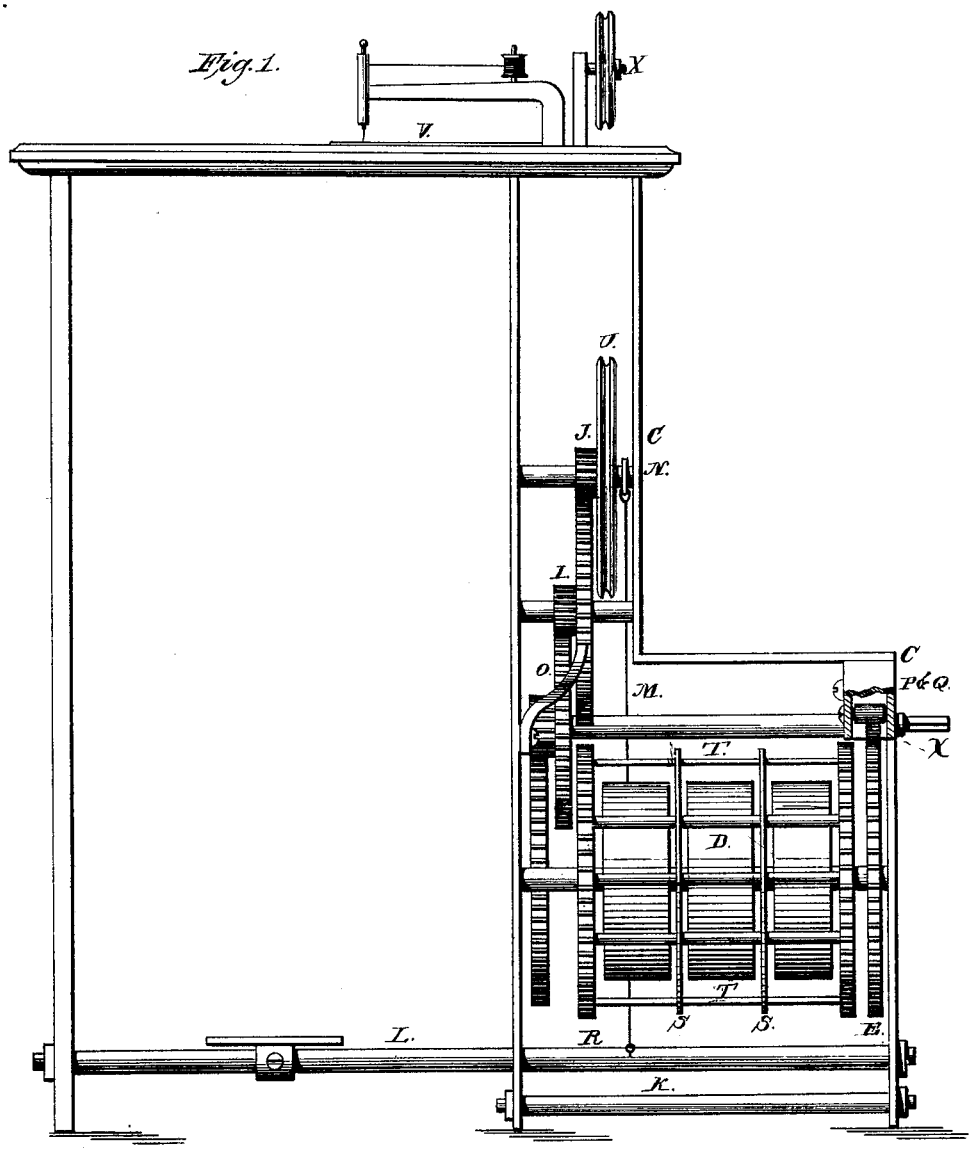
2 Sheets—Sheet 1.

E. B. RICE.

Spring-Motors.

No. 200,843. **Patented March 5, 1878.**

Fig. 1.



Attest.

Chas N. Gregory

Geo. W. Harrington

Inventor:

Eld. B. Rice

2 Sheets—Sheet 2.

E. B. RICE.

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Fig. 3.

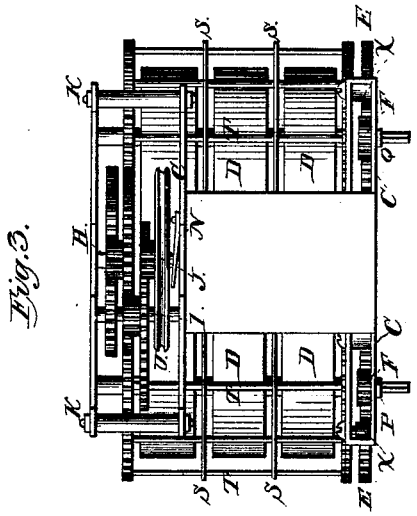
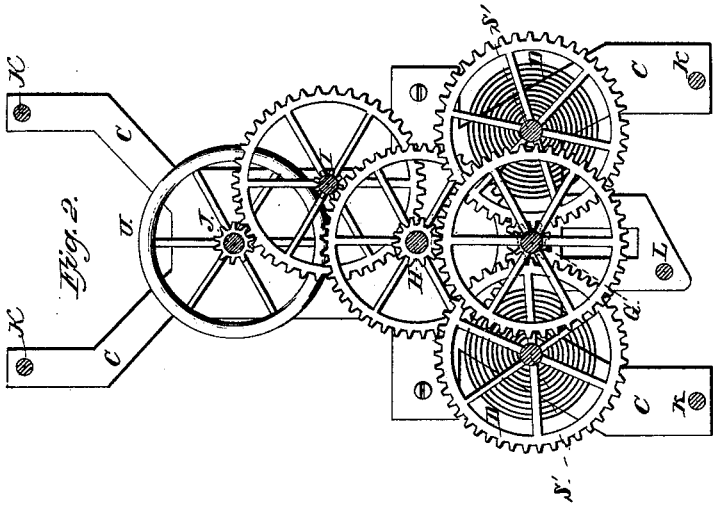


Fig. 2.



Attest:

Chas N Gregory
Geo W Harrington

Inventor:

Eli B Rice

UNITED STATES PATENT OFFICE.

ELI B. RICE, OF MADISON, WISCONSIN.

IMPROVEMENT IN SPRING-MOTORS.

Specification forming part of Letters Patent No. **200,843**, dated March 5, 1878; application filed May 14, 1877.

To all whom it may concern:

Be it known that I, ELI B. RICE, of Madison, in the county of Dane and State of Wisconsin, have invented certain new and useful Improvements in Spring Motive Powers; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of the invention, showing its application to a sewing-machine. Fig. 2 is a longitudinal vertical sectional view, and Fig. 3 a top plan view.

Similar letters of reference indicate the same parts in the several figures.

The object of this invention is to furnish for public use a motive power, for running sewing-machines, lathes, and other light machinery, that shall supply the place of foot-treadles, steam and water motors, and other injurious and expensive devices, and one that shall at all times be ready for use and under the perfect control of the operator.

To these ends it consists in the construction of the various parts, which I will now proceed to describe, and point out in the claims.

In the accompanying drawings, D D represent two spring-reels, which are designed to impart motion to the central pinion-shaft G. These reels each inclose two or more volute springs, which are fastened at their inner ends to the shaft S′, and at their outer ends to one of the tie-rods (marked T) which pass through the several spokes or the rims of the gear-wheels at the ends of the reels, thus allowing the reels to run around the shafts S′.

At the outer end of each reel-shaft is keyed a wheel or cog-gear, E, into which meshes the pinions F F, keyed to the winding-shafts P Q. The latter are supported in the metal frame C, and project at one end to receive a crank for winding.

S S, Figs. 1 and 3, are metal plates, each having a central perforation for the free passage of the reel-shaft, and a series of perforations near its periphery to receive the tie-rods T. Independent sections are thus formed in which each spring can work freely and not interfere with the operation of those next adjoining it. The tie-rods holding the ends of the springs are also stiffened by this means. Each reel is supplied with a pawl or dog, X, to hold the winding-wheels E and prevent their backward movement.

A large gear-wheel is fastened to the double pinion-shaft G, which meshes into and transmits motion to a pinion on shaft H. Another gear-wheel is keyed to said shaft H, which meshes with a pinion on shaft I, and a third gear-wheel on said last-named shaft transmits motion to a shaft, J, through the medium of another pinion.

A balance-wheel, U, is secured to the shaft J, and is provided with a V-groove for the reception of a belt running to the machine to be driven. N is a spring friction-brake, fastened to the metal frame C, and connected by a rod to a lever (marked R) secured to the treadle-shaft L. The treadle-shaft passes through each side of the frame C, and also through a leg at the opposite end of the table, thus sustaining and bracing the several parts.

The brake can be applied by the foot at the will of the operator, and the speed of the machine is placed under his perfect control.

A pawl or dog, O, pivoted to one side of the frame C, is provided for the purpose of engaging with the gear-wheel on the shaft I to entirely stop the running of the motor, when desired to do so permanently.

The metal frame C is fastened together and the gear held in place by tie-rods K K, which rods are designed, also, to hold in place the casing of the motor, which is made preferably of wood or paper, in separate sections.

By this construction the tie-rods are made to serve the purpose of holding the casing in position, in addition to binding together the parts of the metal frame. The casing may be provided with suitable doors for the inspection of the interior, and for the purpose of oiling the parts conveniently, and a base-board is placed beneath, to protect the carpet or floor from oil. Thus incased, the gearing is kept free of dust and protected from being

tampered with by children and others. For convenience of transportation from place to place, the whole is mounted upon casters.

I claim as my invention—

The motor herein described, consisting of the reels D D, having gear-wheels at each end, tie-rods T, and division-plates S, and inclosing a series of springs, fastened at one end to the reel-shaft and at the other to the tie-rods T, combined with a common driven shaft, G, having double pinions, and a gear-wheel, for transmitting motion, substantially as described.

ELI B. RICE.

Witnesses:
CHAS. N. GREGORY,
GEO. W. FARRINGTON.