(No Model.)

H. ERRIC.

MECHANICAL MOVEMENT.

No. 291,885. Patented Jan. 15, 1884.

Fig. 3.

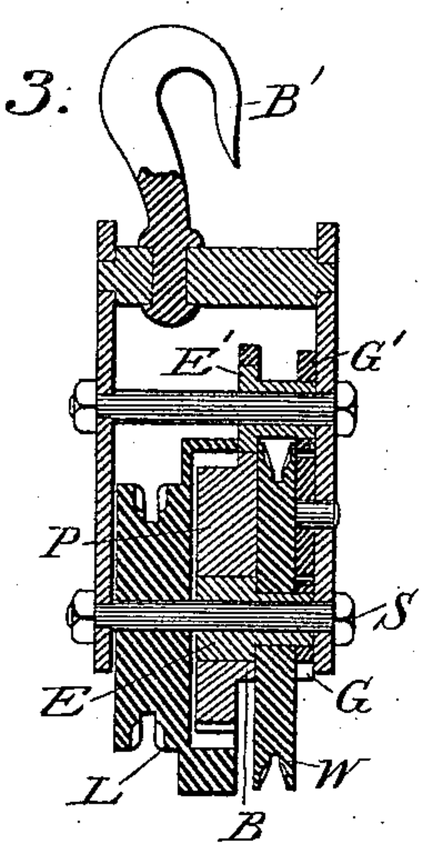


Fig. 1.

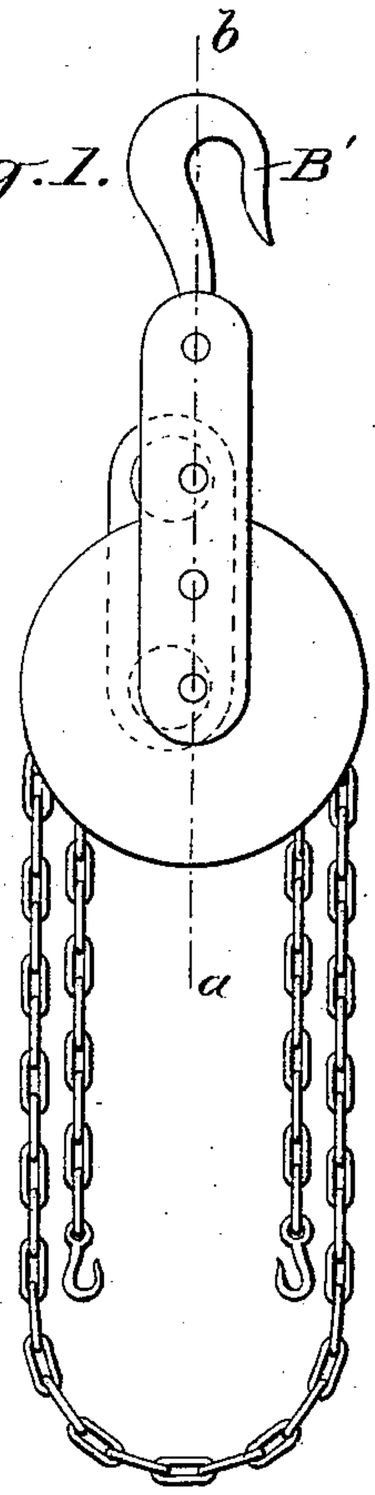


Fig. 2.

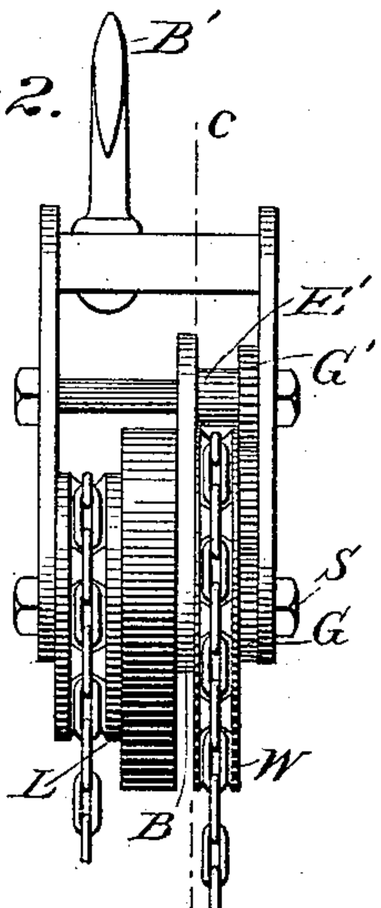
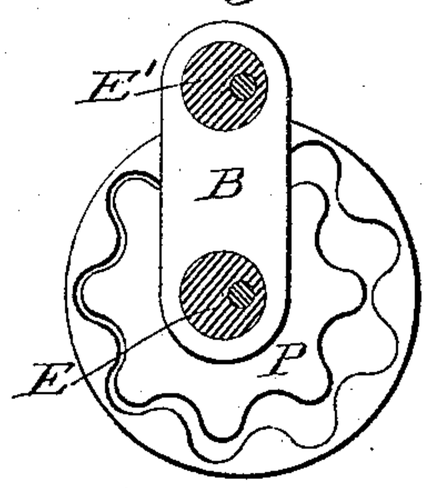


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY ERRIC, OF PHILADELPHIA, PENNSYLVANIA.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 291,885, dated January 15, 1884.

Application filed December 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY ERRIC, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Machines for Hoisting and Mechanical Movements, of which the following is a specification.

My invention relates to improvements in hoisting-machines. in which a lifting wheel or drum, which, having upon its periphery a hollow internal gear, is made to revolve by gearing into a pinion-gear having an eccentric motion imparted to the pinion-gear by not less than two eccentrics of the same throw having uniform motion, being connected by chain-belt or suitable gearing, one eccentric forming the center of the pinion-gear and actuating the same, the second eccentric being placed outside of the periphery of the pinion-gear and rotating in the end of an arm projecting from the pinion-gear, thus permitting all the eccentric movement, but preventing a rotary movement of the pinion-gear. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the entire machine; Fig. 2, a side view, and Fig. 3 a section through the center, Fig. 4 showing the eccentrics with frame, hand chain-wheel, and gearing removed.

On the shaft S, I place the loosely-fitted hand chain-wheel W, which has made solid on it or otherwise fixed the gear G and eccentric E. On the eccentric E, I place the pinion P, which fits loosely, but is made fast to the arm-bar B, into the end of which the eccentric E′ revolves. I then place on shaft S the loosely-fitted sprocket-wheel L, which has cast or otherwise fixed to it the toothed wheel having cogs or teeth inside the periphery or rim, into which the pinion P gears. To the outside of wheel L a rope or chain is secured in any convenient manner, and is raised or lowered, according to the direction in which load-wheel L shall be rotated. In order to sustain the load in any position, it is necessary that the pinion P should be prevented from rotating on the eccentric on which it is mounted. To accomplish this I make solid with the pinion or otherwise affix the arm-bar B, which engages with the second or external eccentric, E′, thus allowing the eccentric motion to the pinion P, but preventing a rotary motion to the pinion. This additional eccentric is actuated by the gear G′, gearing with the gear G on the hand chain-wheel, so that the two eccentrics shall have a uniform and parallel motion.

To operate my machine it is required to rotate the wheel W, which revolves the eccentric E, also the external eccentric, E′, by suitable gearing, the two eccentrics working with parallel motion, and causing the pinion-wheel to gear into the hollow gear on the inside of the load-wheel L, which, having one more tooth than the pinion-gear, will revolve the space of one tooth with every revolution of the two eccentrics.

I am aware that the principle of differential gearing is not new; but all other devices for holding the pinion P are subjected to one or more objections—such as a large amount of friction, unevenness of motion, or a much larger increase of extra weight.

What I do claim, and for which I desire to obtain Letters Patent, is—

1. In a mechanical movement, the combination of a load-wheel rotated by an internal gear, which is actuated by two eccentrics.

2. The arm B, connecting from one eccentric to the pinion-wheel P.

3. The eccentric or crank, in combination with an arm connecting with pinion P.

4. The pulley or gear G′, used to drive the eccentric E′ and driven by the wheel W.

5. The wheel W, when used to drive two eccentrics for controlling the motion of pinion P.

6. The combination of wheel L, pinion P, arm B, eccentrics E and E′, gear G and G′, together with wheel W, all substantially as set forth.

HENRY ERRIC.

Witnesses:
JOHN F. LEWIS,
S. MANKINS.