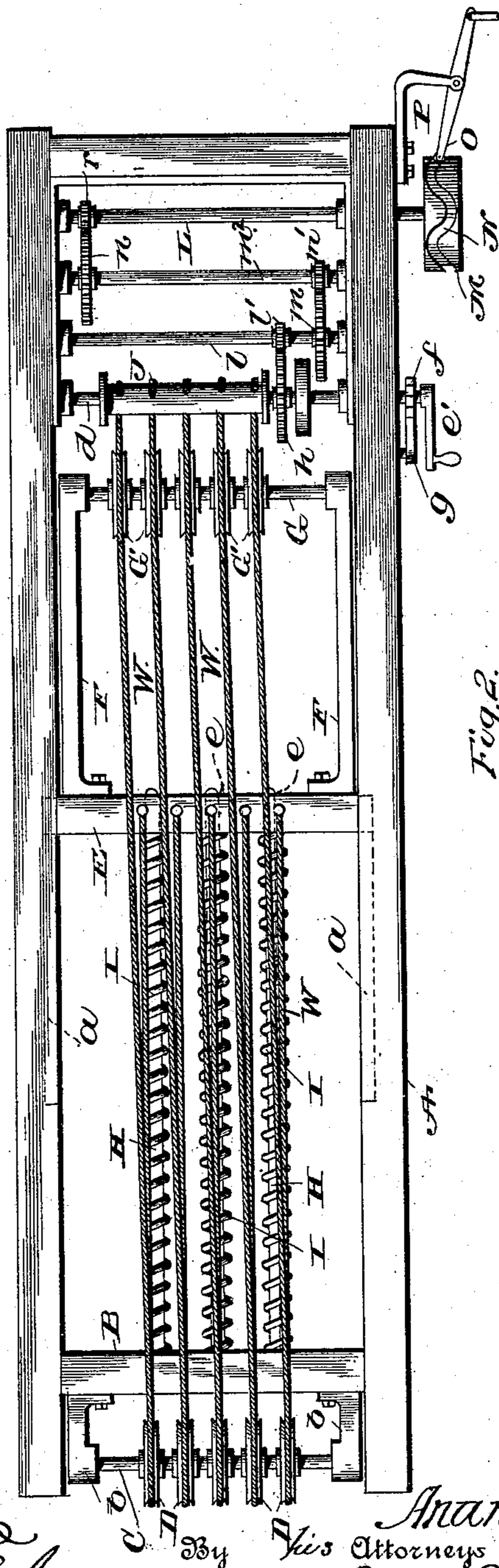


(No Model.)

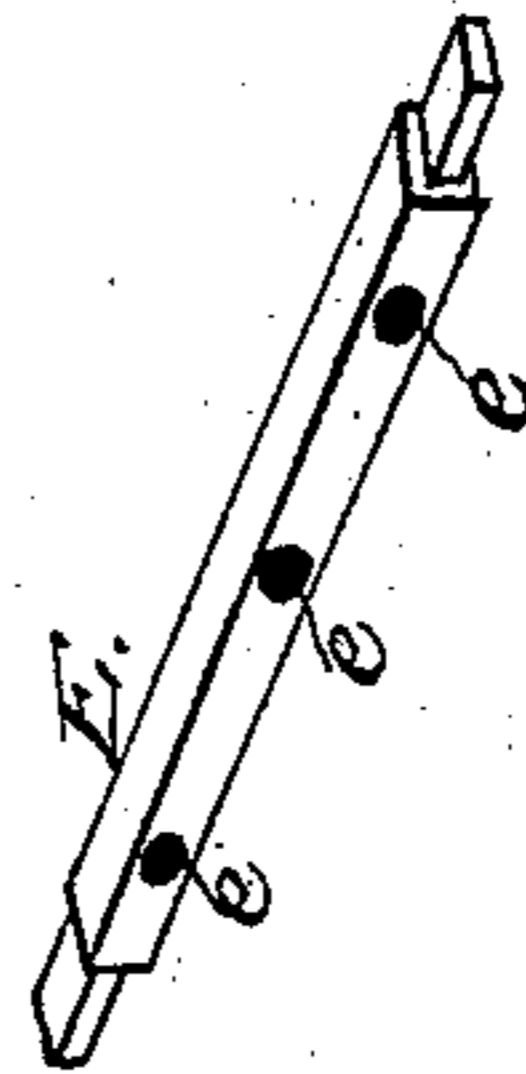
A. S. PARKER.  
SPRING MOTOR.

No. 471,888.

Patented Mar. 29, 1892.



Feb. 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

ANANIAS S. PARKER, OF MOLINE, ILLINOIS.

## SPRING-MOTOR.

SPECIFICATION forming part of Letters Patent No. 471,888, dated March 29, 1892.

Application filed October 20, 1891. Serial No. 409,327. (No model.)

*To all whom it may concern:*

Be it known that I, ANANIAS S. PARKER, a citizen of the United States, residing at Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Spring-Motors, as set forth in the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a plan view of a spring-motor having my improvement attached. Fig. 2 is a detail of the cross-bar E, showing the holes *e*, through which one end of the rods H pass.

My invention relates to that class of machines which utilize the expansive or contractive power of springs for operating light machinery, such as sewing-machines, churns, washing-machines, and analogous devices; and my invention consists of the constructions and combinations of devices which I shall hereinafter fully describe and claim.

To enable others skilled in the art to which my invention appertains to make and use the same, I will now describe its construction and indicate the manner in which the same is carried out.

In the said drawings, A represents any well-known or appropriate form of frame-work for supporting and sustaining the operating parts of my machine, the said frame having its side pieces formed or provided with grooves or channels *a*, forming ways in which a sliding carriage is adapted to move, as I shall hereinafter fully describe.

At one end of the main frame is a cross-bar B, to which outwardly-extending bracket-arms *b* are secured and provided with bearings for the ends of a shaft C, upon which are mounted grooved pulleys D, or, if preferred, a spirally-grooved drum may be substituted for the pulleys. Near the middle of the frame is a carriage, whose cross-bar E has its ends extended into the grooves or channels *a* in the sides of the main frame, whereby the carriage may slide back and forth in the guide thus formed, and from this bar E extend bracket-arms F, carrying a shaft G, with grooved pulleys or drums G', in the manner substantially as that described for the bar B and its adjuncts. The arms F, projecting from the bar E, extend outwardly some distance therefrom for a pur-

pose hereinafter stated, and said bar E is formed with holes *e*, adapted to receive one end of the rods H, whose opposite ends are fixed in the cross-bar B in any suitable manner. Upon these rods H springs I are placed in a normally-expanded condition, with their opposite ends bearing against the cross-bars B and E, so that when the sliding carriage is moved forward, in the manner hereinafter stated, the springs will be compressed and the rods H will be projected through the holes in the cross-bar E to assist in guiding the latter.

One or more ropes, chains, or analogous means W are secured to the cross-bar E, and thence extend to and around the pulleys D, and finally are returned over the pulleys G', and have their free ends secured to a drum J, upon which said ends may be wound, the said drum being mounted on a shaft *d*, which carries at one end a crank *e'*, by which its shaft may be turned. The shaft *d* also carries a ratchet-wheel *f*, adapted to be engaged by a pawl *g* to hold the shaft against movement, when desired. A gear-wheel *h* on the shaft *d* meshes with a pinion *l'* on a shaft *l*, which carries a gear-wheel *m*, adapted to mesh with a pinion *m'* on a shaft *m*<sup>2</sup>, which latter shaft is also provided with a gear-wheel *n*, adapted to engage and drive a pinion *r* on a shaft L, whose outer end has secured to it a wheel M, provided with a cam-groove N, into which is fitted one end of a lever O, pivotally held to an arm P, projecting from the main frame, and having its opposite or free end adapted to be attached to the machine or device to be operated.

From this description it will be seen that when the crank is operated the free ends of the ropes are wound upon the drum J, thereby drawing the carriage along its slotted or grooved guides *a* and compressing the springs between the two cross-bars B and E, the distance between the pulleys G' and the cross-bar E being sufficient to prevent the projected ends of the rods H from contacting with the pulleys. The pawl being now lifted from its engagement with the ratchet-wheel *f*, the springs exert their expansive force and operate against the sliding carriage to force the same backward, the drum J paying off the rope under this movement and starting in

motion the train of gearing between itself and the shaft L, which carries the cam-wheel M. The motion and power of this multiplied gearing is therefore transmitted to the cam-wheel, and from thence is communicated to the lever O, which operates the machine or device attached to it. The motor continues in motion until the springs are fully expanded, when they may be again compressed to operate in the manner before stated.

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

1. In a motor, the main frame having its sides provided with guides or ways, in combination with a fixed cross-bar carrying pulleys, a carriage slidable in said guides or ways and provided with pulleys, springs interposed between the fixed cross-bar and slidable carriage, cords or ropes secured to said carriage and passing around the double set of pulleys, a drum upon which the free ends of the cords or ropes are wound, a cam-wheel, a train of gearing between said wheel and drum, a pivotally-secured lever having one end engaging the cam-wheel and the opposite end attachable to the device to be operated, and means

for compressing the springs, substantially as herein described.

2. An improved spring-motor consisting of a main frame having grooved sides and fixed cross-bar, arms extending from said bar, a shaft mounted between said arms and provided with pulleys, a slidable cross-bar fitted in the said grooves and having projecting arms, springs mounted between the cross-bars, a shaft mounted in the arms of the slidable cross-bars and provided with pulleys, ropes or cords secured to the slidable cross-bar and passing around the double set of pulleys, a shaft having a drum upon which the free ends of the ropes or cords are wound, a crank on the drum-shaft for winding up the cords or ropes and compressing the springs, a train of gearing operated by the movement of the drum-shaft, a cam-wheel actuated by the gearing, and a pivotally-secured lever having one end engaging the cam-wheel and the other end attachable to the device to be driven, substantially as herein described.

ANANIAS S. PARKER.

Witnesses:

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