

(No Model.)

P. H. GRIMM & F. J. WILLIARD.
JACK SCREW.

No. 500,203.

Patented June 27, 1893.

FIG. 1.

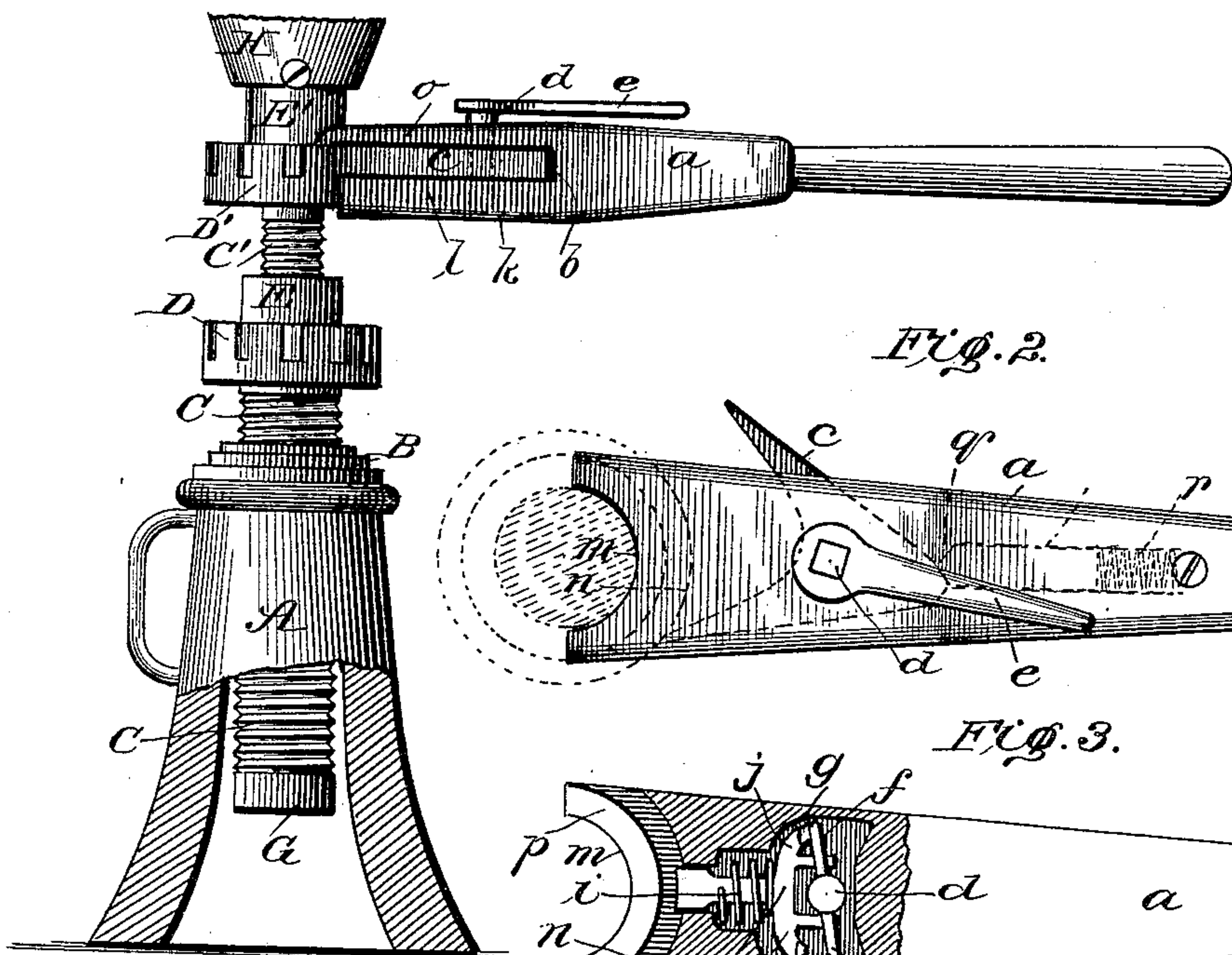


FIG. 2.

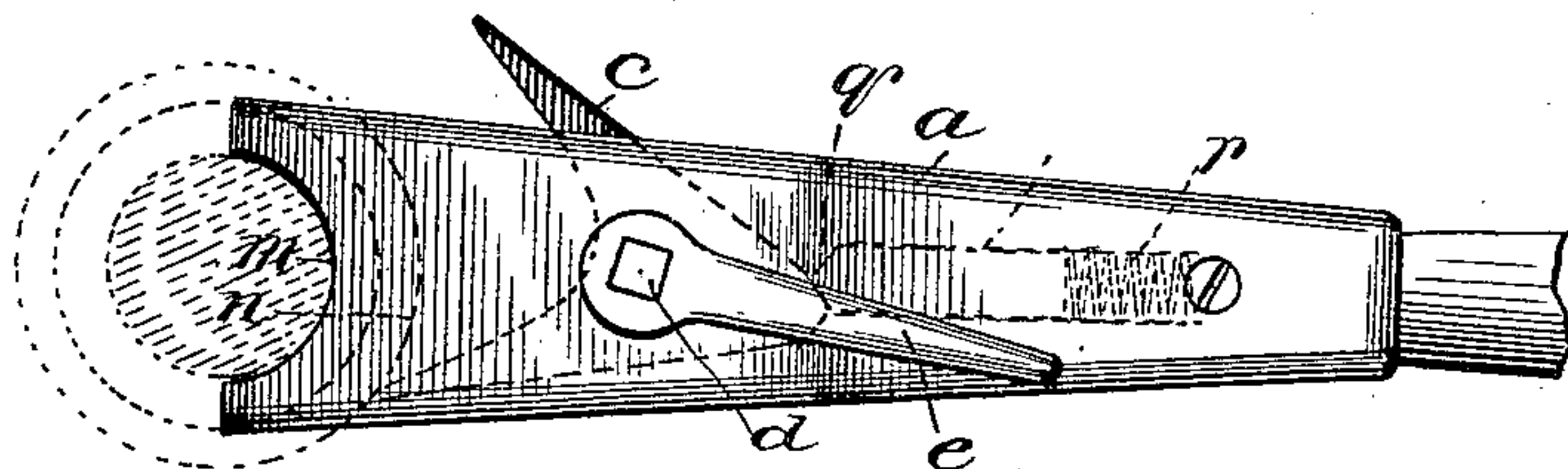


FIG. 3.

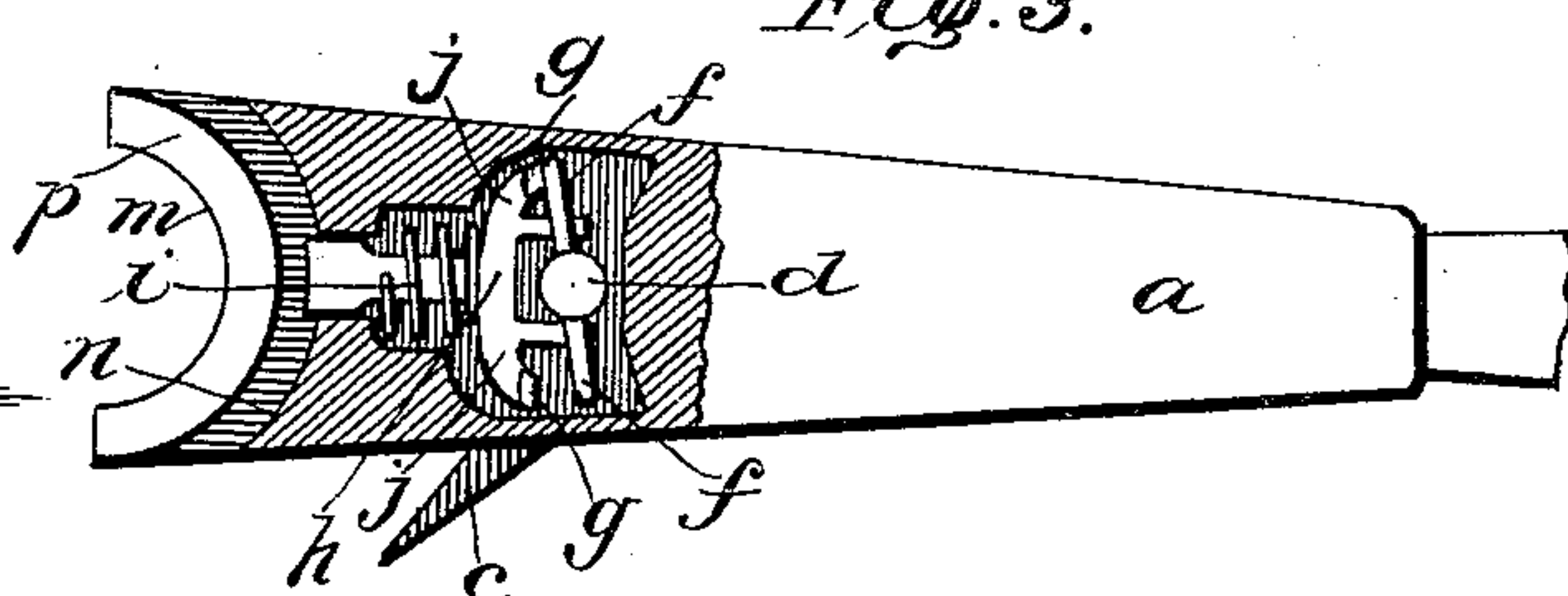
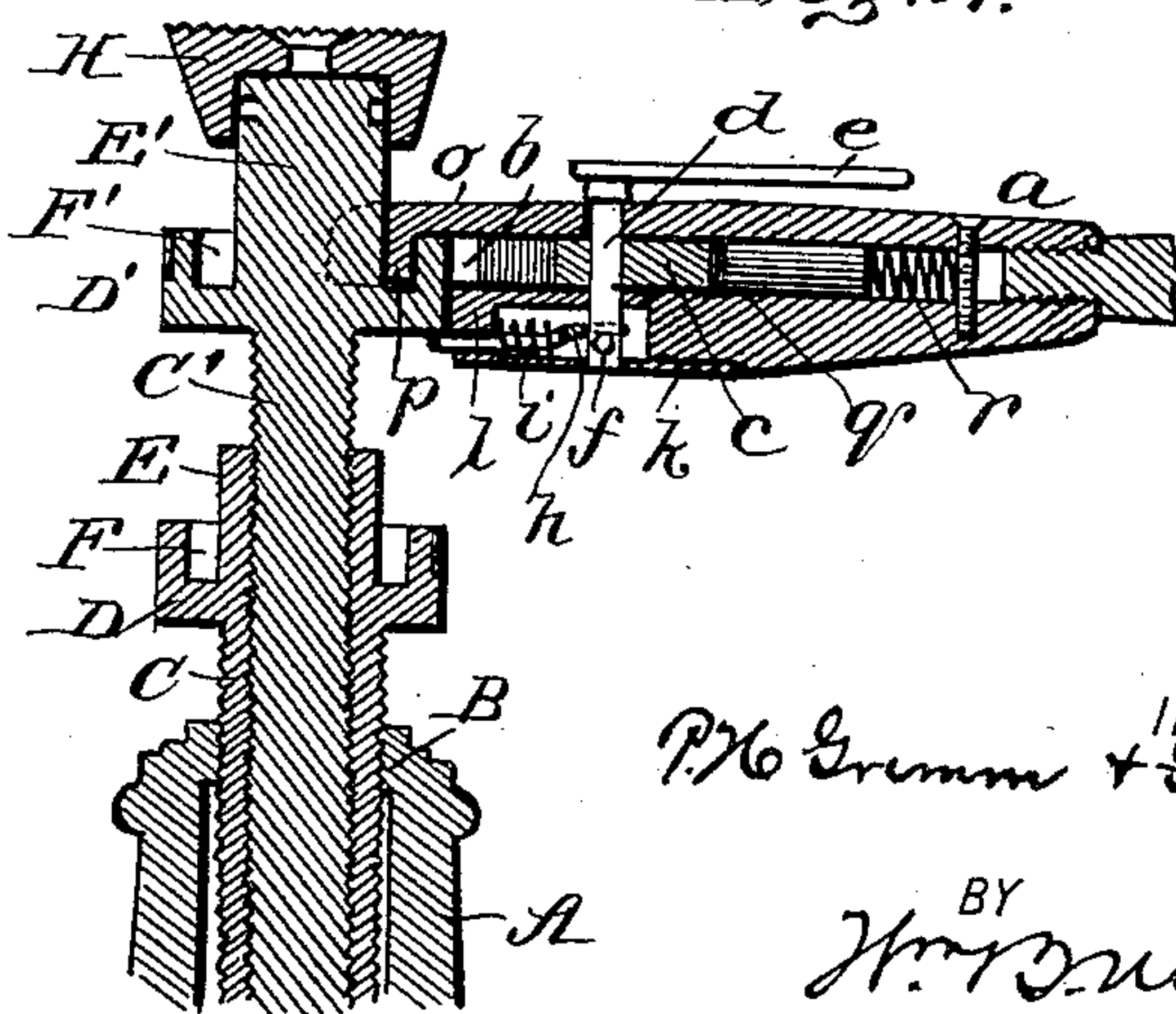


FIG. 4.



WITNESSES:

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JACK-SCREW.

SPECIFICATION forming part of Letters Patent No. 500,203, dated June 27, 1893.

Application filed November 5, 1892. Serial No. 451,064. (No model.)

To all whom it may concern:

Be it known that we, PHILIP H. GRIMM and FRANK J. WILLIARD, citizens of the United States, residing at Ashland, in the county of Ashland and State of Wisconsin, have invented certain new and useful Improvements in Jack-Screws; and we 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 appertains to make and use the same.

The object of this invention is to provide a lifting jack having such structural advantages as will facilitate its use in cases now impossible or extremely difficult with screw jacks of the class to which our invention relates.

The invention more particularly consists in the lever for operating the screw; due attention however has been given the other parts of the jack adapting it to our peculiar lever and the class having telescoping screws adopted, though a single screw may be used without departing from the spirit of the invention.

In order to enable others to make and use our lifting jack we will now proceed to describe its construction and operation, reference being had to the accompanying drawings forming a part of this specification, and in which—

Figure 1 is an elevation, part in section, showing the jack ready for use. Fig. 2 is a plan view of the lever detached; Fig. 3 a view part in section of reverse side of the lever, and Fig. 4 a central vertical section through the lever and part of the jack.

In the drawings A denotes the bell shaped base of the jack, provided at its top with the usual threaded collar B into which the first or lower section of the screw is arranged. The upper end of this section is formed into a head D externally provided with suitable teeth, or indentations with which the pawls of the lever (hereinafter described) engage, and next to the body or extension E the head D is provided with an annular groove F, as shown by Fig. 4 of the drawings. The lower end of the section C of the screw is upset or unthreaded as at G. This upset or unthreaded portion G is designed to prevent the section C leaving the base A by reason of said section of the screw being elevated unduly.

In the drawings we have shown a second or upper section C' threaded into the lower section C, and prevented from being accidentally detached by having its lower end upset or unthreaded as at G on the lower end of the section C shown in Fig. 1 of the drawings. The upper end of this section is constructed like the upper end of the lower section of the screw, *i. e.* provided with a head D' having external teeth or depressions, an annular groove F', and an extension E', carrying a cap H held by a set screw so as to allow the cap to turn all as is well known and need not here be further described. The top of the cap H is perforated as shown in Fig. 4 of the drawings, to facilitate lubrication of the said cap.

Having thus fully described the body or screw part of our jack, we will now describe the peculiar lever designed by us with which to operate the jack. This lever is of the ratchet class, and consists of a body *a* having at its enlarged end a recess *b*, in which is arranged a double or V-shaped pawl *c* held in place by a pin *d* extending through the body *a*, as shown in Fig. 4 of the drawings. This double pawl *c* is made to engage with depressions in the heads D D' according to the section of screw being operated, and is adjusted—*i. e.*, one side or the other made to engage the said heads, according to whether the jack is being worked to raise or lower a load, all as will be readily understood. The upper end of this pin is provided with an arm *e* for reversing the pawl, and the lower end formed T-shaped by a transverse pin *f*, the outer ends of which are made to engage with lugs *g* of the latch *h*, the latter being for the purpose of securing the lever in operative position, as shown in Fig. 3 of the drawings. The rear end of the latch is forked to receive the supporting pin *d* of the pawl and is confined by the pin *f*. The latch *h* is of the spring class and consequently is provided with a spring *i* the forward end of which rests against a suitable shoulder of the body *a* and the rear end against outward extensions *j* of the latch *h* of said extensions carrying the lugs *g*. It is of course understood that the parts last described are arranged in a recess covered by a plate *k* made detachable by securing screws or other suitable means. On opposite sides

of the recess *b* are extensions *l m*, the lower *l* of which is on its face *n* concaved or curved inwardly, and the upper extension *m* slightly extended, likewise curved on its face *o* and provided with a downward projecting shoulder or flange *p* conforming in outline to the curve of the face *o*, as clearly shown by Fig. 3 of the drawings. It will thus be seen that with the flange *p* placed in the groove *F* or *F'* and the forward end of the latch *h* under the head *D* or *D'*, as shown in Fig. 4 of the drawings, the lever will be held in operative position.

In the head *a* a depressible block *q* is arranged back of and engaging with the apex or rear sharp meeting part of the two pawls. This block is held against the pawls by a spring *r* and the contacting end of the block beveled or rounded to facilitate the reversing of the pawls and hold them in position while the lever is being worked to raise or lower the jack, all as will be readily understood and not need further description.

To apply the lever the arm *e* is set parallel with the body of the lever. This action centers or sets the pawls half way, also places the pin *f* transversely, allowing the latch *h* to be retracted by its spring. The flange *p* of the lever is then placed in the groove *F* in the head *D* and the arm *e* moved to one side. This movement of the arm *e* through the pin *d* will cause the pin *f* to engage one of the lugs *g*, shove the latch forward against the action of the spring under the head *D*, and thus secure the lever to the jack, but allow it to be freely revolved thereon against accidental displacement, and thus admit of the pawls engaging with the depressions or teeth on the head of the jack, and by a simple reciprocation of the lever work the jack up or down, according to the positions in which the pawls of the lever are set.

In operation the lever is arranged on the head of one section of the screw, and the jack worked to elevate the load. To elevate the

load higher than the length of this section of the screw admits, the lever is detached and arranged on the other section, and is worked in a similar manner.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A lifting jack comprising a screw having a circular flange, a lever provided with the body *a*, reversible pawls, and a flange adapted to engage that on the screw, and a latch for aiding in securing the lever against displacement as set forth.

2. The combination with the base, and a lifting screw, the latter having a circular head provided with a groove substantially as shown and described, of the operating lever having reversible pawls, a segmental flange adapted to fit said groove, concaved bearing faces, and a latch for aiding in securing the lever against displacement, as set forth.

3. The combination with the base *A*, telescoping screws *C*, *C'*, provided respectively with heads *D* *D'*, having grooves *F* *F'*, of an operating lever consisting of a body *a*, having flange *p*, and concaved faces *n*, *o*, pawls *c*, pin *d*, securing latch *h* having lugs *g* *g*, spring *i*, and pin *f*, the latter for forcing the latch out by engaging either of the said lugs *g* substantially as set forth.

4. In a lifting jack the combination with the base *A*, and screw *C* having a head *D*, and groove *F*, of the operating lever comprising the body *a* the V-shaped pawls *c*, and having concaved faces *n* *o* and flange *p*, the latch *h*, spring *i*, pin *f*, lugs *g* *g*, and a beveled faced depressible block *q* engaging the pawls to hold them in either working position as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

PHILIP H. GRIMM.

FRANK J. WILLIARD.

Witnesses:

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H. MCKINNON.