

E. Shiver

Motor for Sewing Machines.

100935

PATENTED MAR 15 1870

Fig. 1.

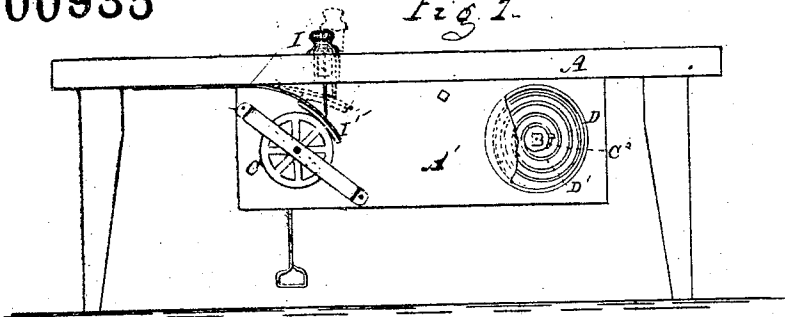


Fig. 5

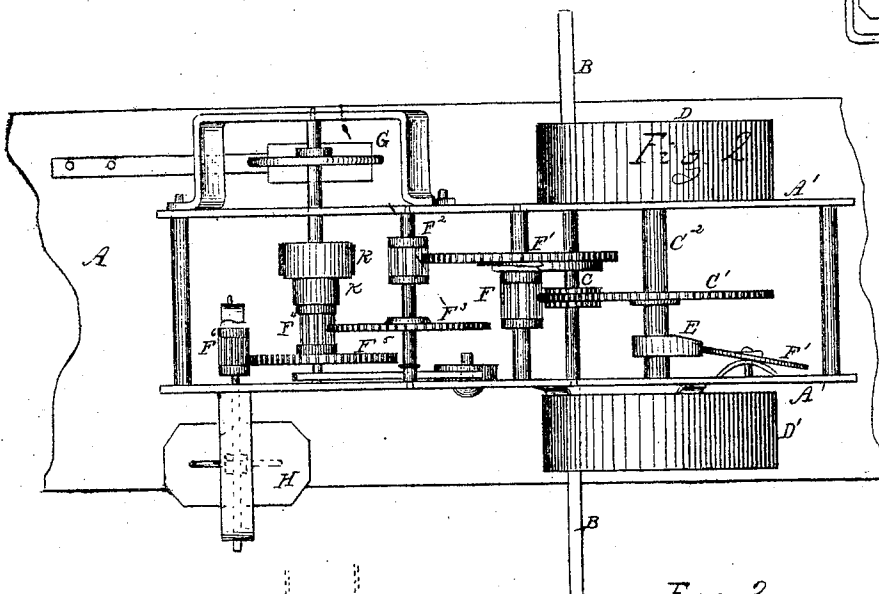
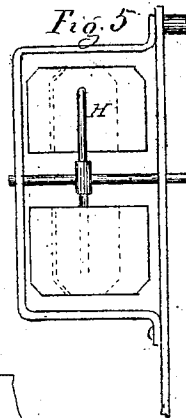


Fig. 3

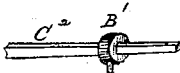
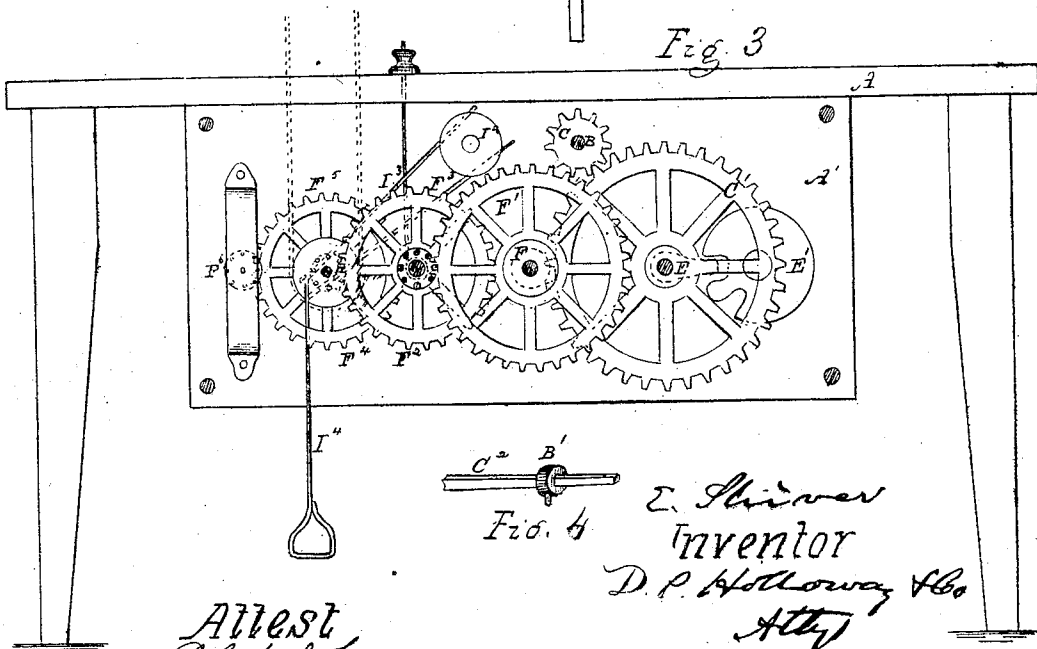


Fig. 4

E. Shiver  
Inventor  
D. P. Holloway & Co  
Atty

Attest  
A. B. Smith  
A. B. Smith

# UNITED STATES PATENT OFFICE

ELISHA SHIVER, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR  
TO J. H. McBLAIR, OF SAME PLACE.

## IMPROVEMENT IN MECHANISM FOR DRIVING SEWING-MACHINES.

Specification forming part of Letters Patent No. 100,935, dated March 15, 1870.

*To all whom it may concern:*

Be it known that I, ELISHA SHIVER, of Washington, in the county of Washington and District of Columbia, have invented an Improved Motor for Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a side elevation of my improved motor, showing one of the driving-springs and the friction-brake for checking the movement of the parts. Fig. 2 is a plan or top view, showing the cases which inclose the springs, the fly-wheel, and the gearing which communicates the motion to the sewing-machine. Fig. 3 is a vertical sectional elevation, showing the train of gear-wheels, the device for preventing the breaking of the springs by winding up too far, and one method of applying the brake. Fig. 4 is a detached view of the collar which is used upon the winding-shaft to enable one spring to be thrown out of gear whenever it is desirable to do so.

Corresponding letters refer to corresponding parts in the several figures.

This invention relates to motors for driving sewing-machines; and it consists in the construction, combination, and arrangement of the parts of which it is composed, as will be more fully described hereinafter.

Motors for the purpose to which this is to be applied have heretofore been constructed consisting of springs for giving motion to the parts, and a train of gear-wheels for communicating such motion or power to the sewing-machine; but such devices have never, to my knowledge, been supplied with the means for preventing the springs from being broken by being wound up too far; neither have they been supplied with the means for using one or both springs at pleasure, and for regulating the expenditure of the power, as in this case.

The object of the present invention is to provide the means of accomplishing the above-indicated results.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, in the drawings, refers to a table or frame, to the under side of which the machinery is

to be attached. A' A' represent the frame of the motor, it being composed of two plates of metal, in which bearings are formed for the journals of the shafts which carry the gearing, said plates being held in position by means of bolts or rods which pass through them, and have nuts upon their outer ends, which press such plates against shoulders upon said rods. B refers to a shaft which extends through both of the side plates of frame A', and projects beyond each for a distance sufficient to admit of there being placed upon its outer squared ends a key for winding up the springs. C refers to a pinion gear-wheel, which is placed upon the shaft B at a point about midway between the sides of the frame, and so arranged as to mesh into the wheel C<sup>1</sup> upon the shaft to which the springs are attached. C<sup>1</sup> refers to a spur-wheel, which is placed upon the spring-shaft, and which receives its motion in the winding up of the machine from the wheel C, but which, in expending the force of the springs, imparts its motion to the train of wheels soon to be described. D D refer to cases which inclose springs D', which are attached to the cases in the usual manner, and at their opposite ends to the shaft upon which the driving-wheel C<sup>1</sup> is placed, one of them being attached thereto in the usual manner, and so as to be at all times connected therewith, while the other is so arranged as to be capable of being connected with, or disconnected from, such shaft at pleasure.

The means of effecting the connection referred to is shown at B', Fig. 4, and consists in a collar placed upon the shaft C<sup>2</sup>, and having a pin projecting therefrom for the purpose of entering a hole formed in the inner end of the spring. When it is desirable to use both of the springs, the end of the one last referred to is placed upon the pin on collar B', when by turning shaft C<sup>2</sup> both springs are wound up, and the forces of both are expended in turning the shaft and the parts connected therewith; but when only one spring is required, the end of this one is detached from the pin, and the other is used in the usual manner.

E refers to a cam which is attached to the shaft which carries the springs, and is so arranged as to extend into slots formed in the

periphery of wheel E, which is made to revolve upon a stud secured in the frame A, as shown in Fig. 2.

This last-named wheel consists of a disk of metal, which is to have two or more slots, formed as shown in Fig. 3, the object of which is to permit the cam to enter such slots in the winding up of the machine, the number of turns which the shaft is permitted to make being regulated by the number of slots in said wheel, so that when the spring has been wound up as far as it is safe to wind it, the cam in its revolutions shall come in contact with the periphery of the wheel, and thus prevent the further turning of shaft C<sup>2</sup>, and, consequently, the further winding of the spring. This disk or wheel may be held in its position longitudinally, with reference to the cam, by means of a spring placed between it and the inner surface of frame A'.

F, F<sup>1</sup>, F<sup>2</sup>, F<sup>3</sup>, F<sup>4</sup>, F<sup>5</sup>, and F<sup>6</sup> refer to a series of gear-wheels, which are mounted upon suitable shafts which have their bearings in the sides A' A' of the frame, such wheels transmitting the power of the springs to the shafts upon which the pulleys K K and the regulating-fan are placed. The number and relative diameter of the wheels alluded to may be such as to give the required motion to the pulleys which transmit the power to the machine to be driven.

G refers to a fly or balance wheel, which is to be placed upon the same shaft which carries the pulleys K K, but outside of frame A', its outer end being supported by a yoke secured to such frame.

It will be seen that owing to the arrangement of gearing this wheel will necessarily run at a high rate of speed, and that thus it will more fully accomplish its object, which is to steady the movements of the machine.

H refers to a fly or fan, which is placed upon the same shaft as is the pinion-wheel F<sup>6</sup>, it being located upon the outside of the frame A, and, like the balance-wheel G, having a high velocity. This fan or fly is so arranged that it may be turned upon its own axis, and so that it revolves with the shaft to which it is attached. I refers to the handle of a brake, which acts upon the balance-wheel G, it being located upon the upper side of the table A, which is provided with a socket for the lower end of said handle to enter, so that, when it is desirable to have the brake act upon the wheel, it is permitted to enter such

socket, but when it becomes necessary to raise the brake from contact with the wheel, the handle is raised out of its socket or recess, and is allowed to rest upon the upper surface of the table, by which means the rod which connects it with the brake I' lifts such brake from the wheel, and it no longer offers any resistance to the movements thereof, but it may again be applied by simply moving the handle until it will enter the recess, when the spring or brake will fall and again act upon the wheel. I<sup>2</sup> refers to a collar which is secured to the frame A' by a screw, as shown in Fig. 3, it being made to grasp and hold the two arms of a rod or strap, I<sup>3</sup>, which passes around the shaft upon which the balance-wheel G is secured. This rod or strap is to be of wood or metal, its office being to serve as an additional brake to the machine, which may be used in conjunction with the one already described, or which may be used to control the movements of the machine when the other is not in operation, by placing the foot in the loop at the lower end of the rod or strap I<sup>4</sup>, and either pressing down, so as to bring strap I<sup>3</sup> upon the shaft, or by raising it up so as to bring the opposite side of the strap in contact with the under side of the shaft.

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

1. The arrangement of the two springs upon the same shaft, one being attachable and detachable at pleasure, and the other permanently attached thereto, substantially as and for the purpose set forth.

2. The arrangement of the spring-brake I, having the friction-pad attached to its end, and its handle I with reference to the wheel G, operated substantially as and for the purpose set forth.

3. The combination of the shaft C<sup>2</sup>, the collar B', and the spring D', substantially as and for the purpose set forth.

4. The combination of the collar I<sup>2</sup>, rod or strap I<sup>3</sup>, and foot-rod I<sup>4</sup> with the shaft upon which the balance-wheel G is placed, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

E. SHIVER.

Witnesses:

A. RUPPERT,  
B. EDW. J. EILS.