Feb. 17, 1925. 1,526,849

J. F. GRABILL

TOOL SUPPORT FOR LATHES

Filed April 26, 1924

Fig. 1.

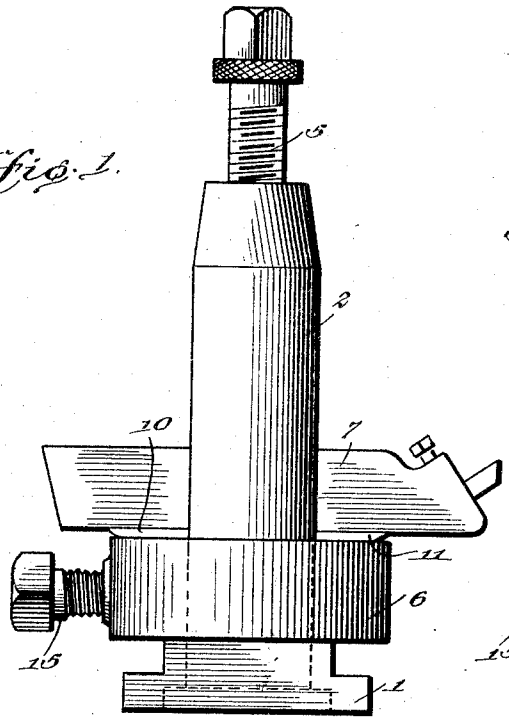


Fig. 2.

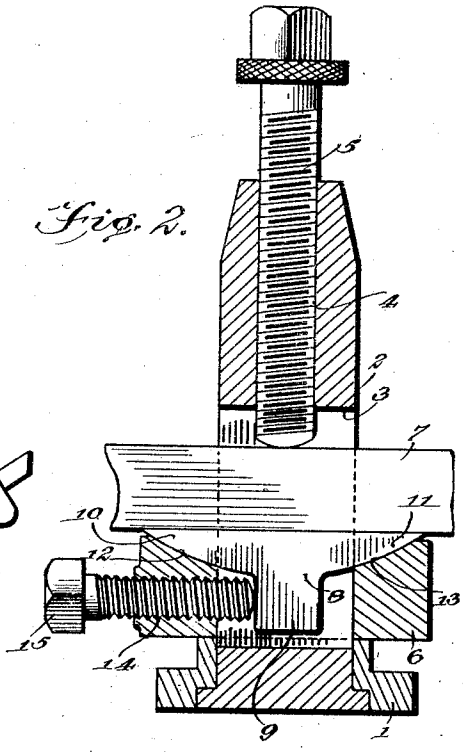


Fig. 3.

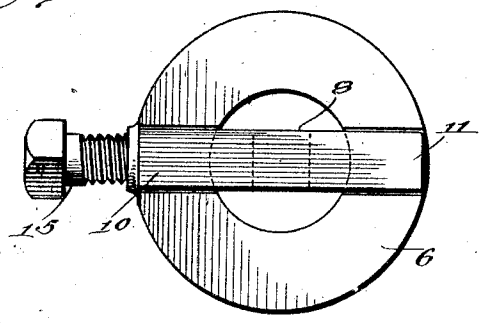
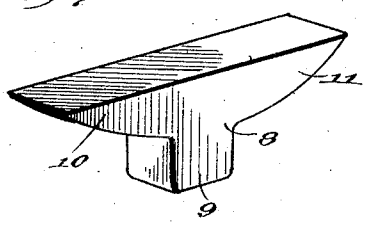


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN F. GRABILL, OF FLORA, ILLINOIS.

TOOL SUPPORT FOR LATHES.

Application filed April 26, 1924. Serial No. 709,248.

To all whom it may concern:

Be it known that I, JOHN F. GRABILL, a citizen of the United States, and resident of Flora, in the county of Clay and State of Illinois, have invented certain new and useful Improvements in Tool Supports for Lathes, of which the following is a specification.

My invention relates to improvements in tool supports for lathes, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of the invention is to provide a simple, reliable and durable support which is adapted to be operatively applied to a lathe of ordinary construction and which affords facilities for supporting a tool or tool holder so that the height of the cutting edge of the tool and the angle of inclination of the tool may be adjusted quickly and easily and the tool will be firmly held against accidental displacement from adjusted position on the support.

Other objects and advantages of the invention will be apparent from the following description, considered in conjunction with the accompanying drawings, in which—

Figure 1 is a side elevation of a tool support embodying the invention, showing a tool in supported position,

Figure 2 is a vertical central section through the structure exhibited in Figure 1.

Figure 3 is a plan view showing an assembly of the novel elements of the support,

Figure 4 is a perspective view of the novel wedge member which is comprised in the support.

In Figures 1 and 2, I show a support 1 which may be a part of the usual slide-rest, not shown, of a lathe of ordinary construction, or may be adapted to engage with such slide-rest in an ordinary manner. A tool post 2 is mounted at its lower end in the support 1 in the usual manner. The tool post 2 is formed with the usual transverse slot 3 which extends in the tool post from a distance considerably above the upper end of the support 1 to a plane slightly below the lower end of the tool post support as best seen in Figure 2. A vertical bore 4 extends in the upper end of the post 2 into the slot 3 and is engaged by a clamping screw 5.

The parts described so far are ordinary in construction and form no part of the present invention except insofar as they cooperate with the parts which will now be described.

A ring 6 is adapted to be slipped over the upper end of the tool post 2 to position to rest upon the upper end of the support 1. The ring 6 terminates at its upper end at a distance below the upper end of the slot 3 sufficient to permit a suitable tool or tool holder to be inserted through the slot 3 between the ring 6 and the upper end of the slot 3 and to be moved bodily in the slot 3 when the position of the clamping screw 5 will permit any vertical movement of the tool or tool holder 7 in the direction opposite the ring 6.

The tool or tool holder 7 is adjustably supported in the slot 3 so that the angle of inclination of the tool or tool holder in respect to the vertical and the height of the cutting edge of the tool above the plane of the upper end of the ring 6 can be varied by a substantially T-shaped adjusting block or wedge member 8. The body or stem 9 of the block 8 depends in the slot 3 and in the bore of the ring 6 while the branches or lateral portions 10 and 11 respectively rest in radial slots 12 and 13 respectively in the upper end of the ring 6. The head of the block 8 has a substantially plane upper face and the distance from the end of one of the branches of the head of the block to the end of the other branch of the head of the block is greater than the inner diameter of the ring 6 and preferably approximately equals the outer diameter of the ring.

The block 8 is sufficiently narrow to move freely in the slot 3. The lower faces of the branches of the head of the block 8 may be described as being oppositely inclined from their lines of juncture with the stem 9 to their outer ends and are convexly curved as shown, being struck by radii of relatively great length. The slots 12 and 13 are concavely curved longitudinally thereof to conform to the curvature of the lower faces of the branches of the head of the block 8.

A radial bore 14 is formed through the

ring 6 in vertical transverse alignment with the slot 12 and is suitably engaged by an adjusting screw 15 which is in contact at its inner end with the stem 9.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. The tool or tool holder 7 will be securely held against slipping or accidental displacement in respect to the post 2 when the tool or tool holder rests flatwise upon the plane upper face of the block 8 and the screw 5 has been tightened to hold the tool or tool holder 7 clamped against the block 8 and the latter clamped against the bottom walls of the slots 12 and 13. At this time, the screw 15 will engage with the stem of the block 8 and will positively prevent any downward movement from adjusted position of the tool or tool holder in response to any relatively heavy stress applied at the cutting end of the tool, as takes place when a relatively heavy "cut" is made. When the adjusting screw 15 is in the position illustrated in Figures 1 and 2, the block 8 will be disposed and held in such a position that the upper face thereof will be substantially horizontal when the screw 5 has been tightened against the tool or tool holder which rests upon the block 8. In order to adjust the inclination of the tool or tool holder 7 in respect to the vertical so that the cutting edge of the tool will be elevated from the position shown in Figures 1 and 2, it only is necessary to loosen the screw 5, tighten the screw 15 against the stem 9 to force the latter laterally in the transverse slot 3 and to thereby tilt the tool or tool holder 7 to a desired angle, and then to tighten the screw 5 to clamp the tool or tool holder 7 in adjusted position against the bottom wall of the grooves 12 and 13 and the adjusting screw 15. In order to tilt the tool or tool holder 7 in the direction opposite to that just mentioned, the position shown in Figures 1 and 2, the clamping screw 5 is loosened slightly, the screw 15 then is loosened and the block 8 is slid in the grooves 12 and 13 until the stem 9 again bears against the inner end of the screw 15 and the inclination of the tool or tool holder has been adjusted. The clamping screw 5 then is tightened and the tool or tool holder will be held against movement from adjusted position.

Obviously, my invention is susceptible of embodiment in forms other than that illustrated in the accompanying drawings and I therefore consider as my own all such modifications and adaptations as fairly fall within the scope of the appended claims.

I claim:—

1. In a tool support for lathes, the combination with a tool post having a transverse slot and a support at the lower end of said slot, of a ring encircling said post and resting upon said support at the lower end of the slot, a tool adjusting block disposed in said transverse slot and resting upon said ring, said block having a portion depending in the bore of said ring, and an adjusting screw threaded through a radial opening in said ring to bear at its inner end against said depending portion of said block.

2. In a tool support for lathes, the combination with a tool post having a transverse slot therein and having adjustable clamping means at the upper end of said slot, of a ring adapted to be slipped over the upper end of the tool post to a position at the lower end of said slot, said ring having a pair of diametrically opposite seats in the upper end thereof, the bottom wall of each of said seats being concavely curved longitudinally thereof, a substantially T-shaped adjusting block adapted to enter said transverse opening in the tool post and having a stem portion adapted to depend in the bore of said ring so that the branches of the head of the block will rest upon the bottom of said seat, the head of said block having a substantially plane upper face extending at right angles to the axial line of the stem and the lower faces of the branches of said head being convexly curved longitudinally thereof to conform to the curvature of the bottom walls of said seats, and a radially extending adjusting screw carried by said ring directly below one of said seats for engaging with the depending stem portion of said block.

JOHN F. GRABILL.