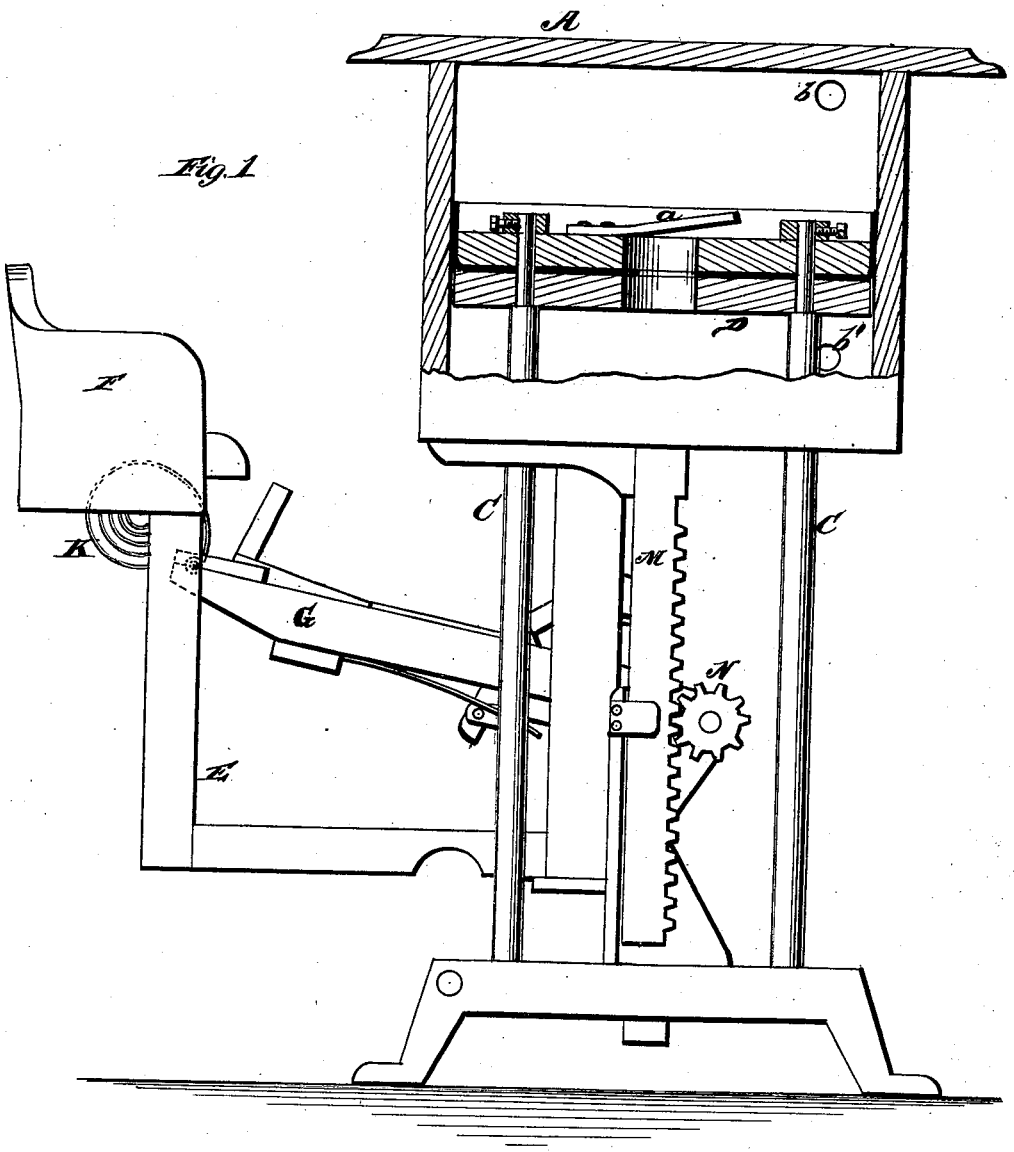
2 Sheets—Sheet 1.

W. B. CASS.
Hydraulic Motor.

No. 207,945. Patented Sept. 10, 1878.

Fig. 1



WITNESSES
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Eugene L. Johnson

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Fig. 2.

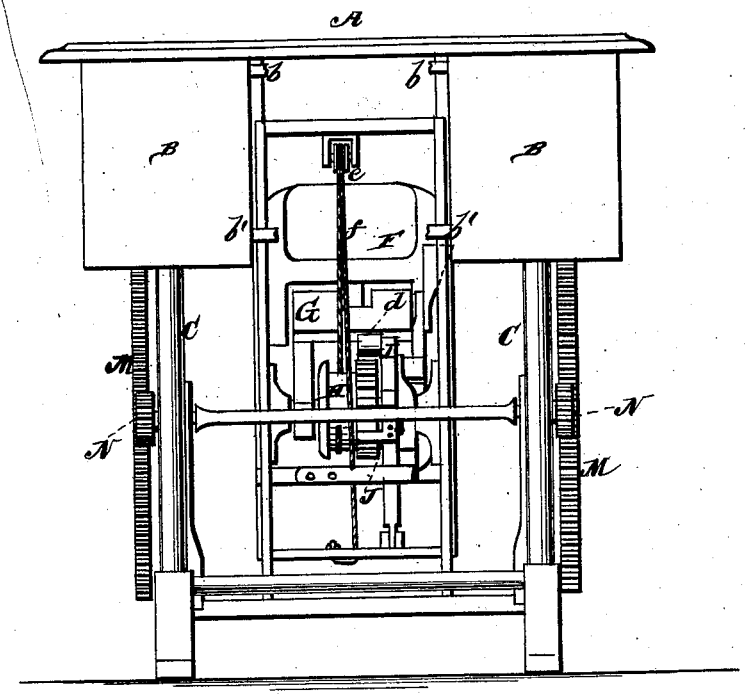
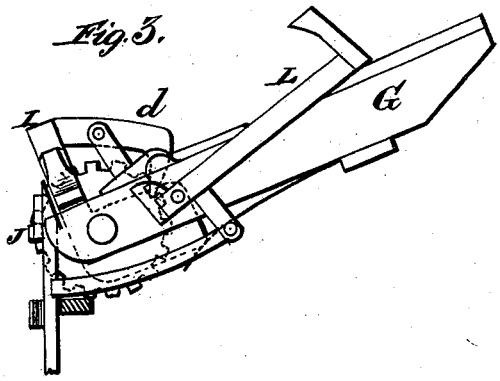


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM BALDWIN CASS, OF BLANCHESTER, OHIO.

IMPROVEMENT IN HYDRAULIC MOTORS.

Specification forming part of Letters Patent No. **207,945**, dated September 10, 1878; application filed August 24, 1878.

To all whom it may concern:

Be it known that I, WILLIAM B. CASS, of Blanchester, in the county of Clinton and State of Ohio, have invented a new and valuable Improvement in Sewing-Machine Motors; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side, part section of my sewing-machine motor. Fig. 2 is a rear view of the same, and Fig. 3 is a detail.

The nature of my invention consists in the construction and arrangement of a motor for running sewing-machines and other light machinery, as will be hereinafter more fully set forth.

The annexed drawings, to which reference is made, fully illustrate my invention.

A represents the sewing-machine stand or table, at each end of which is a box or chamber, B. These chambers are designed to be filled with water or other liquid. There are two rods or legs, C C, passing up through holes in the bottom of each chamber B, and these rods are packed in the usual manner for packing piston-rods.

To the upper ends of these rods, within the chamber, is secured a plunger or follower, D, having a valve, *a*, in the center, which valve is designed to close at the least pressure on the top of the follower and become perfectly tight, while the edges of the follower are packed so as to become tight from the same pressure. Near the end, on the inner side, of each chamber are two pipes, *b* and *b'*. The top pipe, *b*, from each chamber is designed as a supply-pipe to a water-engine, which is to be fastened to and between the chambers. The lower pipes, *b'*, are to carry the water back to the chambers after it has performed its work in the engine. The fly-wheel of the engine is to connect with and drive the machine by a belt, in the usual way.

In front of the apparatus is the seat F, connected by a suitable frame-work, E, with the chambers E E. The operator must be seated on F while operating the machine. Directly under the front of the seat is the main lever G, which is designed to raise both chambers, machine, and operator at the same time, by forcing it down with the feet.

At the end of the main lever G is a notched pulley, H, and between the main lever and pulley is a dog, I, with a latch, *d*, attached.

When the main lever G is forced down, the latch *d* drops down in a notch on the pulley H and turns the pulley downward, which has the effect of raising the apparatus by winding the cord or chain *f* around the base of the pulley. The cord *f* passes around a small pulley, *e*, at the top, as shown.

A catch, J, at the rear of the pulley H, then catches in a notch thereon, and holds it from turning backward as soon as the main lever is at its lowest point.

On the under side of the seat F is a coiled spring, K, which raises the main lever G as soon as the weight or pressure is removed from the same.

On one side of the lever G is a smaller lever, L, which is connected with the dog I and catch J, so that by pressing the foot on said lever L both the catches *d* and J are released from the pulley H, and the weight of both the operator and the machine is then thrown on the liquid in the chambers B B, which forces the liquid out at the pipes *b* into the engine, thereby putting the same in motion, and thus running the machine. While the liquid is passing out of the chambers through the pipes *b* into the engine, the chambers B are moving down over the followers D, and said followers press the liquid through the pipes. After the liquid has passed through the engine and performed its work it is to be received in a sort of reservoir, and returned through the pipes *b'* back into the chambers below the followers.

When the operator desires to stop the machine the lever G must be forced down. This raises the entire apparatus, as above described, and as the chambers commence to rise the pressure is removed from the top of both followers, and their valves open and admit the liquid from below to the upper sides. The engine, of course, stops as soon as the pressure is removed from the liquid. The stopping and starting of the apparatus keeps up a perfect circulation, and the weight of the operator is the motive power.

Under each chamber B is a rack-bar, M, working in a pinion, N, and both pinions are secured upon the same shaft O, whereby both chambers are caused to descend simultaneously, even in case the liquid should pass from one faster than from the other, or if one follower should leak.

The size of the chambers B B should be such as to cause the machine to run the average length of time between stops in ordinary family sewing.

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

1. In a motor for sewing-machines, one or more water-chambers attached to the machine-table and working over stationary plungers, in combination with the operator's seat and an engine, whereby the weight of the operator is caused to force the water to the engine to run the machine, as set forth.

2. The combination of the table A, water-chambers B B, with pipes *b b'*, rods *c c*, with followers D D, having valves *a a*, and seat F, substantially as and for the purpose set forth.

3. The combination, with the table chambers, followers, and seat, of the main lever G, pulley H, with cord or chain *f*, and the catches *d* J, substantially as and for the purpose specified.

4. The lever L, in combination with the dog I and catches *d* J, for the purpose herein set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WILLIAM BALDWIN CASS.

Witnesses:
E. D. SMITH,
E. M. MULFORD.