No. 693,881. Patented Feb. 25, 1902.

D. H. MORGAN.

HOIST.

(Application filed Aug. 12, 1901.)

(No Model.)

Fig. 1

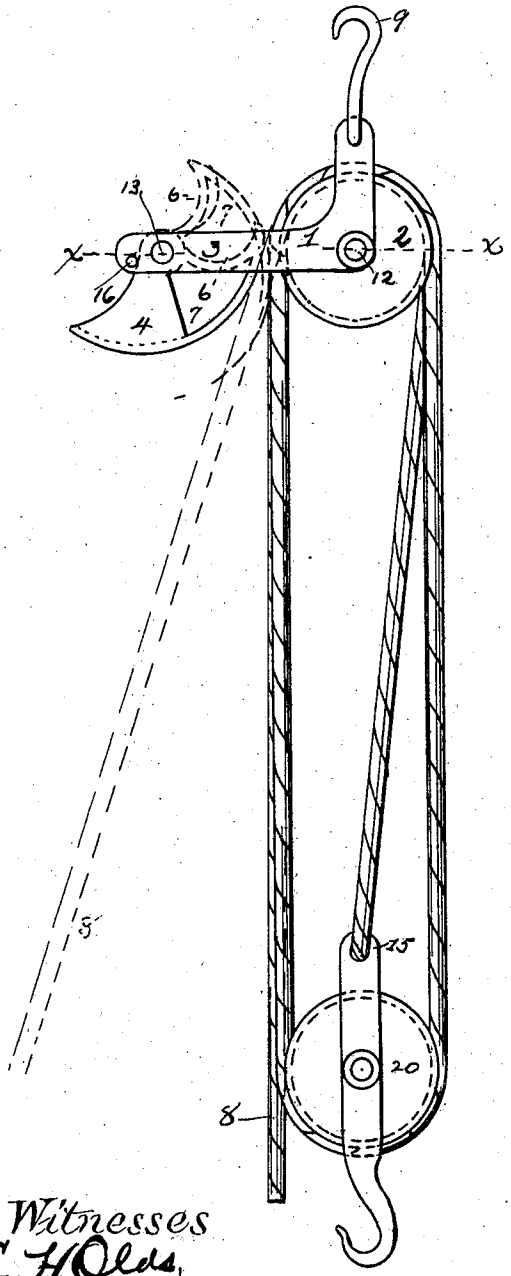
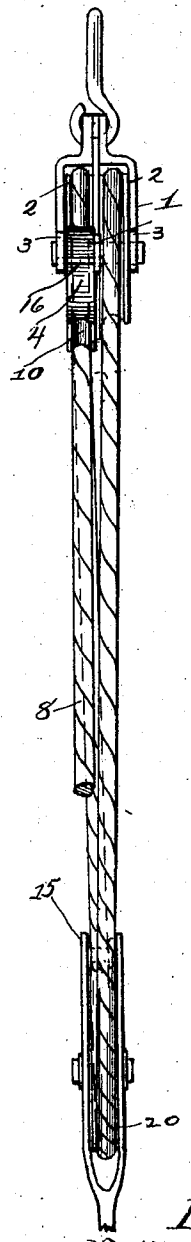


Fig. 2



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UNITED STATES PATENT OFFICE.

DAVID H. MORGAN, OF CLEVELAND, OHIO.

HOIST.

SPECIFICATION forming part of Letters Patent No. 693,881, dated February 25, 1902.

Application filed August 12, 1901. Serial No. 71,773. (No model)

To all whom it may concern:

Be it known that I, DAVID H. MORGAN, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Hoists, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in automatic grips for tackle-block hoists; and the object of the invention is to provide a simple and efficient device for this purpose which can be released without difficulty.

This invention is designed to operate in an exactly opposite manner to that described in my Patent No. 676,147, granted June 11, 1901.

My invention consists in a triangular frame and cam-brake pivoted therein with the details of construction and combination and arrangement of parts as hereinafter described, shown in the accompanying drawings, and specifically pointed out in the claims.

In the drawings, Figure 1 is a side elevation of my device. Fig. 2 is an edge view of the same.

In the views, 1 represents a frame, in which are pivoted the pulleys 2. To the arms 3, extended horizontally therefrom, is pivoted the cam 4, having its shortest side extending toward the pulley. The inner half of the cam is cut out at 6 and webbed at 7 or perforated to make this portion the lightest, so that the outer extremity will be heavy enough to hold the cam closely adjacent to the pulley and rope 8, which passes over the pulley, but not close enough to touch the rope until the free end held by the operator is swung outward until at the angle shown in dotted lines, when it will engage the cam, and a perfect lock or brake is immediately obtained. The pressure is greater the farther the cam is drawn upward. Thus an increasing pressure is obtained against the rope, the strain being divided between the pivoted point 12 of the pulleys and 13 of the cam until a point is reached in the cam which cannot pass the pulley, when of course a perfect lock or brake is obtained which will sustain the weight hanging from the hoist.

It will be seen that the frame in which the pulleys, the hook 9, and cam 4 are pivoted is so designed that the center line $x\ x$ between the pivotal points of the pulleys and cam shall always remain horizontal while the other arm stands vertically; otherwise the cam would not be in position to work correctly, since it must normally hang away from contact with the rope and afterward it will be pulled up after contact with the rope. The angular frame is maintained in the required position by the weight of the tackle-block 20, suspended from the rope 8, one end of this rope being free to engage the cam, and is held by the operator while the other end is secured at 15 to a hook or integral portion of the frame on which the block 20 is supported. When it is desired to release the weight, the rope 8 is swung in and held perpendicularly to release the cam, which will allow the cam to swing outward again from the pulley while the rope runs freely by. The edge of the cam is grooved at 10 to engage the curved surface of the rope. At 16 is seen a pin or lug, which is designed to arrest the backward swing of the cam and prevent the cam from oscillating on its pivot.

It will be seen from the drawings that the frame of the hoist is composed of two right-angled members and another member which comprises only the vertical arm. The pulley-pivot connects these members. As many of these last-named members may be employed as desired, this being determined by the number of pulleys employed in the hoist, each pulley being mounted upon the pivot between two members. The cam is pivoted between the horizontal arms, and the several members are separated by the pulleys and secured together at the top in any suitable manner.

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

1. In a hoist in combination a right-angled frame, one of whose sides is horizontal and the other vertical, a pulley-pivot and pulleys thereon, placed in the right angle of the frame, a support for the frame in the vertical arm of the frame, and a pivot for a cam in the horizontal arm of the frame, ropes over said pulleys and a tackle-block suspended thereon, a rope and a locking-cam pivoted in the horizontal arm so balanced as to swing free of the free

end of the rope, when the free end hangs vertically and is slightly drawn, but adapted to engage and lock said free end against the pulley when the free rope end is swung into engagement therewith and permitted to rise slightly, substantially as described.

2. In a hoist, a right-angled frame arranged to hang with one arm vertical and the other horizontal, a pulley-pivot at the right angle and pulleys thereon, a support for the frame in the vertical arm, and a pivot for a cam in the horizontal arm of the frame, a continuous rope over said pulleys, and a tackle-block suspended thereon over which said rope passes, a rope and a locking-cam pivoted in the horizontal arm, arranged to swing free of the free end of the rope when the said end hangs vertically and is slightly drawn, but arranged to engage and lock said free end against the pulley when the rope end is swung into engagement therewith and permitted to rise slightly and a stop-pin placed transversely across said frame behind said cam, substantially as set forth.

3. In a hoist, a frame provided with a plural number of members, secured together at the top two of which are right-angled and arranged to hang with one arm vertical and the other horizontal, a pivot passing through the two angular members at the right angle and through the other member, pulleys on said pivot, a cam-pivot secured in the outward extremities of the horizontal arms, and a cam thereon, a continuous rope about said pulleys, having a free end, a tackle-block supported by said rope, the said cam being arranged to normally hang free from the free end of the rope, but to engage and lock, said free end, when the end is swung into engagement therewith and permitted to rise slightly, and means for preventing the cam from swinging backward beyond a determined limit, substantially as described.

4. In a hoist, the combination with a pulley-frame and pulley pivoted therein, of a horizontal arm projecting from said frame, a cam pivoted in said arm and separated from said pulley, and a rope on said pulley normally out of engagement with said cam but free at one extremity to be manually brought into engagement therewith, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID H. MORGAN.

Witnesses:
GEO. O. WILLET,
WM. M. MONROE.