No. 771,761. PATENTED OCT. 4, 1904.

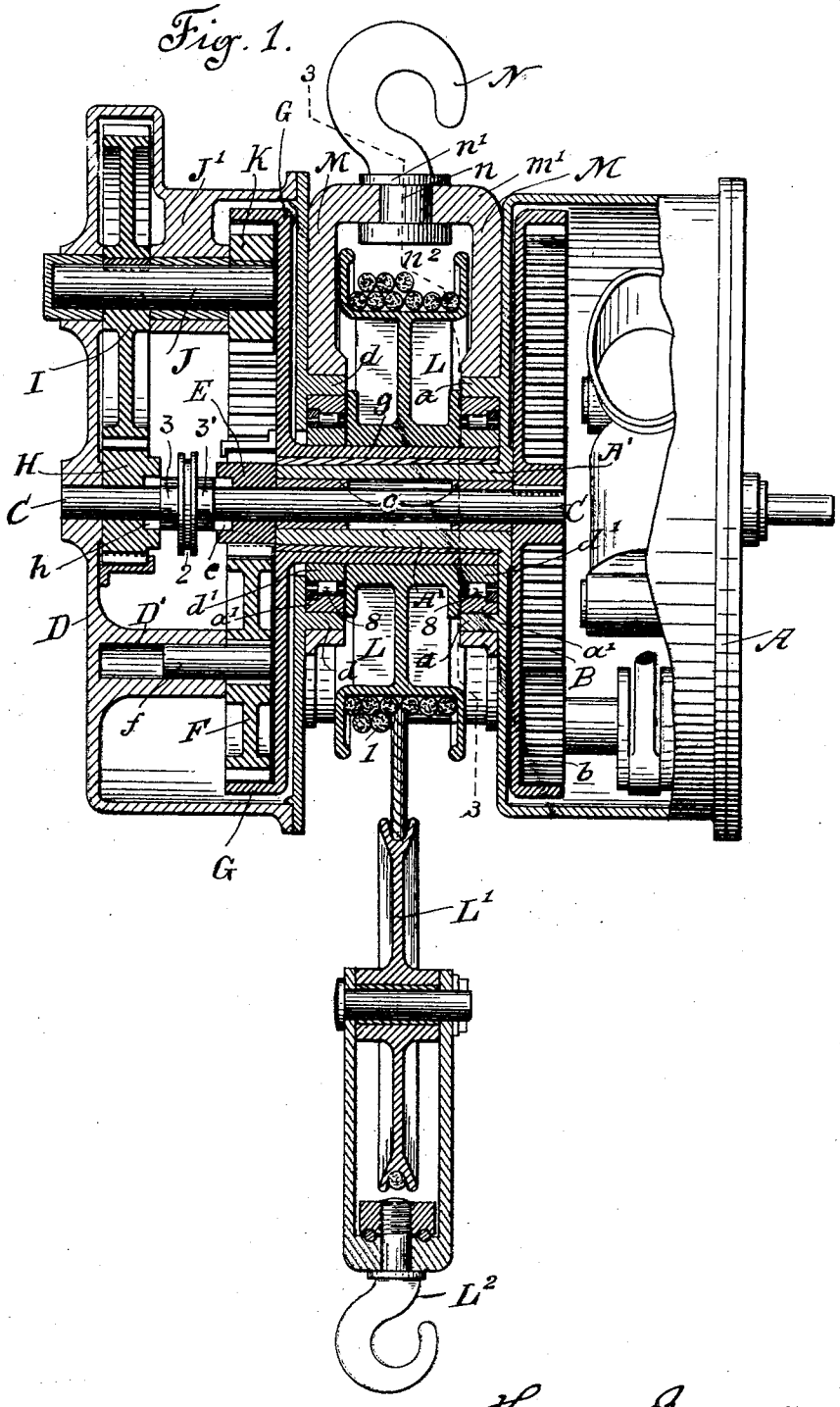
T. BARROW.

POWER HOIST.

APPLICATION FILED JULY 30, 1903.

NO MODEL. 3 SHEETS-SHEET 1.

Fig. 1.



Witnesses
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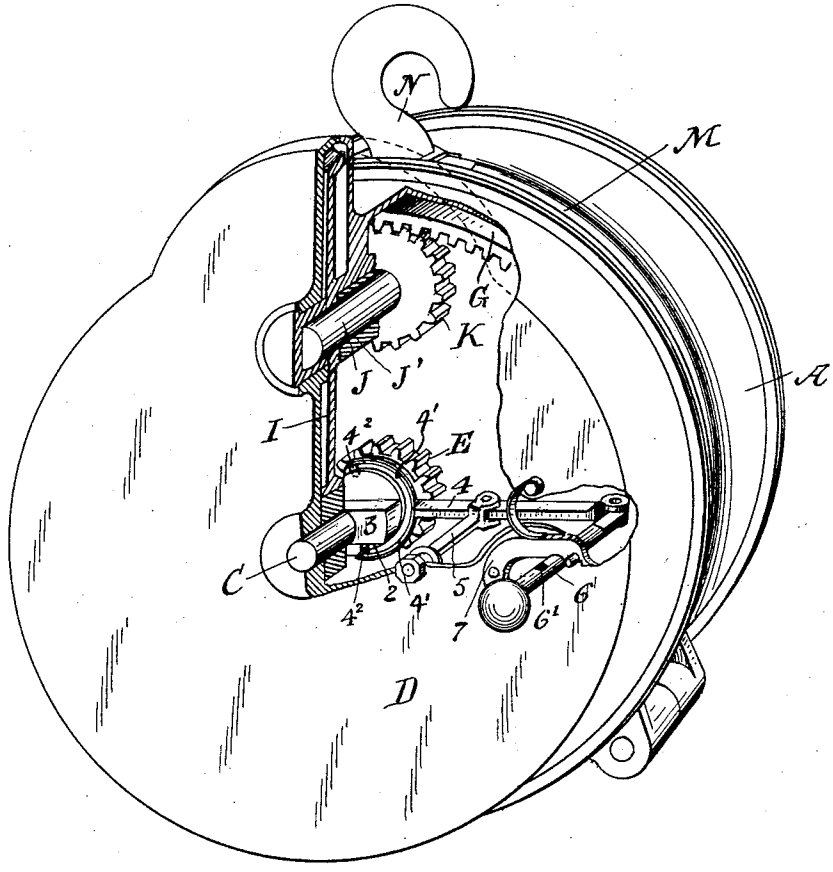
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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.



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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 4.

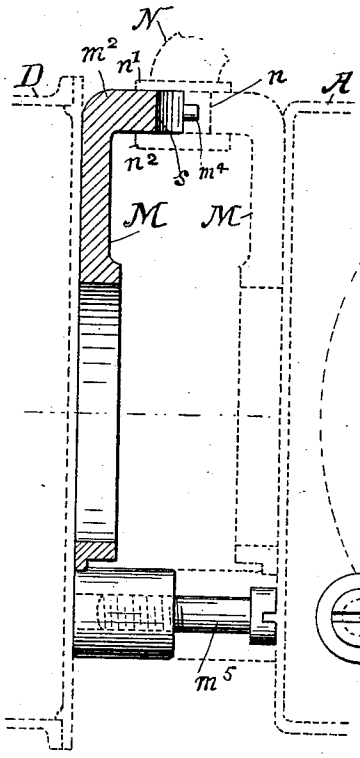
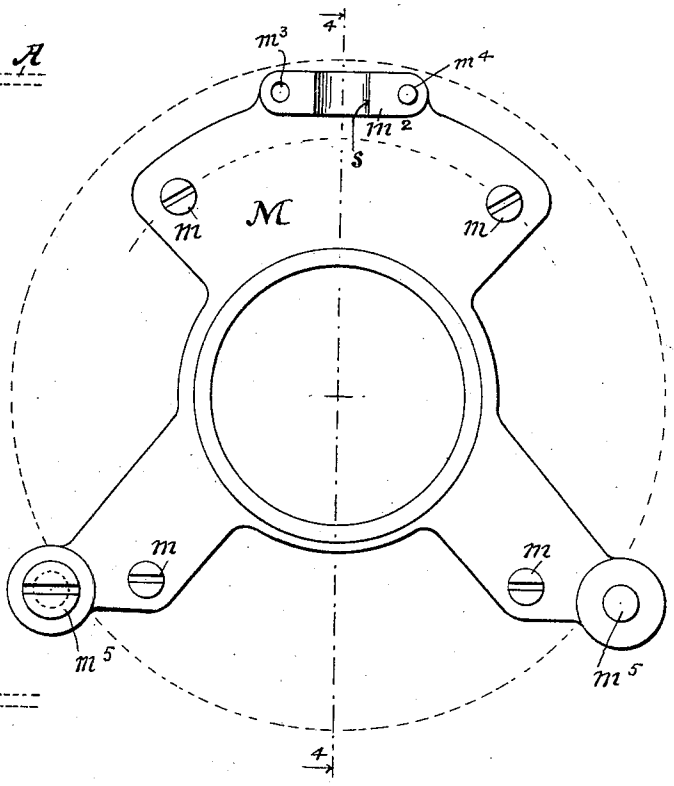


Fig. 3.



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PHOTO LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 771,761. Patented October 4, 1904.

UNITED STATES PATENT OFFICE.

THOMAS BARROW, OF PLAINFIELD, NEW JERSEY, ASSIGNOR TO PEDRICK AND AYER COMPANY, OF PLAINFIELD, NEW JERSEY.

POWER-HOIST.

SPECIFICATION forming part of Letters Patent No. 771,761, dated October 4, 1904.

Application filed July 30, 1903. Serial No. 167,555. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BARROW, a subject of the King of Great Britain, and a resident of Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Power-Hoists, of which the following is a specification.

My invention relates to improvements in power-hoists; and the object of the invention is to devise a hoist which will occupy a minimum amount of head space, readily adapted for light or heavy loads, readily changed to high or low speed, and when suspended for operation will be perfectly balanced.

The invention consists, essentially, of a hoist comprising two casings, an air-motor being located in one casing, with an internal gear driven from such air-motor, and the other casing containing a system of shifting gears operated from the axle of the motor, and a hoisting-drum located between the two casings, all suspended from a suitable hook and gear and arranged and constructed in detail as will be hereinafter more particularly explained.

In the accompanying drawings, Figure 1 is a sectional view; Fig. 2, a perspective view, partially in section, showing the means for shifting the speed-gears; Fig. 3, a face view of the suspension-plate, and Fig. 4 a vertical sectional view on the line 4 4 of Fig. 3.

In the drawings like characters of reference indicate corresponding parts in each figure.

A is one casing in which is supported a suitable motor by which the internal gear B is driven through pinions *b*. The internal gear B is secured on the end of the motor-shaft C, which extends through and is journaled in the bushings *c* in the sleeve A′, forming part of the casing A, and to and through the other casing, D, and the outer wall thereof.

E is a pinion loose on the shaft C and meshing with a gear-wheel F, which is journaled on a stud *f*, fitting in the boss D′, extending inwardly from the outer wall of the casing D.

G is an internal gear with which the gear-wheel F meshes. The internal gear G has an inwardly-extending boss or hub *g*, which surrounds the sleeve A′, forming part of the casing A.

H is a pinion loose on the shaft C in proximity to the outer wall of the casing D.

I is a gear-wheel which is secured on the stub-shaft J, secured in the outer wall of the casing and extending through a bearing J′, extending inwardly from the cylindrical wall of the casing.

K is a pinion secured at the opposite end of the shaft J and meshing with the internal gear-wheel G.

2 is a grooved collar which is secured on the shaft C, capable of longitudinal movement thereon, such collar being provided with two correspondingly-formed cross-bars 3 and 3′, which are designed to be brought into engagement with the recesses *h* and *e* in the pinions H and E, respectively, and thereby form a clutch connection between either of these pinions. The collar 2 is moved longitudinally on the shaft by means of a lever 4, which is pivoted on a bearing 5, extending inwardly from the outer wall of the casing D, the lever having a forked end 4′, with pins 4^2, which extend into the groove in the collar. The opposite end of the lever 4 is provided with a push-bar 6, which is pivotally connected to the end of the lever, the button of the push-bar extending outside the casing, as indicated. The push-bar is provided with notches 6′, and a spring-actuated catch 7 is pivoted in the casing and is designed to be brought into either one of the notches, depending upon which pinion, H or E, it is designed to shift the gear.

The casing A is provided with an annular flange *a*, extending inwardly from its inner face, and the casing D is provided with an annular flange *d*, extending from its inner face. Within the flanges *a* and *d* are secured the rings *a′* and *d′* between which are arranged, a circle of rollers 8, which form a roller-bearing.

L is a drum which is secured on the hub *g* of the gear-wheel G.

M M, Figs. 1, 3, and 4, are plates substantially X shape in form, one, as shown in Fig. 4, being bolted to the casing D, while the

other is bolted to the casing A, as shown at m, Fig. 3. The suspension-hook N is constructed with a reduced end n and flanges n' n^2. The reduced end n is fitted into a corresponding opening s, formed by each half of the projection m^2 of plates M, and the plates and casings are secured together by dowels m^4, entering the holes m^3, and by bolts m^5, and thereby the hook is held securely in place.

The drum L is provided with the usual rope gear 1, which is connected to the sheave L', from which is suspended the usual lifting-hook L^2.

Having now described the principal parts of a structure embodying my invention, I will briefly describe its operation. It will be seen by throwing the lever 4 so as to throw the collar 2, and consequently the cross-bar 3, into the recess h in the pinion H that such pinion is thrown into connection with the shaft C and the motion derived from the shaft will be communicated through the pinion H and gear-wheel I and gear-pinion K and internal gear-wheel G to drive the drum L at a slow speed. It will also be seen by throwing the lever 4 in the opposite direction, so as to throw the collar 3, and consequently the cross-bar 3', into the recess e in the pinion E, that such pinion is thrown into connection with the shaft C and the motion derived from the shaft will be communicated, through the pinion E and gear-wheel F, to the internal gear G, and thereby drive the drum L at a comparatively quicker speed.

With this invention I provide a simple and compact hoist that occupies a minimum of space or head room and in which the power-transmitting gear is arranged to balance the motor mechanism. The hoisting-drum is mounted on roller-bearings and located between the casings, whereby the weight is supported centrally, which relieves the strain on the motor-shaft.

What I claim, and desire to secure by Letters Patent, is—

In a power-hoist, the combination with a hoisting-drum of two casings located upon opposite sides of the stationary plates or framework supporting said drum, a power-shaft extending centrally through each casing; a motor and suitable driving-gearing connected with said shaft located in one casing and a suitable transmitting and shifting gearing connected with said shaft and with the hoisting-drum located in the opposite casing, as set forth.

Signed at New York, in the county of New York and State of New York, this 27th day of July, A. D. 1903.

THOMAS BARROW.

Witnesses:
CHAS. W. FORBES,
CHARLES HANIMANN.