G. HUMPHREY.

LIFTING DEVICE.

APPLICATION FILED DEC. 14, 1911.

1,036,496. Patented Aug. 20, 1912.

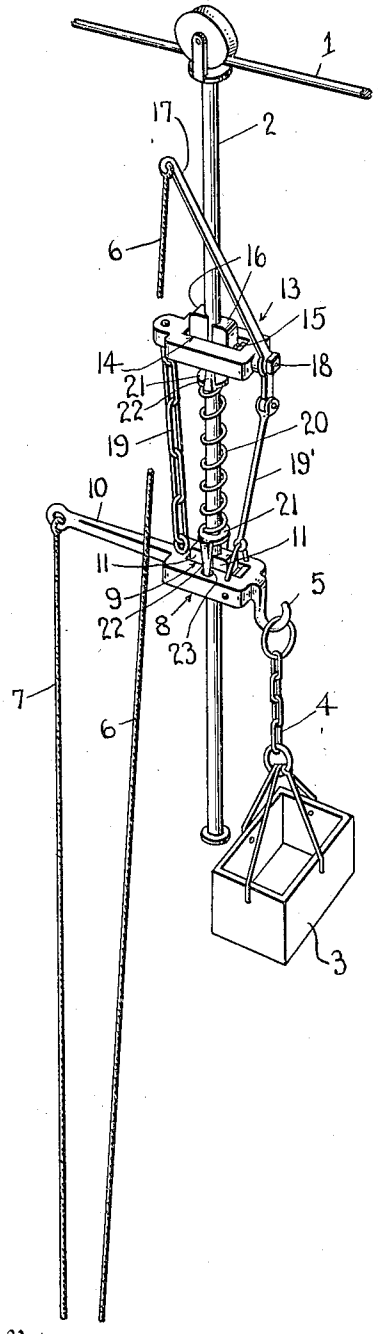

Fig. 1.

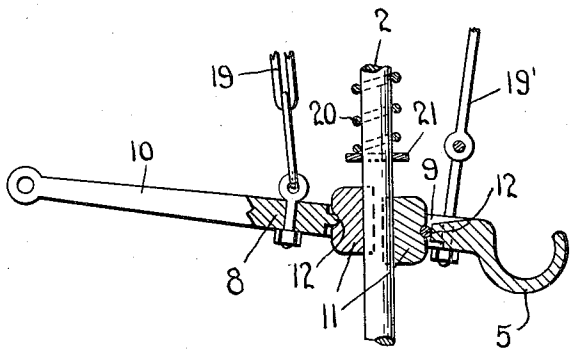

Fig. 2.

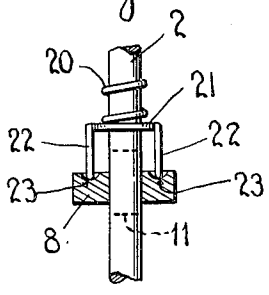

Fig. 3.

Witnesses:

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LIFTING DEVICE.

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To all whom it may concern:

Be it known that I, GENERAL HUMPHREY, a citizen of the United States, residing at Hamburg, in the county of Hardin and State of Tennessee, have invented certain new and useful Improvements in Lifting Devices; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention may be said to relate to hoisting, and more especially to lifting devices operated or actuated at a relatively high point by a person standing on the ground, and the same is set forth on this basis in the accompanying specification and drawings; but the principle involved herein may be employed to cause the two members to move horizontally or in other directions than vertically, so that the device could be used as a stump puller, hame fastener, rope tightener, or in a variety of ways and places.

The primary object of the same is to produce such a device constructed so that it may be actuated to cause it either to creep upward on a supporting upright or to move downward on the same, and during its movement in either direction or while it stands at rest it will support a weight or load. This object will not be lost sight of when the device is used in other positions than vertical, as for instance when it creeps horizontally along a guide or support as when drawing on a rope instead of supporting a weight or load. This and other objects are carried out by the construction hereinafter more fully described and claimed, and as shown in the drawings wherein—

Figure 1 is a general perspective view of this device mounted upon an upright rod, herein shown as held by a roller on an overhead support; Fig. 2 is an enlarged central vertical longitudinal section through the lowermost member; Fig. 3 is a cross section thereof taken at right angles to the section line in Fig. 2.

In the drawings the numeral 1 designates an overhead support of any suitable type, and 2 is an upright pendant therefrom and in the present case illustrated as a round rod which may be straight throughout its length. 3 designates any suitable weight or load which this device is intended to support, and 4 is a chain connecting it with a hook 5 which forms a part of the lifting device proper. The proposition is to suspend or support a weight or load upon the upright 2 in such manner that by manipulating the rope 6 the lifting device will be caused to crawl or creep upward along the upright 2, and by manipulating the rope 7 the device will descend along the upright 2, but in no case can it fall if the parts remain unbroken and are properly made.

Coming now more particularly to the gist of the present invention, the numeral 8 designates what I will call the lower member which carries said hook 5 at its front end and an arm or lever 10 projecting rigidly from its rear end and with which the rope 7 is connected, and between these ends this member is provided with an elongated loop 9 in which jaws 11 are pivotally mounted as at 12 so that their active or inner faces will grip the upright 2 when this member is canted slightly or will free the upright when the member is caused to resume a horizontal position.

The numeral 13 designates what I will call the upper member, also having in its body an elongated loop 14 within which at 15 are pivoted two jaws 16, their disposition being such that they will bite and release the upright 2 in the same manner. The upper member carries a lever 17 pivoted at 18 to the front end of this member above the hook 5, the outer extremity of its longer arm being connected with said rope 6 and the outer extremity of its shorter arm being connected by a loose or flexible link or chain 19′ with the front or inner end of the lower member. The rear or outer ends of both members are also connected by a loose link or chain 19 as shown. Between said members an expansive spring 20 is coiled on the upright 2, and at the extremities of the spring are washers 21 mounted loosely on the rod and having arms 22 projecting from their opposite sides and entering sockets 23 in the adjacent faces of the two members, such arms standing astride of the jaws in the members and permitting said jaws to have their proper movements as described above.

The action and operation of this device is as follows: To raise the weight the rope 6 is drawn upon which rocks the lever 17 on its pivot 18, and its short arm draws upward

on the link 19′ so that the front end of the lower member is lifted a little and its jaws thrown out of biting engagement with the upright. One end of the lever being depressed by the pull on the rope 6 and the other by the pull of the weight through the link, the lever fulcrum is borne downward so that the upper member is canted and its jaws are thrown into yet closer biting engagement with the upright; so that the result is that this upper member remains stationary and the lower member is drawn up toward it and the spring is compressed. The release of tension on the rope 6 permits the long arm of the lever to rise and the short arm to descend, so that tension on the link relaxes and the weight causes the lower member to tilt slightly which throws its jaws into biting engagement with the upright; and simultaneously the release of tension which drew downward on the pivot 18 permits the spring to expand, the upper member to turn with its jaws out of biting engagement with the rod, and then to move upward as far as both links will permit—thereby bringing all parts of this device to rest and at a higher position upon the upright ready for another stroke. To cause the weight to descend, the other rope 7 is drawn upon, and through the rear link the upper member is caused to turn with the lower so that in both members the jaws release their grip upon the upright and the device slides down the same. If it should slide too rapidly, the pull upon the rope is slacked, and immediately one or both the members resume their biting engagement therewith. In this movement of the device the spring holds the two members normally separated and has no further function, whereas in the upward movement of the device the spring must be compressed and expanded as explained; but in either movement whenever either member rocks from one position to another, the loose engagement of the sockets 23 with the arms 22 on the washers 21 permits the latter to slide on the upright against the ends of the spring in a manner which will be clear and without interfering in the least with the movements of the jaws as they bite the upright and release it.

Thus it will be seen that I have produced a device whereby a weight or load can be elevated by an operator standing on the ground and at a distant point who pulls upon one of the ropes, or can be caused to descend if the operator maipulates the other rope.

I do not limit myself to the materials or exact shape of parts, nor to the specific details of construction further than are necessary to carry out the end in view. It is quite possible that by shaping the jaws properly the device could be made to operate successfully upon a rope suspended from an overhead support, especially if the rope were large and rather stiff.

As first suggested above, while the invention has been described herein as applied to a vertical upright 2 and as moving upward or downward thereon, it is quite possible to apply it to a horizontal support or to one disposed in some other position than vertical and cause it to move in either direction thereon by manipulating the levers 10 and 17; and it will be understood that in this use of the device if the same stands within reach of an operator who is upon the ground, the ropes 6 and 7 may be omitted because he can place his hand directly on the levers. It will not be necessary to amplify the description and illustration of this adaptation of my invention, although I claim the right to use the same in whatever way it is possible.

What is claimed as new is:

1. A lifting device comprising a lower member having a hook at one end and a lever at the other, an upper member having a lever pivoted to that end which is above said hook, both members having loops adapted to engage an upright when they are canted, links flexibly connecting one arm of said upper lever with the corresponding end of the lower member and connecting the other ends of both members, and means for actuating said levers independently.

2. A lifting device comprising a lower member having a hook at its front end and a lever projecting rigidly from its rear end, an upper member, a lever pivoted to its front end above said hook, both members having loops adapted to engage an upright when they are canted, a link connecting the short arm of said upper lever with the front end of the lower member, another link connecting the rear ends of both members, and independent ropes depending from the outer ends of said levers.

3. A lifting device comprising a lower member having a hook at its front end, an upper member having a lever pivoted to its front end above said hook, both members having loops, jaws pivotally mounted in said loops and adapted to make biting engagement with an upright when the members are canted, chains connecting one arm of said upper lever with the front end of the lower member and connecting the rear ends of both members, and means for actuating said lever or canting the lower member independently.

4. A lifting device comprising a lower member having a hook at one end and a lever at the other, an upper member having a lever pivoted to that end which is above said hook, both members having loops adapted to engage an upright when they are canted and sockets in their adjacent faces

at opposite sides of said loops, a washer next each member having arms loosely mounted in said sockets, an expansive spring between the two washers and adapted to be coiled on said upright, links loosely connecting the other ends of both members, and means for actuating said levers independently.

5. A device of the class described comprising one member having a hook at one end and a handle-lever at the other, a second member having a lever pivoted to that end which is adjacent said hook, both members having loops adapted to engage a support when they are canted, links flexibly connecting the hook end of one member with the adjacent end of the lever on the other member and the other ends of both members, and a spring holding said members normally apart.

6. A device of the class described comprising one member having means at one end for attaching a load and a handle at the other end with a loop between said ends, a second member having a lever pivoted to one end and a loop between its ends, a link connecting one arm of this lever with the hook end of the other member, a second link connecting the other ends of both members, jaws loosely mounted in said loop and adapted to bite a support when the members are canted thereon, and a spring spreading said members normally apart.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GENERAL HUMPHREY.

Witnesses:
A. A. CAUNCE,
R. E. BARLOW.