(No Model.)

J. ERNST.

VISE.

No. 349,032. Patented Sept. 14, 1886.

Fig. 3.

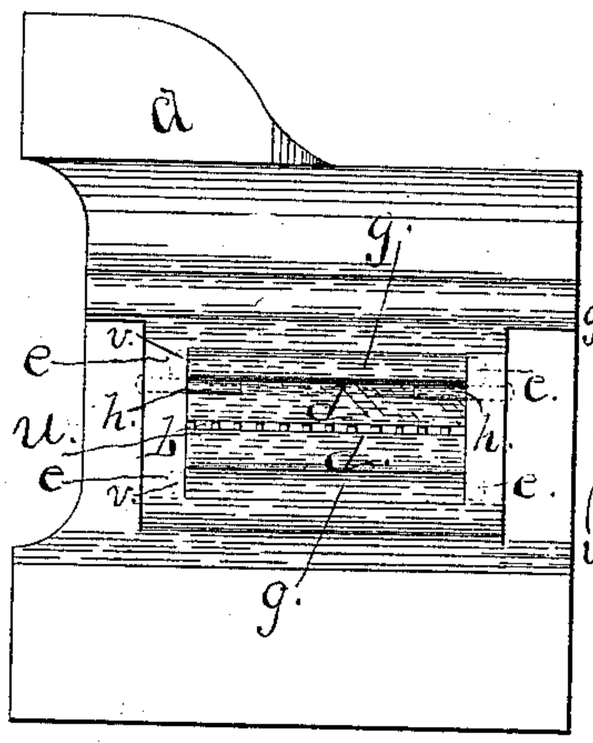


Fig. 1.

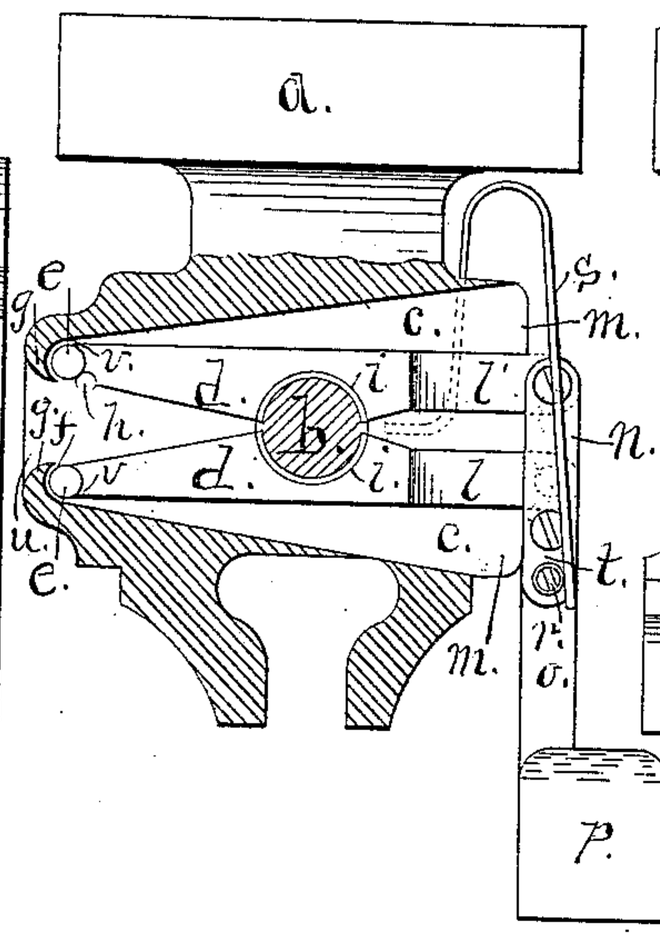


Fig. 2.

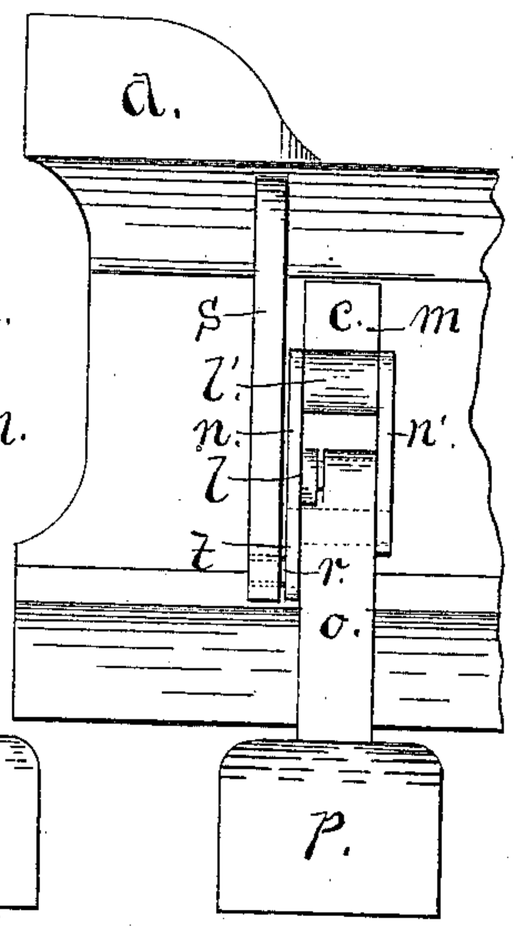


Fig. 5.

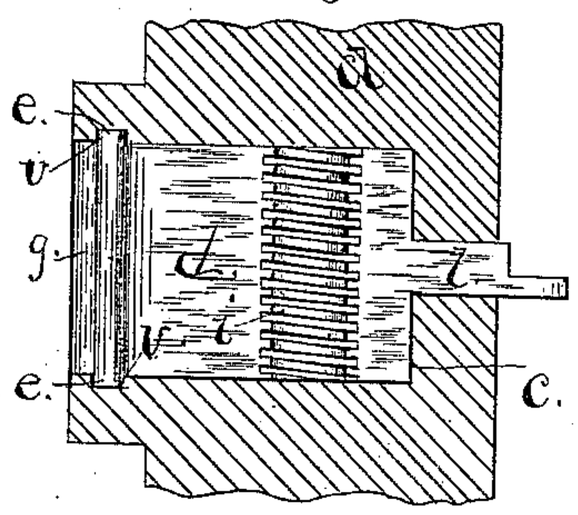
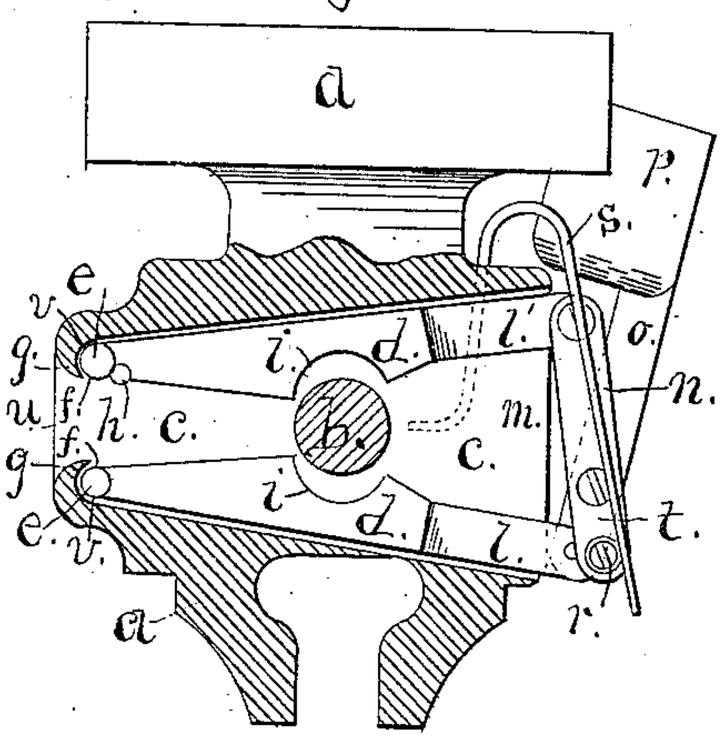


Fig. 4.



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VISE.

SPECIFICATION forming part of Letters Patent No. 349,032, dated September 14, 1886.

Application filed December 2, 1885. Serial No. 184,428. (No model.)

To all whom it may concern:

Be it known that I, JOHN ERNST, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Divided Nuts, of which the following is a specification.

The object of my invention is to provide a device by means of which a nut used on the screw of a vise, jack-screw lathe, and for similar purposes may be opened out to allow the screw to pass freely in either direction without engaging with the nut; and it consists, chiefly, in the combination and arrangement of hinged levers having a threaded opening between, through which passes the screw, the levers being arranged so that the free ends thereof may be thrown apart, freeing the screw from engagement from the thread in the opening, and of a lever and straps pivoted to the free ends of the said levers, by means of which the levers are operated to open and close upon the screw, and a spring for holding the said levers in either position.

I illustrate the devices I employ in the accompanying drawings, in which Figure 1 is a view of a portion of a vise-jaw, partly sectional, embodying my invention, showing the nut closed. Fig. 2 is a side view of a portion of the same. Fig. 3 is a view of the opposite side of the same. Fig. 4 is the same view as shown in Fig. 1, with the nut open. Fig. 5 is a detached view of one of the levers, forming the nut and section of jaw.

Similar letters refer to similar parts throughout the several views.

a represents the rear jaw of an ordinary vise, having an opening through its central portion, through which may be passed freely a vise-screw, *b*. Within the central portion of this jaw *a* is arranged a chamber, *c*, into which are placed at right angles to the screw the levers *d*. These levers *d* have at one end and projecting from their edges the pivots *e*, which rest in recesses *v* at the sides of the chamber, and have also their ends *f* rounded in a proper manner to rest within the curved portion *g* of the edges of the opening *u* to the chamber, the gravity of the lower lever holding it in position, while the upper lever is held in position by the pin or pins *h*, which pass through the side walls of the chamber just beneath and near the end *f*. In the central portion of each of these levers *d* is arranged a recess, *i*, provided with a thread, which engages with the screw *b*, and their opposite ends, *l* and *l'*, are reduced and extend beyond the part *a*, passing through a smaller opening, *m*, from the chamber *c*. The outer end, *l*, of the upper lever is pivoted on opposite sides to the upper ends of the straps *n* and *n'*, the lower portion of the straps being pivoted to a lever, *o*, at a point a short distance from one end, which is pivoted to the end *l* of the lower lever. The opposite or free end of the lever *o* is provided, if desired, with a weight, *p*, and the strap *n* extends considerably beyond the pivot which secures it to the lever *o*, forming the extended end *t*, and this extended end *t* is provided with a stud or roller, *r*, which projects from the side opposite the lever *o*, and rigidly attached to the block or jaw *a* by one end is the spring S, which extends upward, and is again curved downward and brought to bear upon the outside of the stud *r*, and acts upon the stud to bear it inward toward the block *a*. The action of the parts is, that when the lever *o* is thrown downward, as shown in Fig. 1, the levers *d* are brought to a position to engage with the screw *b* by means of the action of the straps *n*, they being pivoted to the lever *o* at a short distance from its end, and the end of the lever *o* being pivoted to the end of the arm *l* of the lever *d*, so that when the levers *d* are closed together, as shown in Fig. 1, the outer or free end of the lever *o* will be below, and the straps *n* and *n'* will stand perpendicular and with their lower pivoted ends below the arm *l*, which will hold the levers *d* firmly in their position upon the screw *b*, and, as shown in Fig. 4, the levers *d* are spread apart by raising up the free end of the lever *o*, so that the lower pivoted ends of the straps *n* and *n'* will be above the arm *l*. The parts are held in either position by the spring S bearing inward upon the roller or stud *r*. This spring S acts also upon the stud *r* and extended arm *s*, to bring and hold the lever *o* in position for closing the levers *d* together. Should the thread in the recess *i* close upon the outer edges of the threads upon the screw, the spring will, when the screw is revolved in either di-

rection, cause the threads thereof to engage, and the levers *d* to close together. This arrangement allows a vise or other similar device to be operated with great ease and dispatch, as the jaws of a vise may be spread apart to a long distance or closed together as quickly as to a short distance. The screw only needs to be turned two or three times to bring the jaws to a bearing after they are properly adjusted in relation to the piece to be secured between the jaws by sliding the screw through the divided nut when the levers thereof are thrown apart.

The chamber *c* may in some cases be omitted, and the levers *d* be secured in some other convenient manner; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a divided nut, the block *a*, having a chamber, *c*, and a screw, *b*, passing through the block and chamber, in combination with the levers *d d*, pivoted by one end within the chamber, and provided with the arms *l* and *l'*, extending beyond the walls of the chamber, the straps *n* and *n'*, pivoted to the arm *l'* by one end, and the lever *o*, pivoted by one end to the lever *l* and to the opposite end of the said straps *n* and *n'*, substantially as and for the purpose set forth.

2. In a divided nut, the combination, with the levers *d*, hinged at one end to the supporting-block *a*, and provided with the extended arms *l* and *l'*, and having in their central portions the threaded recesses *i*, of the lever *o*, pivoted by one end to the arm *l*, and the straps *n* and *n'*, pivoted at one end to the lever *o* and at the other end to the lever *l'*, and operating substantially as and for the purpose set forth.

3. In a divided nut, the combination, with the levers *d*, pivoted by one end to a supporting-block, and having on their opposite ends the extended arms *l* and *l'*, and a threaded recess in their central portions, the lever *o*, pivoted by one end to the arm *l*, the straps *n* and *n'*, pivoted to the lever *o* and the arm *l'*, and the portion *t*, extending from the strap *n*, of the spring S, rigidly secured to the said supporting-block, and adapted to bear inward upon the lower end of the extended portion *t*, substantially as and for the purpose set forth.

4. In a divided nut, the supporting-block *a*, the chamber *c* within the block and provided with the side opening, *u*, and side recesses, *v*, and screw *b*, passing through the said block and chamber, in combination with the levers *d*, having the rounded pivots *e* extending from its side edges, and adapted to engage with the recesses *v*, and with the threaded recesses *i*, adapted to engage with the said screw, and means, substantially as herein described, for opening and closing the free ends of the said levers, substantially as described, and for the purpose set forth.

5. In a divided nut, the supporting-block *a*, the chamber *c* within the block, and having the side recesses, *v*, and openings *m* and *u*, the screw *b*, passing through the block and chamber, the levers *d* on opposite sides of the screw and within the chamber, and having at one end the pivots *e*, projecting from their edges and engaging with the recesses *v*, and the threaded recesses *i*, adapted to engage with the screw, in combination with the pin *h*, passed through the side walls of the chamber, and adapted to retain the pivots *e* within the recess, substantially as and for the purpose set forth.

In witness whereof I affix my signature in presence of two witnesses.

JOHN ERNST.

Witnesses:
J. E. THOMAS,
W. H. POWER.