

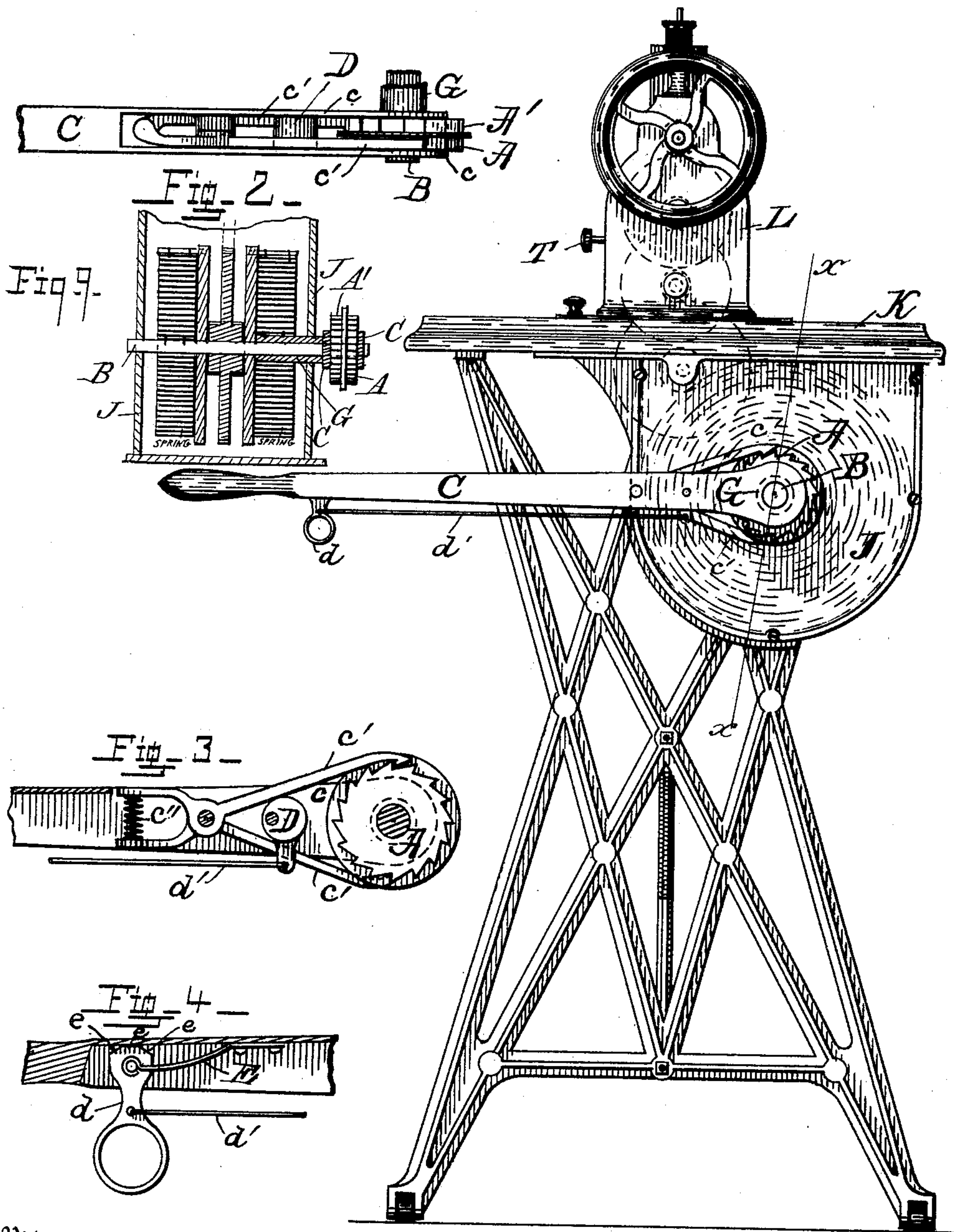
(No Model.)

2 Sheets—Sheet 1.

J. M. BROSIUS.  
MOTOR FOR SEWING MACHINES.

No. 407,058.

Patented July 16, 1889.



Witnesses

*A. P. Wood*  
*H. H. Koppel*

Fig. 1

Inventor

*John M. Brosius*

By *his* Attorney

*Albert A. Wood*

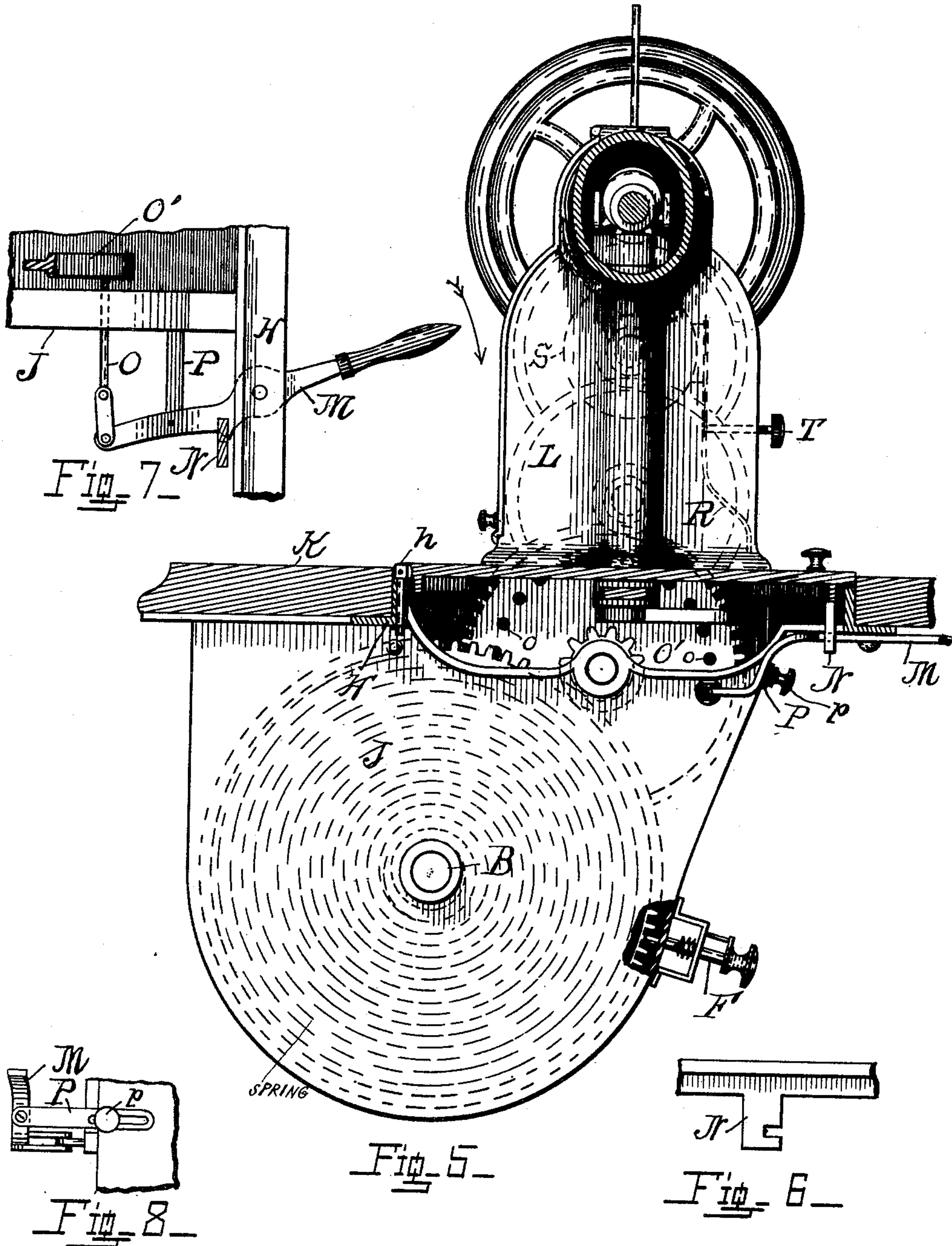
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*N. A. Kefauver*

Inventor

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# UNITED STATES PATENT OFFICE.

JOHN M. BROSIUS, OF ATLANTA, GEORGIA.

## MOTOR FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 407,058, dated July 16, 1889.

Application filed August 23, 1888. Serial No. 283,555. (No model.)

*To all whom it may concern.*

Be it known that I, JOHN M. BROSIUS, a citizen of the United States, and a resident of Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Motor for Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

This invention has for its object the construction of a motor particularly adapted to drive sewing-machines.

The motor shown in the accompanying drawings is substantially the same in most respects as that shown in United States Patent to me, No. 382,865, dated May 15, 1888. I shall therefore describe in this specification only such parts of the motor as are not shown and described in that patent and such parts of the machine as are necessarily made to conform to the requirements of the combination.

In the accompanying drawings, Figure 1 is an end elevation of the stand, the machine-head, and the motor, showing by dotted lines the gearing that transmits the motion from the motor to the machine. This figure also shows means by which either one of two springs may be wound, or the two wound together, and one of the ratchets on which the pawls on the lever work. Fig. 2 is a top view of the winding-lever and pawls, the ratchets, the shaft of one spring, and the sleeve of the other. Fig. 3 shows one end of the lever as it is shown in Fig. 1, but partly in section, the outer side piece being removed to better show the operative parts. Fig. 4 is a vertical longitudinal section through the other or outer end of the winding-lever, showing the means by which the pawls are set to wind either or both springs. Fig. 5 is a vertical cross-section through the sewing-machine head and table, showing the side of the motor-casing opposite to that shown in Fig. 1, the hinge by which the machine is turned back, the device by which it is fastened when in use, the train of

gears that transmits motion from the motor to the machine, and many other details. Fig. 6 shows a portion of the downwardly-projecting front flange on the bed-plate of the head and the lug having a notch by which the head is held down. Fig. 7 is a plan of a portion of the motor-frame and of the frame that the machine-head rests on, which are preferably made integral, showing the lever that locks the machine-head down when in use, or, when the machine-head is turned back, that locks the wheels of the motor. The lever is shown in this figure in the position in which it locks the head down. Fig. 8 shows the slotted strap and the screw by which the lever shown in Fig. 7 is locked in any position. Fig. 9 is a section through the springs on line *x x* of Fig. 1.

In the several figures like reference-marks indicate corresponding parts in all the views.

The shaft B and the sleeve G carry springs; but instead of seats for the winding-crank the shafts and sleeves have attached to them, respectively, the ratchets A and A'. The lever C, having projecting arms *c*, is pivoted on the shaft and sleeve, one arm being on each, as shown in Fig. 2. Pivoted to the lever C, on a common center, are the pawls *c'*, that are held in engagement one with each ratchet by the spring *c''*, between their rearward extensions. It is obvious by reference to Figs. 1 and 3 that an oscillating movement of the lever C will produce a forward movement of both ratchets and wind both the spring attached to the shaft and the one attached to the sleeve. To wind them separately, the cam D is turned in either direction, lifting out of engagement one or the other of the pawls by means of the lever *d* and connecting-rod *d'*, the lever being held in either of the three positions at which it requires to be set by being pressed on one of the flat surfaces *e* against the lever C by the spring E. By means of the device just described both springs may be wound together so long as they wind easily, and afterward wound separately to a much higher tension. By holding each of the springs one at a time they may be run down separately so long as they have sufficient power and then used together. I accomplish this by making holes



in the disks by which the springs are attached, and using instead of the cam-levers the spring-pressed pin F, Fig. 5, that will, when released, enter any one of the holes in the disk and prevent the turning of that spring and disk.

The frame H, upon which the sewing-machine head rests, and to which it is hinged by the hinges h, should be made integrally with the frame J of the motor and be with it fastened to the machine-table K. A portion of the motor similar to that shown in the patent hereinbefore mentioned is contained in the casing or frame J—that is to say, the springs, ratchets, pawls, and so much of the train of gearing as is necessary to increase the speed and as will reach to that contained in the upright portion of the head of the machine. A train of gearing (shown by dotted lines in Figs. 1 and 5) conveys the power of the motor through that arm and increases the speed to the desired point. These gears should be so proportioned in number and size as to reach from the necessary position of the main shaft of the motor to the horizontal shaft of the sewing-machine proper and give the required increase of speed, and those placed in the arm L should have as small a diameter as practicable, in order to limit the size of that arm. The machine-head being hinged to the frame H by the hinges h at the back edge of the bed-plate, the front edge of the bed-plate is held down by the engagement of the lever M and the downwardly-projecting lug N on the bed-plate, the engagement being shown in Fig. 7.

It will be observed by reference to Fig. 7 that the turning of the lever M in a direction indicated by the arrow will carry the lever out of the notch in the lug N, permitting the machine-head to be raised on its hinges, and that the pin O will enter a hole shown in the gear O' in Fig. 5, which is one of the gears that form the train connecting the spring-shaft and the shaft of the sewing-machine proper. The proportions of this lever and its relative positions to the lug N and the gear O' should be such as will cause the pin O to enter one of the holes o before the disengagement of the lever and lug N, in order that the continuity of the gearing may not be broken until so much of the gearing as will remain connected with the motor shall be locked by the pin. Otherwise, the continuity being broken and the load being thereby removed, the springs would run down immediately. The gearing being locked by the pin, it is obvious that a reverse movement of the lever will first

lock the machine-head down and then release the springs and the gear O'. The lug N should be of sufficient length to prevent the teeth of the gear O' from touching those of the lower gear in the arm L by resting on the lever except when the pin O is in one of the holes o, which will prevent the accidental breaking of the teeth by lowering the machine-head while the gear O' is in motion. To prevent the accidental releasing of the gear O' or of the machine-head, the slotted strap P is attached to the lever M, as shown in Figs. 5, 7, and 8, the slotted end being attached to the frame of the motor or other convenient place by the screw p, which should be tightened whenever the lever is set at either of its extreme positions. The speed of the machine is governed by the pressure of the spring R on the disk S, which is attached to the shaft of one of the gears in the train, the spring and disk being shown by dotted lines in Fig. 5. The pressure of the spring is regulated by the screw T.

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

1. A means for operating a sewing-machine, consisting of a spring-driven train of gearing connected directly with the machine and mounted partly within the arm of the machine-head and partly in a casing beneath the table, said arm of the machine-head being hinged to the table and adapted to carry with it the portion of the train of gearing therein inclosed, substantially as shown and described.

2. The combination, with the motor-frame, the head, their hinged connection, and the portion of the train of gears contained in said frame and head, of the means employed for connecting them and preventing further movement of the gears when the parts are disengaged, consisting of the notched lug N, lever M, pin O, attached to said lever, and the gear O', provided with holes to receive said pin, substantially as shown and described.

3. As a means for winding driving-springs, the ratchets A and A', the shaft B, and the sleeve G', the lever C, pawls c', spring c'', cam D, lever d, and connecting-rod d', combined and arranged substantially as shown and described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JOHN M. BROSIUS.

Witnesses:

A. P. WOOD,  
A. A. WOOD.