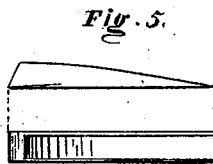
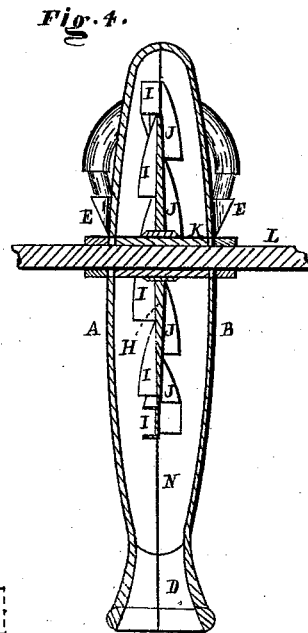
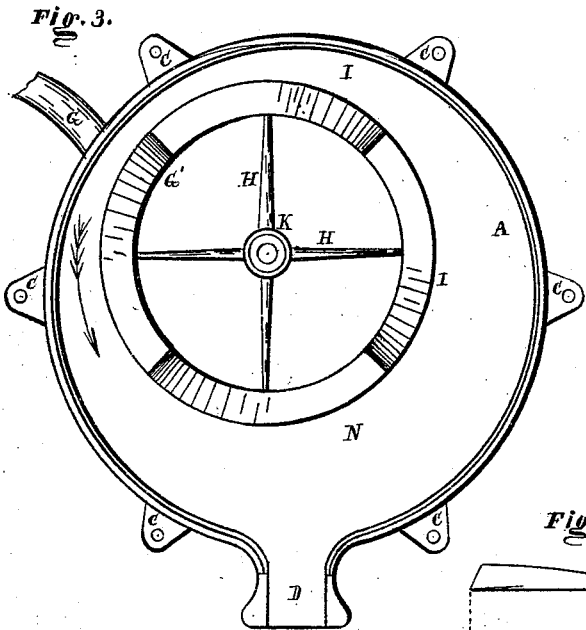
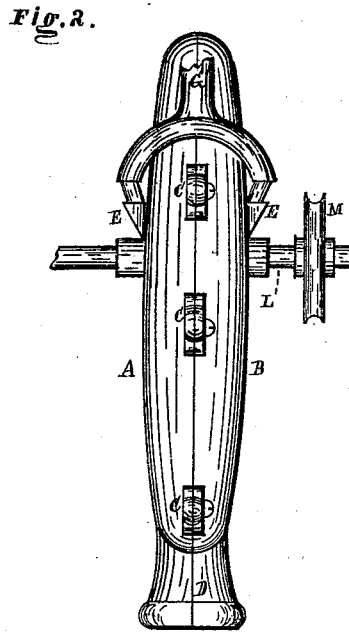
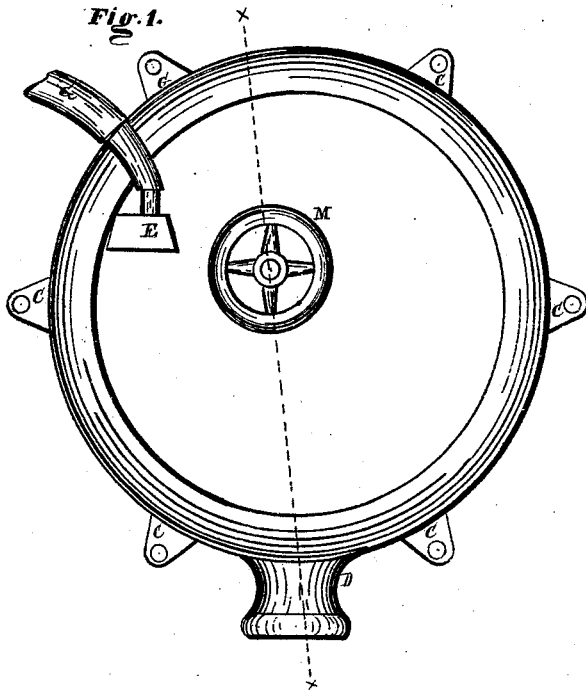


J. B. BUTTON.

MOTOR FOR SEWING-MACHINES.

No. 184,458.

Patented Nov. 21, 1876.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN B. BUTTON, OF CLEVELAND, OHIO.

IMPROVEMENT IN MOTORS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **184,458**, dated November 21, 1876; application filed July 28, 1876.

To all whom it may concern:

Be it known that I, JOHN B. BUTTON, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Motors for Sewing-Machines, of which the following is a description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of the motor. Fig. 2 is an edge view. Fig. 3 is a side view of the interior, a section being removed in order that it may be seen. Fig. 4 is a transverse section in direction of the line *x w*. Fig. 5 is a detached section of bucket.

Like letters of reference refer to like parts in the several views.

This invention relates to a motor for sewing-machines, and which consists of a pair of concavo-convex shells, wherein is arranged a wheel. Said wheel has an arrangement of buckets on each side of its periphery, and having an alternating relation in respect to each other. Water is applied to the wheel on each side near the top thereof, and escapes from the lower edge of the case, all of which is constructed and operated substantially as follows:

In the drawings, A B represent the shells referred to. Said shells are concave on the inner side and convex on the outer, as will be seen in Fig. 4. The two shells or sections are secured to each other by ears C, in which bolts are inserted for screwing the sections together, thereby forming a case for the wheel. D is the outlet of the case, and E E the inlets, one on each side, as will be seen in Fig. 2. The two inlets are connected to each other by a bifurcated tube, G, Fig. 2. The wheel G' consists of the arms H and a rim composed of a series of buckets, I, Fig. 3, on one side, and a series of buckets, J, on the other. The arrangement of the buckets is such that they alternate in relation to each other, as will be seen in Fig. 4. Said buckets may be more or less in number and of the shape shown, or a modification thereof. A detached view of a bucket is shown in Fig. 5. K is the hub of the wheel, and L the shaft, which has its bearings in the sides of the case. To one end of the shaft is secured a pulley, M, from which motion is taken. It will be observed that the wheel is not hung in

the center of the case, but eccentric therewith, as shown in Fig. 3, in which it will be seen that the axial line of the wheel is above and a little aside of the center of the case, thereby leaving a larger space, N, between the bottom of the wheel and the side of the case than there is above the wheel, and which larger space is directly over the outlet D.

The operation of the above-described motor is as follows: The tube G is attached to a water-pipe, and the water thereby conducted into the case through the bifurcations of the tube. The jets or streams of water thus introduced into the case impinge upon the buckets of the wheel, thereby driving it around in the direction of the arrow more or less rapidly, as the force of the impinging stream may be. The large space in the case below the wheel, permits an immediate escape of the water therefrom, thus avoiding an incumbrance of the wheel with waste-water, which escapes directly from the case through the opening D.

In constructing the wheel with a double series of buckets, one series on each side, the wheel thereby is kept more equally balanced, and will run steadier, by the two jets of water acting simultaneously on both sides of the wheel, than a wheel having but one series of buckets on one side only. In using but one stream, and that on the side of the wheel, the journals of the shaft are subjected to a side pressure, which causes them to wear unevenly and more rapidly than when a stream is applied on both sides, which, as above said, equalizes the pressure on the wheel and the journals of the shaft. The position of the inlets in respect to the wheel causes the water to act thereon by its gravity, conjointly with the percussive energy of the stream. To prevent any back-action of the water on the wheel, a diaphragm or breakwater may be placed in the case near the outlet D.

It is found in practice that more power is obtained from a given volume of water having a certain percussive force, when the volume is divided into two streams, than when the same volume of water impinges on the wheel in a single stream. The single large stream is not so readily broken up after its impingement on the wheel as two smaller

streams are; hence the large stream becomes more of an obstruction by its reaction on the wheel than two small ones of the same volume and percussive force, which are easily and readily broken up by impinging on the wheel, and escape immediately therefrom.

What I claim as my invention, and desire to secure by Letters Patent, is—

The wheel G', having on both sides of its

rim or periphery a series of buckets, I and J, in combination with the case, consisting of sections A B, having inlets E E, bifurcated tube G, and outlet D, substantially as described, and for the purpose set forth.

JOHN B. BUTTON.

Witnesses:

J. H. BURRIDGE,

C. J. BUTTON.