(No Model.)

W. H. REMSEN.

VISE.

No. 397,470. Patented Feb. 5, 1889.

Fig. 1.

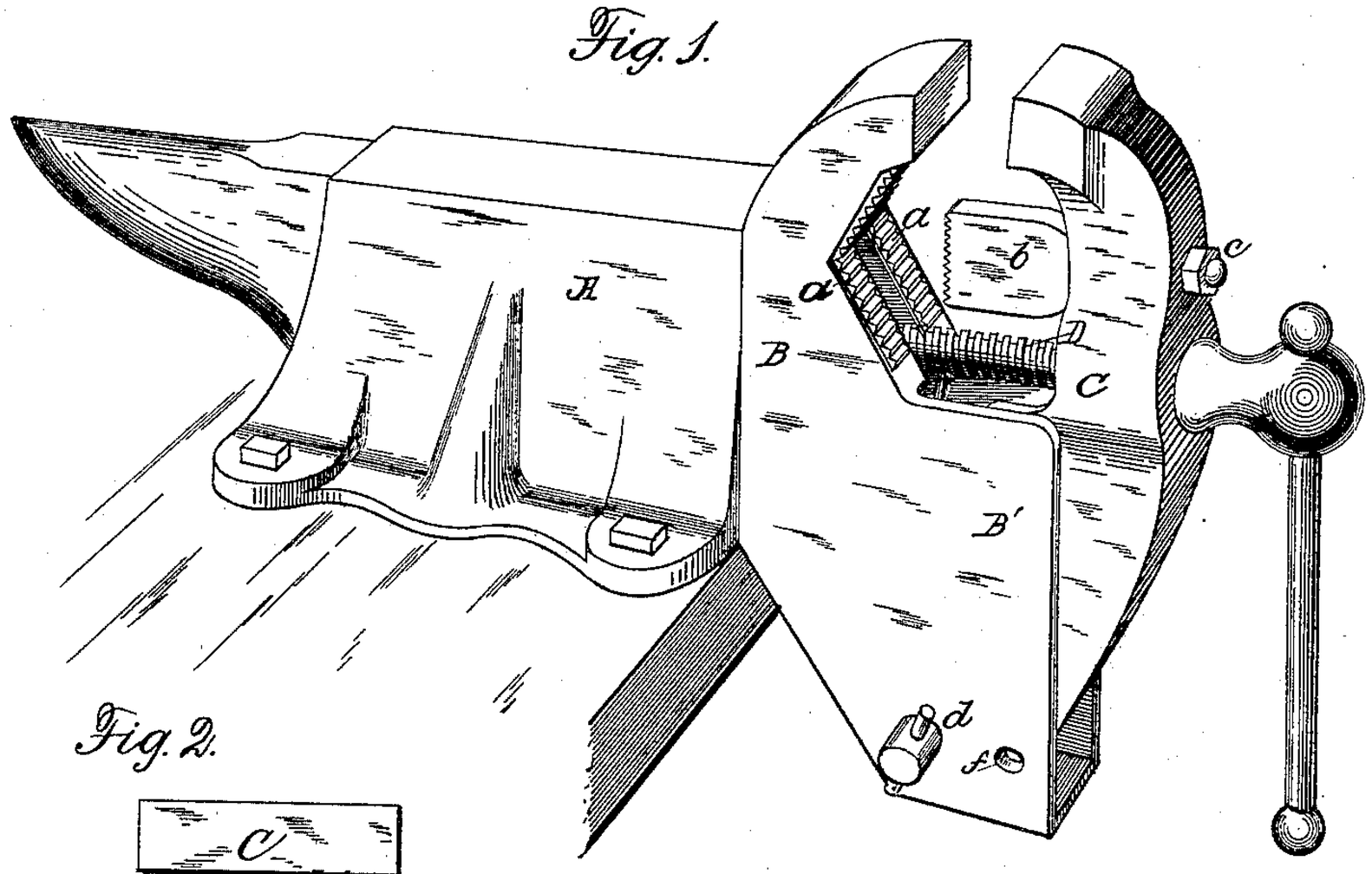


Fig. 2.

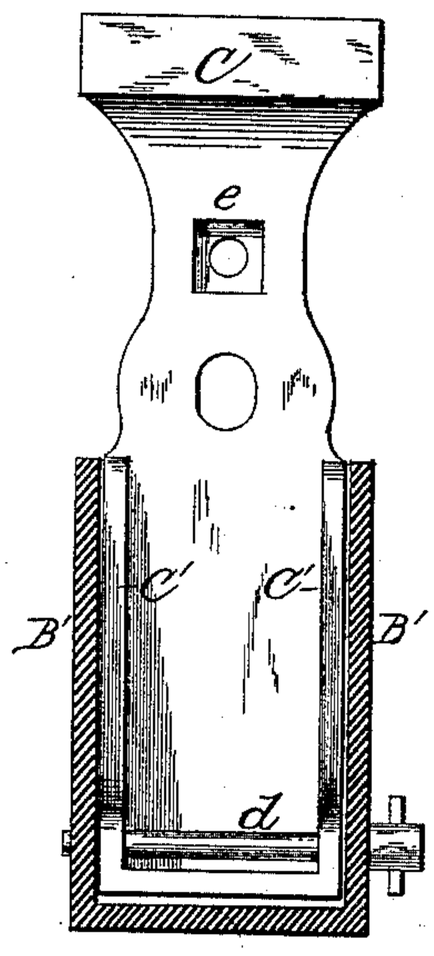


Fig. 3.

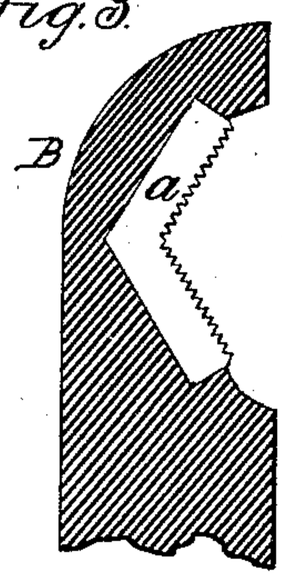


Fig. 5.

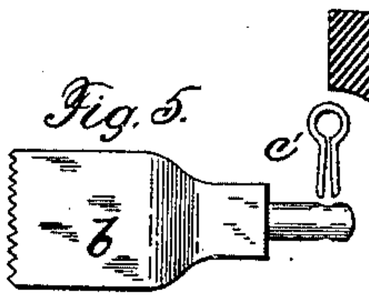
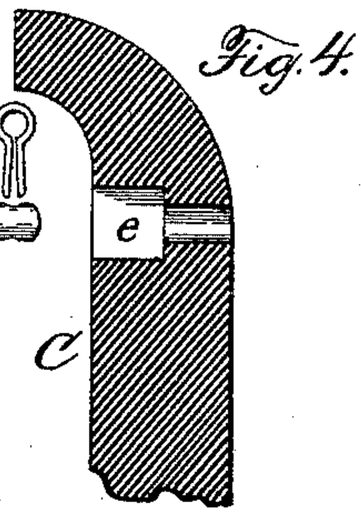


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM H. REMSEN, OF CEDAR RAPIDS, IOWA.

VISE.

SPECIFICATION forming part of Letters Patent No. 397,470, dated February 5, 1889.

Application filed February 2, 1888. Serial No. 262,709. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. REMSEN, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Vises, of which the following is a specification.

The object of my invention is to adapt a vise to the holding of pipes and other round bodies, and to improve the construction of the vise in general, so as to render it stronger and more efficient.

The invention relates more particularly to that class of vises which are attached to an anvil-block provided with a suitable base, whereby the vise is fastened to a bench, but is not necessarily confined to such vises; and the invention consists in the construction, combination, and arrangement of parts, as hereinafter fully set forth and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side view of the vise in perspective; Fig. 2, an elevation of the outer jaw as viewed from the inside, with the lateral flanges of the inner jaw in vertical section; Fig. 3, a vertical section of the upper part of the inner jaw, showing the construction of the same with reference to the pipe-holding jaw; Fig. 4, a central vertical section of the upper portion of the outer jaw, showing the socket for the outer jaw of the pipe-vise; and Fig. 5, the outer jaw of the pipe-vise with a modified form of attachment to the outer jaw of the vise.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A is an anvil-block adapted to be fastened to a bench, and to which the inner jaw, B, of the vise is attached.

C is the outer jaw of the vise, and is preferably hinged to the inner jaw at or near the bottom by means of the pin *d*, passing through suitable holes, *f*. In practice I provide the vise with two or more of these holes, and make the pin removable, so that the vise may be adjusted to the relative thickness of the material between the jaws, and thus obviate both unnecessary screwing and unscrewing, and also a too great change in the angle of the outer jaw. An improvement in the construction of the lower portions of these jaws consists in providing both jaws with parallel flanges B′ and C′, respectively, which extend in the same direction as the holding parts of the jaws, and run from the bottom of each jaw to a point nearly as high as the screw D. The outer jaw is fitted to the space between the flanges of the inner jaw, and swings freely therein. The effect of this construction is to give the vise great relative strength and rigidness, the flanges B′ B′ preventing the outer jaw from twisting or swinging laterally at the upper end. So, also, the construction of the outer jaw adds to the efficiency of the vise by not only affording a wide and high bearing in the plane of the length of the screw, but by giving a double bearing for the pin *d*, which lessens the twisting strain on the flanges in the case of a piece being held near one side of the jaws. The form is such, also, as to give the respective jaws great strength in proportion to the amount of material—a specially-desirable feature in connection with cheap cast-iron vises.

To adapt the vise to the holding of pipes and other round bodies, I provide the inner jaw with angled and serrated supplemental jaws *a a*. These are of steel; and in practice I cast them into the material of the jaw B, and near each side of the same, as shown in Fig. 1. The general form of these jaws is shown in Fig. 3, and the effect of casting them integral with the jaw B is not only to provide a pipe-jaw, but to materially strengthen the neck of said jaw B. Between these jaws *a a* there is an open space, as shown in Fig. 1.

In the outer jaw, C, opposite the angle of the jaws *a a*, is mounted a supplemental jaw, *b*. The inner face of this jaw is preferably serrated, and may be straight, as shown.

The object in giving the jaw *b* a straight face is to accommodate it to the varying angles of the outer jaw, C, which is hinged, and to insure a direct pressure of the pipe into the angle of the jaws *a a*, notwithstanding the relative variations in the position of the jaw *b*. It is evident that this result cannot be practically secured in the case of a hinged vise if the inner face of the jaw *b* is made

concave, or corresponding to that of the jaws *a a*, without some arrangement for frequent adjustment of the pivotal portion of the vise. This it is desirable to avoid as far as possible, since such changes require more or less time in the operation of the vise.

To admit of the use of all the space between the jaws proper of the vise and the screw, this outer jaw, *b*, is made removable. To this end it is provided with an angular shank adapted for easy insertion in the socket *e* of the jaw C. In practice I make this shank narrower vertically than the body of the jaw *b*, so that the socket *e* is so low in the jaw C as to avoid the necessity of extending the jaw by a boss on the outer and curved portion for strength—a matter which renders the vise inconvenient in practical use. The jaw *b* is held in place by a suitable nut, *c*, or cotter *c'*, or by other simple and easily-removable device.

As the angle of the inner face of the outer jaw, *b*, would be considerable in the case of a large body, the lower end of the jaw C may be shifted to the outer hole.

This construction, as will be seen, combines in a convenient form a common vise, a pipe-vise, and an anvil, any one of which implements may be used without the necessary change or removal of any part.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A vise-jaw having angled and serrated pieces of steel cast integral therewith and below the holding-face of said jaw proper, whereby said pieces of steel are adapted to form the angled face of a pipe-vise, and to strengthen the jaw of which they form a part, substantially as specified.

2. The combination, in a hinged vise, of the fixed jaw B, having pipe-gripping jaws *a a* cast therein between the main holding portion and the screw, and the pivoted jaw C, provided with the removable pipe-gripping jaw *b* between its main holding-jaw and the screw, said jaw *b* having a practically straight inner face, whereby the pipe is forced into the angle of the jaws *a a*, notwithstanding variations in the angle of the jaw C, substantially as set forth.

3. In a hinged vise, the combination of the fixed jaw B, having the parallel flanges B' B', connected at the bottom by the web B'', and the pivotal jaw C, having parallel flanges C' C', similarly connected by the web C'', and the pivot-pin *d*, all constructed substantially as and for the purpose set forth.

4. The combination, with an anvil, A, adapted to serve as a support for the vise, of a vise composed of a fixed jaw, B, having angled and serrated pieces of steel *a a* cast into the neck thereof, a hinged jaw, C, having the removable jaw *b*, with a straight inner face, and the pivot-pin *d*, substantially as and for the purpose set forth.

5. In a vise, the combination, with an inner jaw having pipe-gripping jaws *a a*, of an outer jaw, C, having a socket in the neck thereof, and a pipe-gripping jaw, *b*, with a vertically-wide gripping portion, and a reduced shank adapted to be rigidly secured in said socket, whereby said removable jaw may be attached to said jaw C without increasing the outward projection of the upper portion of said jaw C, substantially as specified.

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

WILLIAM H. REMSEN.

Witnesses:

WILL BERGSTRESSER,

FRANK G. CLARK.