

No. 816,349.

PATENTED MAR. 27, 1906.

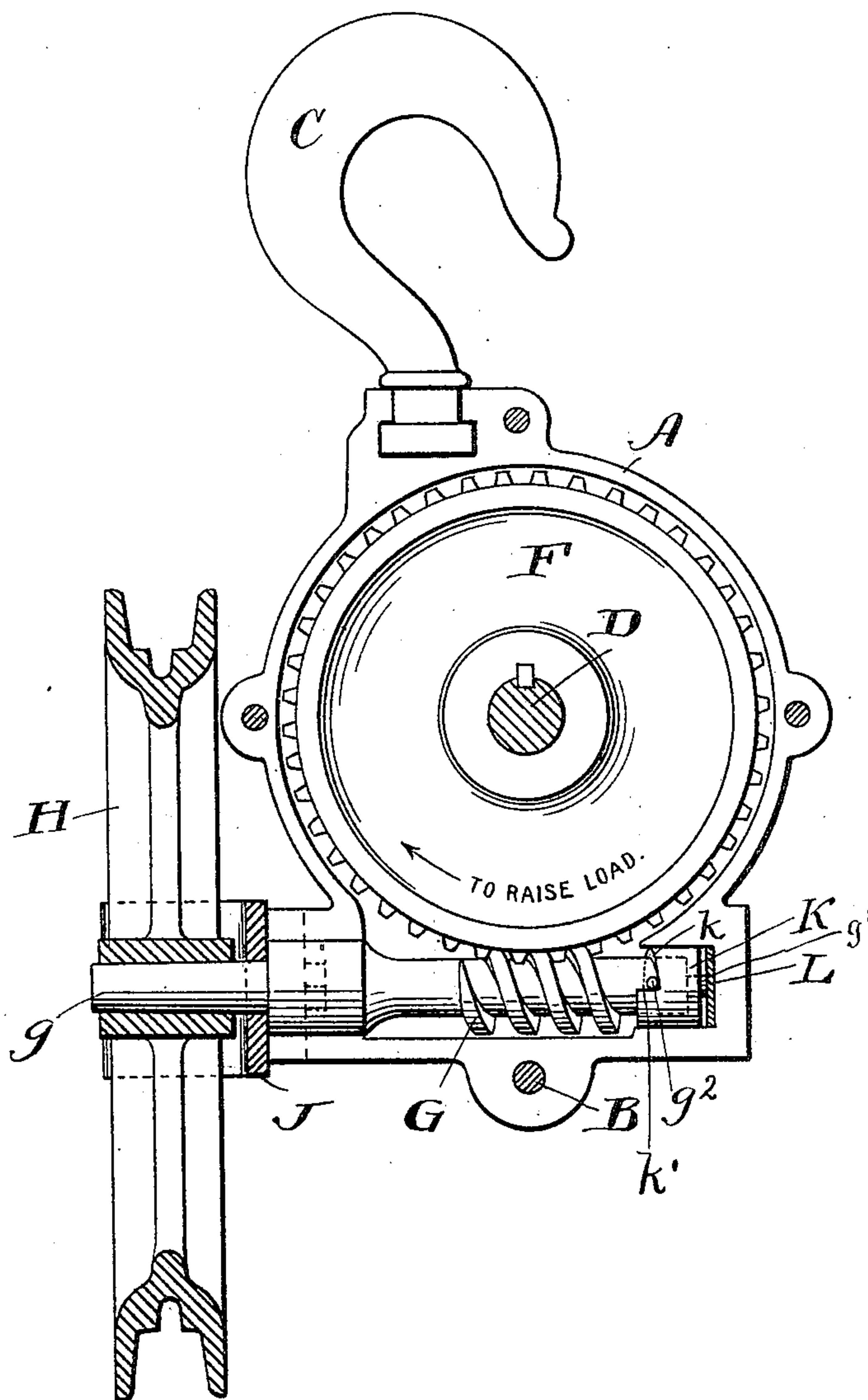
E. Y. MOORE.

HOIST.

APPLICATION FILED DEC. 12, 1904.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

*E. B. Gilchrist
G. H. Reardon.*

Inventor:

*Edward Y. Moore,
By his Attorneys,
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2 SHEETS—SHEET 2.

Fig. 2.

Fig. 3.

Witnesses.
E. B. Gilchrist
G. H. Reardon.

Inventor
Edward Y. ...
By his Atty.

UNITED STATES PATENT OFFICE.

EDWARD Y. MOORE, OF CLEVELAND, OHIO.

HOIST.

No. 816,349.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed December 12, 1904. Serial No. 236,423.

To all whom it may concern:

Be it known that I, EDWARD Y. MOORE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Hoists, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of this invention is to provide in a very simple form an efficient screw-hoist, one in which the friction sustaining the load shall be automatically increased when the load tends to descend, whereby the parts may be so formed that the necessary friction, acting both during the elevating and lowering, is reduced.

The invention consists of a screw-hoist including a worm and worm-wheel and a cap on the thrust end of the worm and operated by backward rotation of the worm to bring into action an increased amount of friction to receive the thrust of the worm. This and other features of the invention are more fully hereinafter described, and definitely set out in the claims.

In the drawings, which clearly disclose my invention, Figure 1 is a sectional side elevation of the hoist. Fig. 2 is a vertical cross-section through the pulley-shaft, and Fig. 3 is a horizontal section along the worm.

Referring to the parts by letters, A represents the main frame or casing, composed of two parts and held together by bolts B. A supporting-hook C is swiveled in this casing. Journaled in the casing is the shaft D, on which is keyed near its outer ends the two chain-pulleys E and keyed immediately within the casing the worm-wheel F. This worm-wheel meshes with the worm G, which is journaled in the lower part of the casing and has secured to its forward end a hand-wheel H.

The hand-wheel is secured to a reduced shank *g* of the worm, and between the hand-wheel and casing is a chain-guard J, which fits around the shank of the worm and is secured by bolts to ears *a*, formed on the sides of the casing. The chain-guard thus also serves the purpose of holding the worm in place and holding the two halves of the casing together about it.

Set in the end of the worm which receives the thrust is a hardened-steel pin *g'*. When the load is being lifted, this pin bears against a steel plate L within the casing and receives

the thrust. Seating on the end of the worm is the cap K, which has a central opening through which the pin *g'* projects. An inclined edge *k* is formed on this cap and is adapted to be engaged by a pin *g''*, carried by the worm. The incline *k* is in such direction that when the worm is turned to elevate the load the worm is screwed into the cap K as far as the pin *g''* will allow, a shoulder *k'* of the cap limiting the movement. In this position the pin *g'* projects beyond the end of the cap and receives the thrust.

When the load is being lowered, either by the hand-wheel being turned or by the load starting to run down, if the proportioning of the parts allows the latter action, the worm turns within the cap K, (which is held by its friction with the casing,) screwing itself out of the cap until it has made something less than a complete rotation, when the pin *g''* strikes the shoulder *k'* at the other end of the incline and compels the cap to rotate with the worm. Before this has taken place, however, the pin *g'* has retreated entirely within the cap, so that the thrust is taken not by the pin *g'*, but by the end of the cap. The friction is thus provided by a surface considerably more distant from the axis of rotation, and it is therefore more effective in preventing the rotation. By means of this simple rotation-preventer for downward movement the other friction of the parts need not be relied upon to the same degree as heretofore, and the hoist may be made correspondingly more effective for lifting.

I claim—

1. In a hoist, the combination of a worm, a worm-wheel, a cap at the end of the worm having an opening in its end, a thrust-pin adapted to project through such opening and form a thrust-bearing for the worm, the edge of the cap being inclined, and a pin projecting from the worm adapted to engage said incline, the incline being in such a direction that the worm tends to withdraw from the cap on the lowering rotation of the worm.

2. In a hoist, the combination, a worm, a worm-wheel, a cap on the end of the worm and having an inclined edge, a pin projecting from the worm and adapted to engage said edge, a member adapted to project through an opening in the end of the cap on the elevating rotation of the worm and form a thrust-bearing for the worm, and an abrupt shoulder on the cap between the high and low points of its incline, said pin being adapt-

ed to abut said shoulder whereby the independent rotation of the worm is limited.

3. In a hoist, the combination of a casing made in two coöperating halves, a worm and 5 worm-wheel within the casing dividing in a plane substantially passing through the axis of the worm, a cap on the end of the worm within the casing and having an inclined engagement with the worm, said cap having a 10 hole through its end through which a thrust-pin on the end of the worm may project, and a thrust-plate within the casing opposite the end of said pin and bridging the line of division between the two halves of the casing.

15 4. In a hoist, in combination, a two-part casing, a worm and worm-wheel within the

casing, a shank of the worm extending outside of the casing, ears formed on the casing adjacent to the shank of the worm, and a chain-guard extending across the shank of 20 the worm and secured to the ears, said shank being reduced at the chain-guard, whereby the chain-guard serves the double purpose of guiding the chain and retaining the worm within the casing. 25

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

EDWARD Y. MOORE.

Witnesses:

ALBERT H. BATES,

N L. BRESNAN.