W. A. KELSEY.

TOOL HOLDER.

APPLICATION FILED JULY 15, 1913.

1,113,650.

Patented Oct. 13, 1914.

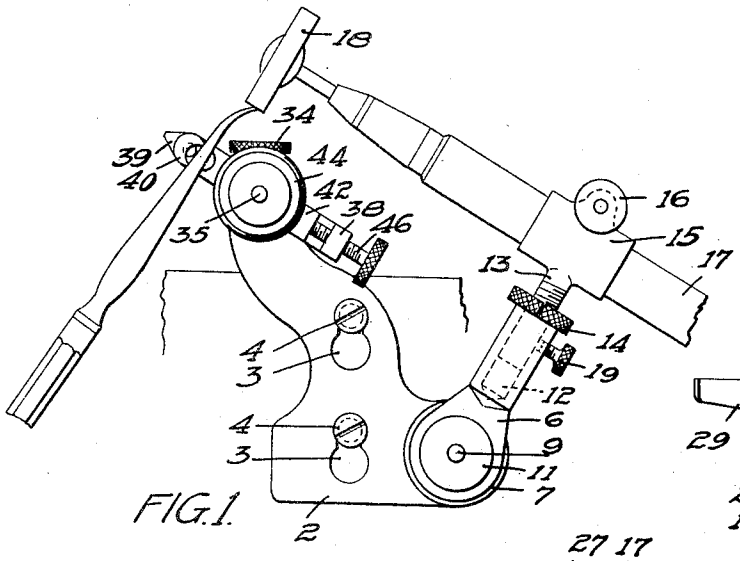


FIG. 1.

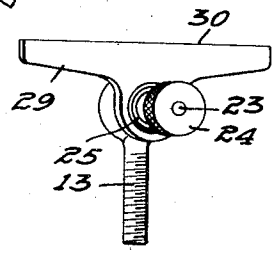


FIG. 5.

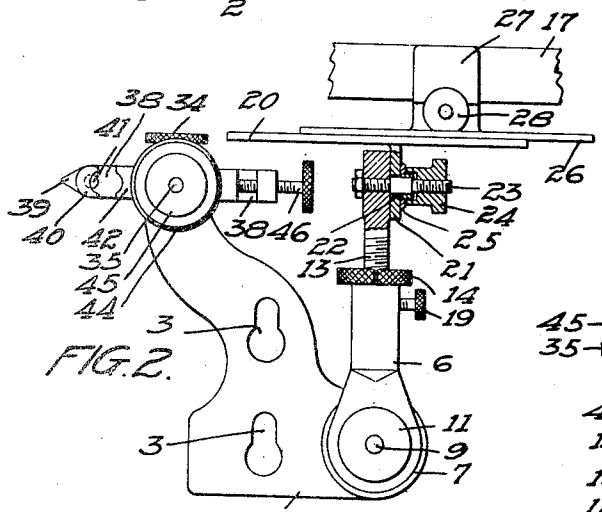


FIG. 2.

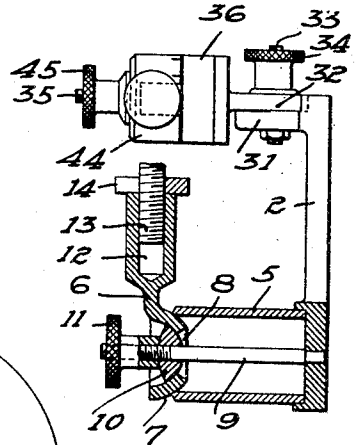


FIG. 4.

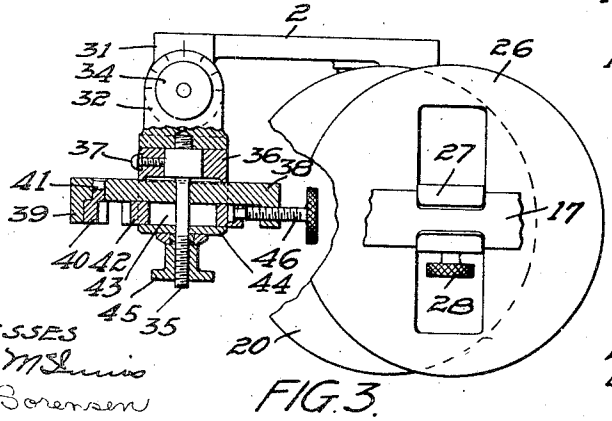


FIG. 3.

WITNESSES

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TOOL-HOLDER.

1,113,650. Specification of Letters Patent. Patented Oct. 13, 1914.

Application filed July 15, 1913. Serial No. 779,199.

To all whom it may concern:

Be it known that I, WILLIAM A. KELSEY, a citizen of the United States, resident of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Tool-Holders, of which the following is a specification.

My invention relates to devices for holding tools during the grinding operation and is designed particularly for use as a dental tool holder.

The object of my invention is to provide a holder by means of which instruments for delicate work, having small or angular grinding faces, can be securely held and accurately ground, preserving the original angle on the cutting edge or face of the tool with respect to the shank. In small instruments, such as are used in dental work, it is extremely difficult to hold the tool in the hands during the grinding operation and maintain the proper angle on the face of the tool and the cutting edge.

With my invention the tool may be supported in any position or at any desired angle, and its cutting edge easily and accurately ground.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is a front elevation of a tool holder embodying my invention, Fig. 2 is a view, partially in section, of the holder removed from its support and showing a modified means for supporting the grinding stone thereon, Fig. 3 is a plan section of the device illustrated in Fig. 2, Fig. 4 is a detail sectional view showing the support for the grinding device and the means for tilting it to any desired angle, Fig. 5 is a detail view of a support for the grinding device, which may be substituted for the one illustrated in Fig. 1.

In the drawing, 2 represents a plate having key-hole slots 3 therein adapted to receive screws 4 for supporting the device on a bench. A tube 5 has its inner end seated on the plate 2 and an arm 6 is provided at one end with a curved surface 7 that is seated against the open outer end of the tube and cooperates therewith to form a ball and socket bearing for said arm. The lower end of the arm has a comparatively large opening 8 and a rod 9 passes through this opening and is secured in the plate 2 and carries a washer 10 having a curved surface to bear on the lower end of the arm and cover the opening 8, the outer end of said rod being threaded to receive a thumb nut 11 by means of which the washer 10 can be clamped on the arm and the arm and tube readily secured together at any desired angle. The opening 8 is of sufficient size to allow the arm 6 to be rocked back and forth and adjusted in different positions with respect to the supporting plate 2. A socket 12 is provided in said arm and a threaded stud 13 fits loosely within said socket and is provided with a split, threaded ring 14 that is seated against the end of the arm and when rotated moves the stud back and forth in the socket. On the outer end of the stud a clamp 15 is mounted, having a clamping screw 16 for securing the driving member 17 between the jaws of the clamp. On this driving member the grinding wheel 18 is mounted. This may be of stone or emery, as preferred. I prefer to provide a clamping screw 19 in the arm 6 in position to engage the threaded stud 13. By means of this adjustable stud and the arm capable of movement in either direction I am able to set the grinding stone at any desired angle with respect to the work.

In Fig. 2 I have shown a modified construction of the means mounted on the arm 6, which consists in a disk 20 having an ear 21 pressed or punched therefrom and provided with an opening to receive a sleeve 22. A stud 23 passes through the upper end of the arm and through the ear and sleeve and is provided with a thumb nut 24 between which and the ear a washer 25 is arranged. By loosening the thumb nut 24 the disk 20 may be tilted from a horizontal to an inclined position. This disk has a flat upper surface and is adapted to support a second disk 26 having clamping jaws 27 pressed or punched therefrom and adapted to grip the driving shaft 17 and provided with a clamping screw 28. When the driving shaft is mounted in these jaws the operator, using the disk 20 as a support, can slide the disk 26 back and forth or in a circular direction thereon and move the grinding wheel to any desired position with respect to the face of the tool to be sharpened.

In Fig. 5 another modification is shown, consisting in providing a bar 29 having a flat upper edge 30 upon which the sharpening stone may be moved back and forth.

This bar 29 has an opening therein to receive the screw 23 of the supporting stud and a thumb nut, similar to the one described, is also provided.

The plate 2 is provided with an arm 31 projecting outwardly therefrom and a bracket 32 is supported on said arm by means of a screw 33 and a thumb nut 34. The arm is preferably marked at the top and graduations are preferably provided on the bracket 32 and movable past the mark on the arm when said bracket is oscillated on its support. These graduations on the bracket denote certain adjustments and enable the operator to swing the arm and secure it at any desired angle with respect to the supporting plate. A screw 35 is tapped into the bracket 32 and a disk 36 is mounted on said screw and secured against rotation thereon by a set screw 37. A block 38 is also loosely mounted on said screw and free to turn thereon, but held against longitudinal movement, and has a bearing on one side against the disk 36. One end of the block 38 forms a stationary jaw 39 that is provided with a rocking face 40 supported on a pivot 41. The jaw forms a substantial backing for this rocking face and the pivot allows the rocking face to accommodate itself to the varying surfaces of the tools bearing thereon. A movable jaw 42 is provided, having a slot 43 therein to receive the screw 35 and free to slide lengthwise on said screw between the block 38 and a washer 44 that is also carried by the screw 35 and is engaged by a thumb nut 45. An adjusting screw 46 is mounted in the block 38 and engages the movable jaw 42 for adjusting it back and forth toward and from the oscillating face 40 of the fixed jaw. Between these faces the dental tool or other instrument to be sharpened is inserted, and upon tightening the screw 46 the tool will be securely fastened between the jaws and when the block 38 has been adjusted to the desired angle with respect to the grinding wheel the edge of the tool can be accurately and quickly ground without danger of destroying or changing the angle of the tool face. I may also provide graduations on the block 38 for convenience of adjustment.

I claim as my invention:—

1. A tool holder comprising a supporting member, a jaw adapted for supporting a grinding device and having a ball and socket bearing on said supporting member and capable of adjustment at any desired angle with respect thereto, and a tool clamp carried by said member and having a rotary adjustment thereon.

2. A tool holder comprising a supporting member, a support for a grinding member having a ball and socket bearing on said member and capable of adjustment at any desired angle with respect thereto, and a tool clamp carried by said member and adjustable thereon.

3. A tool holder comprising a supporting member, a jaw adapted for supporting a grinding wheel carried by said member, said jaw being capable of adjustment in a direction at right angles substantially to the plane of said member, and a tool clamp carried by said member and rotatively adjustable thereon.

4. A tool holder comprising a supporting member, an arm mounted thereon and having freedom of adjustment with respect to said member, a grinding device support mounted on said arm and capable of adjustment therewith or independently thereof, and a tool clamp carried by said member and capable of rotary adjustment thereon.

5. A tool holder comprising a supporting member, means for securing a grinding device at any angle with respect to said member, and a tool clamp carried by said member and capable of adjustment with respect to said securing means, whereby said grinding device may be seated at any desired angle to fit any cutting edge of a tool mounted in said clamp.

In witness whereof, I have hereunto set my hand this 11th day of July, 1913.

WILLIAM A. KELSEY.

Witnesses:

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C. H. REHFUSS.