(No Model.)

# A. D. MACKELLAR, Dec'd.

J. MACKELLAR, Administrator.

## SIPHON PUMP.

No. 266,377. Patented Oct. 24, 1882.

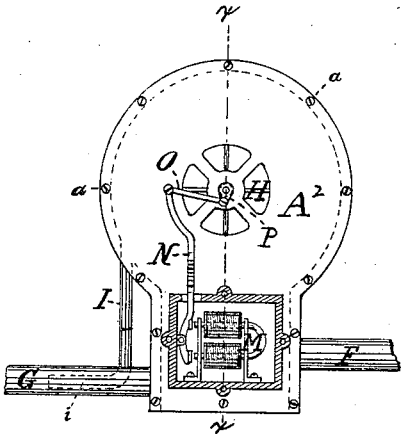


Fig. 1

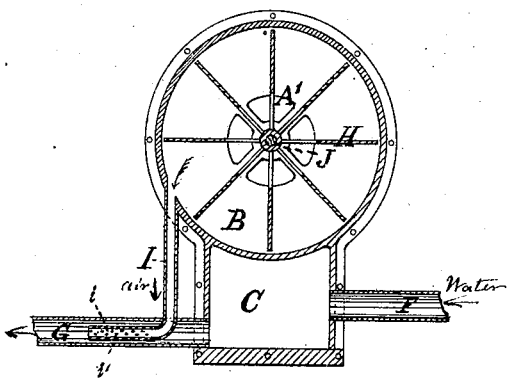


Fig. 2

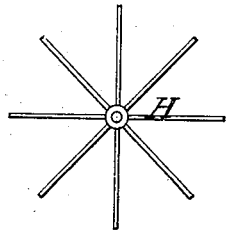


Fig. 3


Fig. 4

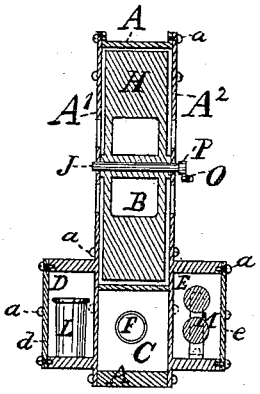


Fig. 5

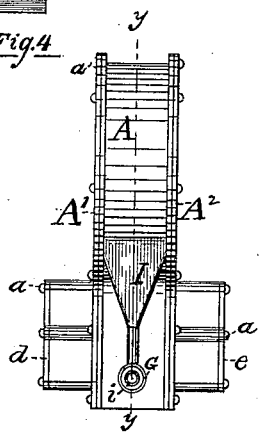


Fig. 6

Witnesses.

J. B. Thurston

M. Tracy

Inventor.

Alex. D. MacKellar

# UNITED STATES PATENT OFFICE.

ALEXANDER D. MACKELLAR, OF BROOKLYN, NEW YORK, (JOHN MACKELLAR, ADMINISTRATOR OF SAID MACKELLAR, DECEASED.)

## SIPHON-PUMP.

SPECIFICATION forming part of Letters Patent No. 266,377, dated October 24, 1882.

Application filed January 25, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER D. MACKELLAR, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Siphon-Pump, of which the following is a specification.

My invention relates to improvements in that class of pumps which may be used for drawing water or other liquids without the aid of a piston, which is necessary to the successful operation of ordinary force-pumps.

The object of my invention is to produce a pump which will be self-acting and may be worked for a given time—(say two days, more or less—)without labor or attention and thereby do good service on canal-boats and all other floating craft, as well as in general use; and these objects are attained in the following manner, referring to the drawings, of which—

Figure 1 is a side view of one of the improved pumps having outer cap or cover removed, exposing to view an electrical motor. Fig. 2 is a central sectional elevation taken on line *y y* of Fig. 6. Figs. 3 and 4 are respectively a detailed side elevation and front view of the fan-wheel or air-blower. Fig. 5 is a cross-section of the entire pump, taken on line *x x* of Fig. 1. Fig. 6 is a front view of the improved pump.

There are four separate chambers or compartments (shown best in Fig. 5)—viz, B, C, D, and E—so formed by means of the cast-iron shell A (shown best in Fig. 5) and heads or covers $A'$ $A^2$ (shown in Figs. 1, 5, and 6) and firmly secured together by the screws *a*. Leading from one end of the shell A is a pipe, F, through which the liquid will pass into the chamber C, and at the other end of the chamber C is a pipe, G, through which the water or other liquid will pass out of the said chamber C, and so on to its destination. The chamber D contains two cups, of any desirable size and shape, and when supplied with the necessary chemicals will compose an electric battery. The chamber E is used to incase an electric motor.

I will not enter into a minute description of the mechanism I employ to transmit power from motor to the air-blower, as it can be done with worm-wheels and gearing, or by lever N, connecting-rod O, and crank P, as shown in Fig. 1; but if desirable to either increase or decrease the speed of air-blower H it will of course become necessary to use a series of gearing.

I do not claim any novelty respecting the air-blower, except in combination with the funnel-shaped air-duct I, leading into pipe G of the siphon, for the purpose of keeping up the continuous flow of liquid through the water-chamber C. The air-duct I may be made of uniform size from the air-chamber B to the outlet or discharge pipe G; but I consider the form illustrated in Fig. 6 preferable, as this form permits the air-duct to receive a greater quantity of air at the top and discharge the same through the smaller aperture at the bottom into the outlet-pipe G with greater force than would an air-duct constructed of uniform size from top to bottom. The lower end of the air-duct I is made smaller than the outlet-pipe G, and after entering said pipe G the discharge end *i* of the air-duct I is so constructed as to take the same course (for about two inches, more or less) as does the liquid which flows around and past it, and by discharging its air with great force into said discharge-pipe G of the siphon a suction is created sufficient to start and keep up the flow of liquid as long as there is a supply for the draft-pipe F. The lateral projection *i* of air-duct I may be perforated upon its sides with small holes *i'*, as shown in Fig. 2, or it may be left whole to its open end.

A pump constructed in this manner can be manufactured at small cost, and its operation is very simple.

The casing A may be constructed with but three compartments or chambers, B, C, and D, by using the chamber D for both the motor and the battery; or, in other words, the motor and battery may be placed together in one compartment, the position on either one side or the other of the casing A not being at all essential to the perfect operation of the pump, the principal idea in this invention being to combine the motor and the battery within the casing A, and thereby form a portable pump not incumbered with wires from a stationary

battery. The course taken by the air in chamber B and air-duct I is indicated by the dart shown in Fig. 2.

Having described my invention, I claim—

1. A siphon-pump having as an auxiliary suction-power an air-blower, H, driven by an electric motor, M, in combination with a funnel-shaped air-duct, I, all concealed and arranged to operate within a portable casing, A, A′, $A^2$, *d*, and *e*, substantially as and with the object specified.

2. In combination with a siphon-pump, the chamber B, air-blower H, shaft J, air-duct I, electric battery L, and electric motor M, arranged to operate as herein described.

3. The air-chamber B and water-chamber C, inclosed with covers A′ $A^2$, having upon their outer sides, respectively, the chambers D and E inclosed with covers *d* and *e*, in combination with inlet-pipe F, outlet-pipe G, air injector or blower H, shaft J, funnel-shaped air-duct I, battery L, and motor M, so arranged as to compose the portable siphon-pump, as herein described and set forth.

4. The arrangement of an electric motor, with its battery, either in separate compartments or both in one compartment, inclosed and in combination with casing A, chambers B and C, and air-blower H in a siphon-pump, as and for the purpose described.

ALEXANDER D. MACKELLAR.

Witnesses:

J. B. THURSTON,

F. M. THURSTON.