G. W. WILSON.
Motors.

No. 198,480. Patented Dec. 25, 1877.

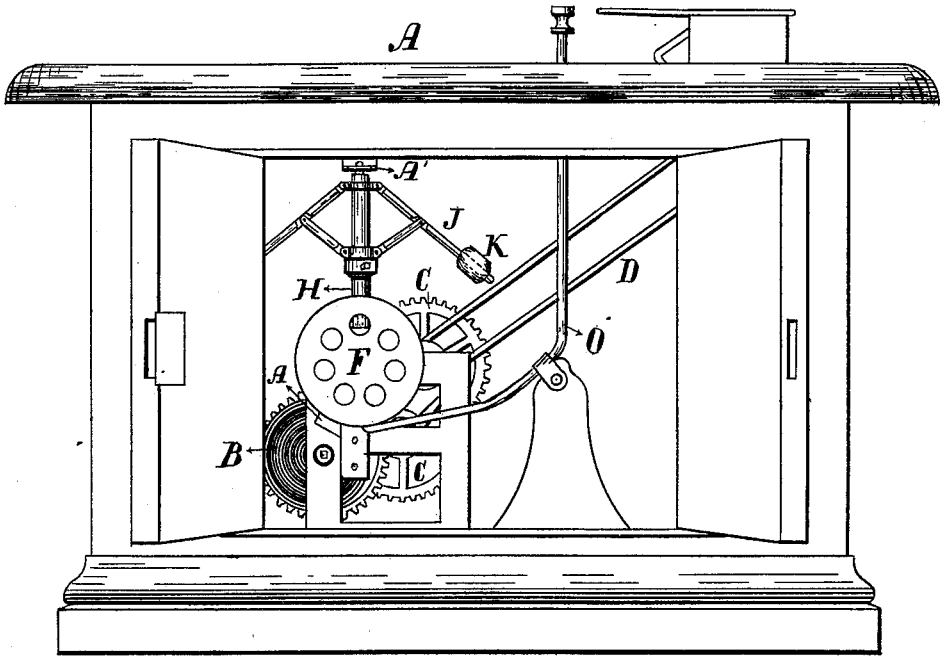

Fig. 1.

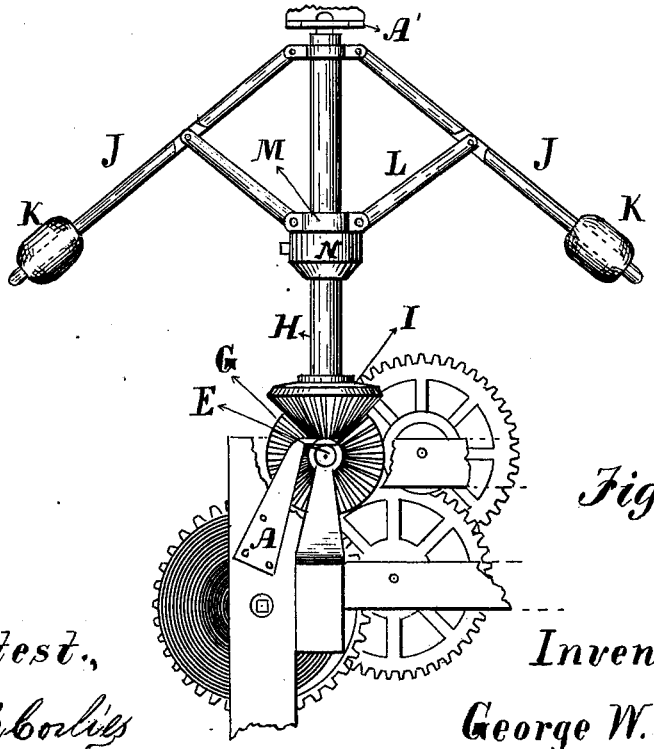

Fig. 2.

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UNITED STATES PATENT OFFICE.

GEORGE W. WILSON, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN MOTORS.

Specification forming part of Letters Patent No. **198,480**, dated December 25, 1877; application filed April 13, 1877.

To all whom it may concern:

Be it known that I, GEORGE W. WILSON, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Sewing-Machine Motors, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a front elevation of a sewing-machine with my improvement attached, the inclosing case being open; and Fig. 2, an elevation of the governor and gearing, with which it is immediately connected, on an enlarged scale.

My invention relates to an improvement in spring-motors for sewing-machines.

Motors of this description are well known, and many attempts have been made to apply them successfully to the work of driving sewing-machines. One great obstacle to their success, however, has been the difficulty of regulating them so as to obtain uniform motion.

Heretofore this has been attempted by using a brake controlled by the attendant; but it is almost impossible by this device to make the motion steady, and it compels the attendant to keep one hand constantly on the brake, leaving only one hand free to manage the fabric to be stitched.

The object of my invention is to regulate the operation of the driving mechanism automatically, so as to secure steady motion of the needle, and at the same time leave both hands of the attendant free.

The invention consists in the combination of a ball-governor with the train of gearing operated by the spring, whereby the movement of the gear-wheel is regulated.

In the drawings, A represents a sewing-machine stand or case, which is of cabinet form, so as to inclose the motor.

The driving mechanism is a spring-motor of ordinary construction, and does not require particular description here. In general terms, it may be said to consist of a wound spring, B, operating a train of gears, C, from which motion is communicated by a band, D, or any other suitable device, to the mechanism for reciprocating the needle.

The first third of the spring in length is about three-sixteenths of an inch in thickness, and the rest one-fourth inch thick, to receive uniform force.

A shaft, E, usually carrying a balance-wheel, F, is driven by the last wheel in the train, and upon this horizontal shaft I mount a bevel-pinion, G, and above the balance-wheel shaft a vertical shaft, H, is mounted in suitable bearings A′. The lower end of this shaft is a bevel-pinion, I, which meshes with the pinion. The shaft H carries upon its upper end an ordinary ball-governor, consisting of the arms J, hinged to a fixed collar at the upper end of the shaft, and is provided with heavy balls K at their lower ends, and connected by links L to a sliding collar, M, on the shaft, the movement of the latter being limited by a stop, N, on the shaft.

Any other well-known construction of ball-governor may be used.

When the mechanism is set in motion, and the spring is exerting its greatest force, the balls of the governor will be thrown outward in the well-known way as the speed of the upright shaft H is increased. The orbit of their revolution will therefore be increased, thereby increasing the resistance to the rotation of the shaft, which is transferred to the train of gearing upon which the spring operates, and thus the motion is regulated by giving the spring more work to do as the movement of the gearing is increased, and vice versa.

The mechanism is also provided with a friction-brake, O, which acts directly upon the balance-wheel, and is operated by the attendant to completely stop the machine whenever desired, but is not necessary for regulating purposes.

I have applied my improvement to a full-sized sewing-machine, and found it to operate successfully in securing a regular and steady motion of the needle.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a spring-motor for sewing-machines, the combination, with the spring B secured to a drum, gearing C, shaft E, and balance-wheel F, of the governor-shaft H, bevel-pinions G and I, and driving-belt D, substantially as and for the purpose set forth.

GEORGE W. WILSON.

Witnesses:
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