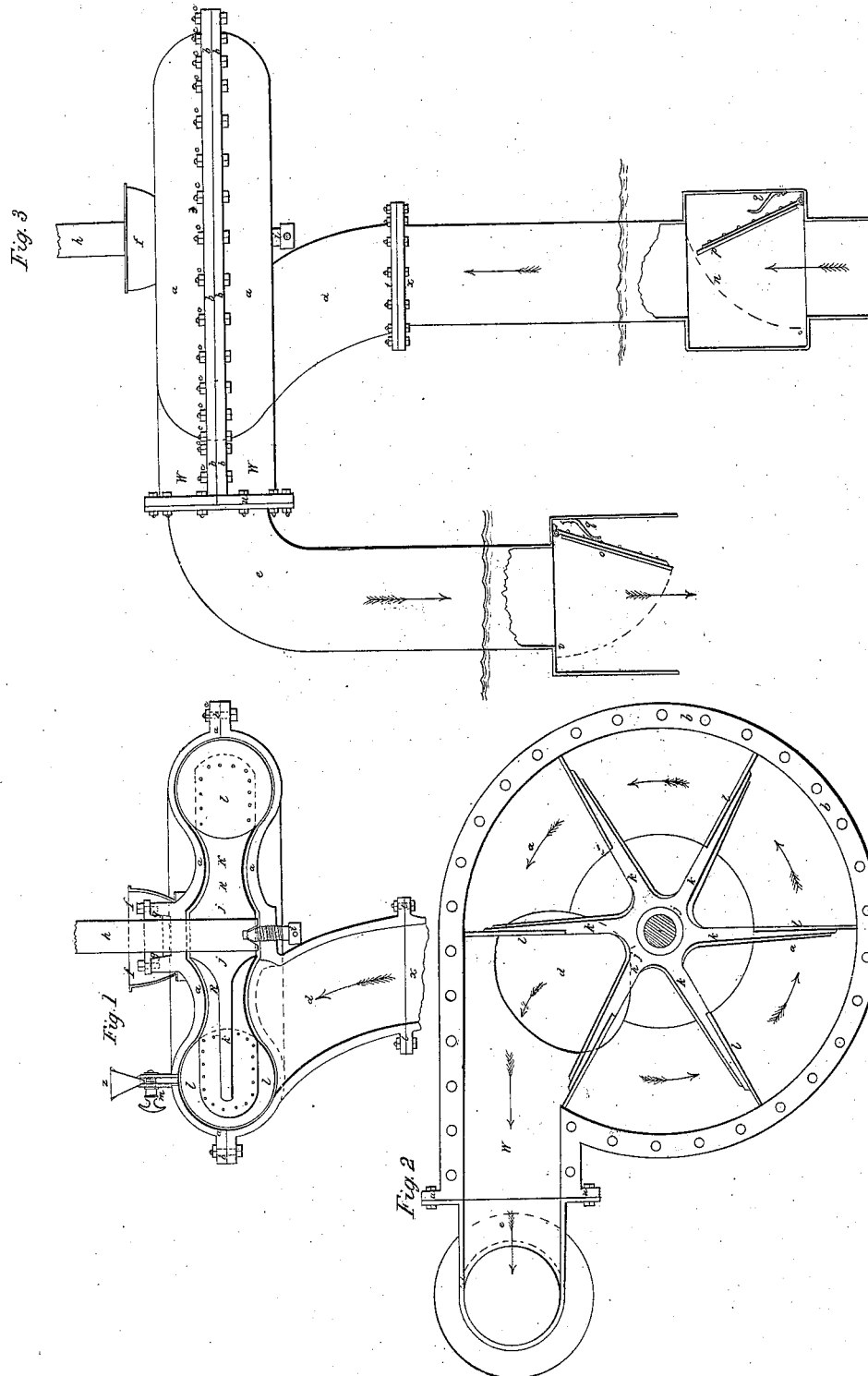


*A. W. & J. H. Von Schmidt,*

*Centrifugal Pump,*

*N<sup>o</sup> 5,203.*

*Patented July 24, 1847.*



# UNITED STATES PATENT OFFICE.

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## CENTRIFUGAL PUMP.

Specification of Letters Patent No. 5,203, dated July 24, 1847.

*To all whom it may concern:*

Be it known that we, ALEXEY W. VON SCHMIDT and JULIUS H. VON SCHMIDT, of Washington city and District of Columbia, have invented a new and useful Machine for Pumping Water, &c., which we call the "Rotary Siphon-Pump," and do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

(Figure 1) is a sectional view; (Fig. 2) a top view (with the lid off) of the inside, showing the position of the pipes &c.; (Fig. 3) represents an external view of said pump, with the valves in the siphon and supply pipes, the same letters indicating the same parts in all the figures.

The nature of our invention consists 1st, in the shape and arrangement of the case, as shown in Fig. 1, letter (a); 2nd, in throwing the water in a tangent line; 3rd, the manner of letting the water into the casing (or wheel) between the center and periphery of said wheel as represented in (Figs. 1 and 2) letter (d); 4th the arrangement of the siphon pipe (e) at the end of the discharge pipe (w Fig. 3); 5th, the arrangement of the valves &c., as represented.

Letter (a) (Figs. 1, 2, and 3) represents the outside casing.

(b) are flanges, by which the upper and lower parts of the casing are to be fastened together by bolts (c) as shown in (Figs. 1 and 3).

(d) (Figs. 1, 2, and 3,) represents the supply pipe; (e) (Figs. 2 and 3) the discharge pipe, through which the water is discharged from wheel (R) as shown in (W) Fig. 2, and by arrows.

(f) (Figs. 1 and 3,) represent a bowl, for the purpose of containing water, placed around the shaft (h) (as represented in Fig. 3) to prevent any leakage of air through the stuffing-box (g) (Fig. 1).

(h) (Figs. 1, 2, and 3,) represents the main shaft of the wheel; (i) Figs. 1, and 3, is a screw, upon which the end of the main shaft (h) turns; (j) (Figs. 1, and 2,) is the hub of wheel (R).

(K) Figs. 1, and 2,) are arms to which the circular buckets (l) are fastened, as represented in (Figs. 1 and 2).

(m) (Fig. 1,) is a stop-cock (or valve) by which the pump is to be primed, and also serves for the discharge of air out of the

wheel, in case any accumulates therein; (n) (Fig. 3) is a chamber for the valve (p); (o) being the discharge pipe valve, and (p) the supply pipe valve; (q) (Fig. 3) springs for the purpose of closing the valves (o) and (p) when not in operation.

(t) (Figs. 1 and 3) are flanges to connect the suction pipe (d) with its lower part (w) (as represented in the annexed drawings).

(u) (Figs. 2 and 3) are flanges, connecting the discharge or tangent pipe (w) to the pipe (e) which continues downward (when the pump is used for pumping or drawing water alone, but upward, when used for the double purpose of drawing and forcing the water to any given height. These flanges or joints may be put together in any of the known ways. The tangent pipe (w) is to be cast with the cases in the manner represented in (w) (Fig. 2), another pipe arranged in a similar manner may be placed opposite to the tangent pipe (w), running in an opposite direction, by which arrangements the friction of the main shaft is equalized and a double quantity of water discharged. In very large pumps two, three, or more pipes may be arranged in a similar manner to the one represented in the annexed drawing.

### *The Operation of the Pump.*

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

We construct the case (a) of the pump in the form represented in the annexed drawings, being larger at the periphery than any part near the center. The buckets (l, l, l, &c), which are six in number, more or less, and working close to the form of the inside casing (a) are strongly attached to the shaft (h), which shaft (h) turns upon a screw (i) in bottom of case (a) for the purpose of regulating the height of the buckets (l, l, l, &c.) in the case (a). At the top, the shaft (h) works in a stuffing-box (g) which stuffing box is surrounded by a bowl (f) containing water, in order to render the said stuffing box perfectly air tight.

The aperture of the suction pipe (d) through which the water is taken into the wheel case (a)—we place between the shaft (h) and the periphery; and near the tangential pipe (w). This position of the aforesaid aperture, (and as shown in the annexed drawings), we consider of the

greatest utility—being near the tangential pipe (*w*); the water, when put in motion by the buckets (*l*, *l*, *l*, &c.) creates a strong suction through the suction pipe (*d*), and is expelled, by the centrifugal force combined with the direct action of the buckets (*l*, *l*, *l*, &c.) out of the tangential pipe (*w*) in the shortest possible line—by which device this pump is rendered more efficient than any known to be in use. We connect a siphon pipe (*e*) to the tangential pipe (*w*) and extend it downward any required distance, by which arrangement the water in descending through the pipe (*e*) counterbalances the rising column of water in the suction pipe (*d*) and only leaves the weight of water to be raised, which is equal to the difference between the level of the water to be raised, and the water level where the siphon pipe (*e*) discharges its water, (as would be the case in a vessel &c.) for which purpose this pump is better adapted than any other now in use.

This pump can work, either vertically or horizontally, and by changing the direction of the siphon pipe (*e*) and placing its end in any direction above the horizontal, renders this pump a suction and forcing pump.

The valve (*p*) in chamber (*n*) (Fig. 3) is placed near the bottom of suction pipe (*d*) for the purpose of preventing the return of any water through the siphon pipe (*e*) and also for keeping the priming.

In using this pump in combination with the siphon pipe (*e*) as for vessels &c.—the siphon pipe (*e*) can be made with a bend (where the connection takes place with the

tangential pipe (*w*) extending sufficiently upward (to prevent the pump case (*a*) from spilling its priming through the siphon pipe (*e*), in case the lower end of said pipe should be exposed to air when not in operation)—and then downward as shown in the drawings.

The pump is primed in the usual manner, or by a funnel (*z*) and stop cock (*m*) (Fig. 1,) and continues its operation of throwing or forcing water by the revolution of the bucket-wheel (*R*).

Having thus fully described the operation and nature of our invention, we do not claim as our invention a rotary pump as they are now commonly constructed with the wheel working out of center in the case, and letting the water into the case at the center, and discharging the water at right angles to the periphery; but

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

Taking the water in between the center of the wheel and the periphery near to the tangential discharge pipe, as herein described and represented in the drawings in Figs. 1 and 2 letter (*d*), and this we claim in combination with the descending discharge pipe in the manner and for the purpose as herein mentioned and illustrated by the annexed drawings.

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JULIUS H. VON SCHMIDT.

Witnesses:

T. C. DONN,  
JOHN W. DEXTER.