

O. W. DREYER.
 HOLDER FOR SHARPENING GRAVERS.
 APPLICATION FILED DEC. 28, 1911.

1,034,595.

Patented Aug. 6, 1912.

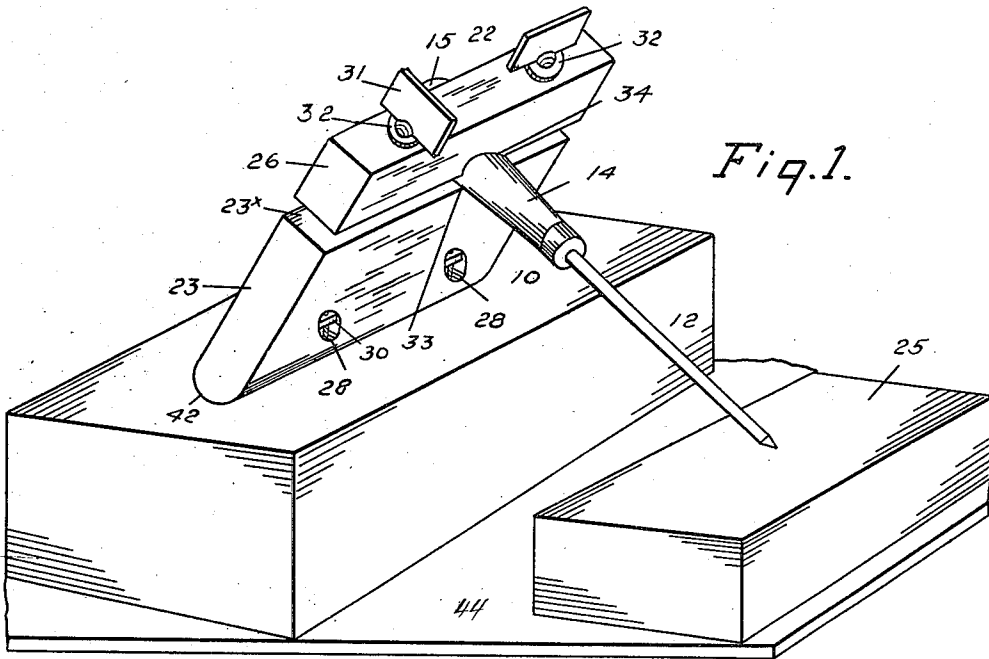


Fig. 1.

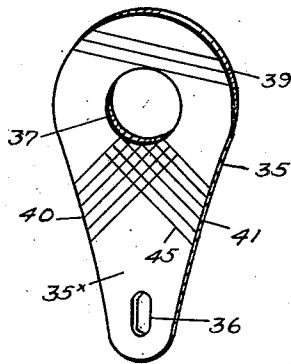


Fig. 4.

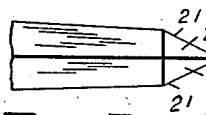


Fig. 6.

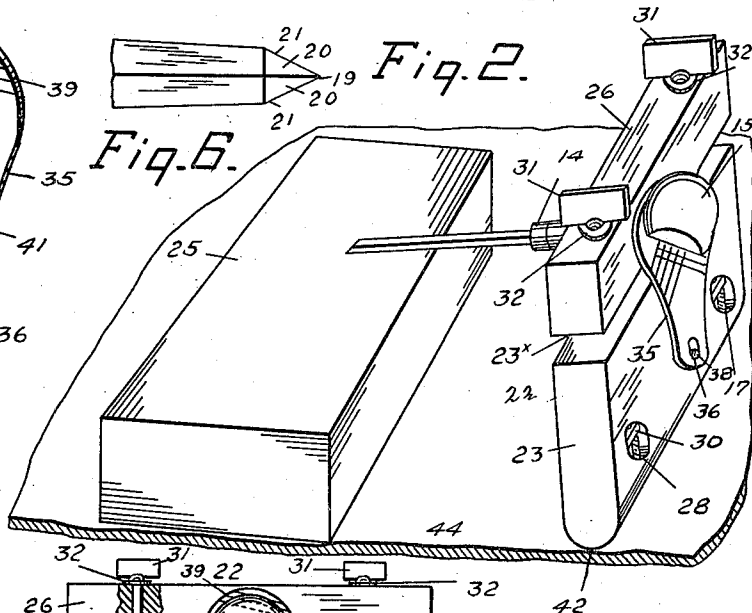


Fig. 2.

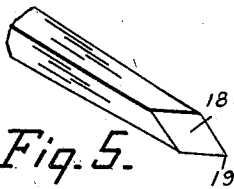


Fig. 5.

Witnesses:
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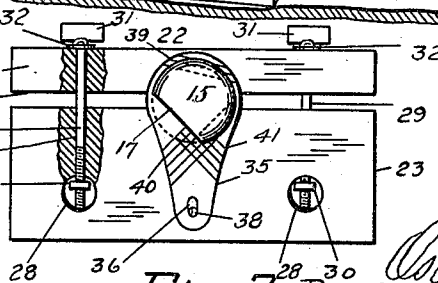


Fig. 3.

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UNITED STATES PATENT OFFICE.

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HOLDER FOR SHARPENING GRAVERS.

1,034,595.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed December 26, 1911. Serial No. 667,982.

To all whom it may concern:

Be it known that I, OSCAR W. DREYER, a citizen of the United States of America, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Holders for Sharpening Gravers; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others to make and use the same, reference being had to the accompanying drawing, forming a part of this specification.

The objects of the invention are: First, to afford an absolute guide for the different postures of a graver while being sharpened or re-sharpened, so as to enable the unskilled to obtain at once the true angles of incidence of the tool, relative to the abrading surface. Second, to provide an accurate gage for the sharpening of the graver applicable to the tool holder.

The invention consists in the novel features hereinafter fully described, and then specifically pointed out in the claims.

In the drawings: Figure 1. is a front view in perspective, of the graver, and tool holder, mounted upon a block for obtaining a posture relative to the abrading surface of the stone, and the angle of the face of the operative end of the tool. Fig. 2. is a rear view in perspective, of the tool holder and graver, showing the tool holder in position for sharpening the heel facets at the operative end of the tool, also showing the guide plate upon the tool holder. Fig. 3. is a rear view, in elevation, of the tool holder, showing the gage for the face and heel facets of the graver, adjustably connected with the tool holder. Fig. 4. is a detail front view of the gage. Figs. 5 and 6 are views of the operative end portion of the graver, showing the face portion and heel facets, respectively.

Similar numerals of reference indicate corresponding parts in all the figures of the drawing.

Referring to the drawings, 10 indicates a graver for the specific purpose of engraving upon hard surfaces, such as metals and the like, consisting ordinarily as shown of a straight shank 12, of hardened steel, rectangular in cross section. One end of the shank is inserted within a handle composed of a circular body portion (see Fig. 1), the

outer end of said handle having an enlarged portion or truncated knob 15, which is also circular in form, and from which knob is removed a segmental portion, taken upon a line transverse to a line extending diagonally through the shank 12, of the graver, leaving a flat surface 17, uniformly in the same horizontal plane as that bisecting diagonally in cross-section of the shank 12. The operative outer end of the tool or shank 12, when properly ground, presents angular surfaces, as seen in Figs. 5 and 6. One of these surfaces inclines sharply from the angle in the same horizontal plane as that of the flat surface or face 17, on the knob of the handle to the angle diagonally thereto, to form the face 18, the face forming a lozenge, and terminating at the point 19. Below the line extending diagonally and transversely to the facet 18 are heels or facets 20, at degrees of inclination considerably less than that of the face 18, which facets cut away a portion of the face 18, the outer lines of the facets meeting and forming a sharp, cutting edge, as seen at 21, in Fig. 6.

The holder for the graver consists of a tool-clamping device 22, the body of which consists of a block 23, of the requisite length and thickness. The height of the block 22 for the proper sharpening of the facets 20 is made relative to the height of an ordinary oilstone 25, as seen in Figs. 1 and 2, and from a base line of both stone and block to a height in which one of the facets 20, at the end of the shank, is in the same plane as that of the plane of the abrading surface of the oil stone 25. The upper end portion of the clamp consists of a bar 26, of the same length and thickness as the block 23. Through the bar 26, at points adjacent to the ends are the vertical bolt openings 27, which extend downwardly within the block 23, about two-thirds the distance downwardly from the line of the upper surface of said block. Extending transversely to the block are the circular openings 28, which intersect with the openings 27, at the terminus of said openings. Within the opening 27, in the bar 26 and the block 23, are the screw-threaded bolts 29, and upon the lower ends of said bolts within the circular openings 28, are the nuts 30. Upon the upper ends of the bolts 29 are secured, rigidly, the square heads 31. Extending around the

upper end of the bolts 29, immediately below the square heads 31, are flanges 32, which bear directly upon the upper surface of the clamping bar 26. The clamping rods 29 are of sufficient length to permit of an upward movement from the block to afford an intervening space 23*, partially admitting the body 14, of the tool. In the upper portion of the body portion 23, of the clamping block, equi-distant from its ends, is a semi-circular groove 33, (see Fig. 1) extending transversely to the block. In the lower portion of the clamping bar 26, directly above the groove 33, is a transverse, semicircular groove 34, these grooves admitting the passage of the handle 14, so as to permit the knob 15 to come into position adjacent to the outer side of the clamping block and the openings 33 and 34.

35 indicates the gage for establishing the sharpening angles, which, as shown, consists of a thin piece of suitable material, such as metal 35*, and, as seen oval in form, in the lower portion of which plate is a vertical slot 36. This plate is placed flatwise upon the outer surface of the clamping block, in a position in which the line of the vertical axis of the plate is directly opposite a vertical line passing through the bar 26, and the body 23, of the clamp, and diametrically through the semi-circular grooves 33 and 34, the upper end of said plate being approximately in line with the upper surface of the bar 36. Through the plate concentric with the grooves 33 and 34, is a circular opening 37, of the proper size to admit the entrance of the body 14, of the handle of the graver and the contact of the knob 17, with the outer surface of the plate.

Through the lower portion of slot 36 is inserted a screw 38, which enters the body 23, of the clamp, and permits of the slight adjustment of the gage when changed in position. Upon the outer surface of the plate 35*, directly above the opening 37 are drawn a series of lines 39, extending across the outer face of the plate, forming an angle of 80° more or less, to a vertical line drawn through the center of the openings 36 and 37, at the lower and upper parts of the gage plate, as seen in Fig. 4. These lines are drawn parallel, to accommodate any variation in the segmental portion of the knob of the handle, and are correlated to the bevel of the face 18, as seen in Fig. 5. The lines 40 and 41 are obtained by drawing a series of lines below the opening 37, which form angles of 45°, to a vertical line drawn through the center of said openings 36 and 37, as seen in Fig. 4, which are correlated to the angles of the heel facets, as seen in Fig. 7. These gage lines have been found from experiments to be the proper ones for the sharpening of gravers for engravers' use. The lower portion of the body

23, of the tool holding clamp is curved or rounded, as at 42, to afford a reduced, frictional bearing surface.

In the operation of sharpening the face 18, of the graver, the tool is inserted within the opening 37, of the plate 35*, thence between the semi-circular grooves 33 and 34, and the flat surface of the knob 15, of the handle placed in a parallel plane with one of the gage lines 39. The heads 38, in the clamping bolts, are then turned sufficiently, to enable the curved surfaces of the grooves 33 and 34, on the clamping bar 26, and the body 23 of the clamp, to grasp firmly the handle of the graver, the disparity in movement of the plate 35* being adjustably provided for by the slot 36. In order to posture the graver, so that the proper bevel may be obtained upon the end of the tool, to afford the face 18, the clamping block 23 with the graver, as seen in Fig. 1, is mounted upon the same horizontal surface, or table 44, supporting the oil stone 25. The tool holding clamp being held by the hand with the face portion 18, of the graver resting upon the upper surface of the oil stone, reciprocation is imparted to the block 23, effecting the sharpening of the face portion of the tool. The clamping screw bolts 29, being released, the tool is partially rotated until the face portion 17, of the knob registers with one of the gage lines 40, and the handle again clamped in position. The tool holding clamp is now placed directly upon the upper surface of the table 44, and the side heel facet 20 presented to the oil stone, ground or sharpened, in like manner to that of the face 18. The clamping bolts being again released, the graver is again partially rotated until the face portion 17 is parallel with the guide lines 41, and the operation repeated.

The advantage of the invention is such that no calculation or experiment is required in order to set the tool in the clamping block or holder, the gage lines 39, 40 and 41 affording an exact guide for sharpening the tool.

Such modifications may be employed as are within the scope of the appended claims.

I am aware that dials and graduations have been employed in graver sharpeners, but I am not aware that any one has previously employed tangential gage marks in connection with the segmental portion of the handle of the graver and correlated with the beveled face and heels at the operative end of the graver.

Having fully described my invention, what I now claim as new and desire to secure by Letters Patent is:

1. In a graver sharpener, a holder for the graver, consisting of a body adapted to be reciprocated, and a tool clamping bar, and clamping bolts connected with the bar and

said body of the holder, a gage plate connected adjustably with the body of the holder and having an opening through which the tool extends.

5 2. In a graver sharpener, a holder for the graver consisting of a body adapted to be reciprocated, and a tool clamping bar, clamping bolts securing said bar to the body of the holder, said bar and body having
10 grooves opposite in position, a gage plate having an opening opposite said groove for the handle of the graver, and means for securing said gage plate adjustably to the body of the holder.

15 3. In a graver sharpener, a holder for the graver consisting of a body adapted to be

reciprocated having an oblate bearing surface, a clamping bar, and clamping bolts securing said bar to the body, said bar and body having transverse semi-circular
20 grooves opposite in position adapted to clamp the handle of the tool, and a gage plate connected adjustably with the body and having an opening concentric with the grooves in said bar and body of the holder
25 adapted to guide the handle of the tool in a definite position.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."