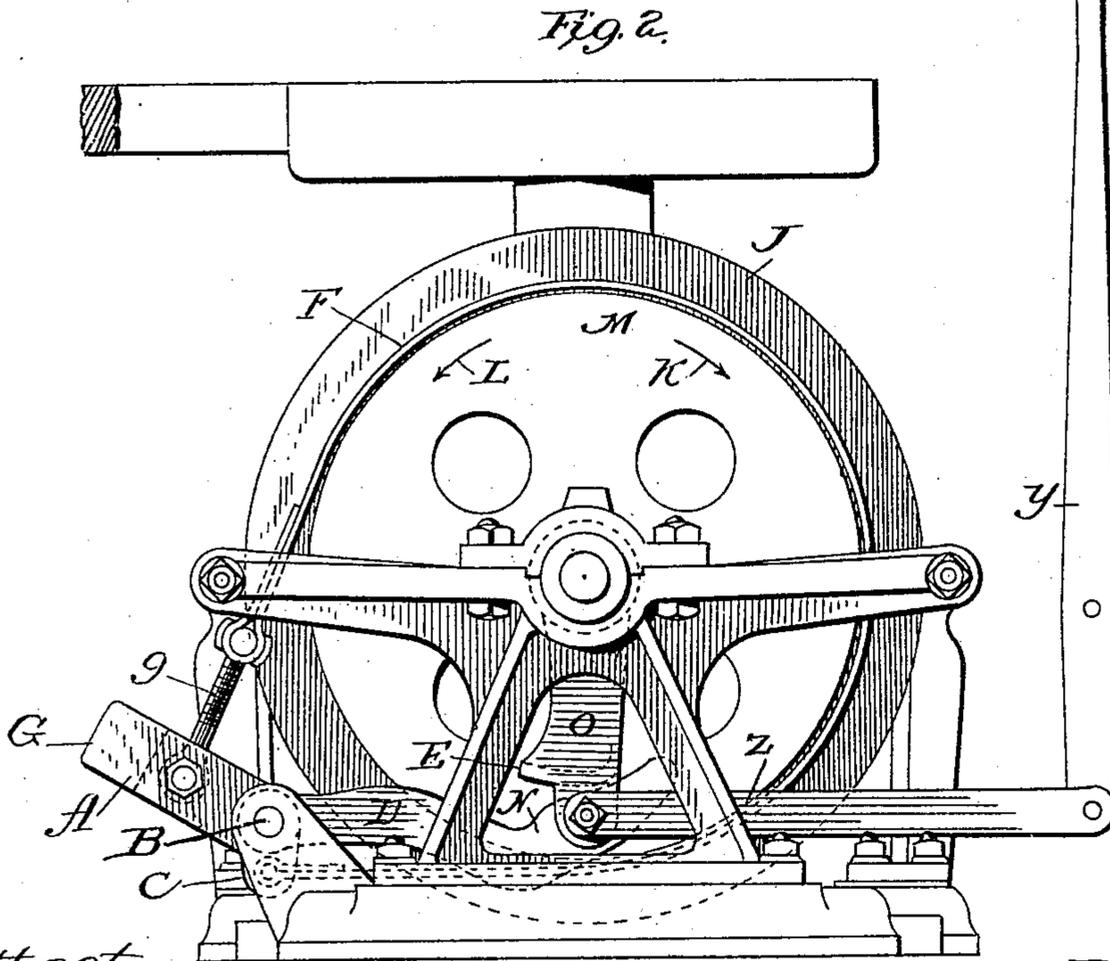
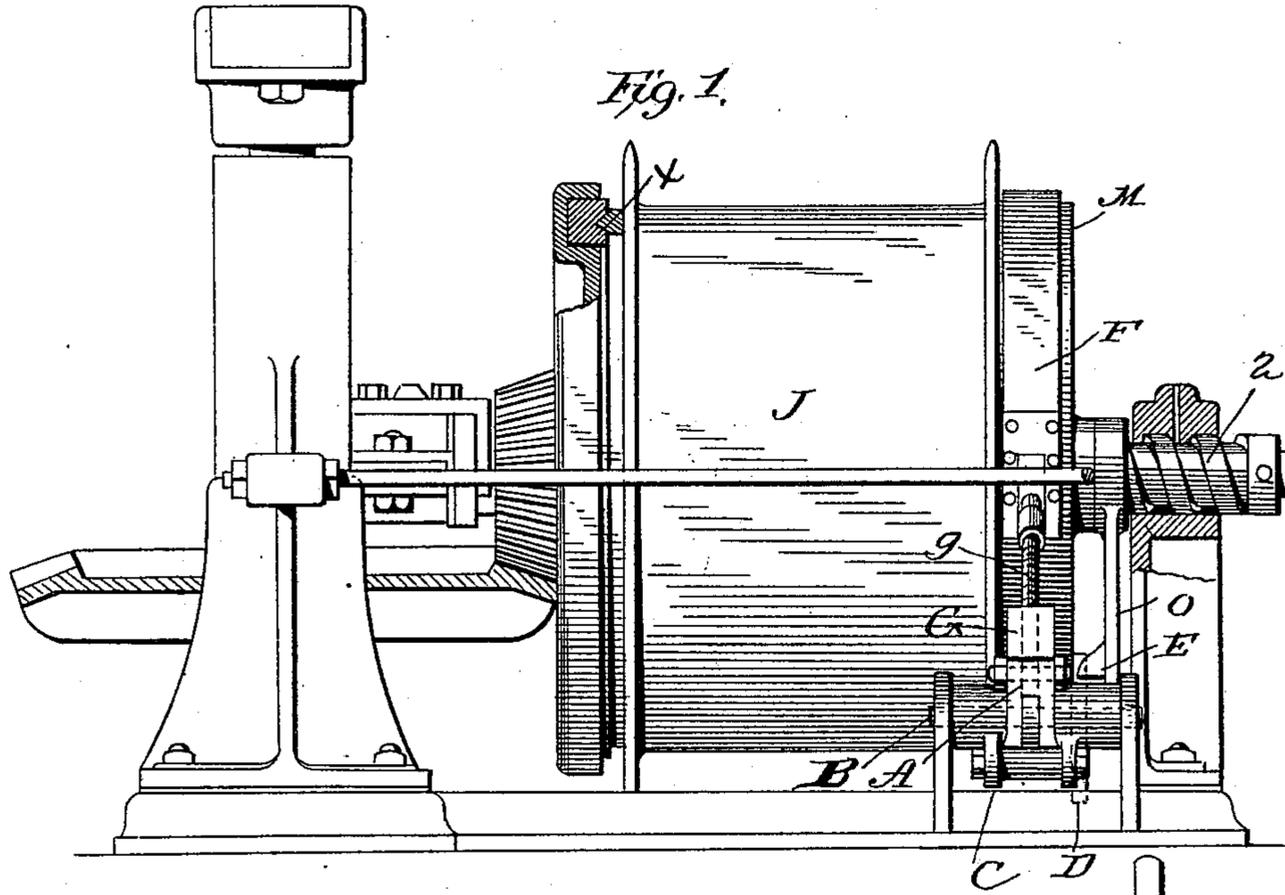


(No Model.)

W. C. DAVIS.  
BRAKE FOR HOISTING DRUMS.

No. 466,158.

Patented Dec. 29, 1891.



Attest  
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Att'y.

# UNITED STATES PATENT OFFICE.

WILLIAM C. DAVIS, OF DENVER, COLORADO.

## BRAKE FOR HOISTING-DRUMS.

SPECIFICATION forming part of Letters Patent No. 466,158, dated December 29, 1891.

Application filed June 10, 1891. Serial No. 395,795. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM C. DAVIS, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Brakes for Hoisting-Drums, of which the following is a specification.

My invention relates to an automatic safety-brake which is specially designed to be used in connection with a hoisting-drum, though I do not desire to limit myself in this connection, as the invention may be applied with equally good effect in other situations without departing from the spirit of my invention.

In the accompanying drawings I have represented my invention in connection with the form of drum patented to F. M. Davis on the 11th of December, 1888, No. 394,344, for the sake of convenience.

In the drawings, Figure 1 represents a side elevation of the drum with my present improvement attached thereto, and Fig. 2 is a rear view of the same.

J represents the winding-drum, which in the longitudinal movement of the sliding shaft is adapted to engage the friction-ring, and on the application of power to said ring the drum may be moved therewith. This drum is provided with an extension M, which is adapted for the action of my improved brake-band. This band is shown at F, and is a flat piece of metal, which passes around the extension of the drum and is secured at one end by passing around a bolt supported in projecting ears C, which form, practically, the short arm of a bell-crank lever pivoted at B, the long arm of which is shown at A and extends upward and outward from its pivot, the extreme upper end of this long arm being weighted, as at G. The other end of the band is connected to the long arm of the bell-crank by means of a pivoted screw *g*, which provides adjustment for the strap, so that it may be lengthened or shortened according to the situation of the band.

In Fig. 2 I have indicated by the arrow K the direction in which the drum turns in hoisting, and by the arrow L the direction in which the drum turns in lowering.

When the drum is being hoisted, turning

in the direction of the arrow K, the pull, through frictional contact with the band F, is on the long arm of the bell-crank lever, which has the effect of loosening the band, and thus the drum is free from the binding effect of the band. As soon, however, as the hoisting stops and the weight of the load starts the drum in the direction of the arrow L, the drum having been released from the frictional clutch, the friction on the band F is transmitted to the short arm of the bell-crank at C, drawing it in to the right, as in Fig. 2, and the further movement of the short arm is sufficient to give much greater movement to the long arm, which has the effect of causing the band F to grip the surface of the extension M, and thus the movement of the drum will be retarded. The action is entirely automatic, and it is only necessary to make the arms of the bell-crank of proper length to get any desired force in the action of the parts.

For moving the drum longitudinally in order to engage and disengage the friction-disk an arm O is used, which is operated by a lever Y and a link *z*, Fig. 2. The arm is connected to the screw-threaded sleeve 2, and when moved to the left it causes the screw-sleeve to move the drum into engagement with the friction-disk, and when moved to the right the drum is disengaged by the same means. The arm is shown in Fig. 2 as moved to the right far enough to disengage the drum from the friction-disk, and the load being now raised the drum is held against backward movement by the automatic action of the brake-band and its crank-lever.

In order to release the band to permit the drum to unwind, the arm O is capable of further movement to the right by means of the hand-lever, and in this movement a shoulder E on the arm bears against the extension N of an arm D and presses it down. This arm is connected with the bell-crank lever and turns the same, so as to raise the longer arm thereof, and thus release the brake-band. When the load is again hoisted and the brake-band automatically operated upon the release of the drum from the friction-disk, the turning of the bell-crank lever raises the arm D, so that its extension will be in position to be

pressed down by the arm O when the said arm is moved to its extreme position to the right.

In other styles of hoisting-machines a separate hand or foot lever may be connected to the arm D or to the short arm C of the bell-crank to release the drum from the clutch of the band.

I claim as my invention—

1. In combination, the friction-disk, the drum, the hand-lever, and connecting devices for operating the drum longitudinally to engage and disengage the friction-disk, the brake-band having its ends connected by a lever with a long and short arm, said band and lever being capable of automatic operation when the hand-lever and connections are partially operated to disengage the drum, and a loose connection from the brake-band lever to the drum-operating devices, whereby the brake-band may be released by the full movement of the hand-lever, substantially as described.

2. In combination, the friction-disk with operating means therefor, a drum with means for moving it longitudinally to engage and disengage the said disk, the extension on the

drum, the brake-band adapted to engage therewith, the bell-crank lever having its arms connected to the ends of the brake-band, and the arm D, connected to the bell-crank lever, the said arm extending into position to be operated by the drum-shifting means when the same is moved to disengage the drum from the friction-disk, substantially as described.

3. In combination, the friction-disk with operating means therefor, a drum, the shaft therefor, the means for shifting the drum to engage and disengage the friction-disk, consisting of the screw-threaded sleeve, the arm O, and the means for operating the arm, the drum-extension, the brake-band therefor, the lever connected to the ends of the brake-band, and the arm D, connected with the lever and extending to the arm O to be operated thereby, substantially as described.

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

WILLIAM C. DAVIS.

Witnesses:

A. W. KING,  
A. W. HILLE.