March 22, 1932. J. S. McCHESNEY 1,850,178

VISE

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Fig. 1.

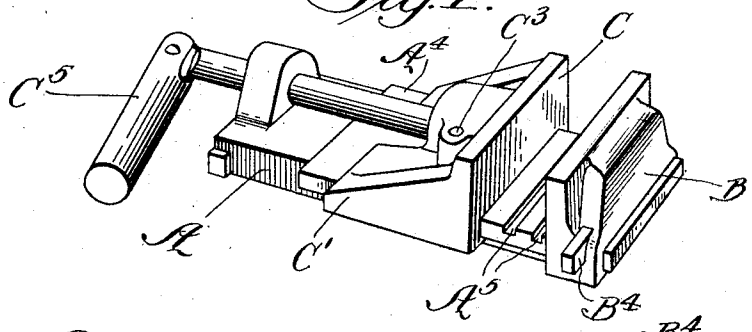
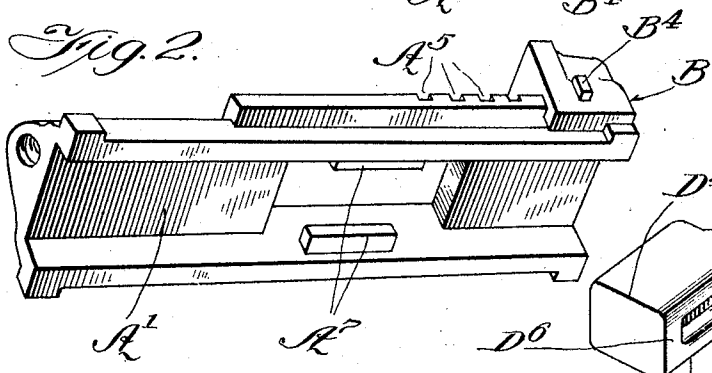


Fig. 2.



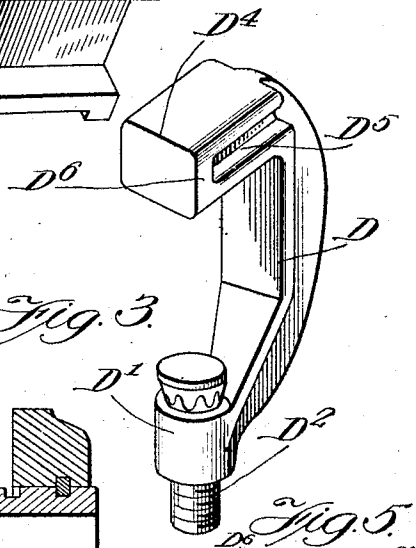


Fig. 3.

Fig. 4.

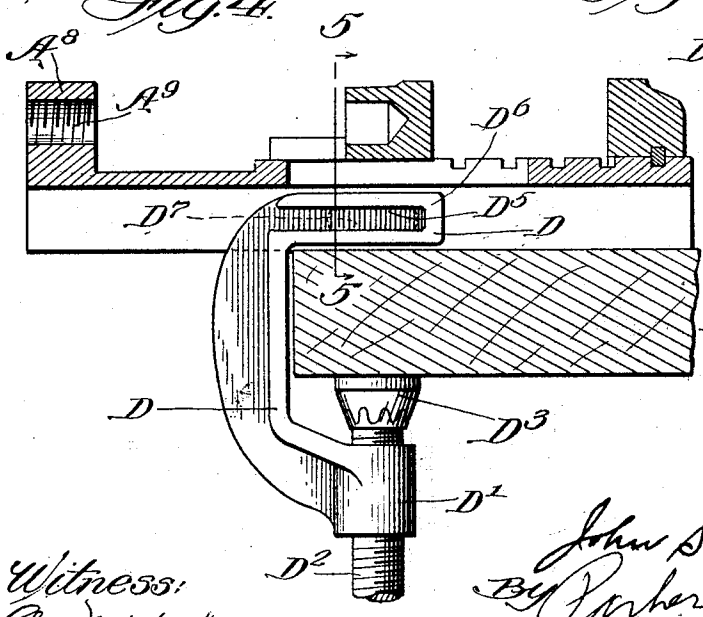
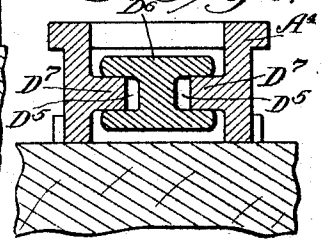


Fig. 5.



Witness:
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VISE

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Fig. 6.

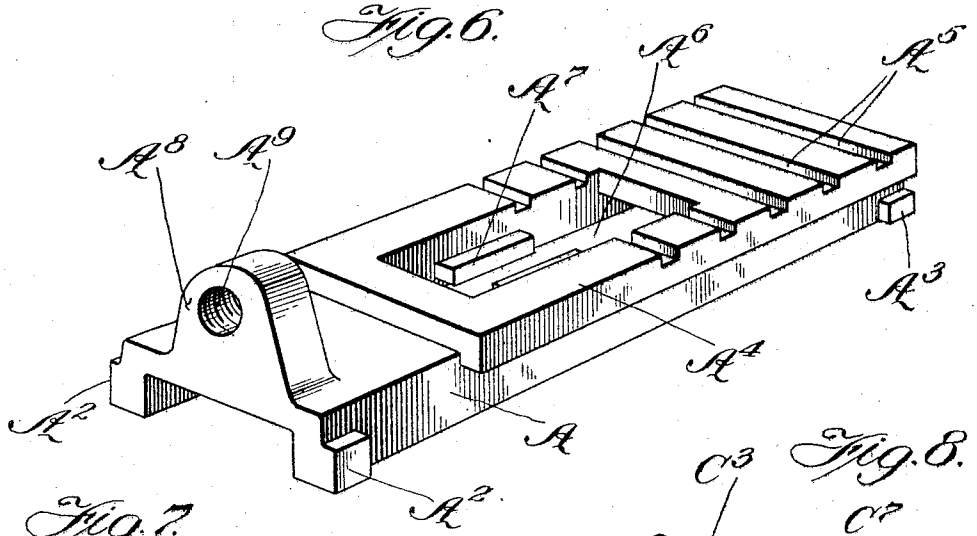


Fig. 7.

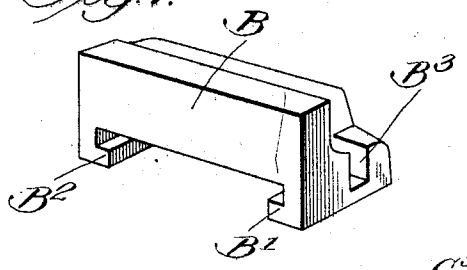
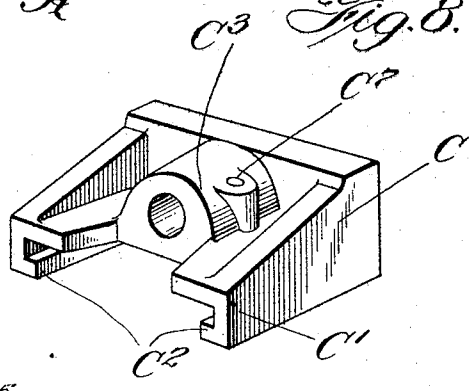


Fig. 8.



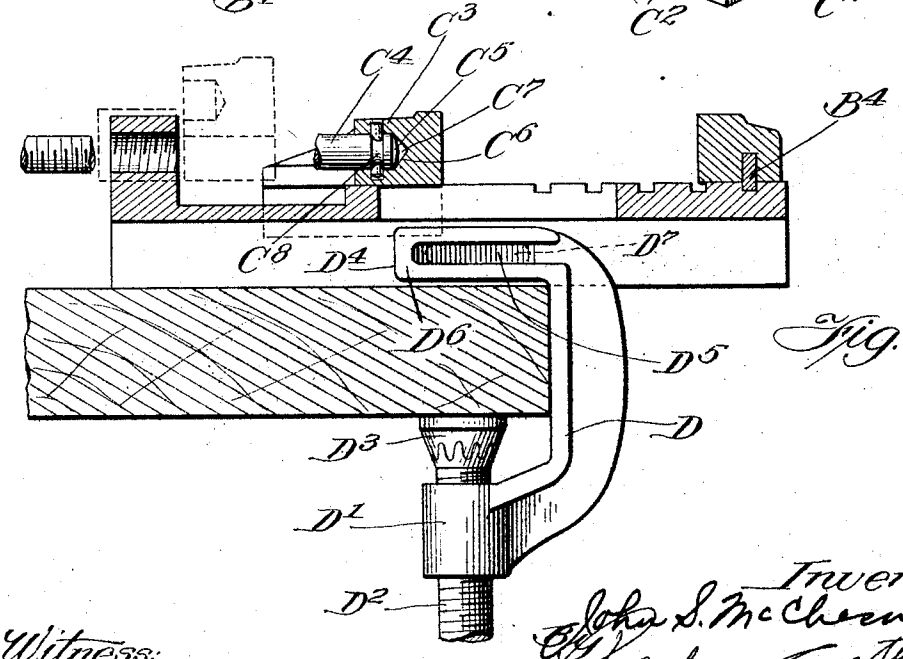


Fig. 9.

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Patented Mar. 22, 1932 1,850,178

UNITED STATES PATENT OFFICE

JOHN S. McCHESNEY, OF CHICAGO, ILLINOIS

VISE

Application filed January 19, 1931. Serial No. 509,676.

My invention relates to improvements in vises and has for one object to provide a new and improved form of vise which may be used for a variety of purposes and in a number of different situations. When used without the demountable clamp, it may serve as a drill press vise being held in position by hand or it may hold the work on the magnetic chuck of the surface grinder, or it may hold work directly on the face plate of a drill press being clamped thereon in any suitable manner as for instance by holding bolts which pass through the drill press and engage the body of the vise. The device may be used as a holding means resting on the bench to hold the device rigidly in position, the demountable clamp may be used and this clamp may be engaged with the vise body either from the right hand or the left hand side as the case may be so as to give a wide range of positions and adjustments.

It will be noted in this connection that because the underside of the vise itself rests on the surface and is held down against it by the clamp, the clamp and the vise cooperate to form a rigid unitary structure which is tightened in place by the tightening up of the clamp screw in contrast with the conventional arrangement where the clamp is separately fastened and the vise is separately mounted on the clamp and two separate tightening actions combine with opportunity for play and misalignment enter in.

My invention is illustrated more or less diagrammatically in the accompanying drawings, wherein—

Figure 1 is a perspective top view;

Figure 2 is a perspective bottom view;

Figure 3 is a perspective of the clamp;

Figure 4 is a longitudinal section;

Figure 5 is a section along the line 5—5 of Figure 4;

Figure 6 is a perspective of the vise base with the other parts removed;

Figure 7 is a perspective of the fixed vise jaw;

Figure 8 is a perspective of the movable vise jaw;

Figure 9 is a longitudinal section similar to Figure 6 showing a reversal of the clamping mechanism.

Like parts are illustrated by like parts throughout the specification and drawings.

A is the clamp base. It is slotted on its underside as indicated at A^1 so that in effect it is of channel section. The two downwardly extending walls of the channel have at each end outwardly projecting pads A^2 A^3. Integral with the body is the pad A^4 which pad projects outwardly on both sides beyond the walls A and is provided with a series of transverse slots A^5 in the upper face thereof. The central portion of the pad and body is apertured as indicated at A^6. A^7 A^7 are clamping lugs projecting inwardly on opposed sides of the aperture A^6 from the walls A. These lugs as shown especially in Figure 2 terminate above the lower extremities of the walls so as to be entirely out of contact with any surface upon which the vise may rest. The boss A^8 projects upwardly from the body A and has a threaded aperture A^9 to engage the vise lead screw.

B is the fixed vise jaw. At either end thereof are downwardly depending walls B^1 adapted to engage the outer walls of the pad A^4 and these walls terminate in inwardly extending guide lugs B^2 which penetrate beneath the pad A^4 interlocking with it to hold the fixed jaw against transverse or up and down movement when in engagement. B^3 are apertures through the body of the jaw B, extending down into the wall B^1. B^4 is a key which extends clear through the jaw B engaging the apertures B^3 and the slots A^5 to hold the jaw in adjusted position along the path. This adjustment is made once and for all, the vise adjustment or the clamping action being not affected by it. It is apertured

to make it possible to use a relatively short lead screw. For wide openings of the vise, the fixed jaw is moved to the back end of the pad. The lead screw does not need to be long enough to carry the movable jaw clear to the back end of the pad. When it is desired to make a quick adjustment of the opening of the vise, the key is withdrawn, the fixed jaw is moved back or forward as the case may be and the key replaced.

C is the movable vise jaw. It is adapted to fit over the pad A^4 having downwardly extending walls C^1 with flanges C^2 for that purpose. C^3 is a socket in the center of the jaw. C^4 is the lead screw having a spherical head C^5 to engage the conical bottom C^6 of the hole C^7 in the hub C^3. The end of the screw is slotted as indicated at C^8 and the pin C^9 passing downwardly through the hub engages this slot and holds the lead screw against displacement with respect to the jaw while not interfering at all with its rotary movement. The lead screw is threaded in the boss A^9 and terminates in a handle C^5 by which it may be manipulated.

D is a clamp. It has at one end a nut D^1 which is threaded to the clamp screw D^2 which screw carries a support engaging head D^3. The other end of the clamp is provided with an enlarged head D^4, this head having two opposed slots D^5 closed at the end furthest removed from the body of the clamp as at D^6 and open at the other end. These slots are adapted to be penetrated by the lugs A^7 to hold the clamp and jaw body in engagement. The dimensions of the parts are such as shown in Figure 4 that when the clamp is in engagement with the lugs A^7 the clamp itself, that is the part which extends horizontally or parallel with the vise body is altogether inside the contour of the vise body and clear of the surface upon which the vise is mounted. This clamp may be engaged with the vise either from the right hand or from the left as shown in Figures 4 and 9.

It will be noted that the pad A^4 terminates far enough away from the lug A^8 to permit disengagement of the sliding jaw from the pad by moving it toward the lug A^8 and pulling out the lead screw and lifting it upwardly in a direction generally perpendicular to the pad A^4 so that it is not necessary to remove the fixed jaw to separate the moving jaw from the vise body.

I claim:

1. A clamp comprising a clamp body, an integral saddle thereon projecting laterally from both sides of the body adjacent its top, a fixed jaw at one end of the clamp body, bounding one end of the saddle, a threaded lead screw lug projecting upwardly from the opposed end of the body, the sliding jaw carrier adapted to engage the saddle and slide therealong, the movable jaw carried thereby, there being a clearance between the end of the saddle and the lead screw lug greater than the length of the sliding carrier whereby the carrier may be moved off the saddle for disengagement.

2. In a vise, a vise body of channel cross section, lugs projecting inwardly in opposition one to the other from the opposed walls of the channel, a clamp adapted to penetrate the channel from either end thereof and interlock with the lugs.

3. In a vise, a vise body of channel cross section, lugs projecting inwardly in opposition one to the other from the opposed walls of the channel, a clamp adapted to penetrate the channel from either end thereof and interlocked with the lugs, the clamp comprising a head adapted to lie in general parallelism with the vise body, slots on opposed sides of the head adapted to engage the lugs.

4. In a vise, a vise body of channel cross section, lugs projecting inwardly in opposition one to the other from the opposed walls of the channel, a clamp adapted to penetrate the channel from either end thereof and interlocked with the lugs, the clamp comprising a head adapted to lie in general parallelism with the vise body, slots on opposed sides of the head adapted to engage the lugs, the slots being closed at one end.

5. In a vise, a vise body of channel cross section, lugs projecting inwardly in opposition one to the other from the opposed walls of the channel, a clamp adapted to penetrate the channel from either end thereof and interlocked with the lugs, the clamp comprising a head adapted to lie in general parallelism with the vise body, slots on opposed sides of the head adapted to engage the lugs, the slots being closed at the end furthest removed from the body of the clamp.

6. In a vise, a vise body, a plate carried thereby and projecting on opposed sides therebeyond, a jaw interlocking with the plate and adapted to slide along the body, a stop projecting upwardly from the body at a point removed from the plate, the jaw being of such width that when in immediate proximity to the stop it may be disengaged from the plate and removed from the body.

7. In a vise, a vise body, a plate carried thereby and projecting on opposed sides therebeyond, a jaw interlocking with the plate and adapted to slide along the body, a stop projecting upwardly from the body at a point removed from the plate, the jaw being of such width that when in immediate proximity to the stop it may be disengaged from the plate and removed from the body, a second jaw slidable along the plate and means for independently adjustably locking it in opposition to the first jaw.

8. In a vise, a vise body, a plate carried thereby and projecting on opposed sides therebeyond, a jaw interlocking with the plate and adapted to slide along the body, a

stop projecting upwardly from the body at a point removed from the plate, the jaw being of such width that when in immediate proximity to the stop it may be disengaged from the plate and removed from the body, a second jaw slidable along the plate and means for independently adjustably locking it in opposition to the first jaw, said means including a key adapted to penetrate the jaw and lie in channels spaced along the upper surface of the plate.

Signed at Chicago, county of Cook and State of Illinois, this 15th day of January, 1931.

JOHN S. McCHESNEY.