(No Model.)

# H. KENNEDY.

## HOISTING APPARATUS.

No. 398,785. Patented Feb. 26, 1889.

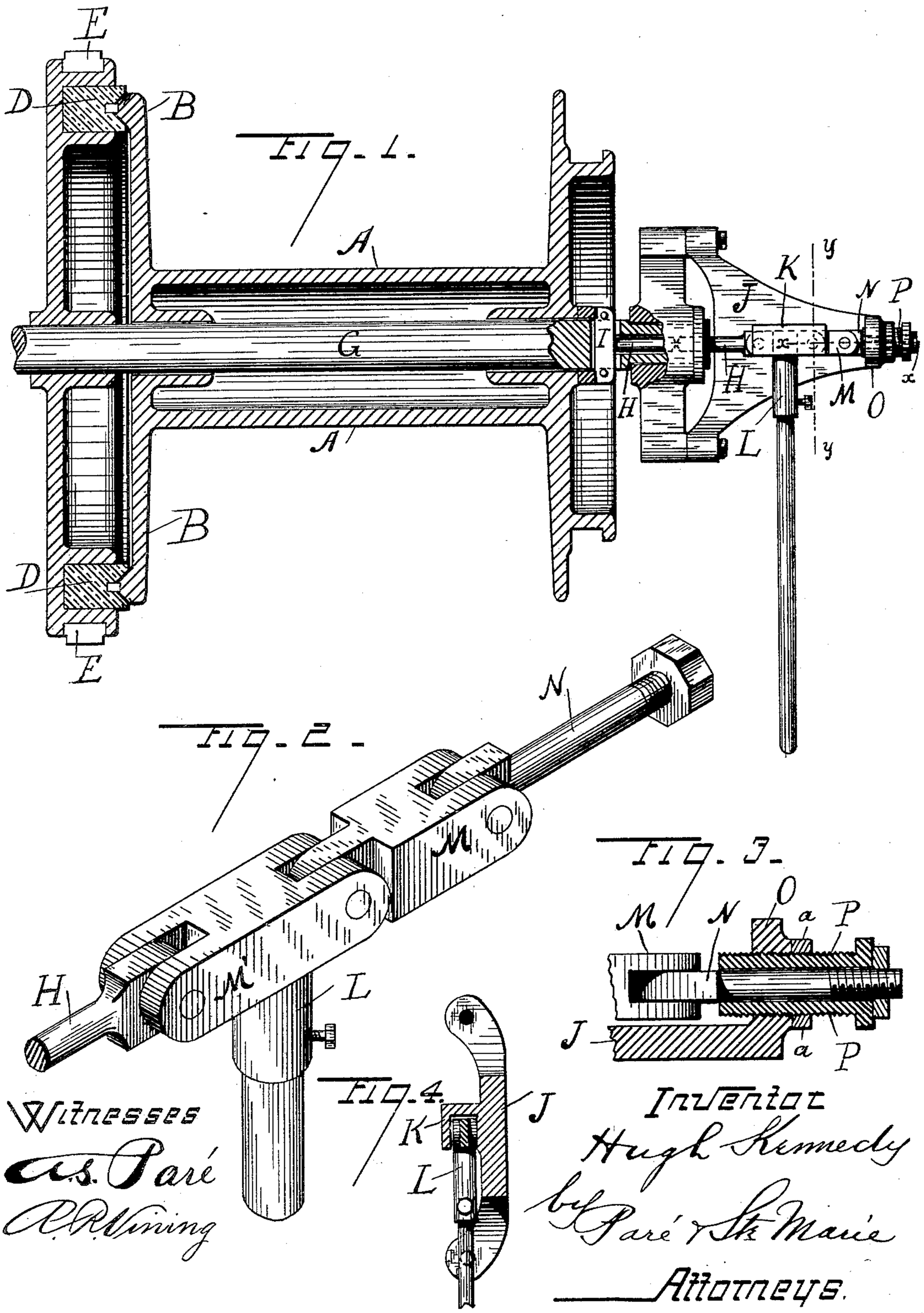


FIG. 1.




FIG. 2.




FIG. 3.




FIG. 4.

Witnesses
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# UNITED STATES PATENT OFFICE.

HUGH KENNEDY, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO LEON C. MARSHUTZ AND THOMAS G. CANTRELL, OF SAME PLACE.

## HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 398,785, dated February 26, 1889.

Application filed July 9, 1888. Serial No. 279,468. (No model.)

*To all whom it may concern:*

Be it known that I, HUGH KENNEDY, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Hoisting Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a hoisting apparatus and a means by which the rope-winding drum is thrown into or out of contact or action with the driving-gear; and it consists of a frictional device between the drum and gear, a follower or stem extending into the hollow drum-shaft, so as to act through appropriate connections upon the drum itself, a toggle-lever by which the follower may be caused to act or be relieved, and a means for compensating for wear of the frictional surfaces. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is partly a central horizontal section showing the drum, frictional device, and gear, and partly a top view representing the shaft-bearings, adjacent plate, and actuating mechanism. Fig. 2 is a detailed view, in perspective, of the toggle-lever, follower, and adjustable bolt. Fig. 3 is a longitudinal section of a part of the apparatus on the line *x x*, Fig. 1, showing part of the plate, adjustable bolt, adjusting-sleeve, collar, and check-nut. Fig. 4 is a transversal section of the plate and toggle-guide, taken from line *y y*, Fig. 1, and showing the toggle-lever.

Similar letters refer to similar parts throughout the several views.

A is a rope-winding drum, with a flange, B, provided with a ring, C, made of wood or other frictional material.

D is a corresponding frictional ring fixed to the side of the gear-wheel E. The drum is fitted to turn loosely upon the shaft G, to which the gear-wheel is keyed, and is not revolved unless the frictional parts are brought into contact. In order to do this, a hole is bored into the end of the shaft G, and a follower or stem, H, extends into it. Slots are made in the shaft in the plane of the outer drum-head, and a transverse plate or bar, I, is suspended through, so as to allow it a longitudinal motion along that shaft. The follower is set in contiguity to it, so that when the follower is forced inward it presses the bar I against the drum, causing it to slide along the shaft until the frictional surfaces are forced into contact sufficiently to cause the drum to rotate. These parts do not differ materially from those in common use.

The follower is operated in the following manner: Upon the outside of the drum-shaft bearings a small plate, J, is fixed, having a right-angled guide, K, on top. This guide (shown in section in Fig. 4) is cast with the plate J, and is for the purpose of controlling and limiting the movement of the toggle-lever described below. One end of the follower H is then inserted into the bored shaft G and the other end jointed to a lever, L, having links M and M′. This toggle-lever is placed under control of the guide K, and the link M pivoted to an adjustable bolt, N, extending through a collar, O, and secured by a nut. An adjusting-sleeve, P, is drawn over the bolt N, and is regulated by a screw and a check-nut, *a*. When the lever L is set in a line perpendicular to the guide K, as shown in Fig. 1, the links of the toggle are straightened and they operate with great power to push the follower forward. This in turn presses the drum along until the frictional parts are forced into contact, holding its position without further effort. When, on the other hand, the lever is set in a line oblique to the guide, the links form an angle with each other, and the follower recedes, thus relieving the pressure upon the drum and the frictional surfaces. This allows the drum to turn backward upon the shaft to unwind the rope; or it may be held at any point by the usual brake.

It is manifest that the follower may be composed of sections instead of a single bar, as shown by the dotted lines in Fig. 1; also, that the toggle-lever may be made in many different shapes and regulated in several ways, as may be found convenient or desirable,

The movement of the toggle is small, and

it is desirable to take up any slack or compensate for wear which takes place on the frictional surfaces. In order to do this it is simply necessary to turn the adjusting-sleeve P, and thus extend the bolt N forward until the distance is properly adjusted.

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

1. In a hoisting apparatus, the toggle-lever, substantially as described, in combination with the follower or stem H and the bar I, a rope-drum mounted loosely upon a driving-shaft and provided with a frictional ring, and a corresponding frictional ring on the driving-gear, substantially as set forth.

2. The combination of the driving-gear and loosely-mounted rope-drum provided with intermediate frictional surfaces, the hollow-ended shaft, the bar I, the follower, the toggle-lever, and the adjustable bolt N, substantially as described.

3. The combination of the plate J, provided with a guide, K, and a collar, O, the adjustable bolt, the toggle-lever, the follower, the bar I, the driving-shaft, the loosely-mounted rope-drum, the frictional rings, and the driving-gear, substantially as described.

4. In a hoisting apparatus, the combination of the driving-gear and loosely-mounted rope-drum provided with intermediate frictional rings, a hollow-ended shaft, a follower adapted to have a longitudinal motion through said shaft and adapted to throw the drum into or out of contact with the driving-gear, a toggle-lever to depress or relieve the follower, an adjustable bolt to compensate for wear of frictional surfaces, and a plate attached to the shaft-bearings, with guide and collar and carrying an adjusting-sleeve, all substantially as set forth.

In witness whereof I have hereunto set my hand and seal.

HUGH KENNEDY. [L. S.]

Witnesses:
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