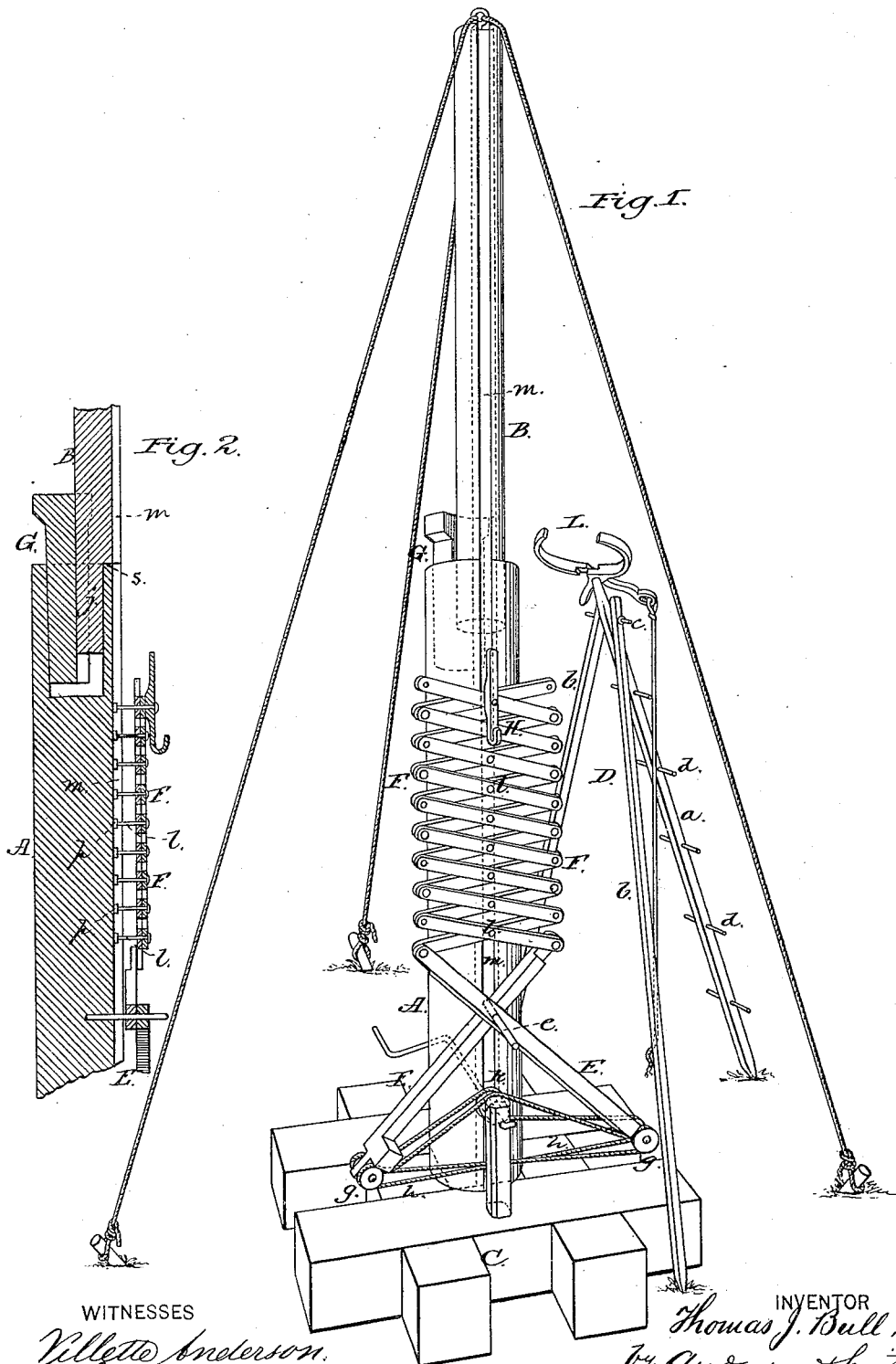


(No Model.)

T. J. BULL.
HOISTING APPARATUS.

No. 263,476.

Patented Aug. 29, 1882.



WITNESSES

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UNITED STATES PATENT OFFICE.

THOMAS J. BULL, OF HOT SPRINGS, ARKANSAS.

HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 263,476, dated August 29, 1882.

Application filed February 7, 1882. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. BULL, a citizen of the United States, and a resident of Hot Springs, in the county of Garland and State of Arkansas, have invented a new and valuable Improvement in Hoisting Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a perspective of my invention, and Fig. 2 is a vertical sectional view of a portion thereof.

The object of this invention is to assist builders and others in hoisting stone, brick, mortar, timber, or any material; and it consists in the construction and novel arrangement of the grooved shaft, the windlass, and cross-levers near the base, and the series of extension or "lazy-tong" levers connected to the cross-levers engaging the groove of the shaft by the heads of the pivot-bolts and carrying a hook or grapple at the upper end; also, the invention consists in combining with said shaft a secondary or additional shaft, also grooved, and designed to be connected to the main shaft to add to its height and provide a continuous grooved bearing the entire length of the compound shaft thus formed, all as hereinafter set forth, and particularly pointed out in the claims appended.

In the accompanying drawings, the letter A designates the main shaft, which may be made of heavy planks bolted together. When made hollow the secondary or additional shaft B is designed to work inside of the main shaft, so that it may be easily raised in upright position to its upper end. The main shaft A is designed to be strongly framed into heavy cross-timbers forming the base C, upon which the shaft stands when in position. The shaft is usually raised by means of a three-leg derrick, D, having a pair of clamp-jaws, L, secured to one of the legs, *a*. The other legs, *b*, are pivoted to the leg *a* by means of a bolt, *c*. Transverse pins *d* are passed through perforations in the main leg *a*, and are designed to serve as a ladder to enable a workman to adjust the upper shaft.

E E designate the main working-levers,

which are crossed on the fulcrum-bolt *e*, and are provided with pulleys *g* on their lower ends, around which the windlass-rope *h* runs from the windlass *k*, which is connected to the lower end of the main shaft below the pivot-bolt *e* of the main levers.

F F represent the extension or cross arms, which are pivoted to each other in series, one above another, by their ends and centers, the lower set of arms being pivoted to the upper ends of the cross-levers E, as shown in the drawings. When the cross-levers E are drawn together the extension arms or levers F are turned on their center bolts, *l*, toward the vertical position, in the manner of a lazy-tongs construction. In order to guide the series of extension-arms and brace them in their upward movement, they are arranged to have a sliding connection with the upright shaft. This is accomplished by providing a guide-groove, *m*, lengthwise in the shaft, which is enlarged within the opening slot, the dovetail form being preferred, to engage the heads *p* of the center bolts, *l*, of the extension-arms F. In order to prevent the guide-groove from being readily worn out, a metallic guide-groove may be seated in or bolted to the shaft. The upper or secondary shaft is also provided with a longitudinal guide-groove, *m*, similar in form and size to that of the main shaft, and designed to be continuous therewith when the additional shaft is seated on and secured to the top of the main shaft. Usually the upper shaft is seated in the hollow body of the main shaft, and it may be provided with a rack to engage a cog-wheel on the main shaft and extending through a slot in its wall. By turning this wheel the shaft B can be easily raised in upright position to the top of the main shaft, where it is to be seated by moving it forward until the shoulders of the jog *j* rests on the front edge of the wall of the main shaft, and the guide-grooves are brought accurately in line with each other. Then the large wedge-key G is fitted behind the upper shaft into the hollow mouth of the main shaft, and serves to hold the upper shaft in firm connection with the lower one.

Secured to the upper pair of extension-arms, F, of the series is a hook or catch, H, for attaching a wheelbarrow, tub, timber, castings, or any article to be hoisted. If the hook is

found to be too high when the set of extension-levers is depressed to the lowest position, the base of the shaft may be seated in a recess in the ground, thereby bringing the hook nearer the work. The shaft, when in place, may be steadied by means of guy-ropes.

This hoisting-machine, although simple in construction, is designed to work with great ease and rapidity.

10 For hoisting heavy material it will sometimes be advisable to connect four grooved shafts to one base, these shafts being connected to the four corners of a platform, and each shaft being provided with a series of hoisting-levers, 15 as above described, which are connected with a driving-shaft or windlass to be worked by horse or steam power. In this case the grooved shafts may be encircled by iron bands at their upper and middle portions, these bands being 20 hinged to open on opposite sides when necessary in hoisting long substances.

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

1. In a hoisting-machine, the shaft A, having 25 the guide-groove *m*, the windlass *k*, and cross-levers E, pivoted near its base, the series of extension or lazy-tong arms F, pivoted to the cross-levers, the pivot-bolts *l*, connecting said arms centrally, and having dovetail heads *p*, 30 engaging the guide-groove, and the hook or catch H at the upper end of the series, substantially as specified.

2. In a hoisting-machine, the combination, with the main grooved shaft A, its windlass, 35 cross-levers E, and pivoted extension-arms F, having center bolts engaging the groove of the shaft, of the additional shaft B, also grooved to engage said center bolts, and having the shoulder-bearings *s*, and the wedge-fastening G, 40 substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

THOMAS JEFFERSON BULL.

Witnesses:

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