

No. 777,611.

PATENTED DEC. 13, 1904.

J. DODGE.

WISE.

APPLICATION FILED AUG. 24, 1904.

NO MODEL.

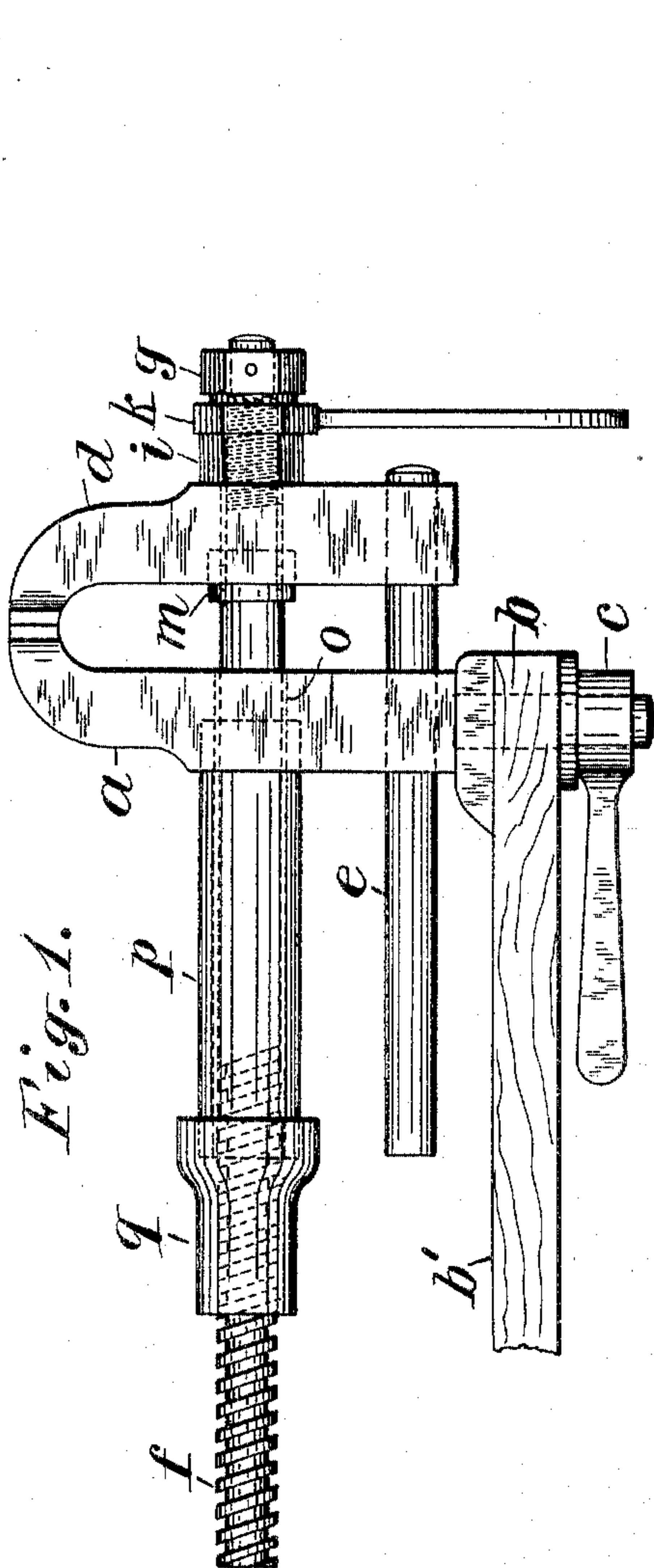


Fig. 1.

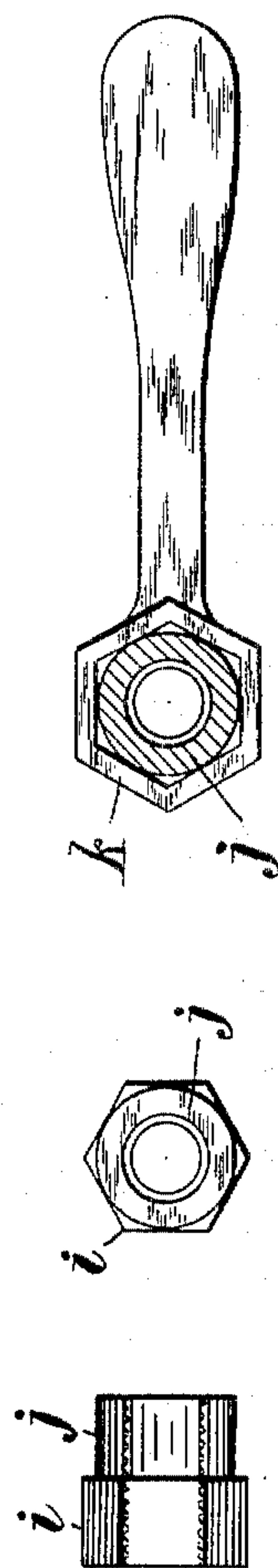


Fig. 3.

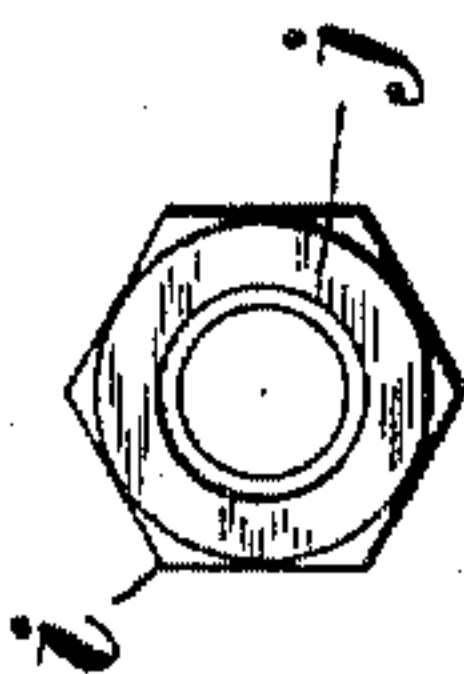


Fig. 4.

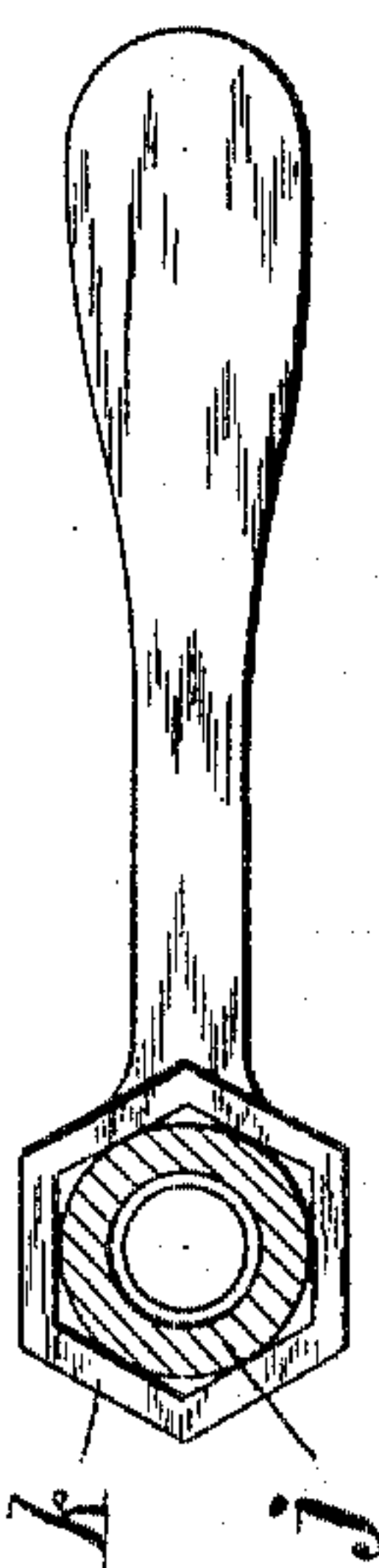


Fig. 5.

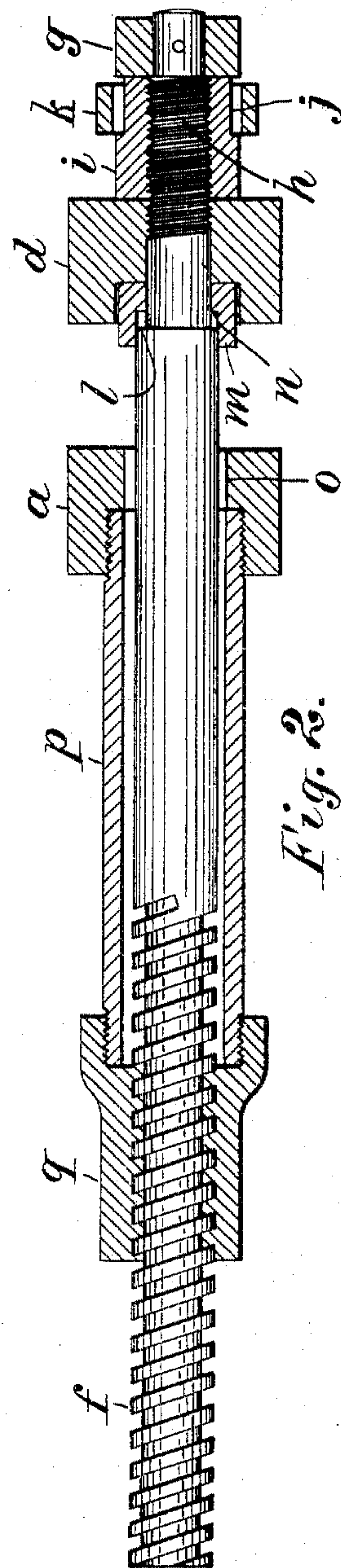


Fig. 2.

Attest:
L. Lee.
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Thomas S. Crane, Atty.

UNITED STATES PATENT OFFICE.

JAMES DODGE, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF TO
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WISE.

SPECIFICATION forming part of Letters Patent No. 777,611, dated December 13, 1904.

Application filed August 24, 1904. Serial No. 221,919. (No model.)

To all whom it may concern:

Be it known that I, JAMES DODGE, a citizen of the United States, whose residence and post-office address is Grafton avenue, Newark, county of Essex, State of New Jersey, have
5 invented certain new and useful Improvements in Vises, fully described and represented in the following specification and the accompanying drawings, forming a part of
10 the same.

The present invention relates to a means for opening and closing the jaw of a bench-vise with rapidity and also gripping the article with great firmness.

15 The present invention employs a screw-rod which has an integral thread upon each end, the rear thread, which is coarse, being fitted to a nut upon the fixed jaw and the front thread, which is fine, being fitted to a nut upon
20 the outside of the movable jaw. The extreme outer end of the screw-rod is provided with a polygonal head, and a head of the same size is formed upon the fine-thread nut, and a collar smaller than the polygonal head is provided
25 between the two heads, upon which a wrench can be sustained and operated upon either of the polygonal heads, as desired. When applied to the outer head, the wrench turns the screw-rod and operates the coarse thread.
30 When applied to the inner head, (upon the fine-thread nut,) the wrench turns the nut instead of the screw-rod and tightens the movable jaw.

The invention will be understood by reference to the annexed drawings, in which—

35 Figure 1 is a side elevation of a bench-vise constructed with my improvement. Fig. 2 is a horizontal section through the center of the screw. Fig. 3 is a side view, and Fig. 4
40 an end view, of the nut for the fine thread. Fig. 5 is a section of the vise-screw and collar *j* with the wrench thereon.

The fixed jaw *a* is shown with a shank *b* secured upon the bench by a nut *c* to permit of
45 swiveling the entire vise in the usual manner. The movable jaw *d* is provided with a guide-bar *e* extended through the fixed jaw, and the screw-rod is provided with a coarse thread *f* upon its inner end, and a polygonal head *g*
50 is secured upon its outer end. A fine thread

h is formed upon the screw inside of the head *g*, but outside of the loose jaw, and a rotary nut is fitted to such fine thread and provided with a polygonal body *i* and a smooth collar *j* adjacent thereto, adapted to fit the socket of
55 a wrench *k*. The opening in the wrench is proportioned to fit both the head *g* and the body *i*.

The body of the screw-rod is formed with a shoulder *l* adjacent to the inner side of the
60 movable jaw, and a collar *m* is fitted to the body of the screw and provided with a shoulder *n* to engage the shoulder *l* when opening the vise. The movable jaw is embraced between the collar *m* and the head *i* of the fine-
65 thread nut, and is thus carried inward and outward when the screw is turned by its head *g*. A sufficient play is provided between the collars *l* and *n* to permit the screw-rod to be drawn forward through the movable jaw
70 a half an inch, or more if required, when tightening the jaw upon the work-piece by the use of the fine thread. Both jaws have the usual perforations *o* for the passage of the screw-rod, and a sleeve *p* is extended from the rear
75 side of the fixed jaw to protect the thread from filings and dirt, and the coarse-thread nut *q* is attached to the rear end of the sleeve. The nut for the fine thread is fitted upon such thread so that the smooth collar *j* lies between
80 the hexagonal portions *i* and *g* and the wrench *k* rests normally upon such collar.

In operating the vise the wrench is moved to the head *g* and the entire screw-rod turned
85 so that the coarse thread rapidly opens the jaws to the required extent and then closes them upon the work-piece or object in the jaws. The screw-rod is then held stationary by jamming in the coarse nut *q*. The wrench is then readily shifted across the collar *j* to
90 the body *i* of the nut upon the fine thread and the said nut turned upon the now stationary screw-rod in the same direction that the screw-rod is turned in tightening, thus clamping the movable jaw with great power upon the ob-
95 ject in the vise. The wrench is left upon the nut-head *i*, so that in opening the vise the fine-thread nut can be turned without delay to release the article. When inserting the same article or a series of similar articles in
100

the jaws repeatedly, the wrench may be retained upon the fine-thread nut and such nut used exclusively to open and close the jaws; but when an object of different size is to be clamped the wrench is readily shifted to the screw-head *g*, which permits the jaw to be moved rapidly in either direction desired. The collar *j* between the polygonal heads is made smaller than the heads, so that the wrench can slide readily over the same, and its presence between the two heads is necessary to permit the transfer of the wrench from one head to the other when the corners of their polygonal bodies are not in alinement with one another.

This invention will readily be distinguished from others in which the movable jaw is provided with a shank that can be moved rapidly through the fixed jaw and locked therein by a species of dog, as no dogs are required to lock the shank of the vise in the present construction; but the screw-rod is provided with the usual coarse thread for producing rapid movement.

It is not uncommon to employ a fine thread and coarse thread in operating the jaw of a vise; but my construction differs from others in forming both the coarse and fine threads integral with the body of the screw, so that no attachments are required to furnish the fine thread, and the apparatus can thus be constructed very cheaply.

All the parts are of very simple construction, so that they can be readily forged from solid steel in a drop-press or other suitable tool, and the screw-rod itself consists merely of a straight bar of steel. The sleeve *p* is formed of ordinary wrought-iron tubing and may be threaded, as shown, where the nut *q* is attached thereto, the other end being threaded or forced into a socket in the fixed jaw.

Having thus set forth the nature of the invention, what is claimed herein is—

1. In a bench-vise, the combination, with the fixed and loose jaws and a coarse-thread nut upon the fixed jaw, of a screw-rod having integral coarse thread fitted to such nut, a head upon its outer end and fine thread adjacent to such head, with a fine-thread nut upon the same provided with a corresponding head, and a wrench fitted interchangeably to the two heads for turning the screw-rod or the fine-thread nut, independently, at pleasure.

2. In a bench-vise, the combination, with the fixed and loose jaws and a coarse-thread nut upon the fixed jaw, of a screw-rod having

integral coarse thread fitted to such nut, and an integral fine thread near its outer end, a head fastened removably upon its outer end, and a nut upon the fine thread having a corresponding head, and a wrench fitted interchangeably to the two heads for turning the screw-rod or the fine-thread nut independently at pleasure.

3. In a bench-vise, the combination, with the fixed and loose jaws and a coarse-thread nut upon the fixed jaw, of a screw-rod having an integral coarse thread fitted to such nut and an integral fine thread near its outer end, the polygonal head *g* fastened upon its outer end, a nut upon the fine thread having a polygonal head *i* corresponding to the head *g*, and provided with a smooth collar adjacent to the head *g* of suitable width to receive a wrench, and a wrench adapted to rest normally upon the collar and to fit either of the polygonal heads for turning the same at pleasure.

4. The bench-vise having the fixed jaw *a* provided with a coarse-thread nut *q*, the movable jaw *d* with guide-bar *e* to support the same, the screw-rod extended through the jaws with head *g* for turning the screw, and having an integral coarse thread fitted to the nut *q*, an integral fine thread *h* adjacent to the head *g*, and a shoulder *l* adjacent to the inner side of the movable jaw *d*, the nut fitted to the fine thread *h* and having the head *i*, a wrench fitted to the heads *g* and *i*, and the collar *m* fitted movably to the shoulder *l* upon the screw-rod, within the movable jaw, for pulling the jaw open when the screw is retracted.

5. The bench-vise having fixed jaw *a*, with means for attaching it to the bench, the movable jaw *d* with guide *e* for supporting the same and having the holes *o* in line through both jaws, the sleeve *p* attached to the fixed jaw and having the coarse-thread nut *q* supported upon its rear end, the screw-rod having an integral coarse thread fitted to the nut *q*, an integral fine thread near the end outside of the movable jaw, a head upon the end of the screw-rod for turning the same, and a nut fitted to the fine thread adjacent to the head for securing the movable jaw firmly.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JAMES DODGE.

Witnesses:

S. Y. WAY,

CLAUDE DE LANEY.