

*W. L. Hawkins,
Stump Elevator.*

No. 34,364.

Patented Feb. 11, 1862.

Fig. 2.

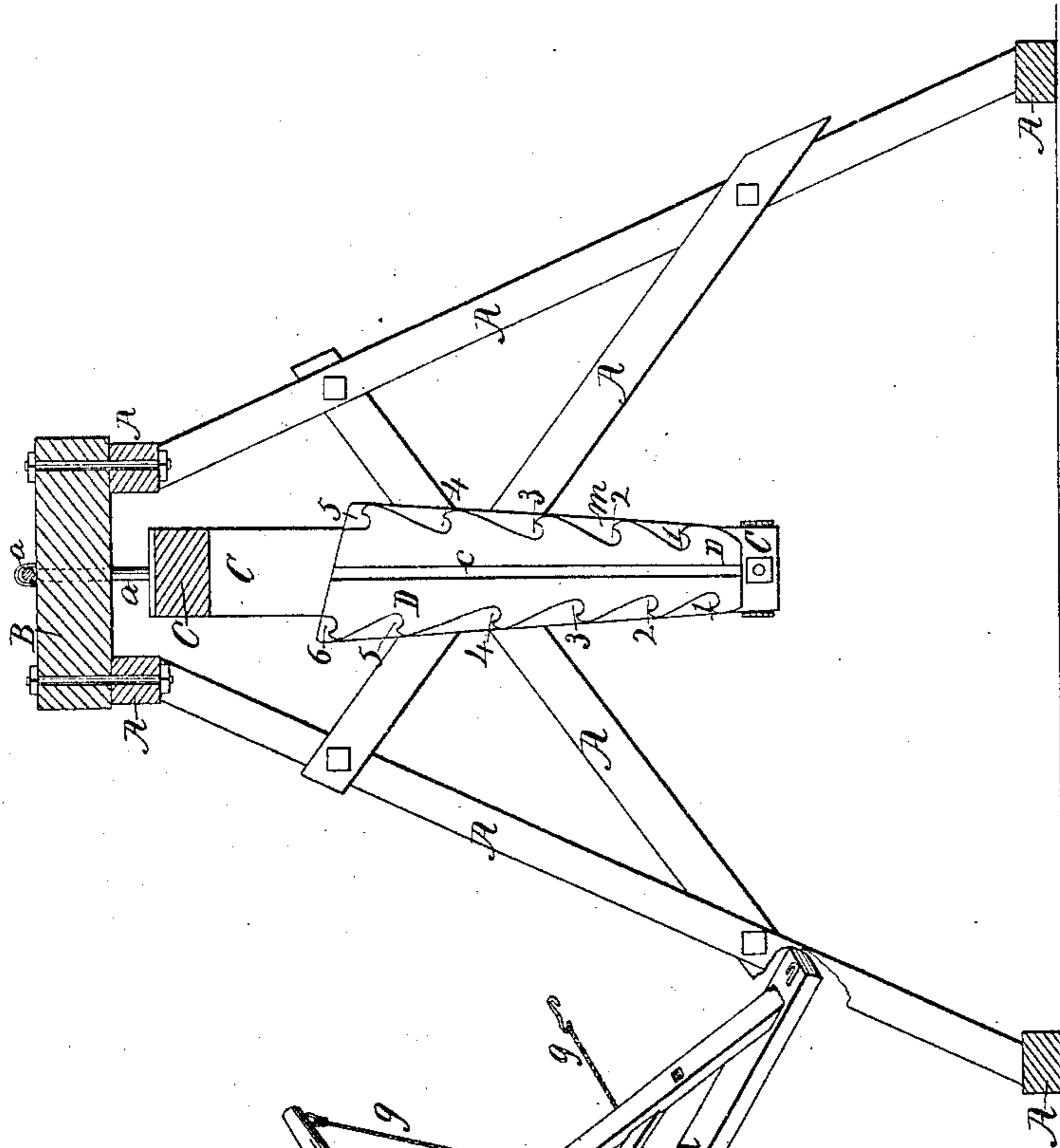


Fig. 1.

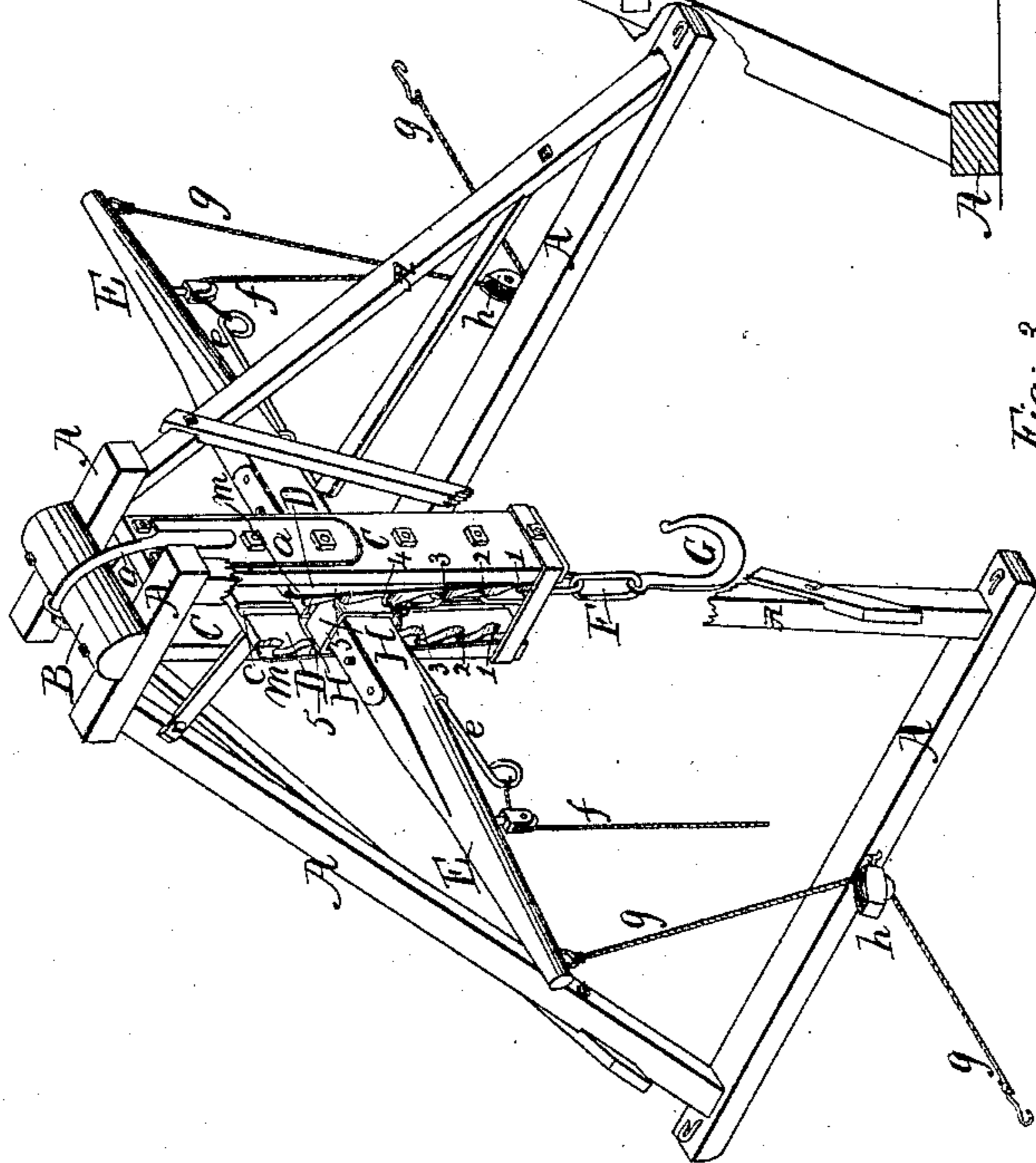


Fig. 3.

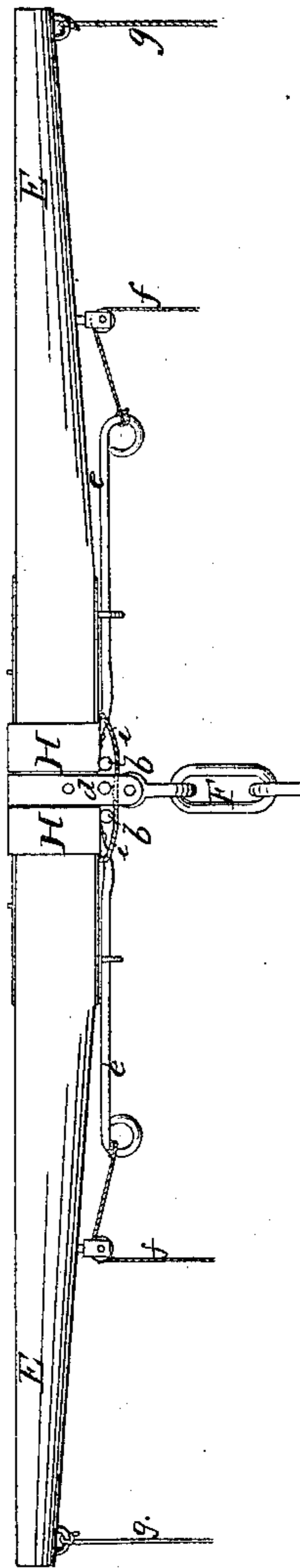
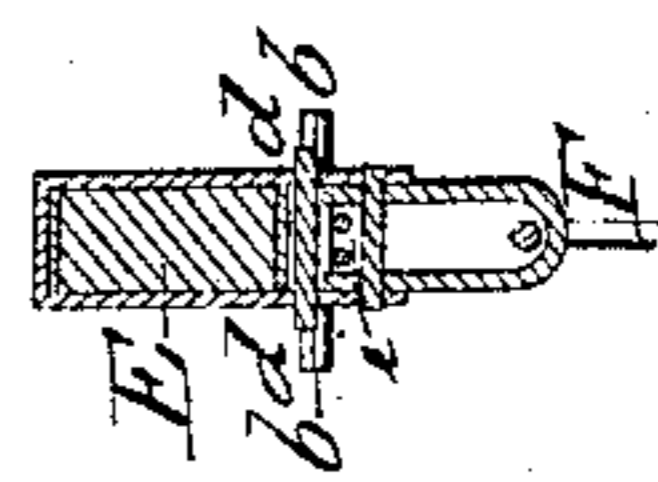


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM L. HAWKINS, OF LOCK HAVEN, PENNSYLVANIA.

IMPROVEMENT IN STUMP-EXTRACTORS.

Specification forming part of Letters Patent No. 34,364, dated February 11, 1862.

To all whom it may concern:

Be it known that I, WILLIAM L. HAWKINS, of Lock Haven, in the county of Clinton and State of Pennsylvania, have invented certain new and useful Improvements in Stump-Extractors; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of the apparatus complete. Fig. 2 represents a vertical section through the same, the lever being removed. Fig. 3 represents the lever and its several connected parts detached from the apparatus. Fig. 4 represents a transverse section through the lever at its center.

Similar letters of reference, where they occur in the several figures, denote like parts of the apparatus in all the drawings.

I am aware that a double rack-bar, walking beam or lever, and self-acting pawls have been used in a variety of machines for raising heavy weights or for making heavy pressure, as in lifting-jacks, stump-extractors, and cotton-presses; but my use of these devices differs from all others of which I have knowledge, they being so combined and arranged that the greatest power shall be exerted at the commencement of the operation and a gradual increase of speed, at the expense of the power attained, from the start to the termination of the operation. Thus the greatest power is exerted to start the stump, and after it is started the speed increases rapidly both by the shifting of the fulcras and the height of the steps of the rack-bars, these operations being self-regulating; and my invention consists, first, in a suspended frame having upon its opposite sides two rack-bars, the steps of which rack-bars not only recede from each other as they rise in height, but also increase in height for the purpose of gaining speed at the expense of power from the commencement to the termination of the operation; second, in combining with a lever that is to work in the rack-bars the two spring-fulcras so connected that the moving out of one shall tend to hold in the other, and thus insure certain action, and, third, in combination with the rack-bars and lever with their operative appliances, the slots in said bars, and the guide-

pins in said lever, for the purpose of controlling the lever as it rises or descends.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents a stout pyramidal-shaped frame, which may be rigidly put together or so framed as to be readily taken apart for more easy transportation.

B is a bearing block or piece resting on top of the frame, from which is suspended by a bail or straps *a* the frame C, that contains the rack-bars D D. These rack-bars have upon each of their edges a series of steps 1 2 3 4 5, which not only recede from each other as they rise, but which also increase in height as they rise and as seen in Fig. 2. The steps are not directly opposite each other, but so made that those on one side are horizontally opposite the center of the space between two of the steps on the opposite side; and the steps may be slightly rounded out or recessed to make a firm support for the fulcras *b b* of the lever to rest and turn in. In the centers of the rack plates or bars D there are grooves *c* for the pins *d* (one on each side of the lever) to move in to keep the lever in proper position as it rises and falls.

E is the lever, to which is affixed the chain F and hook G, or their equivalents, for fastening to the stump that is to be drawn. At or near the center in length of the lever are the pins *d*, which move in the grooves *c* of the rack-plates. On each side of the center of the lever there are sliding fulcras *b b*, connected by an india-rubber band *i* or other equivalent spring to draw them together, but still allow them to yield as they move against the inclined planes that reach from step to step and quickly draw them into the steps at the tops of the planes. These fulcras *b* are connected, respectively, to yokes H, that can move longitudinally on the lever E; and to the yokes are also connected rods *e* and cords *f*, or their equivalents, by which both of the fulcras *b* may be drawn out to allow the lever to descend to the bottom of the frame C, that contains the rack plates or bars, in which position the lever is placed at the commencement of the work. To the ends of the lever E may also be attached cords or chains

g, which pass down around pulleys *h* for vibrating said lever by animal or other power when necessary to have the power low down or on the ground. As a general thing the apparatus may be operated by hand; but in heavy work a team or two teams may be used for working the lever.

By swinging the rack-frame *C* to the bearing-block *B* it is not necessary to bring the frame or hoisting apparatus immediately over the stump to be drawn, the frame being capable of swinging some distance out of a perpendicular line, and the apparatus working freely whether immediately over or to one side of the stump to be drawn; and the machine may be worked horizontally instead of vertically, if desired, for drawing heavy bodies, such as buildings.

m m are flanges behind the steps 1 2 3, &c., which direct the adjusting-fulcra and keep them in their places.

The operation is as follows: The chain or hook having been fastened to the thing to be moved, the lever is vibrated vertically and the fulcra-pins climb the rack-plates step by step, thus raising the lever and the weight attached to it. By drawing alternately on the cords *f* the operator can step down the lever

for another operation, it coming down freely and without jar, although it may be quite heavy.

Having thus fully described the nature and object of my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. A suspended or yielding frame *C*, having upon its opposite sides rack-bars *D*, the steps 1 2 3, &c., of which not only recede from each other, but also increase in length or height as they rise, substantially as and for the purpose set forth.

2. In combination with a lever that is to work in said rack-bars, the spring-adjusting fulcra, so connected together as to mutually tend to hold each other to the steps, substantially as described.

3. In combination with the rack-bars and lever and their operative appliances, the slots or grooves *c* in said bars and the guide-pins in said lever for controlling the lever as it rises or descends, substantially as described.

W. L. HAWKINS.

Witnesses:

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