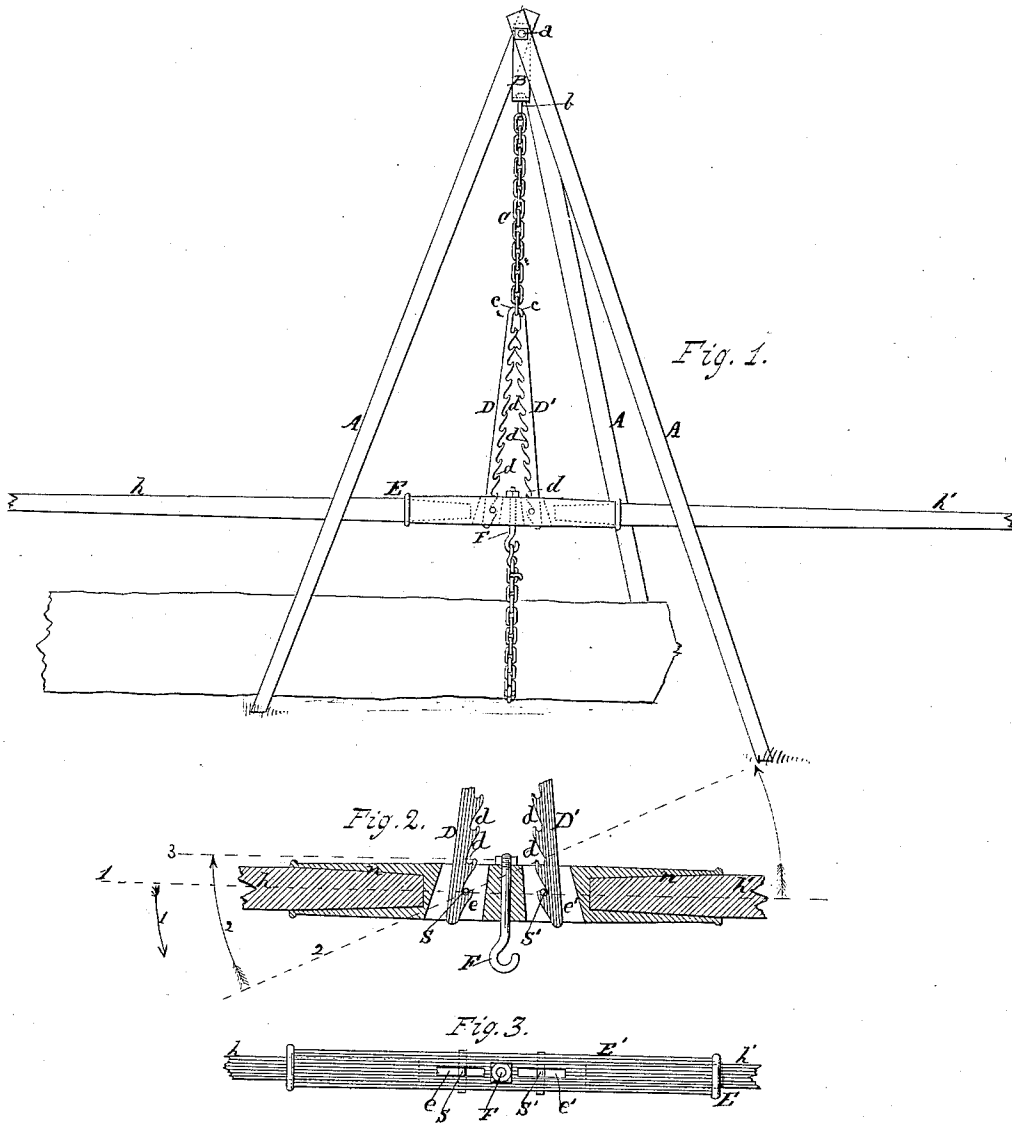


(No Model.)

C. J. WALDRON.
HOISTING MACHINE.

No. 333,574.

Patented Jan. 5, 1886.



Witnesses: Dr. F. Schlinghoff
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UNITED STATES PATENT OFFICE.

CORNELIUS J. WALDRON, OF MEDUSA, NEW YORK.

HOISTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 333,574, dated January 5, 1886.

Application filed April 29, 1885. Serial No. 163,818. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS J. WALDRON, a citizen of the United States, residing at Medusa, in the county of Albany and State of New York, have invented certain new and useful Improvements in Hoisting-Machines, of which the following is a specification.

My invention relates to hoisting-machines in which are employed a lever having two fulcrums, and means between these fulcrums for its connection with a chain or sling, and a pair of suspended jack-racks, with which the lever is operated, for progressively effecting an elevation of the lever and the object or weight connected to it; and it consists of the devices and elements and combination of devices and parts hereinafter particularly described, and specifically set forth in the claim.

The objects of my invention are to provide a hoisting-machine which will be portable, simple in construction, and efficient for lifting objects of considerable weight, and be adapted for use of farmers, quarry-men, and others for lifting logs, drawing stumps, lifting stones, &c. I attain these objects by the means illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of a hoisting-machine embodying my invention. Fig. 2 is a sectional elevation of the principal parts of the machine. Fig. 3 is a plan view of the lever.

The same letters of reference refer to like parts throughout the several figures.

The drawings show my improved hoisting mechanism suspended from the tripod A A A, though it may be suspended from a crane.

B is a swivel-strap secured to the upper end legs of the tripod by bolt *a*, and *b* is a swivel-hook from which is suspended chain C.

D D' are jack-racks, provided each at its upper end with hooks *c* for engaging with the links of chain C. These jack-racks are each a duplicate of the other, and are made of tough wrought-iron or steel, and provided in their facing edges with a series of relatively obliquely-formed notches, *d d*, so that their inner edges will be in appearance somewhat in the form of saw-teeth, as shown, with the bottom or gullet of each notch having an extension

about equal to the fulcrum-pins of the levers. For ordinary use I prefer to make these jack-racks with a thickness of about three-eighths of one inch and with a width of about two inches, including the notched portions.

E is a lever having made in its head portion the vertical slot-form perforations *e e'*, which perforations freely receive the jack-racks D D', respectively, as shown. Fixed in the head portion of this lever and passing transversely through the vertical perforations *e e'* are the fulcrum-pins *s s'*, which pins are made with a diameter of about five-eighths of one inch, or of a size which will correspond with the bottoms of notches *d d* of the jack-racks. Secured to the head portion of the lever, and midway between pins *s s'*, is hook F, for convenience of making a connection of the lever with the chain or sling or other device which is employed to engage with the object to be hoisted.

The drawings show the lever E provided with two handles, *h h'*, though but a single handle can be employed where the machine is to be used for lifting lighter objects; but for hoisting blocks of stone of considerable weight or for raising stumps out of the soil I prefer to use two lever-handles, as shown.

The manner of operating my improved hoisting-machine is as follows: The operator will, by means of chains C, suspend the jack-racks D, by means of their hooked ends *c*, from any one of the links in said chain as will be advantageous for hoisting the object to its required elevation. When the object to be hoisted has been properly connected with lever E by means of hook F, with the fulcrum-pins *s s'* resting in the gullet of the lower notches in the jack-racks, the machine will be ready for operation. The operator will then operate lever E vertically in alternate directions, as indicated by dotted lines and arrows in Fig. 2. When the lever is moved from dotted line 1 in Fig. 2 in direction of arrow 1 to dotted line 2, it will vibrate on pin *s* and carry up the hook, and lift the attached object to a distance equal to one-half of the distance between notches *d d*, and carry pin *s'* from the lower notch to the notch next above, (the perforation *e'* permitting the lower portion of the suspended jack-rack D' to freely work down

through the lever.) In their suspended condition these jack-racks are by their gravity made to have a constant pressure against the respective pins *s s'* in the lever, so that when
 5 pin *s'* is carried up to opposite the notch above, jack-rack D, by its gravity, will engage by said notch with pin *s'* and hold with it, when the object being hoisted will be supported from
 10 pins *s* and *s'* holding with the lower notch of jack-rack D and the second notch in rack D'. The operator will then move lever E in a reverse direction, as that of arrow 2, and, when
 15 carried up to dotted lines 3, pin *s* in the lever will be carried up into the second notch. A reverse movement will carry pin *s'* up into the third notch *d* in the rack D', and a contrary-wise movement will carry pin *s* into the third
 20 notch *d* of rack D. At each elevation of pins *s* and *s'* the head of the lever, together with the object being hoisted, will be elevated to a distance equal to one-half the distance between the neighboring notches, and by the
 25 successive alternate movements of the lever-pins *s s'* will be successively carried up through the series of notches in the jack-bars until the object connected with the lever is lifted to the desired elevation. When lever E is moved
 30 downward in direction of arrow 1, it operates as a lever of the first order, and when moved in direction of arrow 2 it operates as a lever of the second order. By reason of the
 35 suspension of the jack-racks from the same link or eye, these racks are made to be held by their gravity in constant contact with the fulcrum-pins *s s'*, whether the lever is down with said pins in the lower notches or up to a
 40 higher plane in the upper notches. To lower the lever from a high plane of elevation to a lower plane, the operator will be required to move the lower ends of the jack-racks apart sufficient to permit at each outward move-

ment the pins *s s'* to alternately descend a notch until the lever has been brought down to the desired distance.

The drawings show the head E' of lever E 45 made with a socket, *n n*, and in solid connection with the center portion, *m*, with which hook F is connected. By this form of construction the head E' may be cheaply produced from cast metal, and be adapted to receive 50 any desired length of lever handle or handles; but it is not essential that the head be made in the form shown, as slot-form perforations *e e'* may be made in a bar or lever made of wood, and the wood be strengthened by plates 55 riveted or bolted on the opposite sides of the bar at its head portion.

The above-described parts of this hoisting-machine may be made of any degree of strength as may be required for the work to be done in 60 hoisting or lifting weights or objects, and the object lifted can be held in any plane of elevation to any extent of times desired, and a single individual can readily operate the machine without any assistance, to elevate 65 weighty objects for loading the same on a wagon or sleigh, or for extracting stumps from the soil.

Having described my invention, what I claim and desire to secure by Letters Patent, is— 70

The combination, with the portable frame or tripod A and jack-racks D D', suspended by chain C from swivel B *b*, secured to the upper end of said tripod, of lever E, provided with vertical perforations *e e'*, fulcrum-pins *s s'*, and hook F, all substantially as and for the 75 purposes set forth.

CORNELIUS J. WALDRON.

Witnesses:

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