H. J. AND J. J. KING.

HOISTING MACHINE.

APPLICATION FILED MAY 6, 1918.

1,315,970. Patented Sept. 16, 1919.

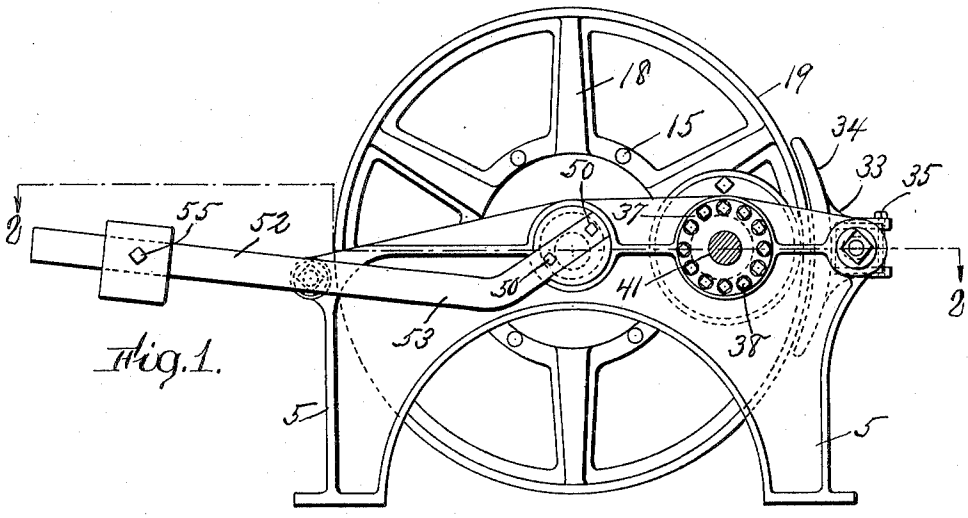


Fig. 1.

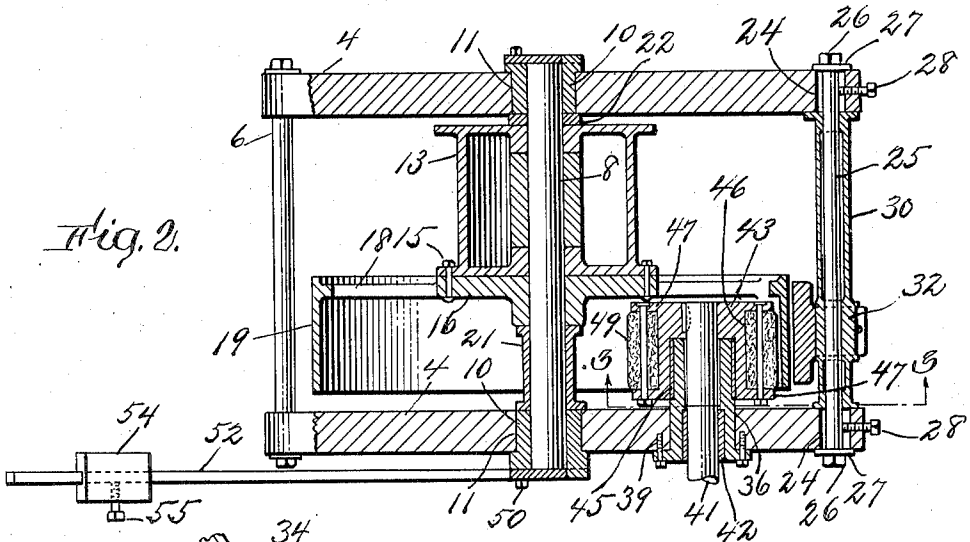


Fig. 2.

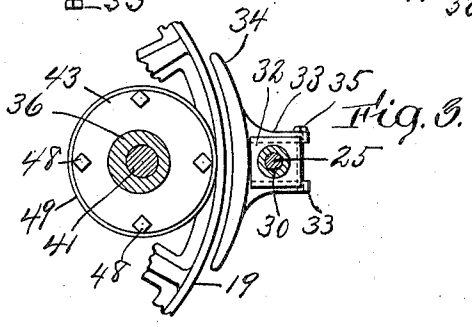


Fig. 3.

Inventors.
Henry J. King, and
John J. King,
By Horatio E. Bellows,
Atty.

UNITED STATES PATENT OFFICE.

HENRY J. KING AND JOHN J. KING, OF EAST PROVIDENCE, RHODE ISLAND.

HOISTING-MACHINE.

1,315,970. Specification of Letters Patent. Patented Sept. 16, 1919.

Application filed May 6, 1918. Serial No. 232,710.

To all whom it may concern:

Be it known that we, HENRY J. KING and JOHN J. KING, both citizens of the United States, residing at East Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Hoisting-Machines, of which the following is a specification.

Our invention relates to hoisting machines having a single rope control.

The essential objects of our invention are to both engage and release the load on the drum by the manipulation of a single rope in a uniform direction; to increase the grip of the driving wheel upon the drum; to utilize a maximum of power in the operation of the machine; to prevent dismantling of the machine when the frictional driving wheel becomes worn; and to attain these ends in a simple structure of great strength and comprising a minimum of parts.

To the above ends essentially our invention consists of such parts and combinations of parts as fall within the scope of the appended claims.

In the accompanying drawing which forms a part of this specification—

Figure 1, is a front elevation of a hoisting machine which embodies our invention,

Fig. 2, a section on line 2—2 of Fig. 1, and

Fig. 3, a section on line 3—3 of Fig. 2.

The framework of our machine may be of any construction best adapted to carry the operating parts. In the form thereof herein shown it comprises front and back castings 4 and legs 5. The castings at their front ends are connected by a rod 6. Extending transversely of the machine is a drum shaft 8, fast upon the ends of which are eccentric bushings 10 journaled in openings 11 in the castings. Loose on the shaft is a drum 13 adapted to carry the coils of hoisting rope. Integral with one end of the drum or attached thereto by bolts 15 is the hub 16 of a wheel upon whose spokes or web 18 is a flange 19. In the present instance spacing collars 21 and 22 respectively are located on the shaft intermediate the drum and castings.

At the rear ends of the walls or castings are slots 24 to loosely receive a rod 25 retained by end nuts 26 and washers 27. Adjustment of the rod in the slots is afforded by set screws 28 in the ends of the walls engaging the rod. Upon the latter is a spacing sleeve 30 engaging the frame walls at its end. The sleeve has a squared portion 32 embraced by lugs 33 on a brake shoe 34, which lugs are connected at their projecting ends by a screw 35.

In the front wall of the frame is an eccentric steel bushing 36 having a flange 37 upon its front and through which pass screws 38 received in threaded openings 39 in the wall. The bushing, which is preferably of steel, projects inwardly beyond the wall, and within this bushing is a shaft 41 driven from any convenient source of power, such as a motor. In this instance there is a bearing sleeve 42 fast in the bushing. Fast to the driving shaft 41 is a driving wheel, pulley, or roll 43 having its central portion recessed to loosely receive the inner end of the bushing 36. In this instance a bearing sleeve 45 is fast in this sleeve. The roll has a peripheral recess 46, rectangular in cross section, forming end flanges 47 through which pass bolts 48, which traverse and retain a friction facing ring 49 seated in the recess 46. This ring or sleeve constitutes a frictional surface, and is compound of tar and fiber. The fiber is preferably paper or straw. The described ring is located adjacent to and parallel with the inner face of the flange 19 with which it coöperates.

Fastened to the front bushing 10 by screws 50 or otherwise, is an operating arm or lever 52 provided with an intermediate bend 53, and carrying near its outer end a slidable weight 54 adjustable by set screw 55. To the outer end of this arm may be attached an upwardly directed operating rope, by which the end of the arm may be and usually is elevated.

The operation of our machine is as follows: In the normal position of rest the counterweight 54 presses the flange 19 against the brake 34. A slight elevation of the outer end of the arm 52 by virtue of eccentrics 10 releases the flange from the brake, and the flange assumes a position intermediate the brake shoe and the roller, as shown in Fig. 2, in which position the drum is released and the coil thereon unwinds. A second or further elevation of the arm 52 throws the flange into contact with the member 13, and the latter rotates the drum to wind up the rope and elevate the load.

When the face 49 of the wheel 43 becomes worn it is only necessary to adjust the bushing 36. This is performed by removing the screws 38 in the flange, and turning the

flange a step, and then reinserting the screws. The eccentric form of the bushing 36 thus serves to place the wheel 43 nearer the flange 19.

It will be observed that by virtue of the location of the driving wheel 43 to contact with the concave face of the flange rather than with the convex face there is afforded a much greater area of frictional contact, thus increasing the power of the machine and preventing slippage. It will be observed that by virtue of our adjustment of the wheel 43, the life thereof is very materially extended.

We claim:

1. In a hoisting machine of the type set forth, the combination with the frame, of a drum shaft in the frame, eccentric bushings on the shaft in the frame, a winding drum loose on the shaft, a wheel fast to the end of the drum, a peripheral flange on the wheel, a driving shaft, a friction driving roll fast to the driving shaft adjacent the concave face of the rim, a brake shoe in the frame adjacent the convex face of the rim, an operating lever fast at one end to the drum shaft, and a counterweight slidably mounted on the lever.

2. In a hoisting machine of the type set forth, the combination with the frame of an oscillatory drum shaft in the frame, eccentric bushings in the frame fast to the shaft, a drum loose on the shaft, a wheel rigid with the drum, a peripheral flange on the wheel, a rotatably adjustable bushing in the frame, a driving shaft journaled in the last mentioned bushing, a friction driving roll fast on the driving shaft adjacent the flange and adapted to engage the flange when the drum shaft is oscillated, and means for oscillating the drum shaft.

In testimony whereof we have affixed our signatures.

HENRY J. KING.
JOHN J. KING.