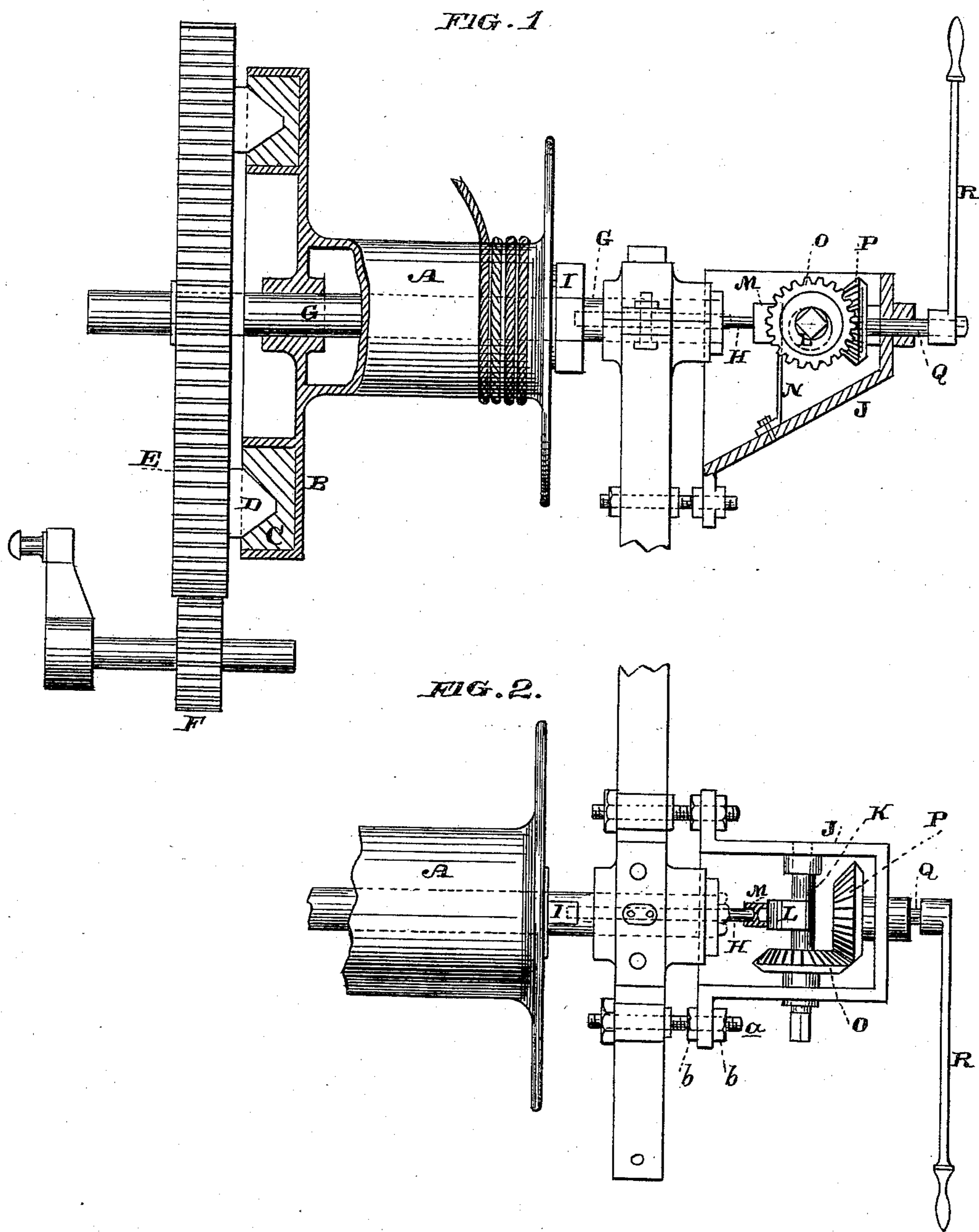


(No Model.)

W. F. MURRAY.
HOISTING APPARATUS.

No. 299,084.

Patented May 20, 1884.



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UNITED STATES PATENT OFFICE.

WILLIAM F. MURRAY, OF SAN FRANCISCO, CALIFORNIA.

HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 299,084, dated May 20, 1884.

Application filed March 3, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. MURRAY, of the city and county of San Francisco, and State of California, have invented an Improvement in Hoisting Apparatus; and I hereby declare the following to be a full, clear, and exact description thereof.

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 stem or spindle extending into the hollow drum-shaft, so as to act through appropriate connections upon the drum itself, and an eccentric or cam and gearing by which the stem may be caused to act or be relieved, and a means for compensating for wear of the frictional surfaces.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a side elevation showing the drum, frictional device, gears, and the actuating mechanism. Fig. 2 is a plan view of a portion of the same.

A is the rope-winding drum of a hoisting apparatus, with a flange, B, chambered to contain the annular wood or other frictional material, C, with a V-shaped channel formed in it. D is the corresponding frictional ring, which is fixed to the side of the gear-wheel E; and F is the driving-pinion, these parts not differing essentially from those in common use. The drum is fitted to turn loosely upon the shaft G, to which the gear-wheel E is keyed, and is not rotated unless the frictional surfaces are forced into contact. In order to do this a hole is bored into the end of the shaft G, and a small rod 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, passes through the slot, the stem H being fixed to it, so that when the stem 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.

The stem is operated as follows: Upon the outside of the main frame a small frame, J, is fixed, having a shaft, K, journaled across it,

so that its center is opposite the end of the main shaft and the stem which passes into it. Upon the center of this shaft J is fixed a cam or eccentric, L, which acts against the back of a box, M. The front of this box is bored out to receive washers, which act as a step for the end of the stem H. The box is supported upon a spring-standard, N, which extends downward, and is bolted to the frame J. A bevel-gear wheel, O, is fixed to the shaft K, and a corresponding bevel-wheel, P, may be fixed to a short shaft, Q, journaled in the frame so that the gears mesh. The shaft Q has a lever-arm, R, keyed to it, and when this lever is moved it turns the gears, and through them the eccentric L, which presses upon the box M, and through it forces the stem H forward, this in turn pressing the drum along, so that the frictional surfaces are forced into contact. When the lever R is moved in the opposite direction, it draws the eccentric back, and the elastic standard N moves the box M back also, thus relieving the pressure through the stem H upon the drum and 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 customary brake.

It will be manifest that the shaft Q and gear-wheel P may be omitted, and the lever attached to the end of the shaft K, if it is desirable or convenient to have the lever R work at right angles with the position here shown. The movement of the cam or eccentric is small, and it is desirable to keep the lever at all times in about the same position for convenience in operating, and also to take up any slack or compensate for wear which takes place on the frictional surfaces. In order to do this, the supplemental frame J is secured to the main frame by screw-bolts *a* and lock-nuts *b*, which hold it a short distance away from the main frame. As the frictional surfaces become worn, the nuts may be loosened and the frame J moved up until the distance is properly adjusted, when the nuts may be again tightened.

I am aware that machines have been made in which a drum loose upon the main shaft has been clamped between frictional surfaces of peculiar construction at each end of it, and

that such a device has been operated by a rod or stem extending into the shaft, and a screw to press against the end of it; and I do not claim such a device.

5 The essential feature of my invention is the eccentric, and a means for connecting it with the stem by which the drum is moved, and the frictional surfaces forced into contact, and a means for adjusting the parts to compensate
10 for wear. By this mechanism the amount of motion necessary to throw the drum into or out of contact is very short, and it may be made almost instantaneously, while the power is sufficient to arrest the weight at any point.

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

1. The box or step M, within which the stem H turns, and the cam or eccentric mounted
20 behind the step with an operating-lever, in combination with a rope-drum turning loosely upon a driving-shaft, a driving-gear, and intermediate frictional surfaces, substantially as herein described.

25 2. In a hoisting apparatus, the driving-gear and loosely-revolving rope-drum with intermediate frictional surfaces, a stem extending axially into the shaft and having a transverse bar extending out through slots, so as to act
30 against the end of the drum, in combination with the eccentric or cam L, and operating-lever, the step or box M, interposed between

the eccentric and the stem, and the spring-arm N, upon which the box is mounted, and by which it is retracted when relieved of pressure, 35 substantially as herein described.

3. The driving-gear and loosely-moving rope-drum with intermediate frictional surfaces, the stem H, acting to force the surfaces into contact, and a cam or eccentric by which
40 the stem is moved, in combination with a frame upon which the eccentric is supported, and the screw-bolts and adjusting-nuts by which it is secured to the main frame, substantially as herein described.

45 4. In a hoisting apparatus, the driving-gear, and loosely-revolving rope-drum with adjacent frictional surfaces, a stem extending axially into the end of the shaft, and having a transverse bar extending out through slots to
50 act against the end of the drum and force the frictional surfaces into contact, in combination with an eccentric or cam fixed to a shaft, so as to act against the end of the stem or an interposed step, and gears and levers by which
55 the cam-shaft may be rotated, substantially as herein described.

In witness whereof I have hereunto set my hand.

WILLIAM F. MURRAY.

Witnesses:

S. H. NOURSE,
H. C. LEE.