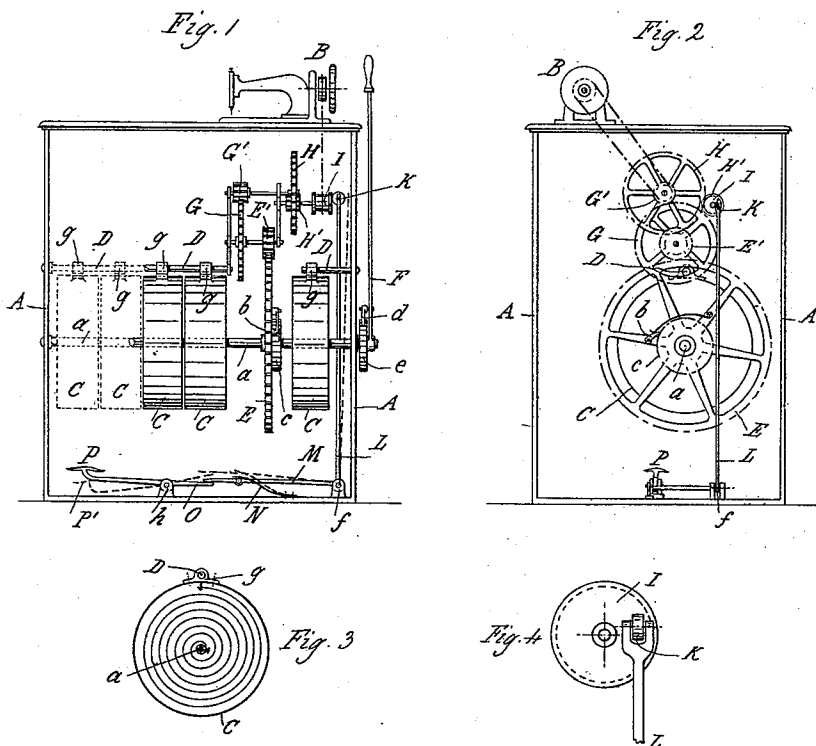


(No Model.)

G. CASPANI.  
MOTOR FOR DRIVING SEWING MACHINES.

No. 469,077.

Patented Feb. 16, 1892.



Witnesses,  
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# UNITED STATES PATENT OFFICE.

GAETANO CASPANI, OF MILAN, ITALY.

## MOTOR FOR DRIVING SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 469,077, dated February 16, 1892.

Application filed July 15, 1891. Serial No. 399,639. (No model.) Patented in Italy May 27, 1891, LVIII, 159.

### *To all whom it may concern:*

Be it known that I, GAETANO CASPANI, a subject of the King of Italy, and a resident of Milan, in the Kingdom of Italy, have invented certain new and useful Improvements in and relating to Motors for Driving Sewing-Machines and other Apparatus, (for which I have obtained Letters Patent in Italy, dated May 27, 1891, Vol. 58, No. 159, Reg. Att.,) of which the following is a specification.

My invention relates to motors for driving sewing-machines and other apparatus; and it consists in the novel combination and arrangement of parts hereinafter described and claimed, reference being had to the accompanying drawings, and the letters of reference marked thereon, forming part of this specification.

Figures 1 and 2 represent, by way of example, a front elevation and a side elevation of my motor arranged under the table of a sewing-machine which it actuates. Fig. 3 represents a front view of the spring-containing drum and spring, and Fig. 4 is a side view of the movement-transmitting drum.

A A denote the vertical sides of the table, upon which the sewing-machine B is mounted.

Upon the driving-shaft *a* of the motor are arranged several drums C, containing flat coil-springs (see the front view of one of these drums in Fig. 3) acting together on the shaft *a*, but each independently of the other. One extremity of each spring is attached interiorly to the side of the drum and the other extremity is attached to the shaft *a*. The drums C are prevented from turning by a rod D, fixed to one of the aforesaid vertical sides A, and which passes through lugs *g* on the peripheries of the drums. The gear-wheel E, which is used to transmit the movement of the driving-shaft *a* to the rest of the apparatus, is mounted loosely upon this shaft, but carries a pawl *b*, which acts upon a ratchet-wheel *c*, keyed upon the said driving-shaft. When the driving-shaft is turned by the action of the springs as they unwind, it carries with it the wheel E through the medium of the ratchet *c* and pawl *b*. The winding up of the springs takes place through the medium of a hand-lever F, upon which is pivoted a pawl *d*, acting upon another ratchet-wheel *e*, keyed upon the driving-shaft *a*. During the wind-

ing up, the pawl *b* rides over the teeth of the ratchet *c* without carrying it round, and the wheel E remains stationary. The transmission of the movement to the sewing-machine is effected through the agency of the toothed wheels E E', G G', H H', and the drum I. Against the side of the drum I bears a roller K, which is preferably covered with india-rubber. (See Fig. 4, which is a side view of the drum.) This roller is carried by journals at the extremity of a bell-crank lever L M, adapted to turn upon an axis *f* at the base of the apparatus. Upon the arm M of the bell-crank lever L M acts a spring N to keep it depressed, so as to maintain the roller K firmly pressed against the side of the drum I.

P O designates a pedal, one arm O of which acts upwardly upon the arm M of the bell-crank lever L M. In proportion as the pedal P is depressed by moving it from the original position to that shown at P', Fig. 1, the arm M of the bell-crank lever L M is raised against the action of the spring, whereby the roller K is removed from the drum I.

When the apparatus has been wound up, it remains quite inactive if left to itself, for the spring N is strong enough for forcing the roller against the drum I with sufficient power to prevent any rotary movement of the shaft *a*. The movement commences when the operator depresses the pedal P and its velocity increases proportionately to the power exerted upon the pedal. It will be seen that under these circumstances the operator can optionally vary the velocity of the machine, and that the latter will automatically stop as soon as the operator leaves it.

What I claim is—

1. The herein-described improved spring-motor, comprising suitable frame-work, a shaft *a*, having bearing therein, a series of drums C, arranged on said shaft, coiled springs in said drums, one end of each of said springs being secured to the shaft and the other end to the drum within which it is contained, a ratchet-wheel fast upon the shaft *a*, a gear-wheel E, loosely mounted on said shaft and having a pawl engaging said ratchet-wheel, a drum I, intermediate mechanism imparting the motion of the wheel E to said drum, a bell-crank lever L M, carrying a friction-roller to work against the face of the said

drum, a spring N, operated to retain said roller firmly against said drum, a pedal for varying or relieving the pressure of said roller against said drum, and mechanism secured to the shaft *a* for winding the springs C, substantially as described.

2. In a spring-motor, the combination, with a shaft, of a series of spring-containing drums provided with lugs and arranged on said shaft, a rod passing through said lugs and preventing the turning of said spring-containing drums, a driving-pulley, intermediate

mechanism for transmitting power from said springs to said pulley, and a friction-brake operating upon said pulley and operated by a foot-lever, substantially as described. 15

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

GAETANO CASPANI.

Witnesses:

OTTORINO HAZZARI,  
GIOVANNI SCURI.