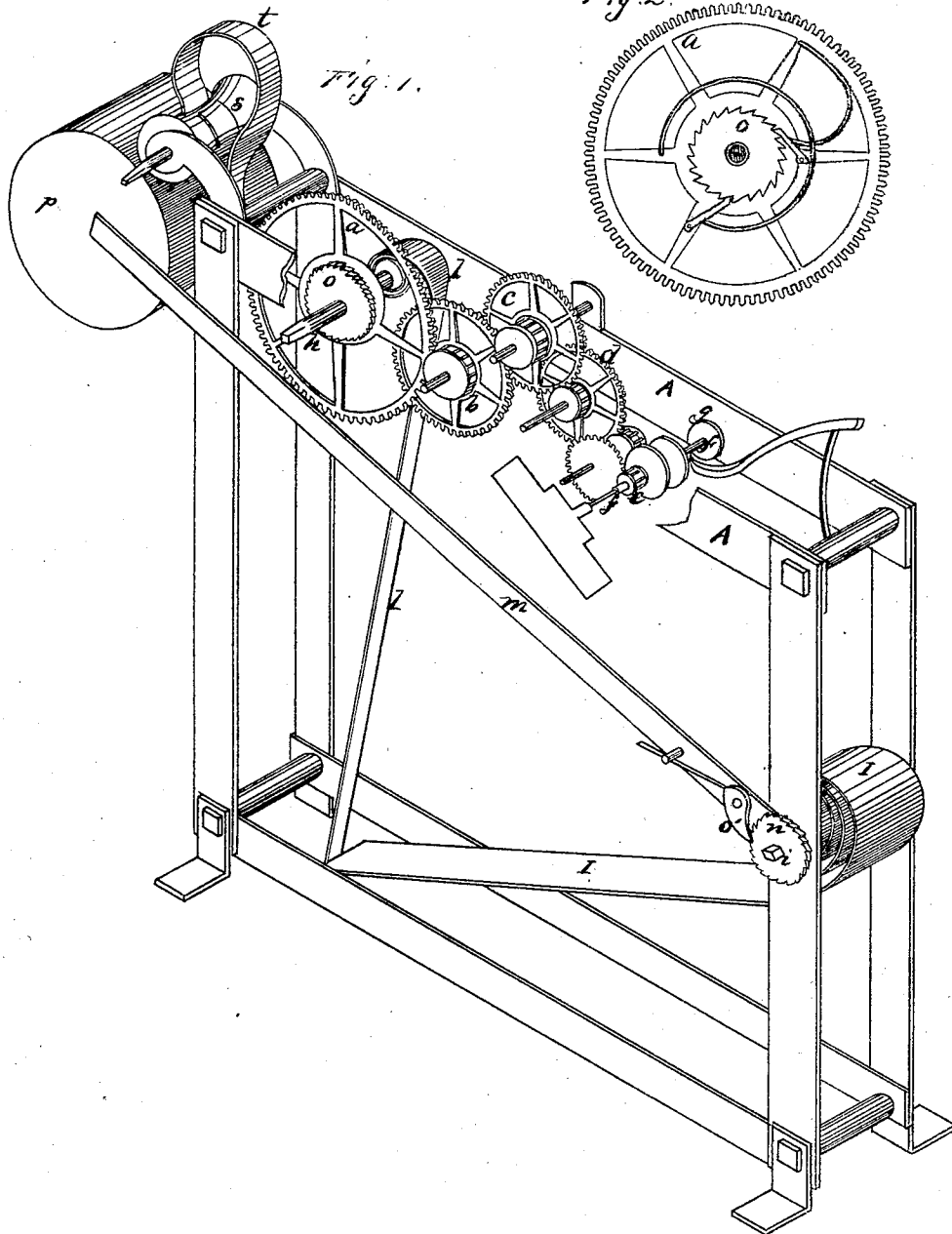


T. EBELING.
Spring Powers.

No. 144,894.

Patented Nov. 25, 1873.



Witnesses

John L. Borne
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UNITED STATES PATENT OFFICE.

THEODORE EBELING, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN SPRING-POWERS.

Specification forming part of Letters Patent No. **144,894**, dated November 25, 1873; application filed October 21, 1873.

To all whom it may concern:

Be it known that I, THEODORE EBELING, of San Francisco city and county, State of California, have invented an Improved Spring-Power; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

My invention relates to a novel arrangement of springs and weighted levers for driving a train of gears, by means of which I provide a motive power for light machinery, and for other purposes, requiring an ordinary amount of power.

In order to explain my improvement so that others will be able to understand its construction and operation, reference is had to the accompanying drawings forming a part of this specification, in which—

Figure 1 is a perspective view of my machine. Fig. 2 is a view of one of the wheels having the ratchets.

A represent two strong frames, which are secured together at a short distance apart by bolts at each corner, as shown. Between the two upper beams of this frame I secure a train of gears, *a b c d*, which are arranged similar to a train of clock-gears, their shafts bearing in the opposite timbers of the frame. This train of gears is connected with a pinion, *e*, on a shaft, *f*, near one end of the frame, and this shaft *f* has secured upon it a pulley, *g*, from which the power of the motor can be transmitted, by a belt, to the machine to be driven. The main drive-wheel *a* is placed loosely upon a shaft, *h*, which is arranged as a winding-shaft. A small ratchet-wheel, *o*, is secured to the shaft beside it, and a pawl on the wheel *a* permits the shaft to be wound up without disturbing the wheel *a*, while the reaction of the spring operates upon the wheel *a*. I is a strong spring, one end of which is secured to a shaft, *i*, between the upright timbers of the frame. The end of the spring I is coiled around this shaft two or more times, as shown, while its opposite end extends down below the winding-shaft *h*. A flat steel spring, *l*, similar to a clock-spring, has one end secured to the winding-shaft beside the wheel *a*, while its opposite end is secured to

the extremity of the spring I, so that when the winding-shaft is turned the spring *l* will be wound upon it, and serve as a chain or cord connection to raise the end of the spring I, as well as to act as a spring itself, both forces acting upon the shaft *i*, and through it upon the train of gears. Upon each end of the shaft *i*, outside of the frame, one end of a lever, *m*, is placed. These levers extend to the opposite corner of the frame, and are held in position by a ratchet-wheel, *n*, which is fixed to the shaft *i* outside of the lever, and a pawl, *o'*, on the lever, which engages the ratchet. The opposite or upper ends of these levers have a weight, *p*, attached to them, which will exert a downward pressure on the outer ends of the levers, and thus serve, when the spring I has run down, to keep up the pressure by the force exerted by them upon the shaft *i*. These levers, and the weights in some instances, might be dispensed with. A small drum, *s*, is secured to the upper corner of the frame A, above the weight *p*, to which one end of a belt, *t*, is secured, while its opposite end is secured to the weight, so that by turning the drum, the weight can be wound up after it has run down.

This motive power can be used for many purposes where a cheap power is required. The arrangement of the springs, weights, and levers is such that it will run much longer and with greater power than a simple power will run.

A brake, *u*, serves to regulate or entirely stop the motion of the train when required.

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

1. A train of gears, *a b c d*, in combination with the spring I, applied as described, and flat spring *l*, which serves both as a spring and connecting chain or belt, substantially as and for the purpose specified.

2. The re-enforcing power, consisting of the levers *m* with their weight *p*, in combination with the shaft *i*, in the manner substantially as described.

In witness whereof I hereunto set my hand and seal.

THEODORE EBELING. [L. S.]

Witnesses:

JOHN L. BOONE,
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