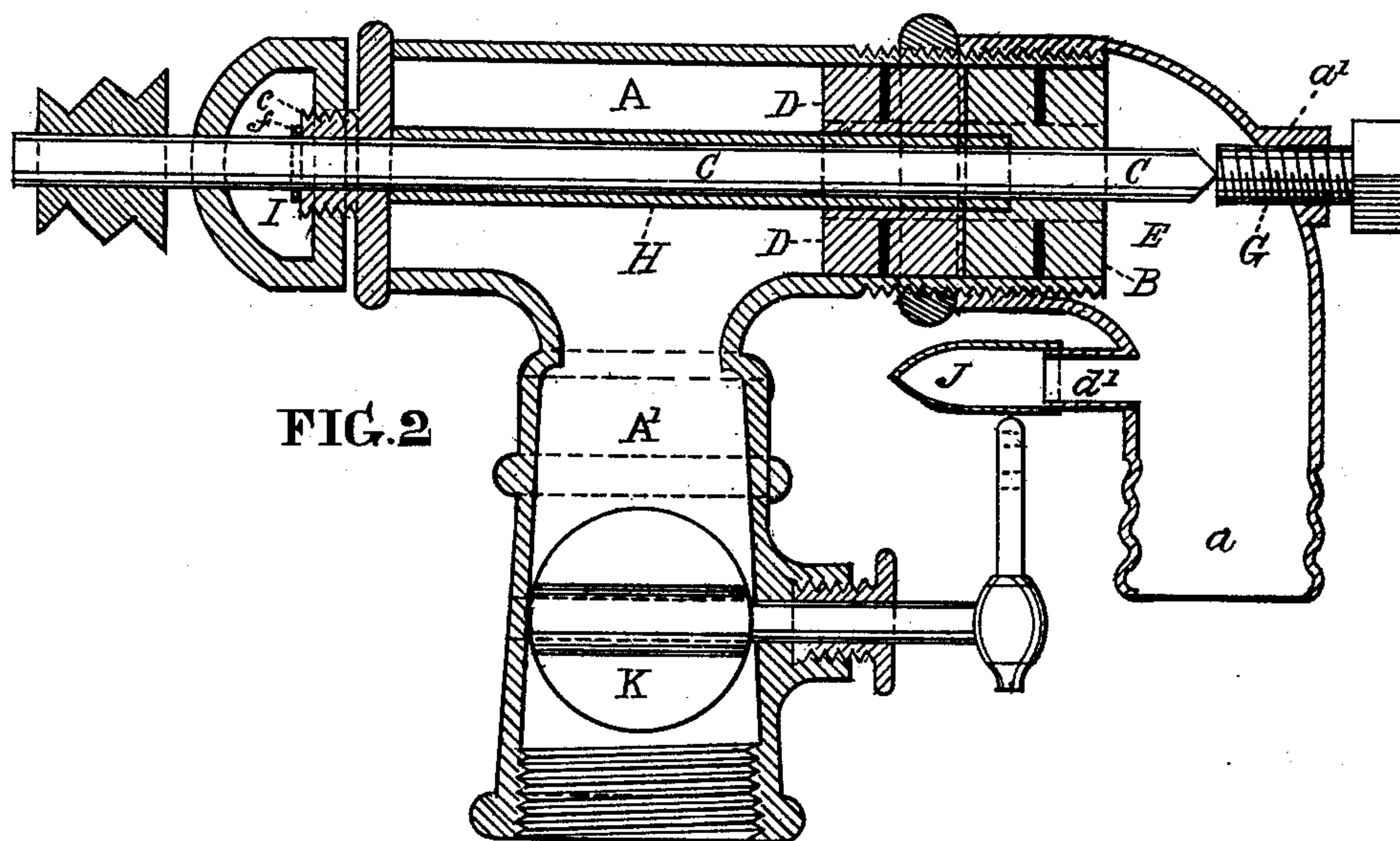
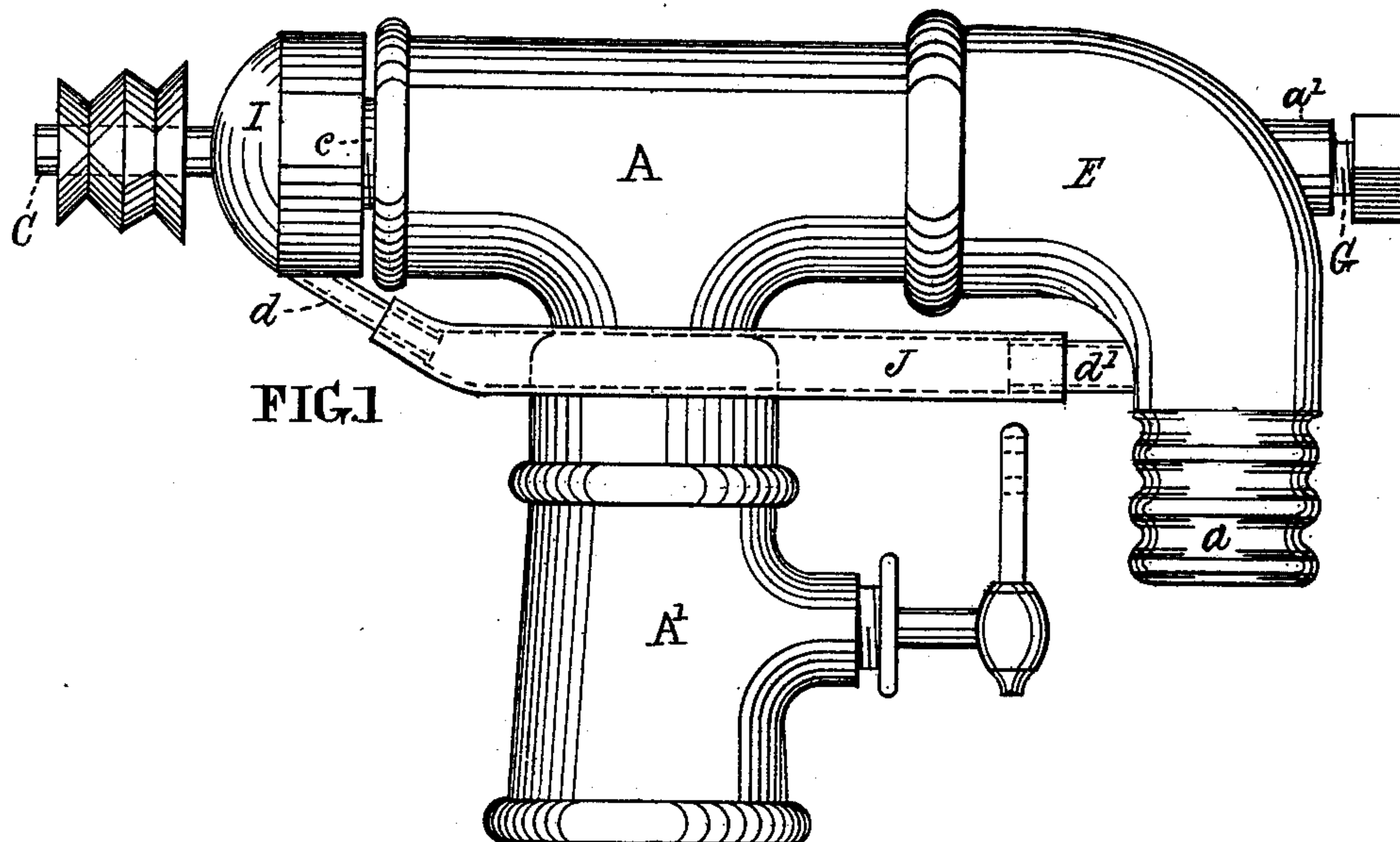


J. HAWORTH.
Water-Motor for Sewing-Machines.

No. 219,941.

Patented Sept. 23, 1879.



Witnesses

Thomas J. Bewley.

Chas. N. Volland.

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UNITED STATES PATENT OFFICE.

JOHN HAWORTH, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN WATER-MOTORS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **219,941**, dated September 23, 1879; application filed July 7, 1879.

To all whom it may concern:

Be it known that I, JOHN HAWORTH, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Water-Motors for Sewing-Machines, of which the following is a specification.

The nature of my invention in the first place consists in dispensing with the stuffing-box for the water-wheel shaft by means of a removable and adjustable leakage-chamber at the end of the barrel or case, which ordinarily requires a stuffing-box, and automatically leading the water therefrom that would ordinarily leak out around the journal of the shaft, the water as it enters the chamber flowing onto a washer on the shaft, and by centrifugal force being carried into the body of the chamber and passed off by means of a tube into a waste-chamber at the wheel end of the case, from whence it is discharged from the motor.

In the accompanying drawings, which make a part of this specification, Figure 1 is a side view of my improved motor. Fig. 2 is a like view, partly in section, to show the interior of the motor.

Like letters of reference in all the figures indicate the same parts.

A represents a cylindrical case for the water-wheel and chute, and A' the induction-pipe, with which the feed-pipe is connected. B is the water-wheel on the shaft C. D is the chute, all arranged as in my patent dated April 17, 1877.

In connection with the wheel end of the case A is the waste-chamber E, which has a screw-thread that connects with a screw-thread on the end of the case, as seen in Fig. 2, to admit of being quickly attached or detached, and also to admit of its being adjusted circumferentially in accommodation to any required position of the case, so as to bring the discharge-nozzle *a* into proper position for its connection with the discharge-pipe.

G is a set-screw, which passes through the boss *a'* of the waste-chamber E, for the adjustment of the wheel B to the chute D.

The screw is arranged in this manner for the purpose of having its head outside of the waste-chamber, to avoid the necessity of removing the said chamber from the case for the adjustment of the wheel.

H is a tube for the passage of waste-water from between the wheel and the chute to the other end of the case. As the tube is embraced in my patent above referred to a particular description is omitted in this place.

I is a leakage-chamber, which is screwed onto the boss *c* of the solid head of the case, to receive the leakage that passes through the tube, to be automatically discharged from the chamber to prevent its leaking out around the journal of the shaft C, and thus to supersede the necessity of using a stuffing-box.

The leakage-chamber I and waste-chamber E are provided with small branches *d* and *d'*, respectively, with which the ends of the rubber pipe J are connected to form a passage of the leakage-water from the chamber I to the chamber E.

On the end of the shaft C in the chamber I, and just outside of the boss *c* on the end of the case A, there is a washer, *f*, onto which the leakage from the tube H flows and is thrown by centrifugal force into the body of the chamber, and passes off from thence through the pipe J into the waste-chamber E, and from thence out through the nozzle *d*, with the waste-water from the wheel B, into the discharge-pipe, the waste-water being automatically drawn through the pipe J by a vacuum being formed by the flow of water from the waste-chamber.

If desired, instead of passing the water into the waste-chamber, as described, the pipe J may be made of any desirable length, and conduct it away from the motor.

K is a valve in the branch A' for regulating the feed of water to the wheel B.

I claim as my invention—

1. The removable and adjustable leakage-chamber I, in combination with the case A, substantially as and for the purpose set forth.

2. The combination of the washer *f* with the shaft C and leakage-chamber I, substantially as and for the purpose set forth.

3. The combination of the leakage-chamber I, waste-chamber E, and discharge-tube J, substantially as and for the purpose set forth.

JOHN HAWORTH.

Witnesses:

STEPHEN USTICK,
THOMAS J. BEWLEY.