

(No Model.)

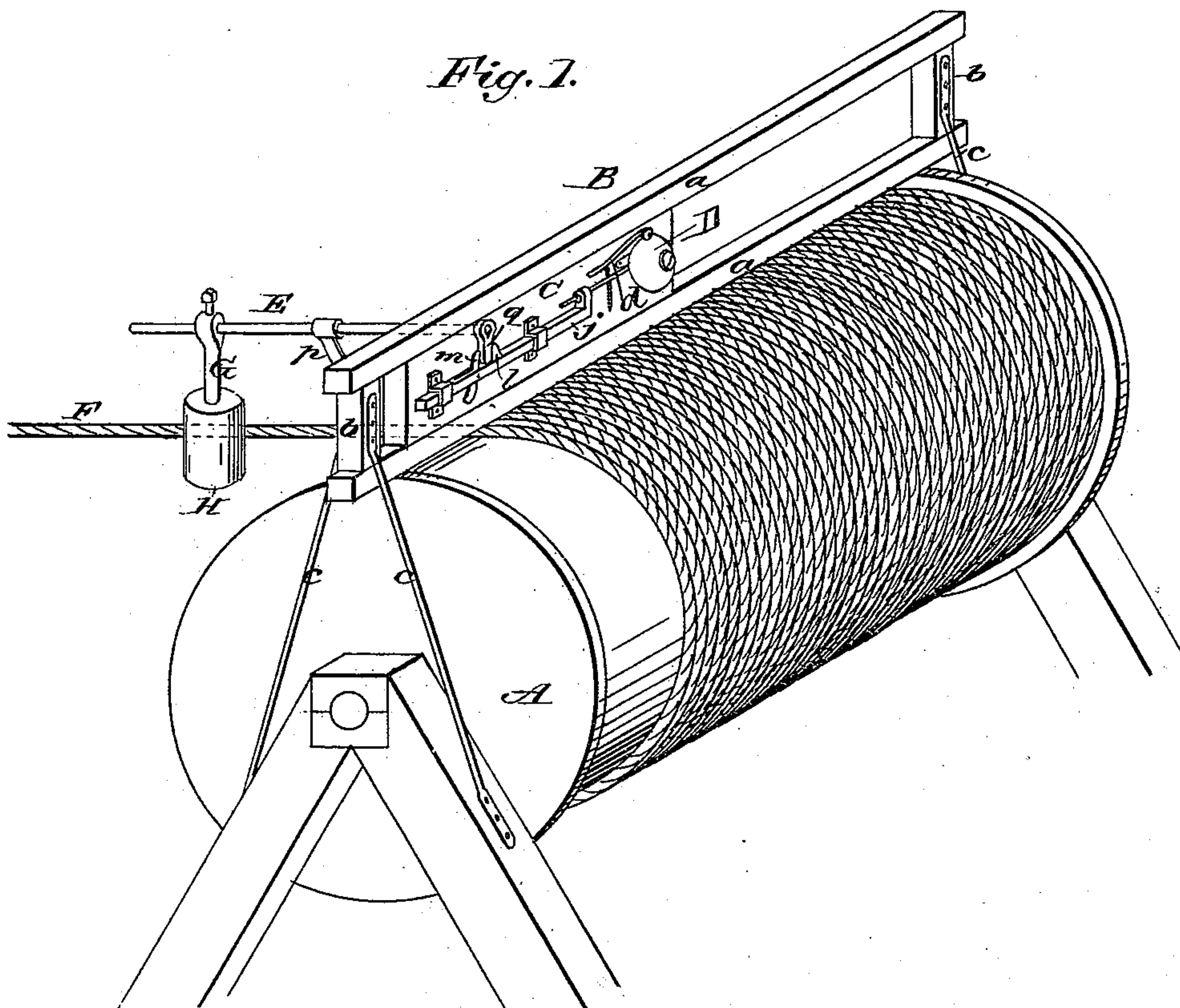
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ALARM FOR HOISTING MACHINERY.

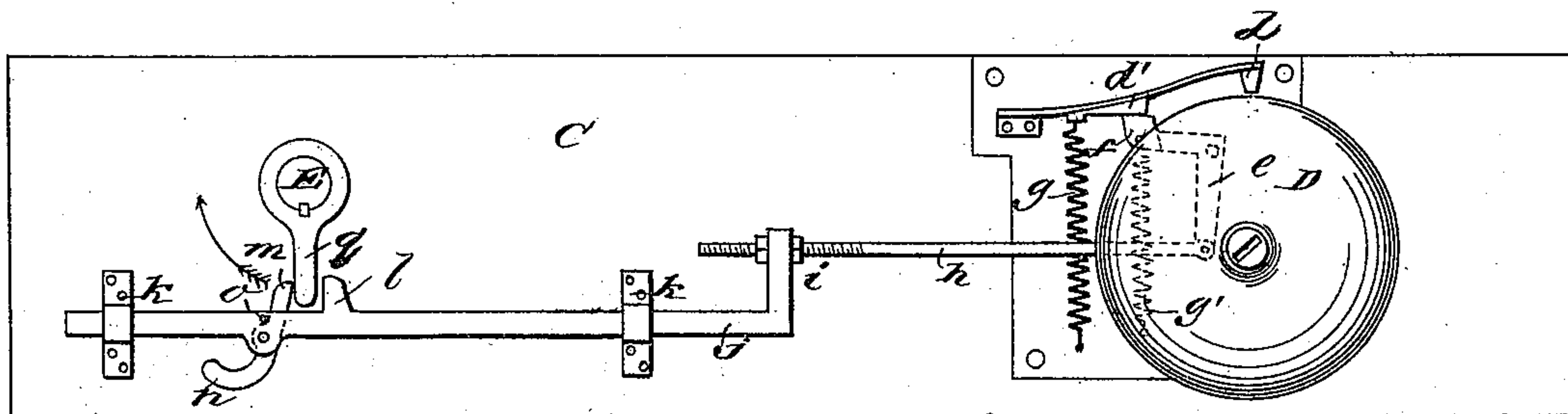
No. 355,883.

Patented Jan. 11, 1887.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ROBERT MULHOLLAND, OF MINEVILLE, NEW YORK, ASSIGNOR TO HIMSELF  
AND GEORGE G. ROE, OF SAME PLACE.

## ALARM FOR HOISTING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 355,883, dated January 11, 1887.

Application filed November 28, 1885. Serial No. 184,177. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT MULHOLLAND, of Mineville, in the county of Essex and State of New York, have invented a new and useful Improvement in Alarms for Hoisting Machinery, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a perspective view of a winding-drum with my improved alarm applied thereto. Fig. 2 is an enlarged side elevation of the slide carrying the alarm-bell.

Similar letters of reference indicate corresponding parts in the different figures.

The object of my invention is to provide an alarm for hoisting machinery which will notify the engineer or brakeman in charge of the hoisting-engine when the car has arrived at the proper elevation to be stopped.

My invention consists in a rock-shaft connected with an alarm-bell, and provided with a weight to be engaged by the hoisting-rope when a given amount of the rope has been wound upon the drum of the hoisting-engine.

It also consists in means whereby the alarm apparatus may be adjusted to give an alarm when any prescribed amount of rope has been wound upon the drum.

The winding-drum A of the hoisting-engine is journaled and arranged to be operated in the usual way. Above the drum A is supported an oblong rectangular frame, B, composed of the side bars, a, and the distance-pieces b. The frame B is supported above the drum by braces c, attached to the frame of the hoisting machinery.

Between the bars a a of the frame B is placed a slide, C, carrying an ordinary gong-bell, D, whose hammer d is operated through the medium of the angled lever e and a spring-trip, f, in the usual way, the hammer d and the trip f being returned to the position of rest by the springs g g'.

To the free end of the angled lever e is attached a rod, h, which is received in an arm, i, extending at right angles from a bolt, j, which slides in guides k, secured to the side of the slide C. The bolt j is provided with a short arm, l, and carries a dog, m, which is pivoted to the side of the bolt and provided with a curved weighted end, n, which tends

to bring the dog m against the stop-pin o and hold it there, except when displaced, in the manner presently to be described.

In the slide C, and in a bracket, p, projecting therefrom, is journaled a rock-shaft, E, which projects through the slide C, and is provided with an arm, q, which extends down between the short arm l and the upper end of the dog m. The opposite end of the rock-shaft E projects outward in a direction parallel with the rope F, which is being wound upon the drum A, and to this end of the shaft is secured an arm, G, upon which is loosely placed a wide-faced weight, H, which hangs in the path of the rope F, so that when in the course of the winding of the rope its movement along the surface of the drum brings it into contact with the weight H the shaft E will be rocked and the arm q will be brought into engagement with the dog m, drawing the bolt j, thus turning the angled lever e on its pivot and raising the bell-hammer d until the trip f slips past the shoulder d' on the arm of the hammer d and allows the hammer to be brought down by the spring g, giving the alarm in the usual well-known way.

Immediately after the tripping of the hammer the lever E is returned to its position of rest by the spring g', which brings the trip f again into engagement with the shoulder d' on the arm of the hammer d, and also returns the bolt j to its original position.

When the rope is unwound from the drum, the weight H, having considerable weight, returns the rock-shaft E to its original position, and in so doing carries the arm q over the dog m, when the dog by its own gravity regains its normal position, and the arm q will remain between the dog m and the arm l until the rope is again brought into contact with the weight H.

The slide C may be adjusted in any desired position along the length of the frame B by loosening the upper bar, a, of the said frame, so that an alarm may be given in the manner already described when any prescribed amount of rope has been wound upon the drum A.

My improved alarm may be readily applied to hoisting machinery of any description which employs a drum for the winding of the rope.

Having thus described my invention, what



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

1. In an alarm for hoisting machinery, the combination of an adjustable slide and alarm-bell attached thereto, a rock-shaft supported by the slide, a weight placed thereon arranged to be engaged by the hoisting-rope, and mechanism intermediate between the bell and the rock-shaft, substantially as herein shown and described.

2. In an alarm for hoisting machinery, the combination of the slide C, arranged above the hoisting-rope, rock-shaft E, carried by the slide C, the arm G, mounted on the rock-shaft E, the weight H, loosely placed on the arm G, the arm *g*, carried by the shaft E, the sliding bolt *j*, arranged to slide in guides on the slide C, and a trip alarm-bell, D, carried by the said slide C, substantially as herein shown and described.

3. The combination, in an alarm for hoisting machinery, of the adjustable slide C, arranged above the hoisting-rope, the bell D, attached to the slide C, the sliding bolt *j*, provided with the arm *l* and the dog *m*, the rock-shaft E, carried by the slide C, the arms *g* and G, secured to the shaft E, and the weight H, carried by

the arm G, substantially as herein shown and described.

4. In an alarm for hoisting apparatus, the combination of the frame B, supported over the drum A, the slide C, adjustable in the said frame, the alarm-bell D, carried by the slide C, the sliding bolt *j*, provided with the arm *l* and the dog *m*, the rock-shaft E, supported by the slide C, and provided with the arm *g* and the arm G, mounted on the shaft E, and the weight H, loosely placed on the arm G, substantially as herein shown and described.

5. The combination, with the drum A and rope F of a hoisting-machine, of a frame, B, slide C, fitted thereto, bell D, attached to the slide, weight H, located in the path of the rope F and arranged to be moved by the rope, and connective mechanism for communicating motion from the weight H to the striking mechanism of the bell, substantially as herein specified.

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Witnesses:

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