

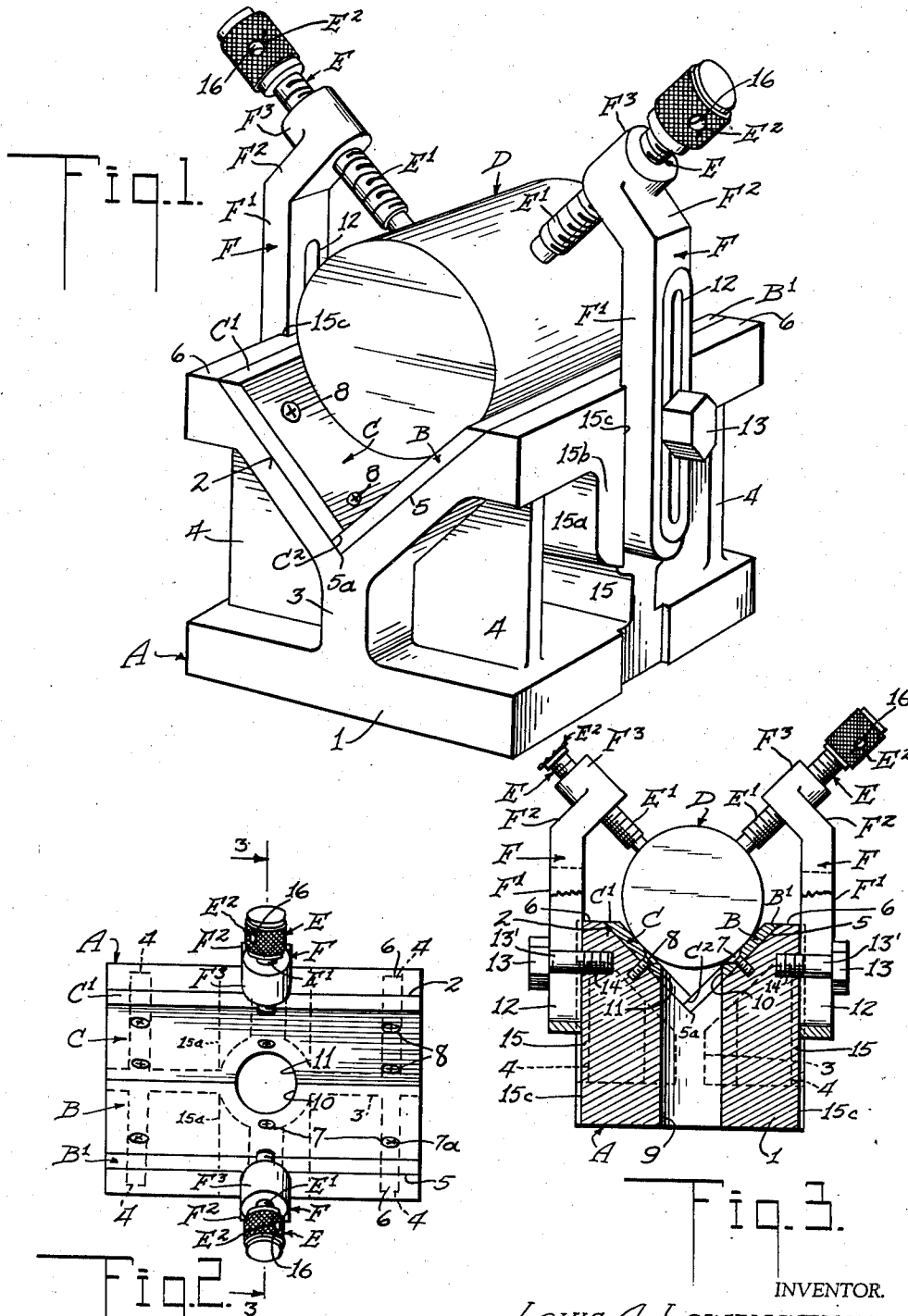
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UNIVERSAL V-BLOCK

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UNIVERSAL V-BLOCK

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6 Claims. (Cl. 77-63)

The present invention relates to improvements in a universal V-block, and it consists of the combinations, constructions and arrangements hereinafter described and claimed.

An object of my invention is to provide a universal V-block in which the work holding means leaves the entire top side of the work accessible for machining operations such as milling, grinding, drilling or other operations.

A further object of my invention is to provide a device of the type described in which the block is made of an inexpensive material and the work receiving V-shaped portion of the block is provided with removable hardened steel plates. When these plates become worn through use they may be reconditioned or renewed at much less expense than when an entire new block is substituted for the worn one. The initial cost of the block is reduced for the reason that it is made from an inexpensive material and the upkeep of the block is kept at a minimum cost.

Still a further object of my invention is to provide a block in which the V-shaped trough and the base are interconnected by reinforcing ribs, thus making the block strong while at the same time reducing the amount of metal going into its construction. This results in a saving of material and in a reduction of the cost of the block. The block has a central opening for receiving a drill bit and the hardened steel plates are provided with recesses which form an opening that registers with the opening in the base.

The V-block is extremely simple in construction and is durable and efficient for the purpose intended.

Other objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawing forming a part of this application, in which:

Figure 1 is a perspective view of the block showing it clamping a cylindrical piece of work;

Figure 2 is a top plan view of the block on a reduced scale; and

Figure 3 is a transverse section along the line 3-3 of Figure 2.

While I have shown only the preferred form of my invention, it should be understood that various changes or modifications may be made within the scope of the appended claims without departing from the spirit of the invention.

In carrying out my invention I provide a V-block indicated generally at A, and this block has

a base 1 and a V-shaped portion 2 that is connected to the base 1 by means of a longitudinally extending central web 3. Transversely extending reinforcing ribs 4 extend from the base 1 to the V-portion 2 and are integral with both.

The V-portion 2 has a V-slot 5 therein and the slot receives hardened steel plates B and C. It will be noted from Figure 1 that the plate B extends from the lower corner 5a of the slot upwardly to the top 6 of the block. The upper edge B1 of the plate is chamfered so that its surface lies flush with the top 6.

The plate C has its lower edge C2 resting against the plate B and its upper edge C1 is chamfered so as to lie flush with the top 6 of the block. Figure 2 shows the plate B removably secured in place by three screws 7 or any other suitable fastening means. The screws have cross-shaped kerfs 7a for receiving a special type of screw driver by means of which the screws are secured in place or removed from the block to free the plate. Figure 3 shows how the screws 7 enter the portion 2 for holding the plate B in place.

The plate C is secured in place by five screws 8 arranged in the manner shown in Figure 2. I do not wish to be confined to the exact number of screws. The plate C aids in holding the plate B in position and this is why only three screws are used for holding the plate B in place.

In Figure 3 I show the central portion of the block A provided with a vertical bore 9. In Figure 2 I show the plate B provided with a recess 10 and the plate C provided with a recess 11, these recesses forming an opening which registers with the bore 9. The purpose of the plate recesses and the block opening is for receiving a drill bit when an opening is to be drilled in a work piece D.

The work piece D is held in place by work holding screws E which are mounted in brackets F. The brackets F have vertical arms F1 with slots 12 therein. A cap screw 13 has its threaded shank 13' slidably received in the slot 12 and the shank enters a threaded bore 14 provided in the block A. A central vertical transversely extending web 15 connects the base 1 to the top 6 and has an enlarged portion at 15a to act as a guide for the arm F1. The face 15b of the portion 15a is provided with a shallow vertical groove 15c for receiving the arm F1. The groove holds the arm in a vertical position while the cap screw 13 secures the arm in adjusted position.

The top of each arm F1 is inclined as at F2 and the inclined portions carry bosses F3 which

are threaded for receiving the shanks E1 of the work holding screws E. The shanks bear against the work piece D as shown in Figures 1 and 3 in a position to free the central top portion of the work. The screws E have knurled heads E2 which are provided with pin receiving openings 16 by means of which the screws may be tightened against the work. The axes of the screws E extend at right angles to the planes of the plates B and C.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood.

The parts are assembled in the manner shown and the screws E are backed away so as to leave an open throat through which the work may be passed. The work bears against the plates B and C and is held in place by the screws E. Two blocks A are usually used for supporting the work D although only one is shown in the drawing. The screws permit the work to be milled, ground or drilled without the work holding means interfering with the working tools. The hole 9 through the center of the block permits drills or drifts to project through the work.

When the plates become worn they may be removed and new ones substituted and the block is ready for additional use. The making of a block out of cast iron cheapens the cost of manufacture and the use of webs 3, 4 and 15 reduces the amount of metal used while giving sufficient strength to the block. The screws hold the work in place without interfering with the cutting tools.

I claim:

1. A universal V-block having a V-shaped surface therein for receiving work, vertically extending brackets adjustably secured to the block to give a clear passage to the V-surface regardless of the vertical adjustment of the brackets, work-holding screws disposed at the tops of the brackets to engage with the work at points removed from the center of the work, whereby the top center of the work is free to receive cutting tools and the like.

2. A universal V-block made of cast iron and having a V-shaped surface, work engaging flat steel plates lining the surface sides and being removably secured thereto, said block having a central opening for receiving a cutting bit or other like cutting tool, said plates having recesses defining an opening that registers with the block opening, vertically extending brackets for securing the work to the block, said brackets being adjustable

vertically and extending free of the top central portion of the V-shaped surface to permit the work to receive cutting tools and the like, and work-holding screws carried by the brackets and extending at angles of 45°.

3. A universal V-block having a V-shaped surface therein for receiving work, vertically extending brackets adjustably secured to the block to give a clear passage to the V-surface, work-holding screws disposed at the tops of the brackets so as to engage with the work at points removed from the center of the work, whereby the top center of the work is free to receive cutting tools and the like, steel plates removably secured to the sides of the V-surface and being renewable when worn thereby obviating the necessity of discarding the entire block.

4. A universal V-block having a V-shaped surface therein for receiving work, vertically extending brackets adjustably secured to the block to give a clear passage to the V-surface, work-holding screws disposed at the tops of the bracket so as to engage with the work at points removed from the center of the work, whereby the top portion of the work is free to receive cutting tools and the like, steel plates removably secured to the sides of the V-surface and being renewable when worn thereby obviating the necessity of discarding the entire block, said block having an opening for receiving cutting tools and the like, and said plates having recesses defining an opening in alignment with the base opening.

5. A universal V-block having a 90° V-shaped surface and vertical grooves in its sides, vertical brackets slidable in the grooves, means for holding the brackets in adjusted positions, and work-holding screws carried by the brackets and extending at angles of 45° so that the screw axes will extend parallel to the sides of the V-shaped surface.

6. A universal V-block having a 90° V-shaped surface for receiving work, vertically extending brackets adjustably secured to the sides of the block to give a clear passage to the entire V-shaped surface, the brackets in all of their adjustments extending clear of the V-shaped surface, and work-holding screws carried by the brackets and extending at angles of 45° so as to parallel the sides of the V-shaped surface, said screws engaging with the work at points which will keep the top center of the work free to receive cutting tools and the like.

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