

A. A. THOMAS.
 HOLDER FOR SHARPENING GRAVERS OR OTHER TOOLS.
 APPLICATION FILED JULY 3, 1912.

1,046,508.

Patented Dec. 10, 1912.

2 SHEETS-SHEET 1.

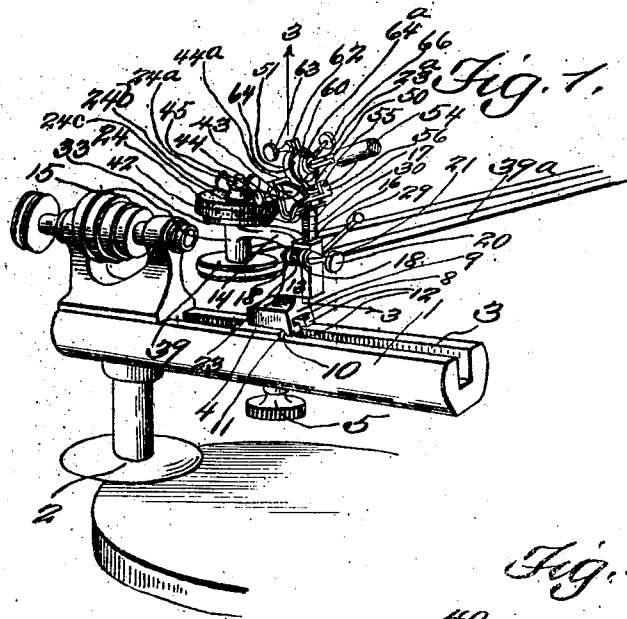


Fig. 6.

Fig. 7.

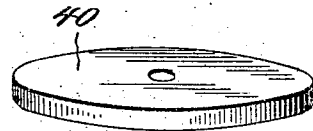
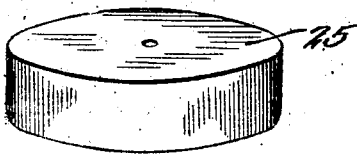


Fig. 8.

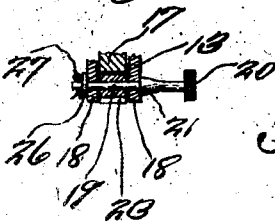
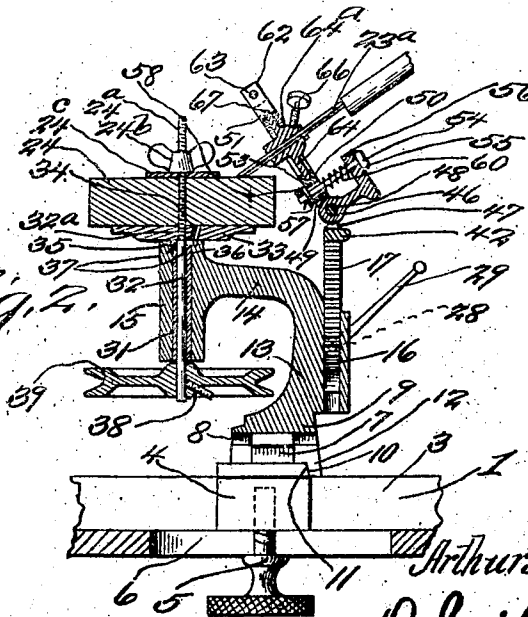


Fig. 2.



Witnesses

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2 SHEETS-SHEET 2.

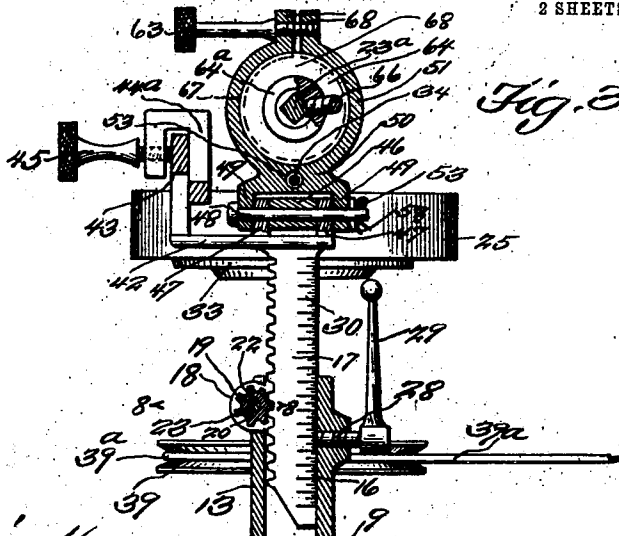


Fig. 3.

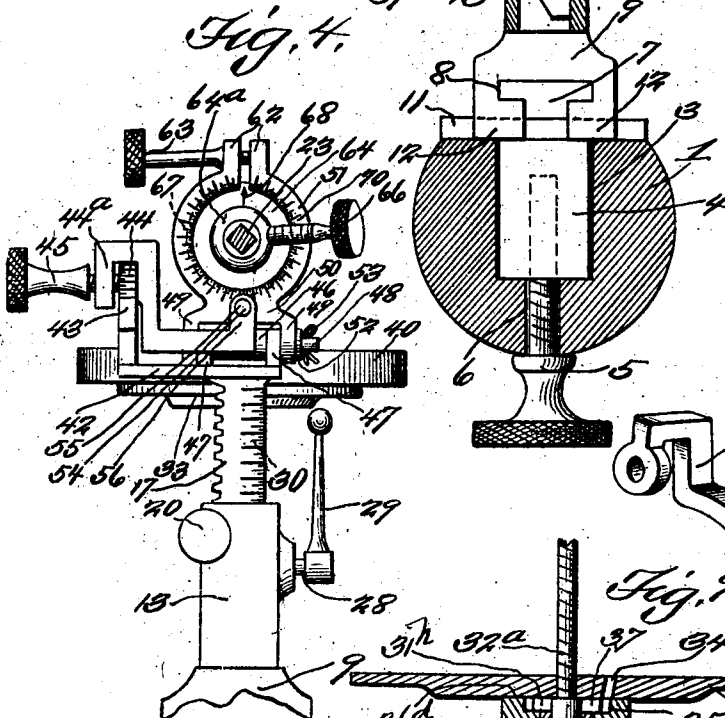


Fig. 4.

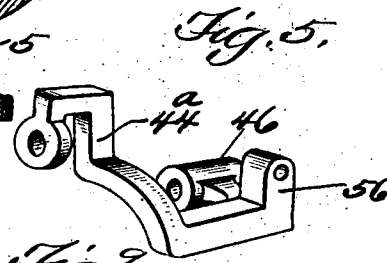


Fig. 5.

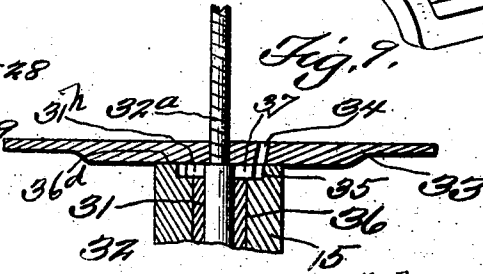
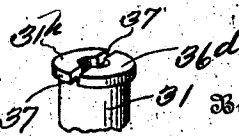


Fig. 7.

Witnesses

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Fig. 10.



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UNITED STATES PATENT OFFICE.

ARTHUR A. THOMAS, OF ELLINWOOD, KANSAS.

HOLDER FOR SHARPENING GRAVERS OR OTHER TOOLS.

1,046,508.

Specification of Letters Patent.

Patented Dec. 10, 1912.

Application filed July 3, 1912. Serial No. 707,537.

To all whom it may concern:

Be it known that I, ARTHUR A. THOMAS, a citizen of the United States, residing at Ellinwood, in the county of Barton and State of Kansas, have invented a new and useful Holder for Sharpening Gravers or other Tools; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the art of grinding and polishing, and particularly to a new and useful device for holding gravers or other tools while being sharpened.

The invention aims as its primary object to provide a device of this nature having means whereby a plurality of adjustments may be obtained, in order that the graver or other tool may be sharpened to the minutest angle.

A further object of the invention is to provide means for presenting the graver or other tool at various angles, relative to the grinding stones or polishing buffing blocks.

A further object is to provide a machine of this design, whereby accuracy is insured, and one in which the use of screw drivers, pliers and the like is eliminated, and substituted by other means in order to make the various parts easier adjusted to the desired position.

It is a further object of the invention to provide means for holding the graver yieldably in contact with the grinding, polishing or buffing members, there being means whereby the yieldability and pressure may be adjusted from substantially nothing, to full strength.

Another object of the invention is to provide means for holding and locking the various adjustable parts securely, after being once adjusted.

A further object of the invention is to provide means for holding the device adjustable upon a jeweler's lathe, in order to be properly operated by means of the counter-shafting and a suitable belt connection. This insures rapid and accurate grinding and polishing or buffing, and eliminates the tiresome hand work, in fact, one can sharpen a graver, after the various parts of the device have been once adjusted, while accomplishing or performing other work.

A further object of the invention is to construct such a device that various parts may

be renewed, and also substantially instantly removable, for cleaning purposes.

A further object of the invention is to provide means, whereby the shaft of the grinding and polishing or buffing members may be automatically lubricated.

A further object of the invention provides means for holding the device steady and erect with relation to the lathe.

Another object of the invention is to provide such a device, whereby the graver may be ground across the point, and not with or against the point, as in many of the hand sharpeners. This prevents or obviates the fine recesses, which are present when the graver is ground with or against the point, and also renders the graver easier to polish.

The invention comprises further features and combination of parts, as hereinafter set forth, shown in the drawings and claimed.

In the drawings:—Figure 1 is a view in perspective, showing the improved holder as applied to a jeweler's or watch-maker's lathe. Fig. 2 is a vertical sectional view through the entire device. Fig. 3 is a sectional view on line 3—3 of Fig. 1. Fig. 4 is a rear elevation. Fig. 5 is a detail view of the arm 44^a. Fig. 6 is a detail view of the buffer block 25. Fig. 7 is a detail view of the oil or sharpening stone. Fig. 8 is a sectional view on line 8—8 of Fig. 3. Fig. 9 is an enlarged detail sectional view. Fig. 10 is a detail view of the bushing bearing 31.

Attention being directed more particularly to the accompanying drawings, 1 designates a jeweler's or watch-maker's lathe having the usual means 2 for clamping and supporting the same to a bench or the like. The lathe is provided with a guide groove 3 to receive a member 4 correspondingly shaped. A thumb screw 5 extends through a slot 6 of the lathe, and is threaded into the member 4, for holding the same in adjusted position. This member 4 is provided with a tongue 7, which is adapted to enter a correspondingly shaped opening 8 in the base 9 of the graver holder, in order to hold the same steady and perfectly erect. The base 9 is provided with a pair of lugs or projections having beveled portions 10 to engage a beveled portion 11 of the member 4, in order to insure the steadiness of the holder. These lugs or projections are denoted by the numeral 12.

The base of the holder merges into the

body 13, from the upper portion of which an arm 14 laterally projects, which terminates in a bearing 15 disposed at right angles to the arm. The body 13 is provided with a vertical rectangular opening 16, into which a rack bar 17 extends. One side of the body is provided with a pair of ears 18, through which the shank 19 of the thumb screw 20 extends. This shank 19 is provided with a shoulder 21 which contacts with one of the ears. Keyed to the shank by the key 22, beyond the shoulder is a pinion 23, which meshes with the teeth of the rack bar 17, so that when the screw 20 is rotated, the rack bar 17 will be raised and lowered, in order that the graver or other tool 23^a may be raised or lowered, with relation to the grinding carborundum or emery or other stone 24, or with relation to a polishing or buffing wheel 25. Fitted on the extreme end of the shank 19 beyond one of the ears is a washer 26, and extending transversely of the extremity of said shank 19 is a cotter pin 27, which not only holds the washer in place, but also holds the shank in position. In order to hold the rack bar 17 in adjusted positions, a screw 28 extends transversely of and is threaded into the body 13, so as to contact with the rack bar. This screw 28 is provided with a handle 29, which may be of any suitable shape or design, for adjusting the screw. The rack bar 17 is provided with a plurality of graduations 30, with relation to which the rack bar 17 may be adjusted. In other words, the rack bar may be adjusted a sixteenth of an inch, or any other infinitesimal fraction of an inch, in order to attain the desired result.

Fitting neatly and snugly, but removable in the bearing 15 is a bushing bearing 31 of any suitable material, which receives the shaft 32. This bushing bearing is designed in order that the shaft may rotate true or accurate, and can be easily replaced when worn. Constructed rotatable with the shaft 32, by any suitable means, at 32^a is an annular plate or table 33, through which a hole or aperture 34 extends. This hole or aperture 34 registers with an annular groove or recess 35, which is only deep enough to receive the shouldered end of the bushing bearing 31, so that the shouldered end will be exactly flush with the upper end 36^a of the bearing 15, in order that the table 33 will move freely against the upper surface of the shouldered end 31^b and the upper surface 36^a of the bearing 15. This recess 35 is large enough in diameter, in order to allow a space between its annular wall and the shouldered end to receive oil through the aperture 34. The bushing bearing at its upper peripheral portion is provided with oppositely arranged recesses 37, which are designed for the purpose of conveying the lubricant from the annular groove or recess

to the shaft, so that the same may freely rotate. Secured to the lower end of the shaft by means of a suitable set screw or other device 38 is a groove pulley 39, constructed of any suitable material. A belt passes about the groove pulley, in order that a revoluble movement may be imparted to the shaft. This belt 39^a may be connected to any suitable shafting (not shown), which may be operated by any suitable source of power (not shown).

The upper portion of the shaft 42 is restricted or reduced in size and provided with threads 32^a, to which the table 33 is threaded. This reduced portion passes through a carborundum wheel 24 or the sharpening stone 40, and to the upper extreme portion of the reduced threaded portion of the shaft a winged nut 24^b is threaded to hold the carborundum wheel or sharpening stone against the table 33. The upper extreme threaded portion of the shaft is denoted by the numeral 24^a. A washer 24^c is interposed between the winged nut and the wheel 24 or stone 40. The carborundum wheel or sharpening stone may not only be applied, but other grinding or polishing or buffing element may be substituted, for instance a polishing block of any suitable wood or other fiber, such as that shown at 41. This polishing or buffing block saturated with oil and diamondtine or diamylene affords an ideal polishing or buffing member. These grinding, sharpening and polishing or buffing members may be of various sizes or dimensions. The oil or sharpening stone and polishing or buffing block may be run at full speed; but it is to be remembered that great care must be exercised in using the carborundum wheel, for the reason that it will draw the temper of the graver or other tool if run at too great a speed. The sharpening or oil stone may be analogous to the India oil stone, or a stone obtained from some parts of Arkansas.

The upper portion of the rack bar 17 terminates in a laterally extending portion 42, which is provided with a quadrant or sector-shaped member 43, which extends at right angles to the portion 42. This quadrant or sector-shaped member is provided upon its peripheral edge with a plurality of graduations 44, with relation to any one of which the arched arm 44^a (which arches over the segment or quadrant) may be adjusted. Threaded into the arched portion of the arm 44 is a thumb screw 45, which engages the segment or quadrant, in order to hold the arm in adjusted positions. This arm 44^a is irregular in shape, and at one end, terminates in a sleeve 46, through which and the ears 47 (which project upwardly from the laterally extending portion 42) a pin 48 extends. Also pivotally mounted upon the pin 48 are the ears 49 of the base 50 of the collar

51. This pin 48 is supplied with a head at one end, with which one of the ears 49 of the base 50 engages. The other end of the pin is supplied with a washer 52 and a cotter pin 53, in order to hold the pin in place. In this manner the base of the collar and the arm 44 are pivotally mounted upon the same point or center, in order that the base 50 and the collar may move independently of the arm, and vice versa. The base of the collar is provided with an aperture 53, of a diameter greater than a pin 54, which extends loosely therethrough. The pin 54, at one end is provided with a head 55 and also extends through an opening of a lug 56 of a portion of the arm 44^a, the head contacting with the lug, while the other end of the pin 54 is provided with a washer 57, and a cotter pin 58, in order to hold the pin 54 in place. Surrounding the pin 54 between the lug of the arm and the base of the collar is a coil spring 60, which is placed under tension when the graver 23 or other tool is in contact with any one of the grinding, sharpening or polishing wheels. Owing to the diameter of the opening in the base 50 of the collar being greater than the diameter of the pin 54, the base and the collar are allowed to move independent to the arm 44^a, and with relation thereto, thereby allowing the graver or other tool 23^a to bear yieldably against one or another of the grinding, sharpening, or polishing or buffing wheels, it depending on which one is used. This yieldable pressure may be regulated, by virtue of the thumb screw 45. In other words, by adjusting the arm 44^a relative to the quadrant or segment, this yieldable pressure may be increased or decreased, as desired.

40 The collar 51 is split, as shown, and the split portions terminate in ears 62, into registering openings of which a thumb screw 63 is threaded, whereby the collar may be tightened or loosened about the graver holder 64, so that the graver holder may be adjusted annularly with relation to the collar, so that the graver or other tool 23^a may be provided with a cutting edge of any suitable angle. In order to hold the graver or other tool in adjusted positions within the holder, and with relation to the grinding, or sharpening or polishing wheel, in a direction toward and from the same, a thumb screw is threaded through the hub 55 64^a of the holder tangentially, so as to engage the graver. This thumb screw is designated by the character 66. The graver holder is in the form of a disk or the like, and its peripheral edge portion fits a groove 60 67 in the collar 51. The graver holder or disk is provided with a mark or indenture or cut 68, which may be disposed in registration with any one of the graduations 70 of the collar, in order that it be insured 65 that the graver is held in the proper posi-

tion to attain the desired angle. The graduations of all the parts, on which such graduations are necessary may be of any desired fractions of an inch. The bushing bearing may be constructed of any suitable metal, such as speed metal.

From the foregoing it will be noted, there has been produced a graver or other tool holder, for holding a graver or other tool while being ground, sharpened, burnished, or polished or buffed, and one in which the graver may be adjusted vertically with relation to a grinding, sharpening or buffing wheel, and to and from and at an angle thereto, as well as annularly, so that the graver or other tool may be applied with a cutting edge of any desired angle, and furthermore, one in which a yieldable pressure is afforded between the graver or other tool and the grinding, sharpening or polishing element.

In the drawings, there has been disclosed a certain structure of device, which in practical fields may require alterations, to which the patentee is entitled, provided the alterations are comprehended within the scope of what is claimed.

By devising a device of this nature, which device has been found essential and desirable, the labor and work of a jeweler or watch-maker or other mechanics analogous thereto will be made easier and simplified.

The invention having been set forth, what is claimed as new and useful is:—

1. In a tool holder, a support having a revoluble mounted grinding or polishing wheel, a tool holder proper, means for adjusting the same vertically, means for adjusting the holder annularly, and means for adjusting the tool to and from the grinding or polishing wheel, and means for exercising yieldable pressure between the tool and the grinding or polishing wheel.

2. In a tool holder, a support having an arm provided with a revoluble grinding member or the like, a tool holder, a tool adjustably secured therein, means for permitting the tool holder proper to be annularly adjusted, and means for exercising yieldable pressure between the tool and the grinding member.

3. In combination, a support, a rack adjustably secured therein, an annular member, means for pivoting the same to the upper portion of the rack, an arm pivoted to the pivotal means, and a yieldable connection between the pivoted member and the arm, and means for holding the arm in adjusted position.

4. In combination, a support, a rack adjustably secured therein, an annular member, means for pivoting the same to the upper portion of the rack, an arm pivoted to the pivotal means, and a yieldable connection between the pivoted member and the

arm, and means for holding the arm in adjusted position, a tool holder proper including a tool, the pivoted member having an annular groove to receive the tool holder
5 proper, and means for holding the annular member clamped about the tool holder proper.

5. In a device as set forth, a support, a rack adjustably secured therein, an annular member being split and provided with an
10 annular groove, means for pivoting the annular member to the rack, an arm connected to the pivotal means, yieldable connections between the annular member and the arm,
15 means for holding the arm in adjusted position thereby increasing or decreasing the yieldable pressure, a tool holder proper ar-

ranged in the groove of the annular member, a tool arranged in the holder proper, means for holding the tool adjustable in the holder
20 proper, the annular member having free ends constructed by the split, and means connecting the free ends to clamp the annular member about the holder proper, the yieldable
25 means acting to hold the tool yieldably in contact with a grinding or analogous member.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR A. THOMAS.

Witnesses:

WINNIE BOCKEMOHLE,
CHAS. MELLIES.