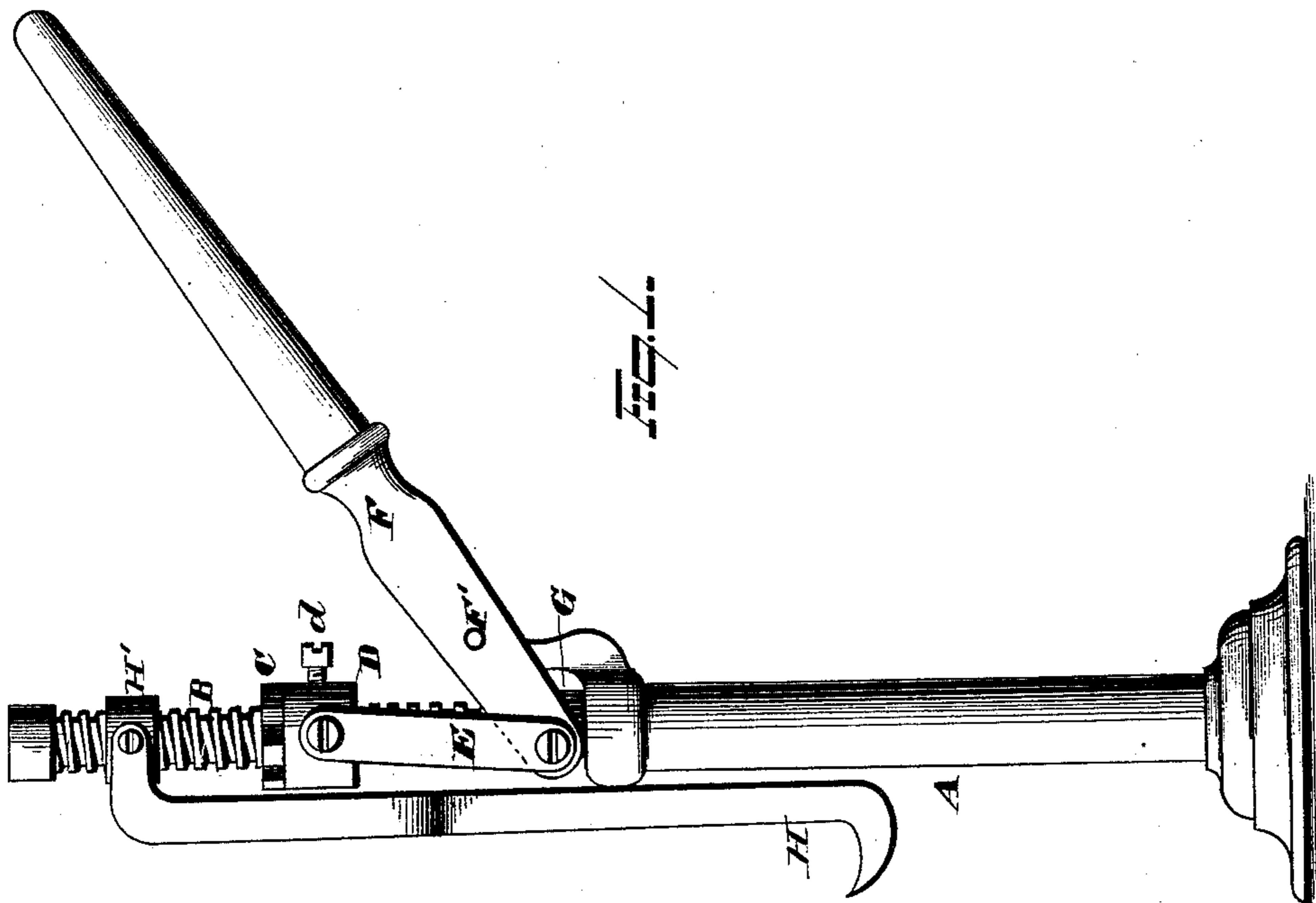
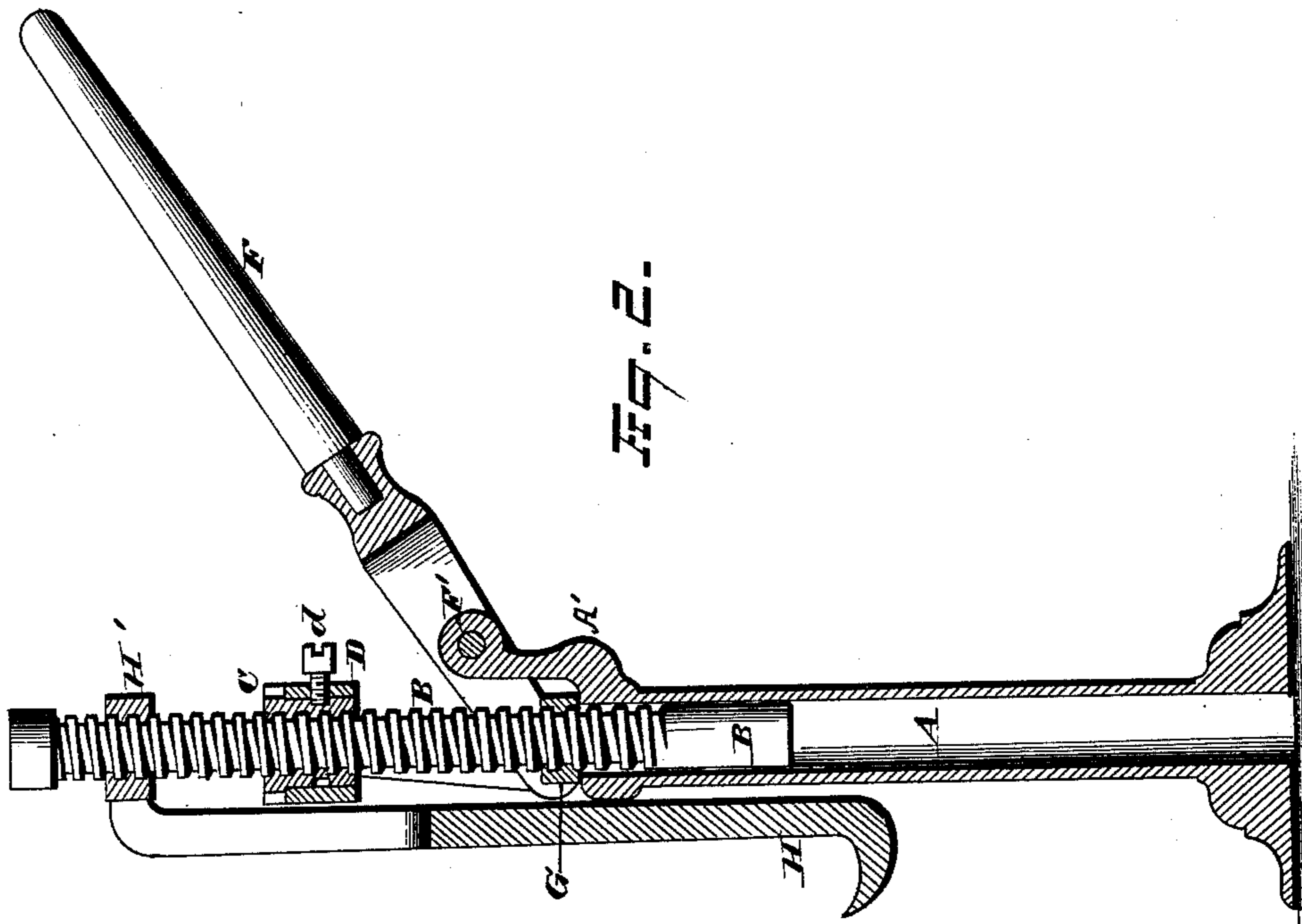


H. R. FERRIS.
Lifting-Jack.

No. 218,168.

Patented Aug. 5, 1879.



WITNESSES
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UNITED STATES PATENT OFFICE.

HIRAM R. FERRIS, OF CLEVELAND, OHIO, ASSIGNOR TO THE OHIO MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN LIFTING-JACKS.

Specification forming part of Letters Patent No. **218,168**, dated August 5, 1879; application filed June 19, 1879.

To all whom it may concern:

Be it known that I, HIRAM R. FERRIS, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Lifting-Jacks; and I do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in lifting-jacks; and consists in the combination of a lever-jack and a jack-screw; also, in appliances whereby the device is adapted to operate solely as a lever-jack.

In the drawings, Figure 1 is an elevation of my apparatus. Fig. 2 is a longitudinal central section.

A is a standard, made, preferably, of metal, and is hollow for the reception of the lifting-shaft B. This lifting-shaft is in the form of a screw, with a solid top. C is a nut, through which the lifting-shaft B passes. D is a collar, which is placed on the under side of the nut, and through which the lifting-shaft passes loosely. E is a toggle-arm, connecting the collar D with the short arm of the lever F. The lever F is pivoted at F' to a rigid arm which projects from the standard A. *d* is a set-screw, whereby the collar D and nut C may be clamped rigidly together.

The operation of this part of the mechanism is as follows: By running the screw-shaft up or down through the nut C the shaft may be adjusted to any particular height—as, for instance, at such a height as would adapt it for any particular buggy or wagon. When so adjusted the device may be used as an ordinary lever lifting-jack, the lifting being effected by pressing down upon the lever, which, at its lowest point, forces outward the lever end of the toggle-arm E, so that the downward thrust upon the end of the lifting-shaft will only tend to press the lever down still stronger.

In this way an ordinary lever-jack is made capable of adaptation through a wide range of position by simply running the lifting-shaft up or down through the nut until it is suitably adjusted for the particular use desired.

G is a nut, adapted to run loosely up and down the lifting-shaft. This nut, in combination with the other mechanism, adapts the jack to lift a weight considerably above the normal range of the lever. Thus, suppose the screw-shaft to be run down until its head rests upon the nut C. If in this position it be inserted beneath the weight to be lifted, and the lever forced down its full stroke, the weight will be lifted through a fixed distance. Now, if it is desired to lift the weight still farther, the nut G is run down until it rests upon the top of the standard. Then, by turning the nut C the lifting-collar D (or point of application of the force) is brought down until the lever stands again in a raised position. Then, by again pressing down the lever the weight is lifted through another distance, and so on until it has been raised the full length of the lifting-shaft. So, also, the nut G serves the further purpose of securing the weight at any desired elevation, although the lever may have made but a partial stroke.

This device is also capable of another use, to wit: If the lifting-shaft is at its lowest point, and is adjusted above the weight to be lifted, it may be used solely as a jack-screw by simply turning the nut C with a suitable wrench, for the shaft, being stationary beneath the weight, and thereby prevented from turning, will be forced upward as the nut C is turned. Any suitable lever-wrench may be used for turning the nut. So, also, the device may be used as a combined lever-jack and jack-screw. For instance, the weight might be lifted first by depressing the lever its full stroke, and then be further lifted by turning the nut C.

H is a grapple-hook, hinged to the swivel-nut H', which runs on the lifting-shaft. This grapple may or may not be employed; but if employed, it may be adjusted to any height by turning it up or down the shaft, and the weight lifted by it may be treated in all respects as though the weight were lifted by the end of the shaft direct.

When it is desired to use the apparatus as a jack-screw the nut C may be rigidly set, with the collar D, by the set-screw *d*.

For the purposes of an ordinary lifting-jack

the nut C and collar D may be made in a single piece.

What I claim is—

1. A lifting-jack consisting of the combination, with the hollow standard, of an arm, A', attached rigidly thereto, lever F, pivoted to the arm, and lifting collar and nut D C, the whole combined with a lifting-shaft tapped through the said nut, substantially as and for the purposes described.

2. The combination, with a lifting-jack, of a lever fulcrumed to the standard, loose collar D, and nut C, with the screw lifting-shaft B, whereby the shaft may be run up and down without turning about its axis by simply turning the said nut C, substantially as and for the purposes described.

3. In a lifting-jack, the combination, with a lever fulcrumed to the standard, a screw-threaded lifting-shaft, and means for connecting the short arm of the lever with the lifting-shaft, of a nut, G, located between the standard and point of connection of the lever and screw-shaft, substantially as set forth.

4. The combination, with the lever, the screw-shaft, and nut G, of an adjustable point of ap-

plication of the power at C, whereby the weight may be lifted through several strokes of the lever, substantially as and for the purposes described.

5. In a lifting-jack, the combination, with a lever fulcrumed to the standard and a screw-threaded lifting-shaft, of a nut engaging with the lifting-shaft, a collar surrounding said nut, a set-screw for securing the collar to the nut, and a toggle-arm, one end of which is pivoted to the short arm of the lever, and the other end to said collar, substantially as set forth.

6. In a lifting-jack, the combination, with a lever fulcrumed to the standard, a screw-threaded lifting-shaft, and a toggle-arm connecting the lever and nut on the lifting-shaft, of a grapple-hook, H, and swivel-nut H', substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HIRAM R. FERRIS.

Witnesses:

JNO. CROWELL, Jr.,

W. E. DONNELLY.