March 14, 1961 W. BADER ET AL 2,974,451

GRINDING MACHINE ACCESSORY

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FIG. 1

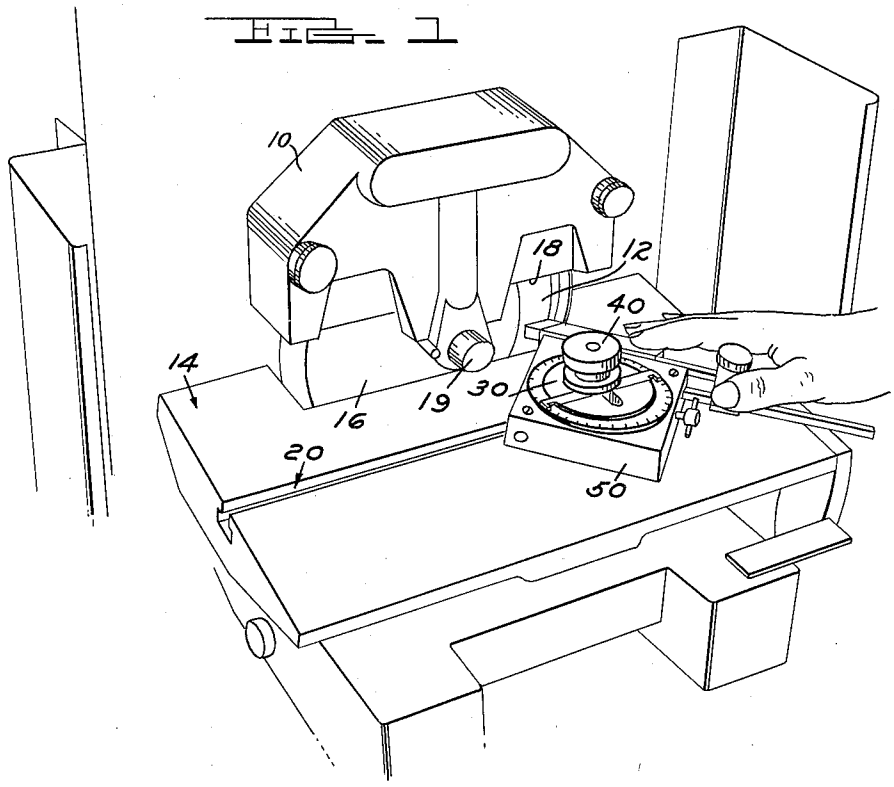
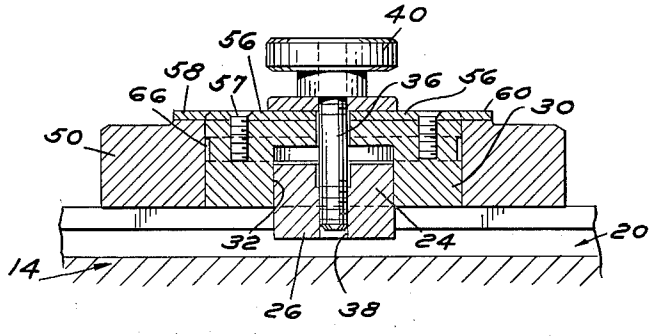


FIG. 3



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FIG. 2

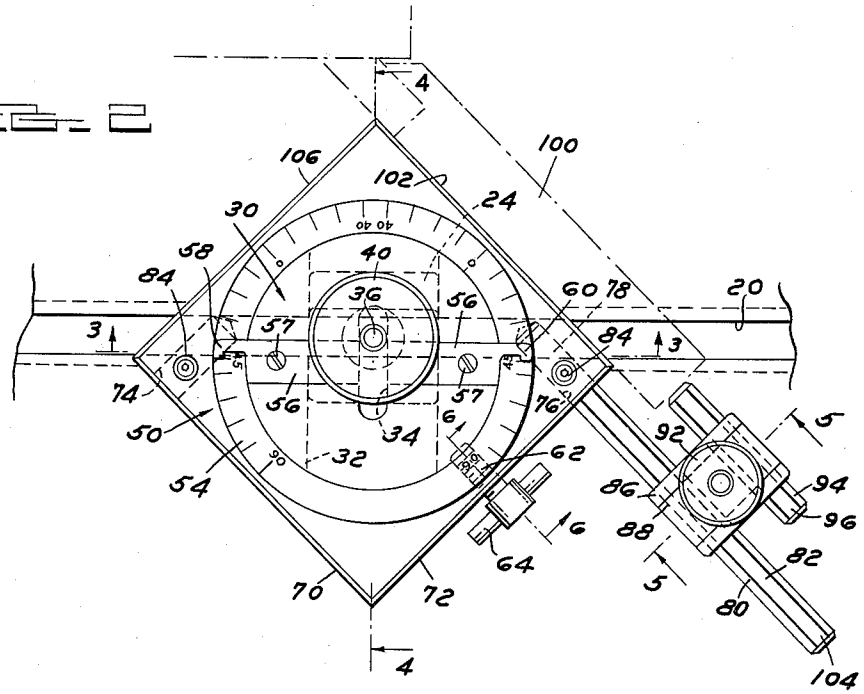


FIG. 4

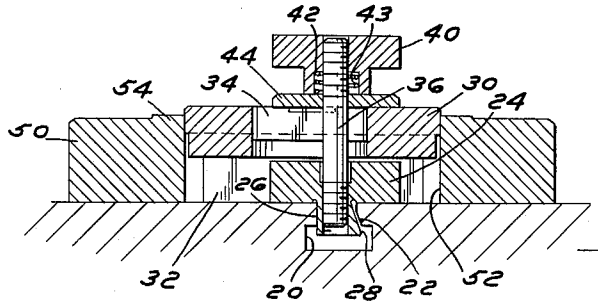


FIG. 6

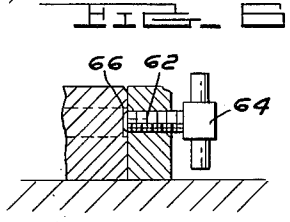
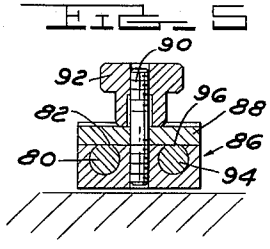


FIG. 5



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GRINDING MACHINE ACCESSORY

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3 Claims. (Cl. 51—239)

This invention relates to a grinding machine accessory.

It is an object of the present invention to provide a holder and guide for work pieces on a grinding machine table which will enable the operator to hold the work in an accurate position relative to the wheel on either side of the work table for either direction of rotation of the wheel. The primary purpose is to locate carbide cutting tools to grind lead angles, end cutting edge angles, radius, clearance and rake angles.

It is an object to provide a simple device which is easily and accurately adjusted and which is adaptable to the varying positions required. The device is very accurate, quickly manipulated to any angle, and positively locked with no wrenches needed.

Other objects and features of the invention relating to details of construction and operation will be apparent in the following description and claims.

Drawings accompany the disclosure and the various views thereof may be briefly described as:

Figure 1, a perspective view of a grinding machine and the work table showing the work holder in position.

Figure 2, a plan view of the work holder.

Figures 3, 4, 5 and 6, sectional views on corresponding sectional lines 3—3, 4—4, 5—5 and 6—6 of Figure 2.

Referring to the drawings:

In Figure 1, a grinding machine is shown generally having a wheel head 10, a grinding wheel 12, and an adjustable work table 14. The work table is movable to and from the wheel and also has an angular adjustment relative to horizontal. The wheel 12 has a guard 16 with a window 18, and the guard may be rotated on the center 19 to the left hand side for reverse operation of the wheel. Details of the construction of this machine generally are shown in a copending application, Serial No. 689,200, filed October 9, 1957 which issued as Patent No. 2,958,164 dated November 1,1960.

The table 14 has a re-entrant guide slot 20, extending across the table and open at each end. One wall of the re-entrant slot at 22 is chamfered. A square anchor block 24 has a rectangular portion 26 adapted to slide in the groove 20 and one wall 28 is angled to correspond with the chamfer 22; the base of the rectangular portion 26 is wider than the groove 20 at its narrowest dimension.

The piece 26, therefore, locks in the groove 20. The piece 26 is recessed into the bottom of a circular disc member 30, the disc member being provided with a bottom recess 32 extending diametrically across the disc. The disc is also provided with an elongate slot 34 through which passes a control screw 36 threaded into a hole 38 in block 24. The control screw 36 is manipulated by a knurled head 40 secured thereto. A spring 42 and a recess 43 bears against a wear washer 44 and holds the assembled parts as shown in Figure 4 with the dovetail held upwardly in its slot.

It will be seen that a rotation of the head 40 will draw the parts together to pull the disc assembly down against the table, the upward thrust being taken by the chamfered shoulder 22.

The disc 30 is recessed in a square guide block 50. The block 50 is provided with a circular central recess 52 to receive the disc 30 and an upstanding annular shoulder 54 is graduated into degrees for cooperation with diametrically disposed bars 56 fastened in recessed slots on the top of the disc by screws 57. The bars 56 have left and right projecting fingers 58 and 60 which align with the graduations and which also prevent axial dislodgment of the guide block 50 from the disc 30. In one side wall of the guide block 50 is a locking screw 62 controlled by a capstan 64. The screw 62 abuts against a groove 66 in the side wall of disc 30 to lock the guide block 50 relative to the disc 30 circumferentially and axially.

On the distant ends of adjoining side walls 70 and 72 of the guide block 50 are holes 74 and 76 drilled into the block normal to the side walls which are perpendicular to the table on which the device rests.

The holes 74 and 76 are designed to receive end 78 of a rod 80 which has a flat 84 on the top surface thereof. An Allen screw 84 locks the rod in place. On the rod is carried a two-piece bracket 86 and 88 connected by a screw 90 and a nut 92. The rod 80 passes through one side of the bracket 86 and a short rod 94 having a flat 94 passes through the other side.

It will be seen that tightening of the nut 32 will clamp all of the parts shown in Figure 5 tightly together.

As the parts are disposed in Figures 1 and 2 a work piece in the form of a tipped tool 100 shown in outline in Figure 2 lies against wall 102 of guide block 50 and is backed up by the short rod 94. It will be seen that the tool is positioned at exactly 45° on the protractor which can be read on either side (Fig. 2).

It will readily be seen that the device can be shifted laterally in the groove 20; and it may be shifted toward or away from the machine by the loosening of the screw 40 and shifting in the slots 32 and 34. Also, the rod 80 may be readily shifted to the recess 74 and the end 104 can be inserted in the recess 74 to present the rod 96 to the outside of surface 106 of the block 50. Once the tool is positioned on the table the table is moved into the wheel and the grinding operation starts.

What I claim is:

1. An article for locating work on a moving table of a machine which comprises, a center pivot disc adapted to be locked to a table, a guide block rotatably mounted on said disc supported by said table, means on said disc overlying said block to prevent axial dislodgement of said block from said disc, and serving to cooperate with locating indicia on said block, and means on said block for positioning a tool relative to one side of said block, said means consisting of a projection from one portion of said block having means to engage a portion of a tool not in contact with said block.

2. A device as defined in claim 1 in which means is provided for locking said disc to said table comprising, an anchor block having a portion engageable with the groove of said table and another portion engageable with a diametrical groove in the bottom of said disc, a slot in the upper portion of said disc communicating with said diametrical grooves and a screw shaft projecting through said slot into said anchor block for creating axial pressure relative to said parts.

3. An article for locating work on a moving table of a machine which comprises, an anchor block having means to engage a portion of the table in a sliding relation, a pivot disc slidable relative to said block, means on said block and means on said disc to permit lineal motion therebetween, a guide block rotatable relative to said disc, having a recess to receive said disc in relatively close fitting relation, means on said disc overlying said guide block to prevent axial displacement thereof,

said guide block serving also to limit the relative motion between said anchor block and said pivot disc, locking means transfixing said disc and said anchor block to lock the assembly of blocks and disc relative to said table, and work locating means, said guide block being recessed to receive said work locating means selectively at different portions thereof to permit work to be located for right and left hand operations, said work locating means comprising, a pin engageable selectively in a plurality of recesses in said guide block, a second pin adapted to lie parallel to said first pin, and means to clamp said pins together to hold said second pin beyond the confines of the guide block relative to two adjoining sides of said block.

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