead of the strap by which the valve is permitted to rise bodily from its seat, and at the same time is restrained within certain limits of motion, I have shown
80 a valve pivoted or having bearings placed at a little distance from the rear of the valve, and held in position within certain limits of movement by loops and loose bearings *x x*. These permit the valve to drop freely upon its seat, but also allow the rear to rise bodily from the seat.
85 That part of the valve which extends backward from the pivots bears against a flange, which, together with the loops, regulates the angle of elevation of the valve. In the figure referred to the partition between the two valves
90 forms the flange for the upper valve.

There is, therefore, no egress for the liquid out of the chamber A into the pipe C, except through the valve *a*. As the valves are located the flow of the liquid from B through the valves
95 *b* is direct to the valve *a*, and the liquid, under the impulse of the suction created by the expansion of the rubber bulb, will not rise into the upper part of the air-chamber D, so as to enter the bulb, which is located at the top of
100 the conical or wedge-shaped air-chamber. The rubber bulb therefore is not liable to suffer

from the corrosive effects of the hydrocarbon oil or other liquid which may be pumped.

The modification of my invention shown in Figs. 3 and 4 does not differ essentially from the form heretofore described. The chamber 5 A' in Fig. 4 is elongated, and the valves *m n* are placed on seats in inclined partitions on the same level.

The pipe M is the exhaust, and N is the discharge-pipe; and instead of the conical pipe 10 D a wedge-shaped chamber, O, is placed on the upper side of the box between two valves, and is provided with a collapsible bulb, the same as that heretofore described.

15 The action of the apparatus may be easily understood from the description of its construction. When the bulb is collapsed by force applied outside, the air is expelled through the upper valve, *a*, or the outer, *m*, and through 20 the pipe C or N. When the bulb is permitted to expand, tending to create a vacuum, pressure from the outside closes the valves *a* or *m*, and opens the valves *b* or *n*, forcing through the latter the fluid into which the lower end 25 of the pipe B or M is immersed. The second collapse of the bulb closes the valve *b* or *n*, and opens the valve *a* or *m*, through which latter the liquid finds egress, as the pipe C or N is made longer than pipe B or M. The flow once 30 established becomes continuous until checked, or until it ceases by reason of the exhaustion of the liquid.

I am aware that siphon-pumps adapted to be set in motion by a collapsible bulb acting between two valves are not new. 35

I do not claim in this application an elongated horizontal chamber provided with suction and discharge pipes and inclined valves for facilitating the flow of liquid, for this construction is shown and claimed in another application filed by me for Letters Patent and 40 now pending.

What I claim, therefore, as my invention is—

1. In a siphon-pump, the combination, with 45 the chamber A, of the clack-valves *a* and *b*, the pipes B and C, the pipe D, and the collapsible bulb E, the parts being combined and operating as set forth.

2. The combination, with the long loose 50 valve adapted to rest upon its seat, of the inclined guard or strap, as set forth.

3. The combination, in a siphon-pump, of a conical or pyramidal air-chamber and a collapsible bulb with the pipes and valves, as 55 set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WOLCOTT BARBER MANWARING.

Witnesses:

B. A. COPP,
ANNE BATTLE.