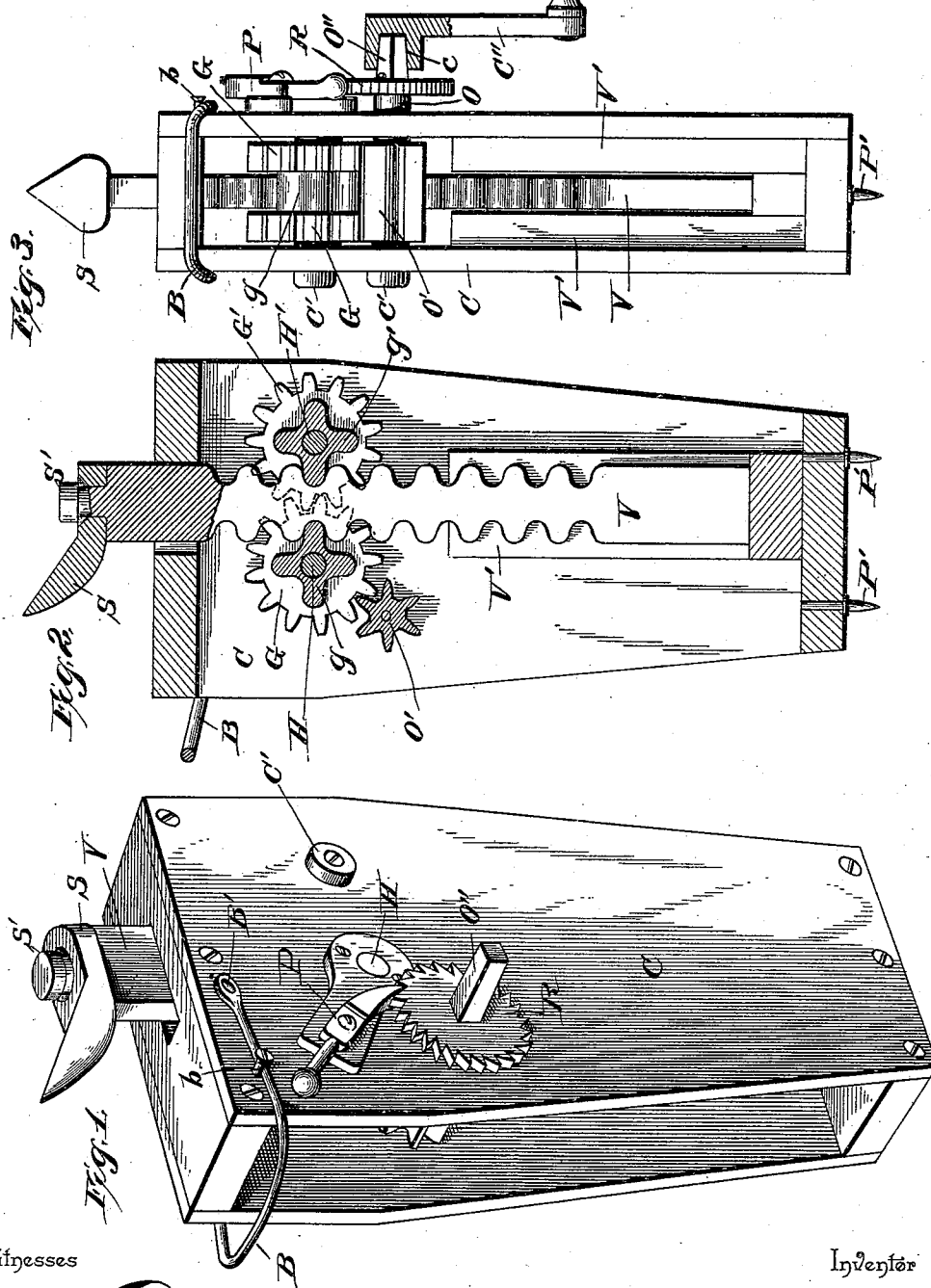


(No Model.)

G. P. BRINKMAN.
LIFTING JACK.

No. 473,206.

Patented Apr. 19, 1892.



Witnesses

E. H. Ludeman,
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Inventor

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By *his* Attorneys,
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UNITED STATES PATENT OFFICE.

GEORGE PAUL BRINKMAN, OF EUREKA, CALIFORNIA.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 473,206, dated April 19, 1892.

Application filed January 11, 1892. Serial No. 417,719. (No model.)

To all whom it may concern:

Be it known that I, GEORGE PAUL BRINKMAN, a citizen of the United States, residing at Eureka, in the county of Humboldt and State of California, have invented a new and useful Lifting-Jack, of which the following is a specification.

This invention relates to hoisting apparatus, and more especially to that class thereof known as "lifting-jacks;" and the object of the same is to effect certain improvements therein.

To this end the invention consists in the specific details of construction hereinafter more fully described and claimed, and as illustrated on the accompanying sheet of drawings, wherein—

Figure 1 is a general perspective view of this device. Fig. 2 is a central cross-section. Fig. 3 is a side elevation.

It is well known in this class of devices that lifting-jacks having a toothed lifting-bar which is raised by a gear are open to the objection that the lifting-bar often binds or cramps and always wears against the guide or in the track in which it moves. This is owing to the fact that the teeth on the lifting-bar and on the gear present faces which are slightly beveled or inclined, so as to properly engage each other as the gear revolves, all as well known to those skilled in this art.

C is the casing, preferably having pins P' in its lower end to embed themselves in the earth and prevent slipping, and through this casing is journaled the main operating-shaft O, having a squared front end O'', and adjacent thereto a ratchet-wheel R, engaged by a weighted pawl P, as shown. The latter is pivoted between its ends to the casing C, and its rear end is weighted, as shown, so as to throw its tip normally out of engagement with the ratchet; but it will be understood that when it is engaged therewith, as seen in Fig. 1, it will be held in operative position. Within the casing on this shaft is secured a spur-wheel O', which engages large gears G, mounted on a shaft H, passing horizontally through the casing, and between these gears is a smaller geared hub g.

H' is another shaft, carrying large gears G', meshing with those lettered G, and also having an intermediate smaller geared hub g'. It

will thus be seen that when the large gears engage or intermesh the small gears will be slightly separated.

V is a vertically-movable rack-bar, both of whose edges are toothed, as shown, and this bar moves within the casing between suitable guides V', as seen in Fig. 3, passing between the small gears with which its teeth engage, extending through the top of the casing, and carrying at its upper end a spur S, which is swiveled, as at S', to the rack-bar and is adapted to embed itself in the object being raised. The rear ends of the shafts O, H, and H' pass through the casing and turn in collars or bearings C', which project from said casing.

B is a bail or handle pivoted at B' to the sides of the casing and abutting against a pin b when the handle is raised, and by this handle the entire device can be carried from point to point.

C'' is the crank-handle, having a squared hole c, which engages the squared outer end O'' of the shaft O.

In use after the device has been carried to the proper point and set up the crank-handle is applied and turned in the proper direction, whereby the spur-wheel will turn the shaft H in one direction and the shaft H' simultaneously in the opposite direction, and both the small gears will engage the teeth on the rack-bar, so as to cause the latter to rise with great force, its power being, of course, regulated by the difference in size between the gears G and g. The two small gears simultaneously engage the rack-bar, and hence the bevel of their faces offsets each other—that is to say, the tendency which the rack-bar has to move radially away from one small gear is equalled by the similar tendency in the opposite direction. The bar moves between the guides V', between the large gears G and G', and through the top of the casing. After the bar and its load have been raised sufficiently the pawl is turned so as to engage the ratchet, when a slight retrograde movement of the latter will lock it in position against the tip of the pawl. The crank-handle can be removed when desired, to prevent the load being accidentally lowered. The spurs or pins P embed themselves in the earth to prevent slipping, while the swivel of the spur S permits it to be

turned to the desired position under the load, so that its point will not embed itself in the load if not desired.

The entire device is preferably of metal, and can be cheaply constructed in any desired form, the details, sizes, and ornamentation being unessential to the invention.

What is claimed as new is—

1. A lifting-jack comprising a casing, two horizontal shafts therein, two gears on each shaft meshing with those on the other, interposed small gears, means for applying rotary power to one shaft, and a vertical rack-bar moving in the casing and between the large gears and having teeth on both its edges engaging the small gears, substantially as described.

2. A lifting-jack comprising a casing, two horizontal shafts therein turning in collars in

the casing, two large gears on each shaft meshing with those on the other, interposed small gears, a vertical rack-bar moving between guides in the casing, between the large gears, and through the top of the casing and having teeth on both its edges engaging the small gears, an operating crank-shaft, a ratchet-wheel and pawl therefor, and a spur-wheel on this shaft meshing with the large gears on one of said horizontal shafts, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE PAUL BRINKMAN.

Witnesses:

FRED W. BELL,
G. W. BROWN.