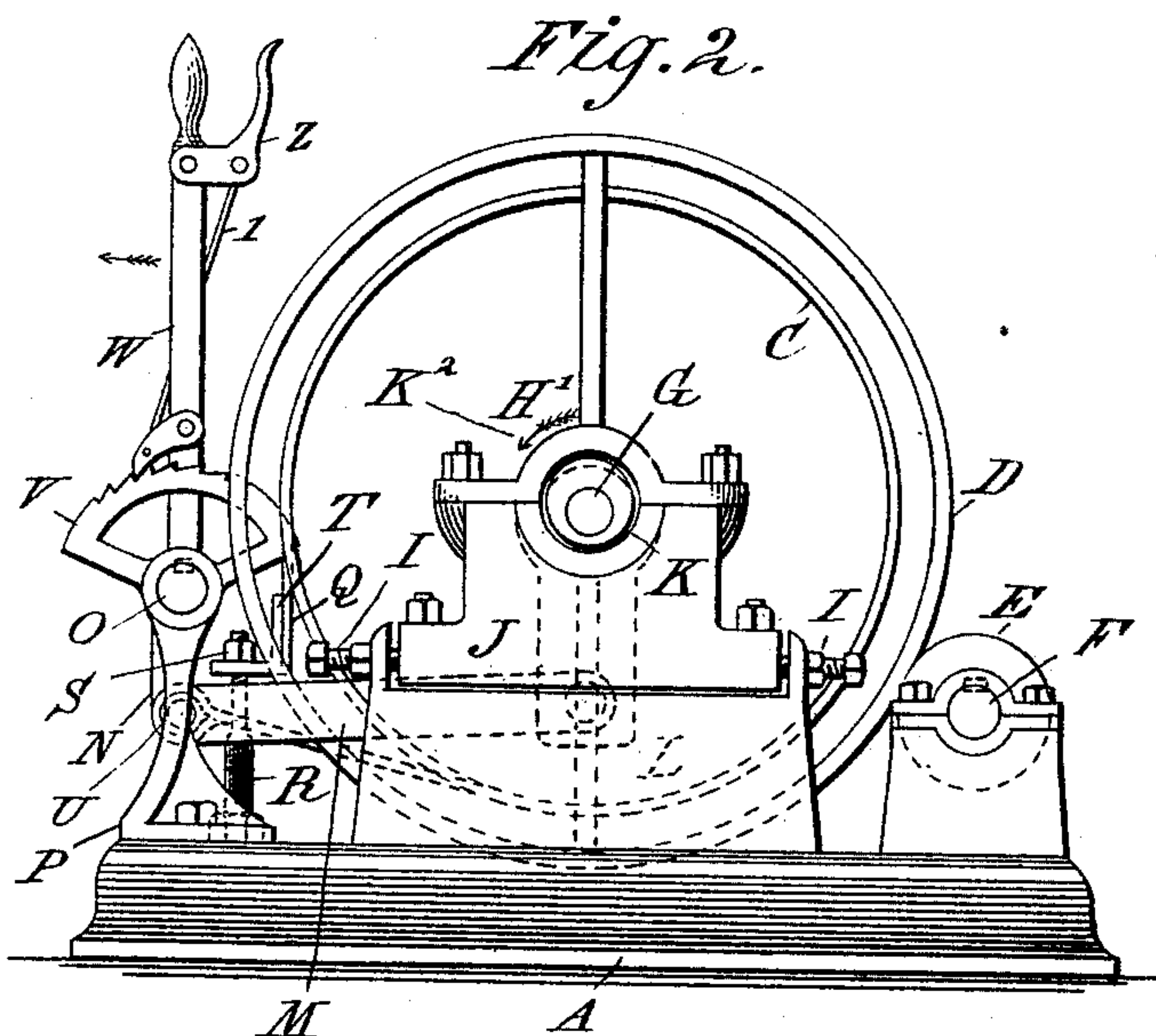
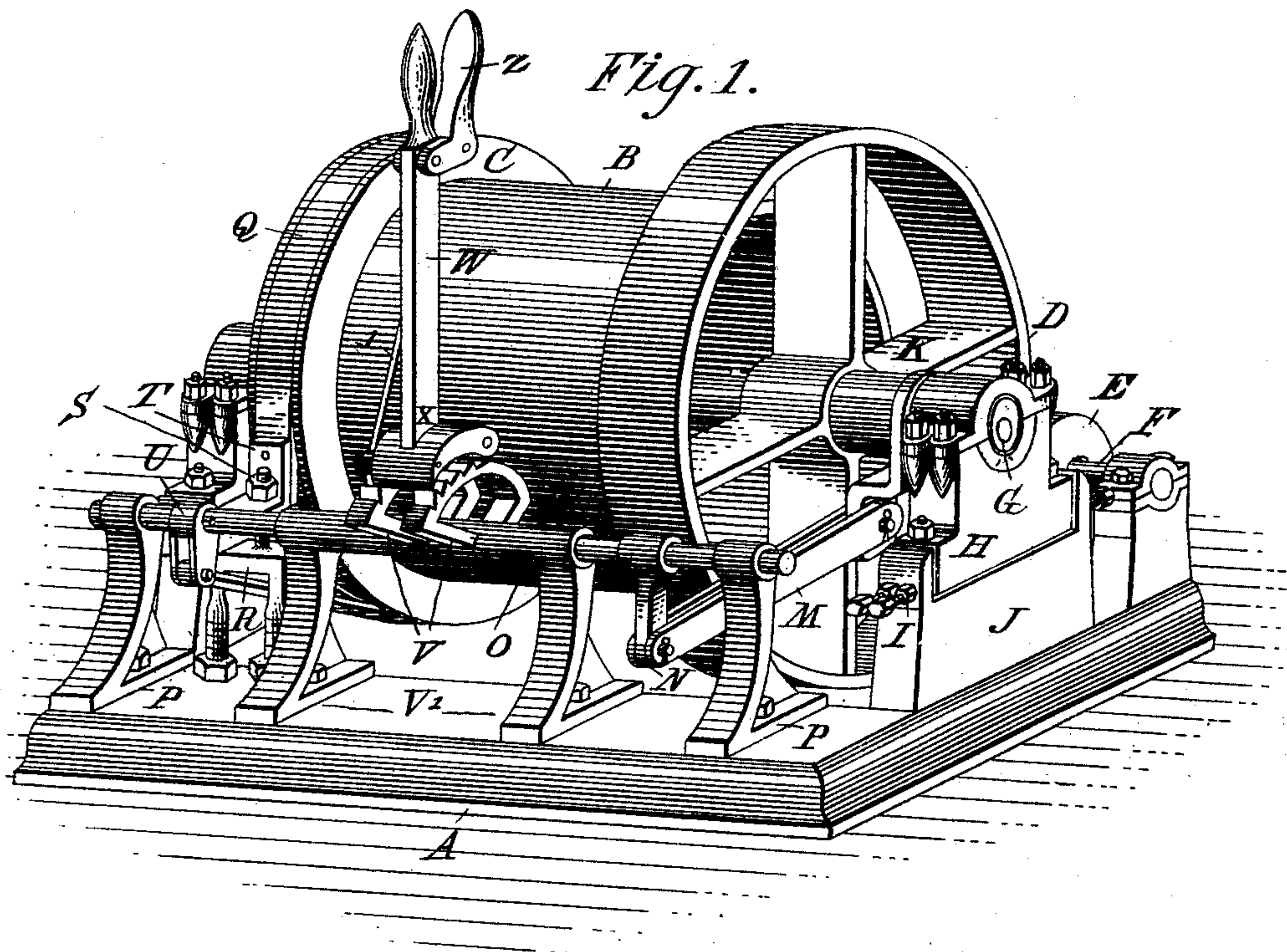


(No Model.)

T. C. WALKER.  
HOISTING MACHINERY.

No. 414,347.

Patented Nov. 5, 1889.



Witnesses:  
John Joseph Lallie  
Lyman Henry Reynolds

Inventor:  
Thomas Cornelius Walker



# UNITED STATES PATENT OFFICE.

THOMAS C. WALKER, OF DENVER, COLORADO.

## HOISTING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 414,347, dated November 5, 1889.

Application filed January 2, 1889. Serial No. 295,255. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS C. WALKER, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented a new and useful Improvement in Hoisting Machinery, of which the following is a specification.

My invention relates to improvements in friction hoisting machinery; and the object of my invention is to provide a brake that will secure the drum from retraction as the pressure of the friction-pinion is released from it.

I attain this object by the mechanism illustrated and described in the following specification and accompanying drawings, in which—

Figure 1 represents a perspective view of a hoister with my improved brake mechanism attached. Fig. 2 represents a side elevation of the same.

Similar letters of reference refer to similar parts throughout both the views.

Referring to Fig. 1, A represents the bed of the hoister; B, the winding-drum; C, the brake-band flange; D, the friction-wheel of the drum; and E the friction-pinion. This is keyed to the shaft F, which may be driven by a steam-engine attached to the bed, or by an electric motor or other suitable power. The drum B, with its brake-flange and friction-wheel, is secured to the shaft G, which has bearings in the box H. This box, by means of the screws I, is adjustable in the pillow-block J. The eccentric K surrounds the shaft G and extends beyond the box, and that portion of it is provided with an arm to which is pivoted the reach-rods M. These rods extend and are pivoted to the arm N, which is secured to the rock-shaft O. This shaft has bearings in the supports P attached to the hoister-bed. The brake-band Q surrounds the brake-flange C, fitting in a groove formed to receive it. One end of the brake-band is provided with a step T, through which passes the threaded rod S, containing a nut, by which means the tension of the brake-band is adjusted. A crotch-block R has its ends provided with threads and nuts, and by this means is secured to the hoister-bed. The crotch forms a part of or is connected to the

threaded rod S. The other end of the brake-band is pivoted to the arm U. This arm is secured to the rock-shaft O.

On the central portion of the rock-shaft O are located two segments of a circle V. They are far enough apart to allow the lever W to pass between them to the shaft, to which it is secured. The segments are arranged concentric with the shaft and extend and are secured to the hoister-bed. The surfaces of the segments are provided with ratchet-teeth, in which operates the pawl X. This is pivoted to the lever W, and is connected to the lifting-handle Z by the rod 1.

The operation of the brake mechanism is as follows: The eccentric K should occupy a vertical position, as shown in Fig. 2, which will place the shaft in the lowest part of its throw. The eccentric-arm and the lever W will then also occupy vertical positions. Now, if the lever W be moved in the direction of the arrow in Fig. 2, the motion is transmitted by the arm N and the reach-rods M to the eccentric K, causing it to slide down around the drum-shaft in the box H in the direction of the arrow K<sup>2</sup>, thus forcing the drum friction-wheel against the friction-pinion. This same movement of the lever W carries the arm U in the same direction, and consequently frees the brake-band from contact with the drum-flange. If the lever be moved in the opposite direction, the drum is moved away from the pinion by the eccentric sliding upward around the drum-shaft to its present position and the arm U is moved with the lever, and the brake-band is tightened around the brake-flange. The adjustments of the brake-band and of the eccentric connections should be timed to cause the brake-band to secure the drum from retraction the instant the drum is released from the pinion. Otherwise there will be a sudden and rapid retraction of the load, called by miners a "drop," which is very undesirable and dangerous to life and property.

The mechanism herein described is easily and quickly adjusted to compensate for wear of the various parts, and it entirely obviates the sudden retraction of the drum when the load is released from the friction-pinion.

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

5 The combination, in a friction-hoister, of the shaft G, the eccentric K, surrounding one end of said shaft and provided with an arm pivoted to the reach-rods M, an arm pivotally attached to the said reach-rods and secured to the rock-shaft O, said rock-shaft, the lever  
10 W, provided with a pawl and hand-operating mechanism and secured to said rock-shaft, the circle-segments V, provided with ratchet-

teeth arranged concentric with said rock-shaft and operating in conjunction with the said lever, the brake-band Q, having the step 15 T secured to one end of it, the crotch-block R, provided with the threaded projection, the nut and the arm U, pivoted to the said brake-band and secured to the rock-shaft O, all arranged as herein set forth and described.

THOS. C. WALKER.

Witnesses:

HOWARD S. BAILEY,  
JOHN S. J. LALLIE.