E. L. HOWARD.

MECHANISM FOR OPERATING SEWING-MACHINES.

No. 176,636. Patented April 25, 1876.

Fig. 2.

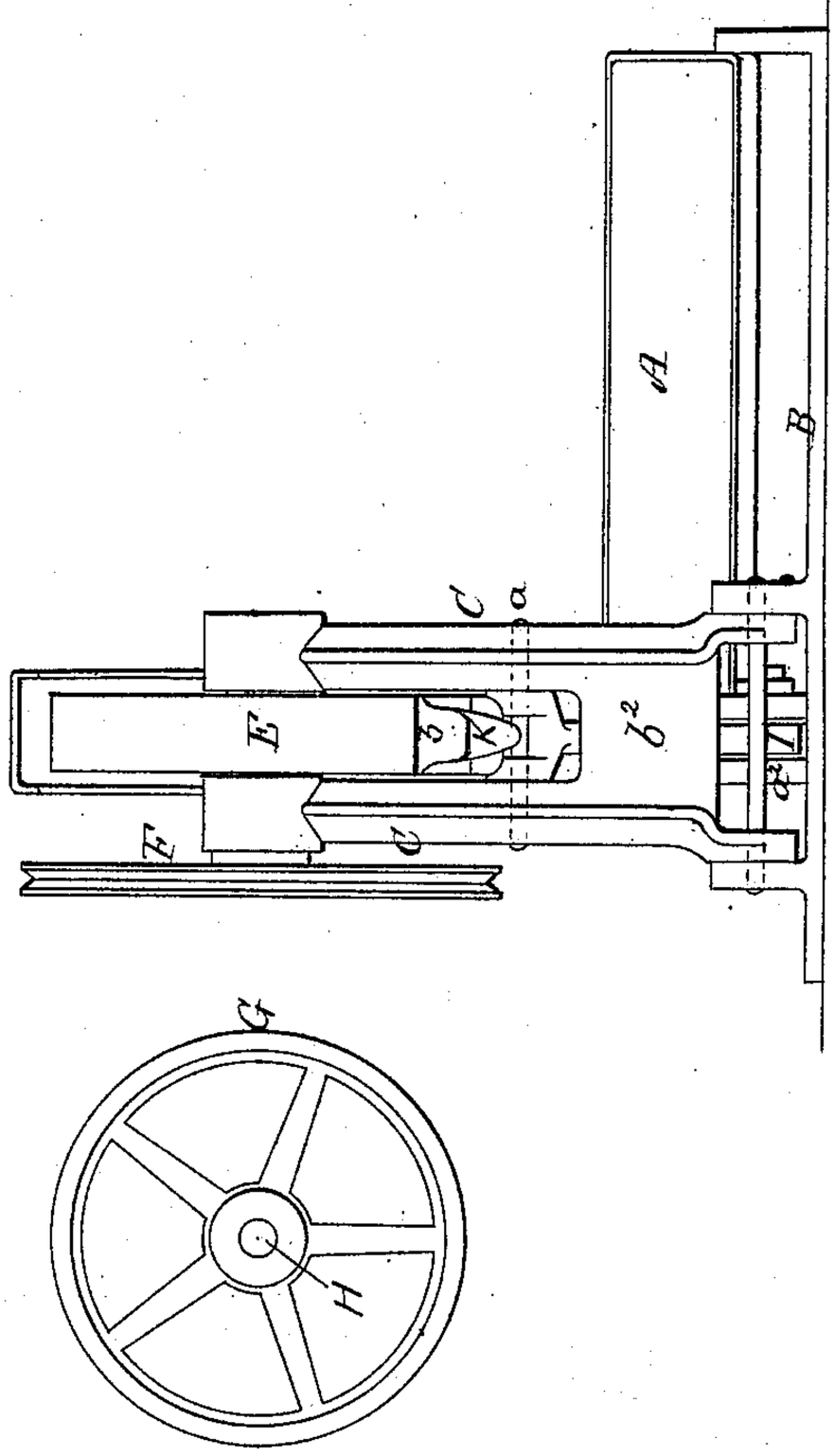

Fig. 1.

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ELIJAH L. HOWARD, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO JOHN A. S. GRAVES, OF SAME PLACE.

IMPROVEMENT IN MECHANISMS FOR OPERATING SEWING-MACHINES.

Specification forming part of Letters Patent No. **176,636**, dated April 25, 1876; application filed April 10, 1876.

To all whom it may concern:

Be it known that I, ELIJAH L. HOWARD, of Boston, Suffolk county, Massachusetts, have invented certain Improvements in Mechanism for Operating Sewing-Machines, of which the following is a specification:

The purpose of this device is to control the motion of a driving-wheel, and is particularly applicable to mechanism for operating sewing-machines in which the driving-pulley is constantly being started or stopped; my present device being so organized that when the pedal is in its natural position the driving-wheel is motionless and idle; but when the pressure of the operator's foot is applied to the treadle the friction upon the wheel is removed, and the latter is free to be revolved by the driving-pulley by which it is driven.

My present invention consists in the combination, with an oscillating pedal and the rocking standard carrying the driving-wheel and the intermediate connecting cam-lever, of a lever fulcrumed to the standard below the said driving-wheel, one end of the lever constituting a shoe to operate upon the periphery of the drive-wheel, and the other end being swiveled to or connected with the before-named intermediate cam-lever, and the whole being so arranged that as the pedal is operated by the operator's foot, and the rocking frame advanced, the shoe is removed from contact with the drive-wheel, and the latter impinges against, and is driven by, the driving-pulley, while upon release of the pedal the rocking frame, by its own counterpoise, returns to its idle position, and the drive-wheel recedes from the pulley, the shoe at the same time impinging against the periphery of the drive-wheel and estopping the latter.

My invention is especially useful where a number of sewing-machines are used in line in one locality; and it is essential that each operator shall be able to start and stop his own machine without effect upon his neighbors.

The drawings accompanying this specification represent, in Figure 1, a vertical section, and, in Fig. 2, a front view of a machine embodying my improvements.

In such drawings, A represents an oscillating pedal as pivoted, in the usual manner, to a base-plate or support, B. In rear of this pedal, and pivoted at bottom to the base-plate B, I dispose an upright vibratory or rocking frame or standard, C, such standard being inclined forward at top, in order that its own counterpoise shall impel it when at rest toward the operator. Within the upper part of the standard or frame C I pivot, upon a horizontal counter-shaft, D, a drive-wheel E, while upon one extremity of such shaft D I mount the grooved pulley F, by which the sewing or other machine is directly driven. The driving-pulley by which the wheel E is driven is shown at G as mounted upon a main shaft, H, and is supposed to constitute one of many similar pulleys applied to the common shaft H, and which are, during working-hours, always in rotation. The periphery of the wheel E is covered with a tire of leather or other semi-adhesive or tenaceous material, in order that considerable friction shall exist between it and the periphery of the driving-wheel G when the two are in contact.

I in the accompanying drawings represents a lever, swiveled at its front end, in a suitable manner, to the rear of the pedal A, and terminating at its rear extremity in an eccentric or cam, J, the fulcrum or pivot of this lever and cam combined being at the extreme forward end of such lever, and connecting the latter to a furcated post, a^2, erected upon the base B, immediately in front of the lower part of the standard C and below the wheel E, the said eccentric J serving, in connection with a bearing, b^2, of said standard, to receive the counterpoise-weight of the latter.

K in the drawings represents a bent lever or arm, whose fulcrum is a horizontal rod, *a*, and by which the said arm K is pivoted within the frame C, and between the wheel E and lever I. The rear end *b* of the lever K constitutes a shoe to act upon the periphery of the wheel E, while the front end of the said lever rests beneath and against an adjustable stop or bolt, *c*, applied to the side of the lever I.

The normal or idle position of the above-described mechanism is that shown in the accompanying drawings, in which the rear of the pedal A is lowered, the shoe *b* is removed from contact with the periphery of the drive-

wheel E, and the latter is free from contact with the driving-pulley G, the eccentric or cam, as before stated, receiving the pressure or weight which the inclination of the standard C imposes upon it.

The operator places his foot upon the front of the pedal A and depresses it, the result of which is that the lever I is elevated, and its eccentric or cam J forces the standard C to an upright, or nearly upright, position, at the same time crowding the periphery of the wheel E against that of the driving-pulley G, and putting the former in motion. As the standard C assumes an upright position, or nearly so, and the wheel E reaches the immediate neighborhood of the driving-pulley, the bent lever or arm K is, by the combined movement of the standard C and lever I, turned upon its fulcrum, and its shoe *b* retreats from contact with the wheel E, the latter being thus left free to be driven by the pulley G as soon as the two arrive in contact. Upon removing the foot from the pedal, the counterpoise-weight of the standard C restores the parts automatically to the positions shown in the drawings; and it will be seen that immediately following upon the separation of the two wheels E and G the shoe *b* impinges against the former, and instantly arrests its motion, but for which the momentum of such wheel E acquired from the pulley G would cause it to revolve for some time.

I claim—

1. The cam-lever I, in combination with the pedal A and wheel E, as a means of imparting the movement of such pedal to the standard to raise the latter to an erect, or nearly erect, position, and throw the wheel E into contact with the driving-pulley, substantially as and for purposes stated.

2. The lever K, in combination with the pedal A, standard C, and wheel E, whereby a movement of the pedal is transmitted to the wheel to estop the motion of the latter, substantially as and for purposes stated.

3. The combination of the pedal A, standard C, levers I and K, and wheels E and G, under the arrangement, substantially as herein described, whereby a tilting of the pedal from its idle position results in, first, separating the said wheels E and G, and immediately thereafter estopping the rotations of the first, essentially as and for purposes stated.

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