April 14, 1953 H. C. CLATFELTER 2,634,646

TOOLHOLDER

Filed Jan. 25, 1951

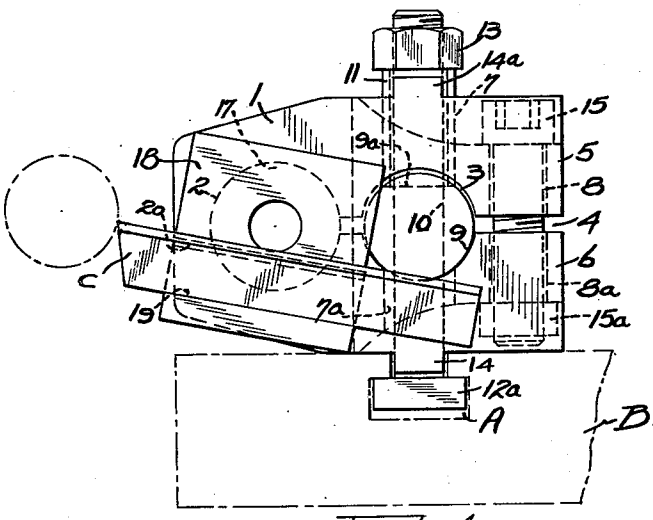


FIG. 1

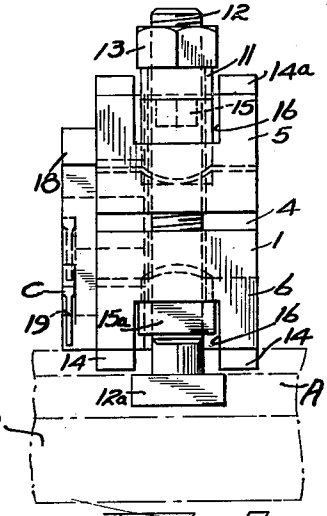


FIG. 2

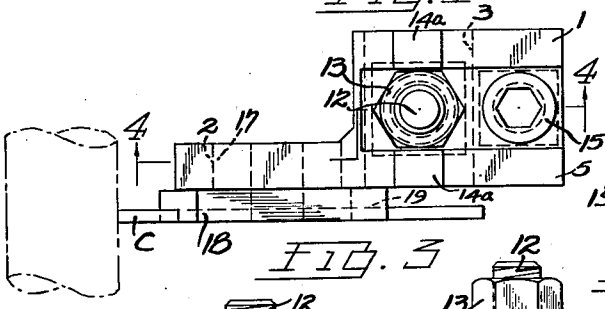


FIG. 3

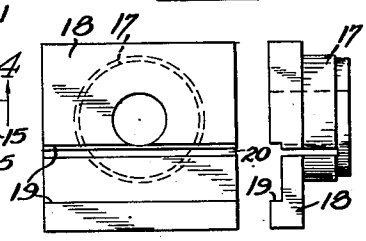


FIG. 5

FIG 6

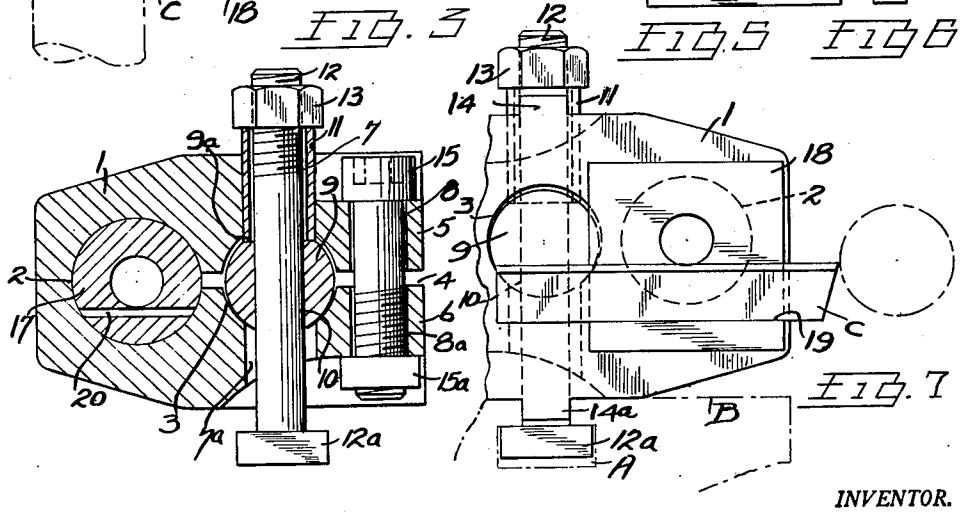


FIG. 4

FIG. 7

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TOOLHOLDER

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Application January 25, 1951, Serial No. 207,758

1 Claim. (Cl. 82—36)

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This invention relates to improvements in toolholders for automatic and hand screw machines and the like, and refers particularly to a four-position holder, that is to a holder which may be mounted either at the front or the back of a machine for cutting work rotating in either direction.

In a tool holder shown in my patent application Serial No. 30,029, now Patent #2,540,568, I employed a post split horizontally for a portion of its width and means for drawing the two split portions toward one another both to clamp a split tool supporting member in position and for holding a cutter immovable between the split portions of the said member; and at the same time a bolt was arranged to extend through the two split portions of the post in such a manner that, when tightened, it held the said post immovable on a machine without drawing the split portions toward one another so that it was not necessary to disturb the setting of the post to remove or replace a cutter in the supporting member. However in that case the arrangement for permitting the tightening of the bolt to secure the post in position without drawing the split portions of the latter toward one another was such that only one side of the post could be used as the bottom, and it was impossible to secure it in an upside down position, which would be necessary in order to make it into a four-position holder.

It is an object of this invention to provide a toolholder wherein means for securing a horizontally split post on a machine is so constructed and arranged that the post may be turned upside down and held immovable in either of two positions at 180 degrees to one another by a bolt inserted through both split portions of the post without interfering with the tightening or loosening of the split portion of the post between which a split tool supporting member is held which latter is, in turn, adapted to hold a cutter immovable.

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

Figure 1 is a side elevation of the invention,

Figure 2 is an end view thereof, and

Figure 3 is a plan view.

Figure 4 is a section on the line 4—4 of Figure 3.

Figure 5 is a front view of the tool supporting member, and

Figure 6 is an end view thereof.

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Figure 7 is a partial side view showing a slightly modified form of post wherein one of the split portions is of greater height than the other.

Referring to the drawing, 1 designates a rest having an aperture 2 formed horizontally and transversely therethrough adjacent one end, a passage 3 therethrough which is inwardly spaced from and parallel with the aperture 2, and preferably in horizontal alignment with the latter, and a horizontal slot 4 which extends from the end of the post remote from the aperture 2 substantially centrally through the passage 3 and terminates in the said aperture. Thus the slot 4 divides the post 1 for the greater portion of its length into an upper portion 5 and a lower portion 6. Formed through the upper and lower portions 5 and 6 are vertically aligned openings 7 and 7a and 8 and 8a respectively all of which are of uniform size throughout their length. The axis of the openings 7 and 7a passes centrally through the passage 3, and the axis of the openings 8 and 8a passes through the post 1 between the passage 3 and the end of the said post through which the slot 4 extends.

Provided in the passage 3, which in the present instance is shown circular, is a stop 9 of the said peripheral form as but somewhat smaller than the said aperture. Extending vertically through the stop 9 is a bore 10 smaller in diameter than but in vertical alignment with the openings 7 and 7a between which it extends. Arranged in the opening 7 and resting upon the stop 9, and preferably upon a flat surface 9a formed thereon at right angles to the axis of its bore, is a bushing 11 the inside diameter of which is substantially the same size as that of the bore 10.

12 denotes a bolt the head 12a of which is mounted in a T-slot A formed in a slide B of a machine. This bolt 12 projects upwardly from the T-slot A through the lower opening 7a, the bore 10 formed through the stop 9 and through the bushing 11 in the upper opening 7. In threaded engagement with the top of the bolt 12 is a nut 13 which is tightened against the top of the bushing 11, thereby holding the rest 1 immovable on the slide B without tending to draw the upper and lower portions 5 and 6 together. However due to the fact that the height of the stop 9 (in the present instance its diameter) is less than that of the passage 3, when pressure is applied in a manner hereinafter described to draw the portions 5 and 6 toward one another and thus reduce the width of the slot 4, this movement of the said portions is in no wise hindered by the said stop. The rest 1 is also

held against movement on the slide B by guides 14 which engage the T-slot A and are integral with and extend transversely part way across the underside of the said rest from opposite sides and in transverse alignment with the axis of the bolt 12.

It will also be noted that corresponding guides 14a are formed across the upper face of the rest 1, so that the toolholder may be turned upside down and secured in position merely by inserting the bushing 11 in the opening 7a which is then at the top and reinserting the bolt 12 upwardly through the opening 7 which is then seated upon the slide B.

Extending through the openings 8 and 8a is a bolt 15 having a nut 15a on one extremity, and formed longitudinally and centrally of the width of the post 1 across the outer extremities of the said openings are slots 16 one to receive the head of the bolt 15 and the other to receive the nut 15a. The depth of the slots 16 is greater than that of either the head of the bolt 15 or the nut 15a, the bolt head is so formed as to be rotatable in either of the said slots, and the nut 15a is so formed as to be held against rotation in its slot by the sides of the latter when the bolt is turned.

Mounted in the aperture 2, which is circular, is a circular shank 17 which projects from one side of a tool supporting member 18 having a longitudinal tool receiving recess 19 formed in its opposite side. Formed longitudinally through the recess from its outer face and extending part way through the shank 17 is a slot 20. When the bolt 15 is tighened not only is the shank 17 firmly engaged and held immovable in the aperture 2, but a cutter blade C mounted in the recess 19, and usually projecting outwardly beyond both extremities of the latter, is also held immovable by and between the upper and lower margins of the said recess. Obviously when it is desired to turn the toolholder upside down the bolt 15 may be readily removed and inserted through whichever opening 8 or 8a is uppermost, and, due to the circular form of the aperture 2 and the shank 17, the cutter blade C may be inclined at any desired angle.

It will be noted in Figures 1, 2 and 4 that the post is shown with its upper and lower portions 5 and 6 of equal height, whereas in Figure 7, while

the construction is otherwise identical, the upper portion 5a extends through a greater vertical distance than the lower portion 6a, for in some cases it is desirable to provide a holder wherein the height of the cutter blade may be varied by turning the post upside down.

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 they fall within the scope of the appended claim.

What I claim is:

A four-position tool holder comprising a post having a horizontal aperture therethrough adjacent one side, said post being split from said opening to its opposite side whereby the post is divided into an upper and a lower portion, a passage extending horizontally through the post formed partly through the upper and partly through the lower portion between said aperture and said opposite side, a stop of lesser height than the passage inserted in the latter and having a vertical bore therethrough, vertically aligned openings through said upper and lower portions larger than and in vertical alignment with said bore, a bolt extending through said bore and openings the head of which is adapted to engage a slot in a carriage, a bushing in the opening in said upper portion and resting upon said stop, a nut on the bolt adapted to be tightened against the top of the bushing to hold the post immovable and permit relative movement of the upper and lower portions to one another, said bolt and bushing being removable whereupon said post is adapted to be turned upside down and the bolt and bushing inserted from opposite sides of the post to permit attachment of the post in an inverted position, and means for drawing said upper and lower portions toward one another to engage a tool in the aperture irrespective of the attachment of the nut upon the bolt.

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Number	Name	Date
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