



# UNITED STATES PATENT OFFICE.

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## HOISTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 652,402, dated June 26, 1900.

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*To all whom it may concern:*

Be it known that I, WALTER PASCHALL, of Adamsford, Delaware county, Pennsylvania, have invented an Improvement in Hoisting-Machines, of which the following is a specification.

My invention has reference to hoisting-machines; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawing, which forms a part thereof.

In hoisting machinery such as employed around building operations for elevating or lowering material or elevator-cages it has been customary to provide the winding-drum with a suitable mechanical or friction brake. Furthermore, this brake has been ordinarily applied by hand-power.

In my present improvement I provide the hoisting apparatus with suitable automatic brake-applying devices so arranged that when the apparatus is left to itself the brake is applied and the winding-drum held against rotation. My improvements comprehend, further, the shutting off of the steam or other source of energy automatically from the engine or other suitable motor when the brake is applied.

In carrying out my invention I provide the winding-drum with a suitable mechanical friction-brake and power-applying devices for tightening said brake automatically. Preferably such device operates by gravity or its equivalent, such as a heavy spring. Combined with such brake-applying devices I arrange a platform or support or foot-rest for the operator, whereby his weight may be applied thereto, and thus cause the brake-applying devices to be so moved or shifted as to remove the brake-pressure. I also provide controlling devices for the motive power operated by the same mechanism and adapted to put the hoisting apparatus into operation when the operator stands upon or depresses the platform or support or moves it in removing the brake and throws it out of operation when he leaves said platform or support free. The advantage of this will be readily seen when we consider that there may be numerous causes which suddenly remove the watchful care of the operator or necessitate his presence suddenly away from the hoisting-

machine and thereby leave it unattended, with the possibility of great danger to those working around the hoisting apparatus and not aware of such contingencies, because if the operator or engineer is thus not in position to watch the operation the machine is automatically taken care of by throwing itself out of operation and applying the brake.

My invention will be better understood by reference to the accompanying drawing, in which is shown an elevation of a suitable hoisting apparatus embodying my improvements.

A is the winding-drum of any suitable construction and is operated by an engine or engines through suitable gearing in any of the well-known manners. The motive power, while ordinarily steam and supplied to the engines by a steam-pipe P and a hand-valve N, may, nevertheless, be any other of the well-known motive powers, such as an electric motor with the ordinary control-switch, it being immaterial to my present invention what the particular motive power for operating the winding-drum may be. The winding-drum A may be provided with a brake-flange C, about which a suitable brake-band D is placed. This brake-band is operated so as to be tightened or loosened by a lever e, secured to a rock-shaft E, which is rocked by an arm F.

G is a pivoted lever or frame pivoted at I to the main frame of the hoist and is heavily counterweighted at K on one end and provided with a platform H or foot-rest at the other end. This lever G is connected at the free end of the arm F by a link J. It will now be observed that in the position shown in the drawing the counterweight K is exerting a power upon the brake-band to arrest the rotation of the drum A. If, however, the operator stands or presses upon the platform or foot-rest H, the counterweight is overcome and the brake is removed. If the operator should by sudden illness or by accident be stricken down, so as to be incapable of controlling the hoist, his falling off or away from the platform or foot-rest will arrest the operation in the hoist by applying the brake. It is evident that the counterweight may be in conjunction with or substituted by other means—as, for example, a spring, as indicated at K'. This advantage is carried fur-

ther by connecting the movable lever G with a throttle-valve L in the steam-pipe P through a suitable link M, so that simultaneously with the automatic application of the brake the  
 5 throttle-valve will be operated to shut off the supply of steam or other motive agency. The throttle-valve L is not intended to control the "speed" of operation of the hoisting apparatus, as that is governed by a suitable hand-  
 10 valve N, controlled directly or indirectly by the operator, but it is intended to absolutely arrest the application of motive power to the hoisting devices. This same result would be accomplished with any character of power-  
 15 supplying devices, for if B were intended to represent an electric motor, P the line conductor to it, N the speed-controlling switch, and L an ordinary well-known circuit-breaking switch it is evident that the same opera-  
 20 tion of the hoisting apparatus as a whole would result. I therefore do not confine myself to any motive power.

I do not limit myself to the minor details of construction herein set out, as they may  
 25 be varied or modified to suit the different designs of hoisting apparatus to which my invention may be applied without changing or altering the spirit of the invention.

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

1. In a hoisting apparatus, the combination of the hoisting-drum in fixed bearings, power devices for operating it, a friction-brake, a power-actuated device for applying the brake  
 35 by moving it under normal conditions and an operator's support or platform whereby the weight of the operator standing on said platform is required to remove the brake and hold it out of action.

40 2. In a hoisting apparatus, the combination

of the hoisting-drum supported in fixed bearings, power devices for operating it, permanently in gear therewith, a friction-brake, a power-actuated device for positively moving the brake under normal conditions to apply  
 45 it and an operator's support or platform whereby the weight of or direct application of power by the operator standing on said platform is required to remove the brake and hold it out of action, and controlling means  
 50 for the power devices whereby said power devices have their motion automatically arrested simultaneously with the application of the brake.

3. The combination of a winding-drum jour-  
 55 naled in fixed bearings, a movable friction-brake therefor, a rock shaft and lever for applying said brake, a pivoted lever G counter-weighted at one end, a platform or support  
 60 for the operator at the other end, a connection between the lever mechanism for applying the brake and the lever G whereby the counter-weight applies the brake and elevates the operator's platform and the weight of or direct  
 65 application of power downward upon the platform by the operator removes the brake, a motive-power device to operate the winding-drum, a controlling device to control the operation of the engine, and a connection be-  
 70 tween said controlling device and the lever G or one of its connecting parts, whereby the power is automatically shut off from the engine when the brake is applied and vice versa.

In testimony of which invention I have hereunto set my hand.

WALTER PASCHALL.

Witnesses:

R. M. HUNTER,

J. W. KENWORTHY.