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2,293,006

TOOL HOLDER

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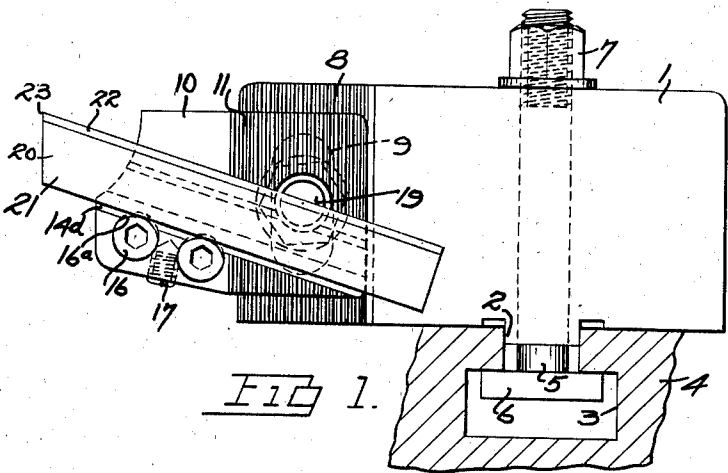


Fig. 1.

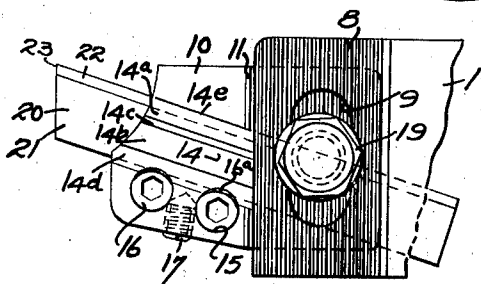


Fig. 2.

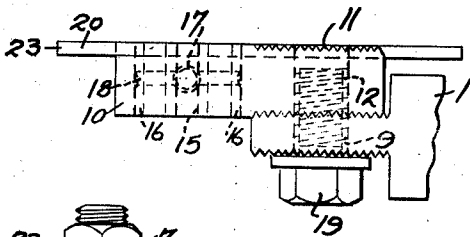


Fig. 3.

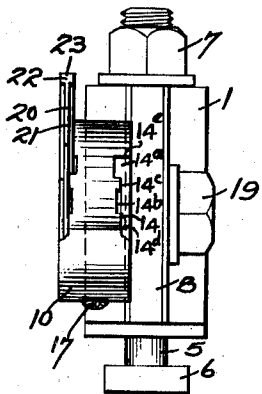


Fig. 4.

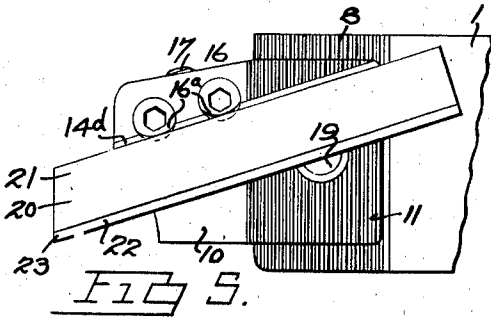


Fig. 5.

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TOOL HOLDER

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7 Claims. (Cl. 29—96)

This invention relates to improvements in toolholders. It is an object of the invention to provide a toolholder which may be employed for supporting a blade for cutting in any one of four different positions, thereby providing a single holder for a range of work for which several different holders are now commonly required. The four cutting positions referred to are for cutting with the holder mounted either on the front or back of the machine when the work is being rotated either in the conventional or non-conventional direction.

Another object of the invention is to provide a toolholder consisting of a block on either side of which a blade support may be mounted, and wherein means are provided for permitting vertical adjustment of the support relative to the block.

A further object of the invention is to provide such a toolholder including means on the support for securing the blade on either side thereof so that it may project the desired distance in front of the support and at an upward or downward inclination towards the axis of the work.

Having thus briefly and broadly stated some of the objects and advantages of the invention, I will now describe it in detail with the aid of the accompanying drawing, in which:

Figure 1 illustrates a side elevation of the invention with the blade arranged for cutting work rotating in the conventional direction from the front of the machine.

Figure 2 is a partial side elevation showing the support and blade mounted on the other side of the block for cutting work turning in the non-conventional direction when the block is mounted upon the back of the machine.

Figure 3 is a plan view of Figure 2, and

Figure 4 is a front view thereof.

Figure 5 is a partial side view showing the blade downwardly inclined towards its cutting extremity for cutting work rotated in the non-conventional direction when the block is mounted upon the front of the machine.

Referring to the drawing, 1 designates a block which is provided with suitable means for attachment to a machine, such as a projection 2 to engage a T-slot 3 in a table 4. 5 denotes a bolt which extends through an opening formed through the block 1, and the head 6 of the bolt is drawn up against the top of the T-slot 3 by a nut 7 in engagement with the upper extremity of the said bolt which projects above the block. One lateral extremity 8, preferably of reduced width, of the block 1 has its opposite vertical sides,

which are parallel to one another, serrated vertically, and formed substantially centrally through this serrated extremity in a vertically elongated slot 9.

A tool support 10 has its opposite vertical sides vertically serrated at 11 for a portion of its length, and extending through the serrated portion of the support is a tapped hole 12. Formed transversely in the opposite serrated sides of the support 10 and extending the full length of these sides are recesses generally designated by the numeral 14 which are throughout their entire cross section deeper than the bases of the serrations across which they extend at an inclination thereto. Each recess 14 consists of a deeper longitudinal portion 14a spaced from a parallel shallower portion 14b by an intermediate step 14c which is vertically in alignment with a second step 14d which extends longitudinally along one margin of the said recess. The two recesses 14 thus formed in opposite sides of the support 10 are in alignment with one another. Extending through the support 10 and through the two recess steps 14d are apertures 15 in each of which a pin 16 is mounted for rotation but is held against axial movement by means of a screw 17 which engages annular grooves 18 formed around both of said pins intermediately of their length. Formed around both extremities of both pins 16 are cam faces 16a. One of the serrated sides 11 of the support 10 is held against one serrated extremity 8 of the block 1 by a screw 19 which extends through the vertically elongated slot 9 to permit vertical adjustment of the support 10, and is in threaded engagement with the tapped hole 12 in the latter.

The blade 20 contemplated for use in this toolholder assembly consists of a thinner longitudinal shank 21 having a wider cutting head 22 formed along one longitudinal margin so that the sides of the head project beyond the sides of the shank. The cutting head 22 rests in the deeper portion 14a of the recess on one side of the support and the shank 21 both intermediately of its width and along its margin remote from the head 22 bears against the steps 14c and 14d. When the blade is thus mounted in one of the recesses 14 it is frictionally held therein by rotation of the pins 16 so that their cam faces 19 force the head 22 of the blade against the wall 14e formed along one side of that recess. It is preferred that the pins 16 be axially apertured to receive a wrench commonly employed for turning safety head set screws, thereby permitting the provision of means for rotating the pins

without necessitating the use of heads thereon which project outwardly from the support 19.

While only three positions of the blade 20 and support 10 relative to the block 1 are shown in the drawing it is of course obvious that the support may be mounted upon either side of the block, and with the support so turned that the blade 20 carried in its outwardly disposed recess 14 projects either upwardly or downwardly towards the work as required.

It will also be noted that at the extremity of the support 10 from which the cutting edge 23 of the blade 20 projects that the support is curved at 24 to provide clearance for the work (not shown), and a heel 25 is formed at the outer termination of this curved portion to provide support for the blade and minimize the blade overhang.

While in the foregoing the preferred embodiment of the invention has been described and shown, it is understood that alterations and modifications may be made thereto provided the said alterations and modifications fall within the scope of the appended claims.

What I claim is:

1. A toolholder comprising a block having means for attachment to a machine, one lateral extremity of said block having substantially vertical serrations on at least one vertical side, said extremity having an aperture formed therethrough extending through the serrated side, a support having at least one vertical side serrated to coact with the aforesaid serrations, said support having an aperture formed through its serrated side, one of said apertures being larger than the other and the smaller aperture being threaded, fastening means extending through the larger aperture in engagement with the smaller threaded aperture for securing the support against said block and permitting adjustment of the support thereon when the serrated faces are in coaction, a blade, and means on the support for securing the blade thereon.

2. A toolholder comprising the combination set forth in claim 1, wherein the serrated side of the support is provided with a transverse recess to receive the blade, and rotary cam means mounted in the support for holding the blade immovable in said recess.

3. A toolholder comprising a block, one lateral extremity of said block having substantially vertical serrations formed on opposite sides, said lateral extremity being apertured, said aperture connecting the serrated sides, a support having

its opposite substantially vertical sides vertically serrated, either serrated side being adapted to coact with either serrated extremity of the block, said support having an aperture therethrough extending between its serrated sides, one of said apertures being larger than the other and the smaller one being threaded, a fastening means projecting through the larger aperture in engagement with the smaller threaded aperture for securing the support to said block and permitting adjustment of the support thereon when one of its serrated sides is in coaction with one serrated side of said lateral extremity, each serrated side of the support having a transverse recess formed therein, a blade supported in the recess in the side of the support remote from the block, and means for holding said blade immovable in its recess.

4. A toolholder comprising the combination set forth in claim 3, wherein the two transverse recesses are in alignment and at an inclination to the support serrations whereby by turning the support upside down the blade is positioned to cutting work rotating in the opposite direction.

5. A toolholder comprising the combination set forth in claim 3, wherein the means for holding the blade in either recess includes rotatable pins mounted in the support, cams formed on both extremities of said pins whereby rotation of the pins causes engagement of the blade when mounted in either recess, and means for holding the pins against axial movement.

6. A toolholder comprising the combination set forth in claim 3, wherein the blades includes a wider head extending longitudinally along and on both sides of a narrower shank, and the recesses include longitudinal steps against which the shank rests, the blade holding means forcing the blade head into frictional engagement with one side of the recess in which it is mounted.

7. A toolholder comprising a block having means for attachment to a machine one extremity of said block having serrations on at least one side, a support having at least one side serrated to coact with the block serrations, fastening means for securing the support to the block, said block and support having apertures formed therein for the fastening means, said apertures being formed to permit sliding movement of the support upon the block when the two sets of serrations are in coaction and said fastening means loosened, a blade, and means on the support for securing the blade thereon.

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