

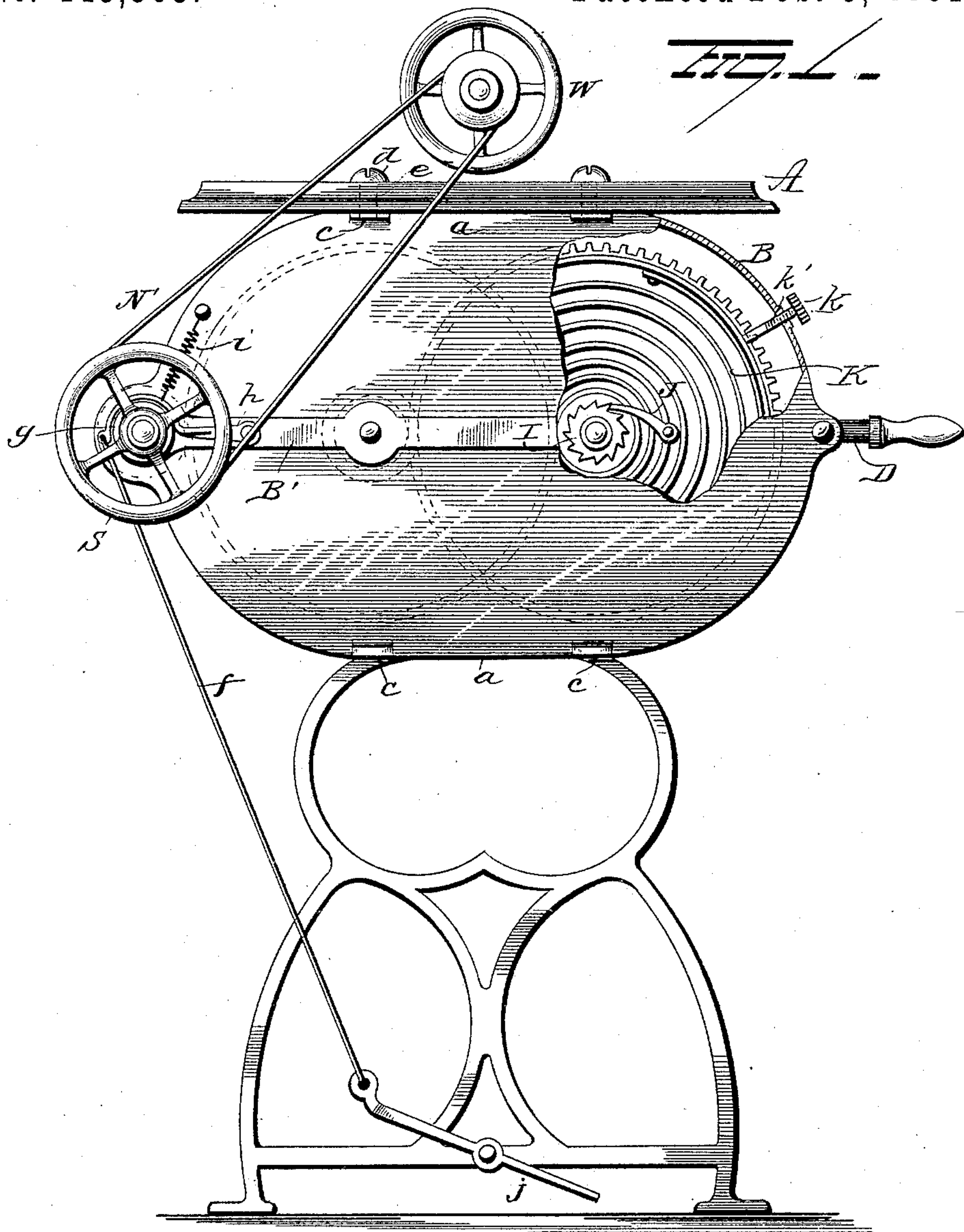
(No Model.)

2 Sheets—Sheet 1.

C. A. LORING.  
SPRING MOTOR.

No. 445,563.

Patented Feb. 3, 1891.



Witnesses  
C. A. Loring  
C. F. Downing.

Inventor  
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By his Attorney  
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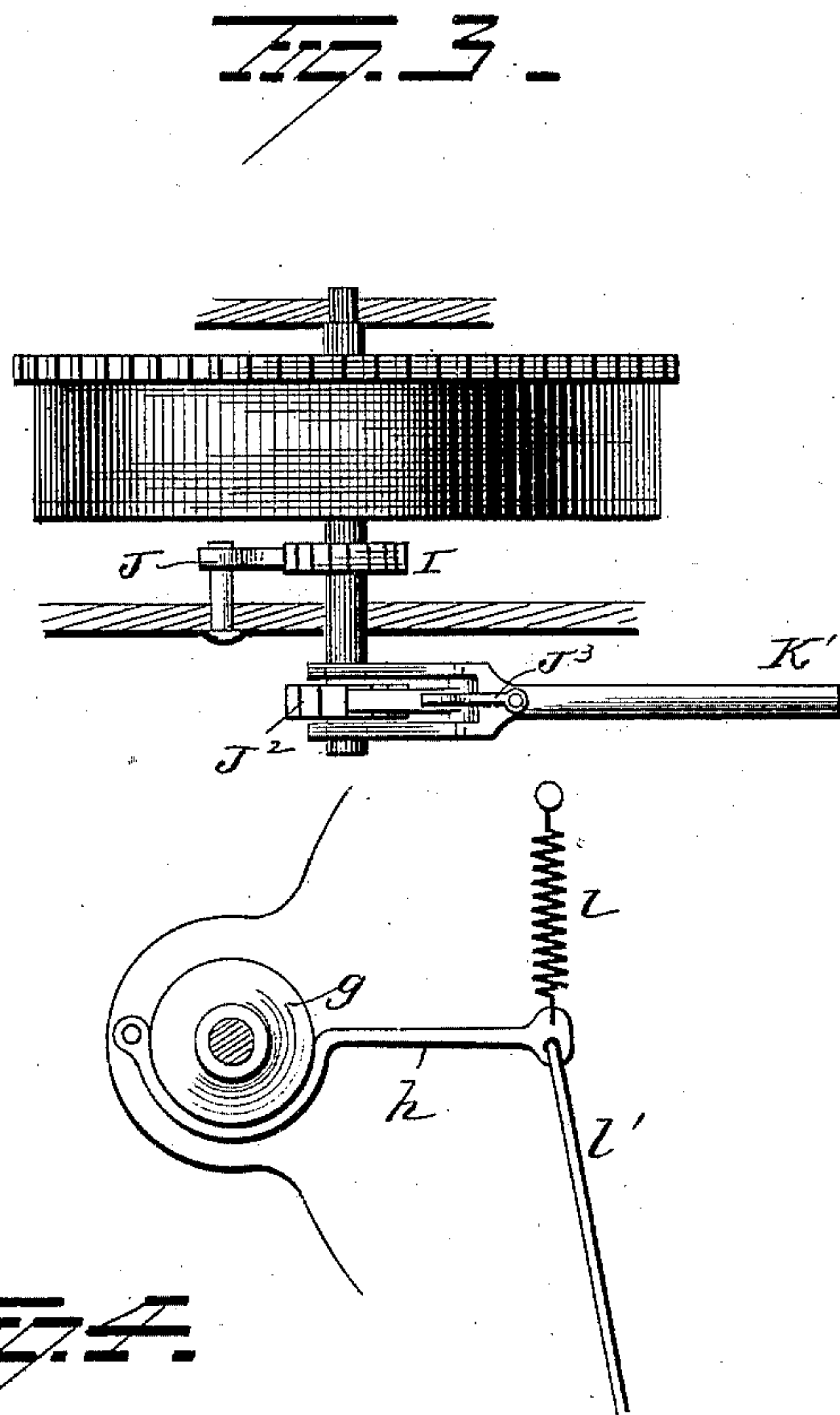
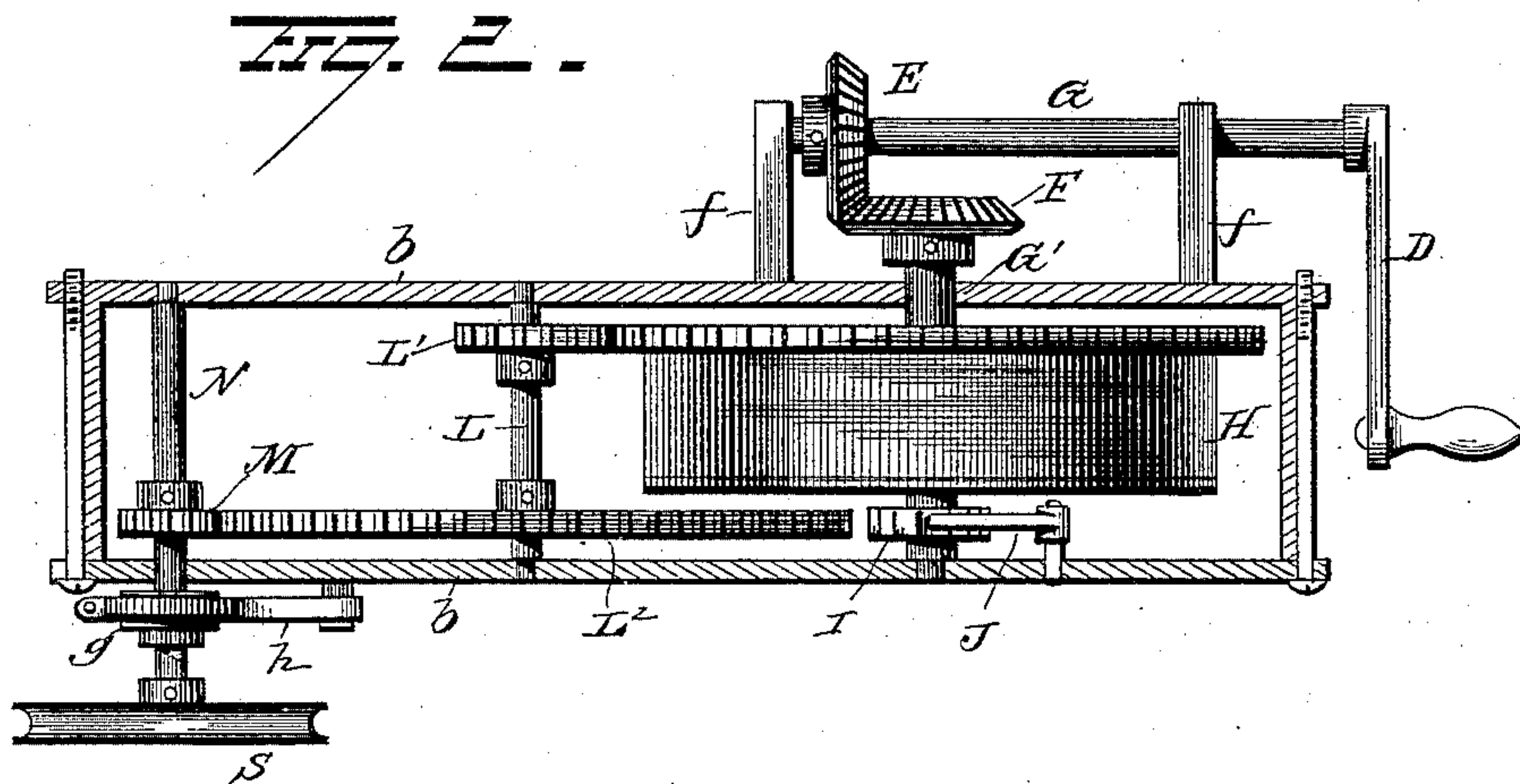
(No Model.)

2 Sheets—Sheet 2.

C. A. LORING  
SPRING MOTOR.

No. 445,563.

Patented Feb. 3, 1891.



Witnesses  
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# UNITED STATES PATENT OFFICE.

CHARLES A. LORING, OF ATLANTA, GEORGIA.

## SPRING-MOTOR.

SPECIFICATION forming part of Letters Patent No. 445,563, dated February 3, 1891.

Application filed March 15, 1890. Serial No. 343,967. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES A. LORING, a citizen of Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Spring-Motors; 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.

My invention relates to spring-motors for sewing and other machines, and is designed more particularly as an improvement upon that for which Letters Patent of the United States were granted to William H. Clayton, June 7, 1887, No. 364,216, and Letters Patent to William H. Clayton and Charles A. Loring, May 7, 1889, No. 402,805.

The object of my present invention is to produce a motor which shall be compact in its arrangement, effective in operation, and capable of adjustment upon the table of a sewing-machine or under said table.

A further object is to provide simple and efficient means for braking the motor.

A further object is to so construct a spring-motor that its speed may be easily regulated and that may be stopped at the will of the operator.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view of my improved motor, showing the casing partly broken away. Fig. 2 is a top view of the same with the rim of the casing removed. Figs. 3 and 4 are views of modifications.

A indicates a sewing-machine table, and B a casing of sheet metal or other suitable material. The casing B is preferably made oblong in shape, having flat upper and lower edges *a* and flat side faces *b*. The upper and lower edges *a* are provided with perforations *c* for the reception of suitable fastening devices *d*, which pass through perforations *e* in the sewing-machine table, whereby the casing may be secured either to the top or the under side of the table.

Secured to one side of the casing B are two brackets or arms *ff*, with eyes to form bearings for a shaft G. This shaft is furnished with a crank D at one end and a vertically-fixed bevel-gear E at or near the other end, which meshes with a vertically-fixed bevel-gear F, secured on one end of a shaft G', which latter is journaled in the side walls of the casing B. The horizontal shaft G' carries loosely thereon a drum H, the periphery of which at one side is provided with teeth, for a purpose which will be presently explained, and this horizontal shaft G' is further provided with a vertically-fixed ratchet-wheel I, which is designed to be engaged and prevented from backward movement by a pivoted pawl J.

A coiled spring K is secured at one end to the shaft G and at its opposite end to the drum H. It will thus be seen that when motion has been imparted to the main operating-shaft G' through the medium of the crank-shaft G and bevel-gearing E F the spring will be wound upon the shaft G'.

In lieu of the crank-arm D and gears E F for winding the spring K, these parts may be dispensed with, and the end of the shaft G' which projects beyond the casing will be provided with a ratchet-wheel J<sup>2</sup> to receive a dog J<sup>3</sup>, attached to a suitable operating-lever K', as shown in Fig. 3. Thus by the co-operation of the lever K', ratchet-wheel I, and dog J a very simple ratchet mechanism will be provided.

A horizontal shaft L is mounted in the casing B and provided with two vertically-fixed gears L' L<sup>2</sup> of different dimensions, the smaller one L' of which meshes with the drum-gear and the larger one with a pinion M, secured to a horizontal shaft N, which latter carries a drive-pulley S. The pulley S is connected by means of an endless drive-belt N' with the hand-wheel W of a sewing-machine or other machine which is to receive motion.

When it is desired to connect the motor with a sewing-machine or other machine having a band-wheel, it is simply necessary to make the belt-connection between the band-wheel of the machine to be driven and the pulley S, after which the pawl J is thrown into the teeth of ratchet I, when by turning



the crank-handle D the spring will be wound upon the main operating-shaft G'. Now it will be seen that the action of the spring in its tendency to unwind will rotate the drum-gear H around the shaft G', and which, through  
5 the medium of the intermediate gear, will rotate the pulley S and drive the belt thereon.

Keyed or otherwise secured on the shaft N is a friction-wheel *g*, and pivoted to the casing  
10 B in proximity to the friction-wheel *g* or to a rod or bar B', secured to said casing, is a brake-shoe *h*, which shoe is adapted to partially encircle the friction-wheel, and is maintained normally out of contact therewith by  
15 means of a spring *i*, secured at one end to said shoe and at the other end to the casing. A cord or rod *f* is attached at one end to the friction-shoe and at the other end to the treadle *j* of the sewing or other machine. A  
20 hand-screw *k* is passed through a threaded eye *k'* in the rim of the frame or casing B. By turning the hand-screw it will come into contact with the periphery of the drum H, and thus check or stop the motor. It will thus  
25 be seen that the operator can regulate the speed or stop the driving mechanism by pressing the foot on the treadle, said treadle being connected with the brake-shoe *h*, as above described. When the pressure on the treadle  
30 is released, the spring *i* raises the shoe *h* from the friction-wheel *g*. When it is desired to hold in check or stop the action of the spring, the screw *k* will be turned until it comes in contact with the periphery of the drum, by  
35 which means the normal speed of the apparatus may be regulated.

In the modified form of the brake, as shown in Fig. 4, the brake-shoe *h* is pivoted at its  
40 curved end in proximity to the friction-wheel *g* and the curved end of the shoe passes beneath said wheel. At the free end of the shoe *h* one end of a spring *l* is secured, the other

end of said spring being secured to the casing at a point above the shoe, so that the shoe will be maintained normally in contact with the friction-wheel *g*. The free end of the shoe  
15 *h* is connected by means of a cord or rod *l'* with the treadle *j*. With this arrangement, when it is desired to start or regulate the motion of the motor, pressure is applied to the  
20 treadle to withdraw the shoe from the wheel *g* or to regulate the pressure of said shoe against the wheel *g*.

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

1. A machine-motor consisting, essentially, of a casing having flat sides, the latter having perforated ears, whereby the casings can be attached to the upper or under side of a table, driving mechanism within the casing, a driving-wheel and a friction-wheel located outside the casing, and a brake pivoted to the casing and adapted to engage the friction-wheel, substantially as set forth.

2. In a spring-motor, the combination, with a casing, of a drum therein having teeth at or near one side thereof, and a thumb-screw secured to the casing with its free end in position to engage the smooth section of the drum, whereby the speed of the latter can be regulated, a shaft mounted in the casing, gearing connecting the teeth on said drum with the shaft, a friction-wheel and a driving-wheel on said shaft, a shoe to engage said friction-wheel, and means for actuating the shoe, substantially as set forth.

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

CHARLES A. LORING.

Witnesses:

JAMES H. PRICE,  
JOSEPH H. SMITH.