J. EDSON.

VISE.

No. 104,437. Patented June 21, 1870.

Fig. 1.

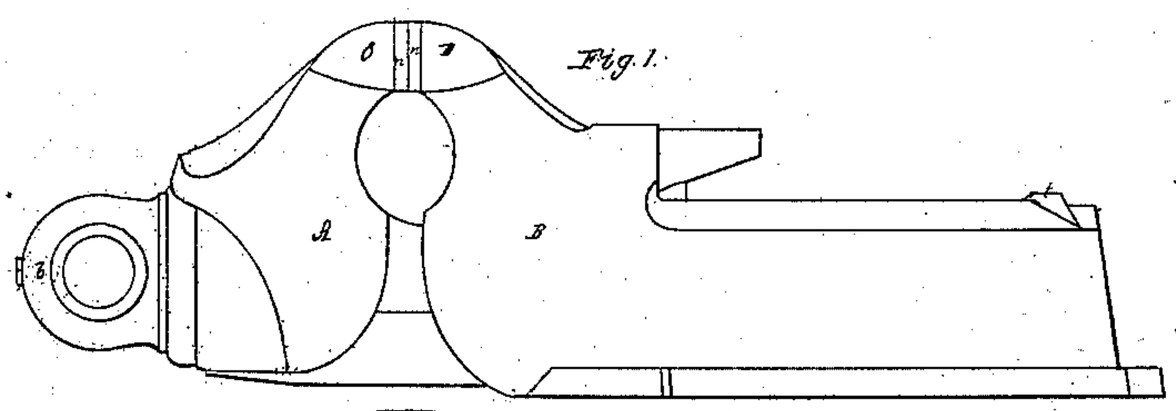


Fig. 2.

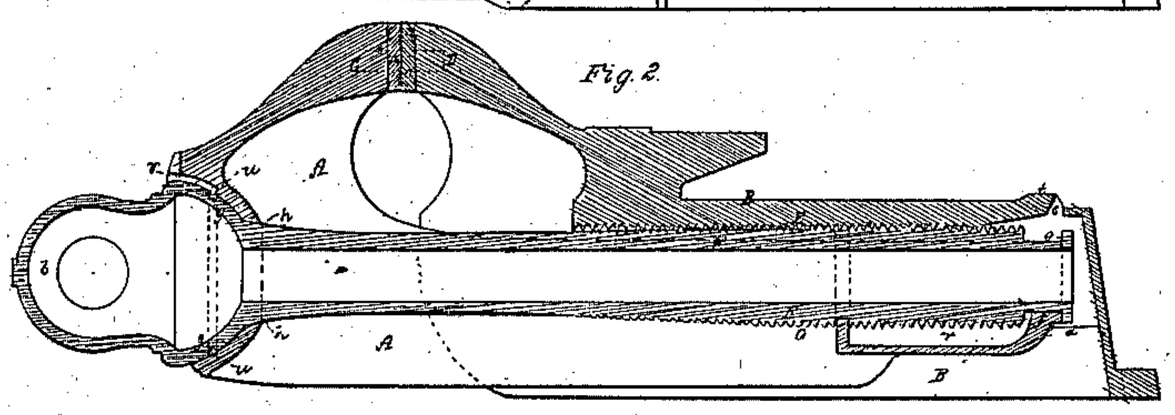


Fig. 3.

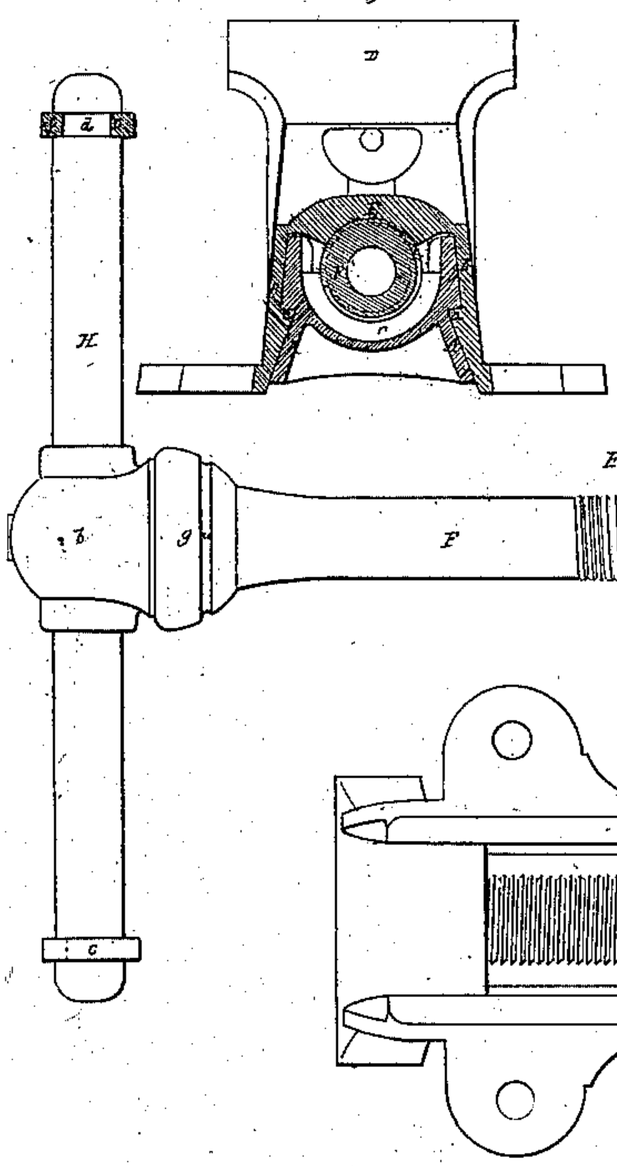


Fig. 5.

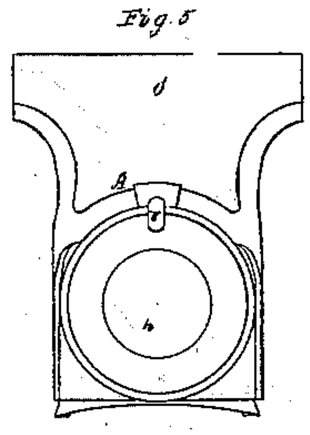
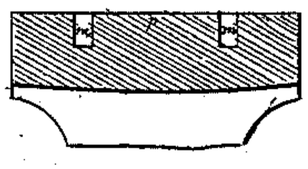


Fig. 4.

Fig. 6.

Fig 7.



Witnesses.

S. N. Piper

L. N. Miller

Jacob Edson.

by his attorney.

R. H. Eddy

United States Patent Office.

JACOB EDSON, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 104,437, *dated June* 21, 1870.

IMPROVED VISE.

The Schedule referred to in these Letters Patent and making part of the same

To all persons to whom these presents may come:

Be it known that I, JACOB EDSON, of Boston, of the county of Suffolk and State of Massachusetts, have made a new and useful invention having reference to Bench-Vises; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, of which—

Figure 1 is a side elevation.

Figure 2, a longitudinal section; and

Figure 3, a transverse section of a vise provided with my invention.

Figure 4 is a side view of its spindle and the male screw thereof.

Figure 5 is an outer end view of the jaw-carrier for supporting the spindle.

Figure 6 is an under-side view of the other or sectional screw jaw-carrier.

Figure 7 is a horizontal section of one of the jaws.

The two jaw-carriers are shown at A and B, that marked A being to slide rectilinearly within the other, or that marked B, which, when the vise is in use, is to be supposed to be bolted down to a bench or table.

Each jaw-carrier is provided with one of two jaws, C D, formed, and to project from it, in manner as represented.

The movable jaw-carrier A rests on ledges or flanges, *a a*, extended inward from the opposite sides of the jaw-carrier, and provided, on the inner surface of such arch or top, with the section E of a long female screw, which, when the jaw-carrier is founded in a mold, may at the same time be made by casting the metal against a male-screw chill of the requisite form, arranged in and making part of such mold.

There is disposed within the jaw-carrier A a spindle or shaft, F, having upon it a male screw G to work or engage with the sectional female screw.

The male screw G I make with a slight taper in one or in opposite directions from its middle or other part of it, in order that it may take in or adapt itself to the female-screw section to good or better advantage, as either or both may become worn, as the male screw, by the leverage exerted by its jaw, will be borne up to the female screw while the jaws are in the act of grasping an object. The screw G extends into a box or reservoir, *r*, formed in its jaw-carrier, the said reservoir being to contain oil, within which the screw is to wallow while in operation, and thus keep lubricated.

This reservoir may be supplied with oil when the vise is closed by pouring such oil through an opening, *s*, leading out of one side of and through a hood, *t*, formed in the top of the other or upper jaw-carrier.

This hood serves to prevent chips, or extraneous matter, from falling through the passage *s* into the oil reservoir.

The spindle at its outer end terminates in a spherical or other proper shaped knob, *b*, having a hole made diametrically through it at right angles with the axis of the spindle.

The said hole is to receive a handle, H, which extends through the knobs, and is kept in connection therewith by two elastic rings, *c c*, of India rubber, which are sprung into grooves *d d* cut in and around the handle near its extremities.

These elastic rings serve to prevent the handle, while the spindle is being revolved, from becoming disengaged therefrom and from falling through the knob and bringing up against it with a noise, such as takes place when the stops are inelastic, or of iron, as ordinarily made and applied to the handle. Furthermore, the elastic ring is not liable to do injury to or pinch, between it and the knob, the hand of a person during a fall of the handle in the knob, as somtimes takes place when the handle is provided with a metallic head. Again, the elastic ring, applied in manner described, renders it easy to effect the removal of the handle from the spindle, whenever it may be desirable so to do, for convenience of packing the handle and other parts of the vise for transportation, or otherwise.

At its rear end the spindle is provided with a journal, *e*, to rest in a bearing, *f*, formed in the jaw-carrier A. Near its front end the spindle has a conical shoulder, *g*, and passes through a circular hole or bearing, *h*, formed in such jaw-carrier. A channel or groove, *u*, is formed around the spindle and in the conical shoulder *g* thereof.

The groove is to hold plumbago, or other material of like nature, used to diminish friction. Over this groove there is an oil-passage, *v*, made in the jaw-carrier. Through this passage oil may be supplied to the front bearing and journal of the spindle.

Each jaw I provide with two, or any other suitable number of recesses or cavities, *m*, of proper form to receive studs projecting from a "face plate," such as is usually employed with the jaw of a vise, or to receive and hold elastic tubes or mouths, *n*, of India rubber, to contract and hold in place the said studs, and as a consequence, the face plate to the jaw.

In the process of founding each of the jaws and its carrier, the inner or holding face of each jaw should be cast against a chill or chill-plate, provided with projections necessary to produce the requisite indentations of the face of the jaw. A jaw so made is far preferable to an unchilled one scored in the usual manner on its holding face, for the chilled jaw, by being harder on its face, will, while in use, retain its normal condition, or, in other words, its teeth will remain intact much longer than will be the case with those of an unchilled jaw under like circumstances. The shaded part *p* in fig. 7 exhibits the hardened or chilled part of the jaw.

While an article is being compressed between and by

the jaws, the male screw of the spindle will be forced upward into and be preserved in close engagement with the sectional female screw over it.

The said female screw by being in the sectional form, or an arc of a circle, or an approximation thereto, in its cross-section, can be made with the rest of the jaw-carrier by casting the whole in one piece in a mold provided with a chill, of the necessary shape to form the threads of a screw and harden them, thus saving the labor and expense of otherwise making the female screw.

The above mode of constructing a vise enables one of much utility to be produced at little expense, it being particularly advantageous to joiners, artificers, or farmers, who may need a good article at a moderate price.

By revolving the spindle the male screw will be caused to turn around in and be moved endwise by the sectional female screw, whereby the jaw-carrier, in and by which the spindle is supported, will be moved endwise with and by such spindle. In this way the movable jaw may be caused either to approach or recede from the stationary jaw.

What I claim as my invention in the above described vise, may be stated as follows:

1. The jaw-carrier B, as constructed, with a female-screw section, E, cast in one piece with the rest of the carrier, and formed and chill-hardened by being formed against a screw chill-plate, and with supporting flanges *a a*, in combination with the jaw-carrier A, as formed with shoulders, or equivalents, to rest on such flanges and to operate with the said carrier B and the screw-spindle, as specified.

2. The combination of the elastic rings *c c* with the handle H, (made with grooves *d d* to receive and hold such rings,) and screw-spindle F, substantially as set forth.

3. The combination of the jaw-carriers A and B, screw-spindle F, and oil-reservoir *r*, the latter being arranged to receive the screw of the spindle, in manner and for the purpose as described.

4. The combination and arrangement of the hood *t*, (formed with the passage *s* arranged in it as described,) with the jaw-carriers A and B, the screw-spindle F, and oil-reservoir *r*, the latter being arranged to receive the screw of the spindle, in manner and for the purpose as specified.

5. The combination of the socketed jaw-carrier A, the spindle shoulder *g*, the groove *u*, (to hold plumbago,) and the oil-passage *v*, the whole being constructed and arranged substantially as described, for the purpose set forth.

JACOB EDSON.

Witnesses:

R. H. EDDY,

J. R. SNOW.