A. R. STEEL.
Motor.

No. 205,814. Patented July 9, 1878.

Fig. 1.

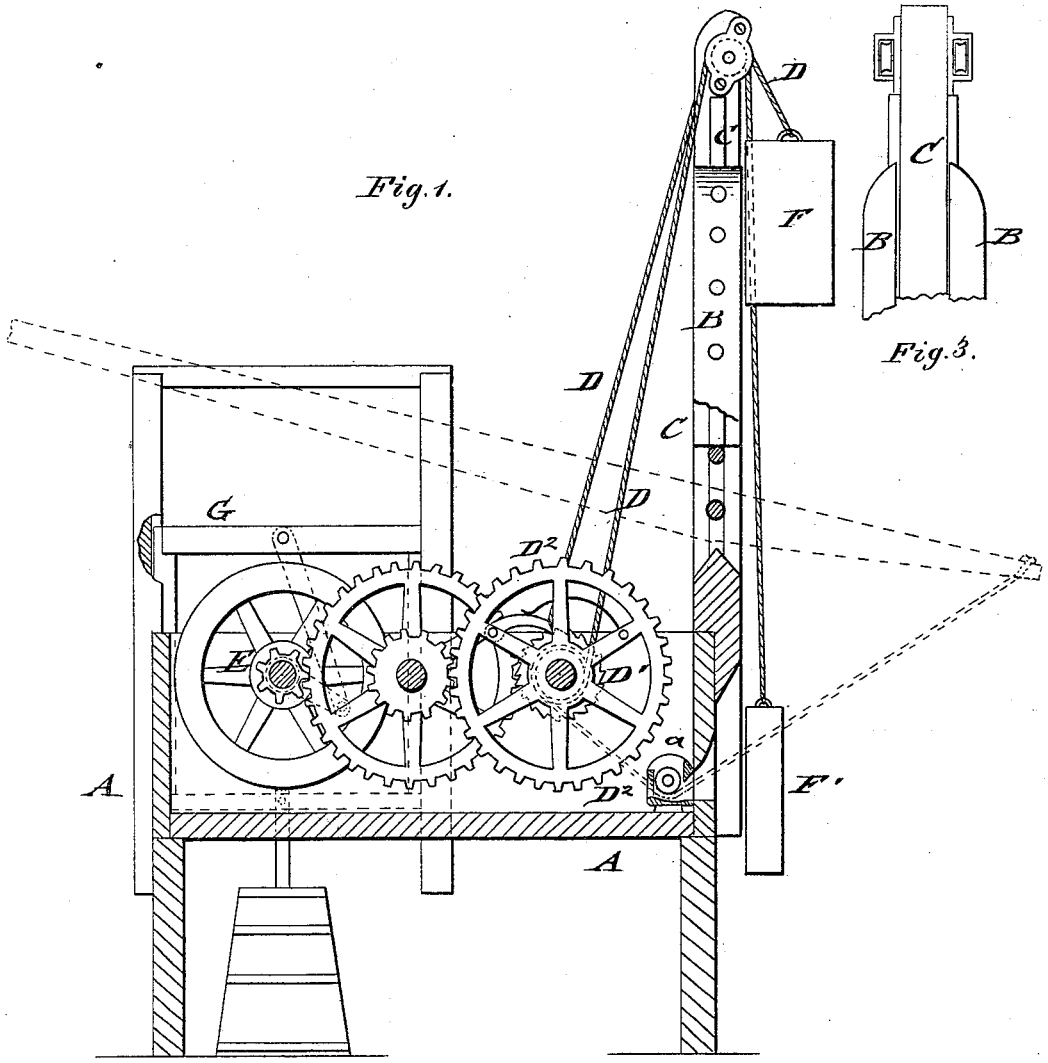
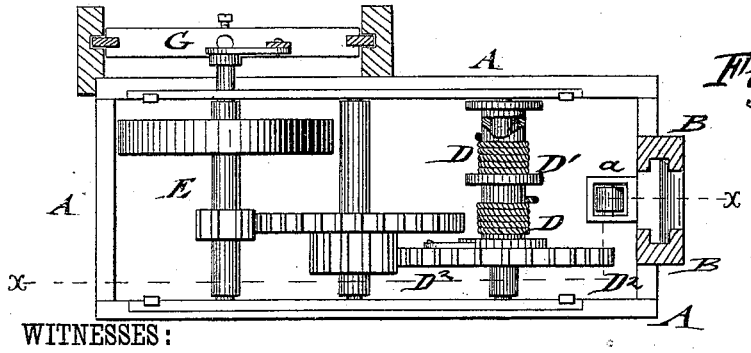


Fig. 3.

Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ARTHUR R. STEEL, OF LETTS, IOWA, ASSIGNOR TO HIMSELF AND LAURA VAN HORN, OF SAME PLACE.

IMPROVEMENT IN MOTORS.

Specification forming part of Letters Patent No. **205,814**, dated July 9, 1878; application filed May 2, 1878.

To all whom it may concern:

Be it known that I, ARTHUR R. STEEL, of Letts, in the county of Louisa and State of Iowa, have invented a new and Improved Motor, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation, partly in vertical longitudinal section, on line *x x*, Fig. 2, of my improved motor. Fig. 2 is a plan view, partly in horizontal section, of the same; and Fig. 3, a detail side view of the adjustable pulley-post supporting the operating-weights.

Similar letters of reference indicate corresponding parts.

This invention has for its object to furnish, for the purpose of running light machinery, such as churns, sewing-machines, lathes, &c., an improved motor that may be run by weight or lever at any desired speed, and conveniently rewound from time to time; and the invention consists of a supporting-frame, carrying a vertical adjustable pulley-post, for supporting the operating-weights, in connection with a double drum, along which the weighted ropes are wound, in opposite direction, one connecting with a larger, the other with a smaller, weight, the former serving for driving, the other for winding up the motor when the larger weight is detached.

The drum connects, by a suitable transmitting train of gear-wheels, with a crank-shaft and a vertically-reciprocating frame, to which the dash-rod of a churn or other connecting mechanism is attached.

A bottom pulley of the main frame serves, in connection with a fulcrumed lever, to admit the working of the motor by lever-power instead of weights.

Referring to the drawing, A represents the supporting-frame of my improved motor for light machinery, and B are two upright guide-posts, which are rigidly secured thereto, and perforated for the purpose of adjusting an intermediate pulley-post, C, by means of locking cross-pins, to any desired height, according to the length of time for which the machine is desired to be worked, or according to the height of the room where the machine is placed.

Over pulleys at the upper end of the post C are passed two ropes, D, which are wound in opposite direction over a drum or cylinder, D^1, that is placed loosely on the shaft of a cog-wheel, D^2, and connected thereto by a ratchet and spring-pawl mechanism, so that the drum may be readily turned in one direction, but turn the cog-wheel in opposite direction, so as to transmit, by means of intermediate pinions and gear-wheels, power to a driving crank-shaft, E. To the ropes D are hung weights F F′ of different sizes, the larger one being the driving-weight, the smaller the weight employed for rewinding the drum D^1. When the larger driving-weight is in lowermost position the smaller weight is at its highest position. The apparatus is then rewound by detaching the larger weight, and raised by means of getting on a step-ladder to the highest point on the pulley-post, the smaller weight winding up in the meantime the rope of the driving-weight, and assuming its lowermost position.

A set of weights of different sizes may be used in connection with the motor for the purpose of imparting different degrees of speed, according to the size of the weight applied. The weights may be arranged in a suitable casing of the step-ladder, so as to be readily changed from one to the other.

The power is transmitted from the driving crank-shaft, having a fly-wheel, to a vertically reciprocating and guided frame, G, and from the same to the dash-rod of a churn, which is secured by a suitable set-screw to the reciprocating frame.

A sewing-machine, lathe, or other light machine may also be driven by arranging different transmitting mechanism in connection with the driving-shaft. The motor may also be run by means of a fulcrumed hand-lever, as indicated in dotted lines in Fig. 1, in which case the rope to which the larger weight was before attached is then passed over a bottom pulley, *a*, of frame A, and attached to the outer end of the fulcrumed lever. By press-

ing on the opposite longer end of the lever the motor may be run at greater or less speed, as required.

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

The combination of a supporting-frame, having a guided and vertically-adjustable pulley-post, with two ropes, having a larger driving and a smaller winding-up weight, and with a revolving drum or cylinder and suitable power-transmitting gearing and mechanism, substantially as specified.

ARTHUR R. STEEL.

Witnesses:
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