Feb. 24, 1942. L. BAUMGOLD 2,274,520

LAPIDARY'S TOOL

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Fig. 1.

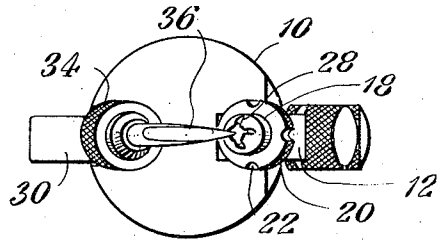
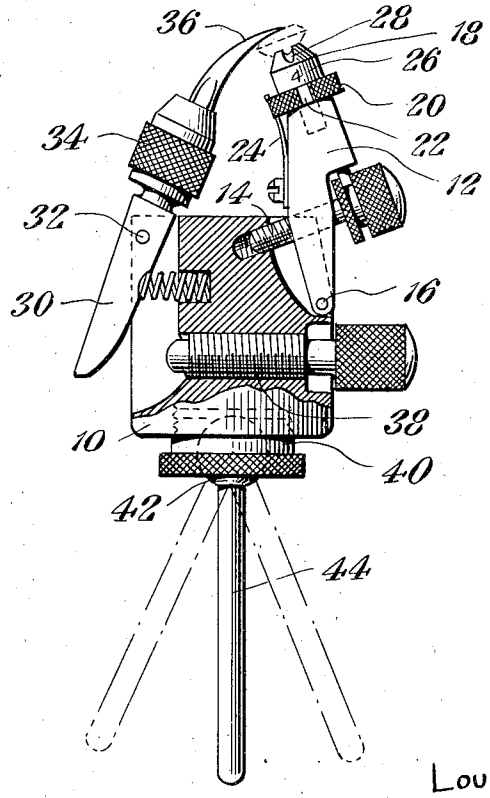


Fig. 2.



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LAPIDARY'S TOOL

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3 Claims. (Cl. 51—229)

This invention relates to a lapidary's tool and more specially to a tool for holding a gem while it is being operated upon.

In general, it is an object of the invention to provide a device of the character described, which will efficiently perform the purposes for which it is intended, which is simple and economical of construction, which can be expeditiously, conveniently and safely manipulated, and which can be readily manufactured and assembled.

Another object of the invention is to provide a tool which permits one, when working on a gem, to turn the gem quickly and with precision from position to position and without removing it from its holder and which holds the gem in a succession of predetermined positions and which permits the gem, when so held in any of said positions, to be adjusted by being turned in a second manner, i. e., about a different axis; to provide such a tool which holds the gem in place releasably and/or lockingly and/or resiliently and/or otherwise; and to provide such a tool which may be used in high speed machines for performing such operations as grinding, polishing, etc.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises an article of manufacture possessing the features, properties, and the relation of elements which will be exemplified in the article hereinafter described and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is a plan view of a tool embodying one form of the invention; and

Fig. 2 is a side view, partly broken away, of the device shown in Fig. 1.

A gem is transformed by a succession of operations from its original natural form to its finished form in which it is purchased by the ultimate consumer. Those operations include grinding and polishing as well as cutting, etc. In the polishing, for example, a diamond is held against the face of a flat, rotating disk, on which there may be oil containing diamond dust. Successively different sides of the diamond are held against the disk. The top portion of one form of finished diamond has the shape of a truncated eight-sided pyramid. The top surface and the eight sides have to be polished down to be facets of the gem. For hundreds of years it has been the custom for diamond cutters to use a ball of lead to hold the diamond while it was ground. At one point the surface of the lead ball was torn open into the shape of three or four crude flower petals. The diamond was jammed into the opening thus formed and the so-called petals were pressed centrally toward each other to grip the diamond. The lead ball was then held mechanically so that the diamond was pressed against the polishing surface. When it was time to polish another facet, the diamond was taken out and reinserted in the ball so that the next facet would be presented toward the polishing surface. These facets should be at predetermined angles to each other. Thus certain ones are parallel to each other. To reinsert the diamond into the lead ball so that the next facet presented shall be parallel (or at some other particular angle) with the last one polished requires a skill only to be obtained with years of practice. No matter how expert the operator, it is necessary to make frequent inspections with a magnifying glass to be assured, as the polishing progresses, that the stone is actually positioned correctly. All of this obviously is time- and labor-consuming.

The present invention contemplates a device which avoids the drawbacks mentioned above and which makes for speedy, assured grinding of facets at the desired angles.

In the drawing 10 denotes a frame or body which may be of any convenient shape, that shown being cylindrical, and of suitable material, such as brass. It carries means 12 for supporting the gem receiving element 18. This element or pot 18 has in its outer end a depression in which the diamond sits. Either the pot 18 or the support 12 is rotatable about an axis preferably perpendicular to the upper face of the gem. Thus the pot 18 may be removably attached to its support so as to rotate with respect thereto. The pot may have a central pin extending down into the support 12 and may rotate on that pin. There may be a collar 20 integral with the pot for turning the pot. There may be depressions in the surface of the collar and parallel to the axis of rotation. There may be means for holding the pot temporarily at a predetermined orientation. This may be in the form of a spring 24 attached to the support 12 and adapted to press into one of the depressions 22 at any one time. There may be indices 26 associated with pot 18 to assist in the orienting of the pot. These may, e. g., be the numerals

1, 2, 3, and 4, positioned respectively adjacent the four depressions **22**, assuming that there are only four. The rim of the pot may have slots cut therein. The latter may be parallel with the depressions **22**, as an aid for better division of the gem.

Means are provided for varying the direction of the axis which passes through and is perpendicular to the top face of the diamond. One way of accomplishing this is to pivot the support **12** on axle **16**, the ends of which are embedded in body **10**. Support **12** may in part be positioned within a slot in the surface of that body. Suitable means may control the motion of the support. These may comprise a screw through the support and having a threaded portion threaded into the body **10**. Cooperating parts on the support **12** and the head of screw **14** cause the former to move with the latter. The motion about the axis **16** permits the slope of the face being ground to be adjusted.

The diamond or other gem should be prevented from falling out of pot **18** because the latter is often tipped downward toward a horizontally rotating polishing surface. The clamping means may comprise a clamp shaft **30** pivoted on axle **32**, the ends of which are held by the body **10**. The shaft **30** may lie in part in a slot in the body and may have a clutch **34** at its end for holding one of various clamping prongs **36**. That prong to be used on any occasion depends upon the size of the stone, the slope of its facets, etc., etc. The clamping shaft **30** may be held in position with the prong against the diamond by a spring and it may be held firmly in position by a screw **38** which is screwed through the body **10** and the end of which may be brought into contact with shaft **30**.

The body **10** is usually carried in or by some other mechanical holder, arm or contrivance. To assist in the connection to such other contrivance there may be a swivel connection attached to the body, preferably at the end opposite the elements **12** and **30**. There may be a hollow cylinder **40** screwed into the end of body **10** with a spherical element **42** therein which partially projects through the end of the cylinder and which is free to rotate in that cylinder. There may be a rod **44** fixed to element **42**.

The operation of the device is as follows: A diamond or other gem is placed in the receiver or pot **18** which is placed in holder **12** and held from rotating by spring **24** resting in one of the depressions **22**. The clamping prong, under the action of its associated spring, holds the diamond in place even though the entire device be held in any position. The orientation of the axis of the diamond is then fixed by screw **14**, prong **16** giving as may be necessary. The clamping means may then be locked in position. The diamond is then operated upon, as by polishing for example. The worker notes the indicium that is, say, next to spring **24**. If there are the numbers 1, 2, 3 and 4 on the four sides, and if "1" was next to the spring, then by bringing "3" next to the spring the worker is assured that the next facet polished will be opposite and parallel to the last. This is also of assistance in determining the polishing grain.

The invention described above is extremely simple. It requires a minimum of parts but obtains accurate results with great reduction in time and skill necessary to be expended by the worker.

Since certain changes may be made in the above article and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

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

1. A lapidary's tool for holding a gem during work thereon comprising a base, supporting means carried by said base, means adapted for receiving a gem seatedly thereagainst, one of said means being rotatably mounted with respect to said base, and spring operated means for clamping a gem against said gem receiving means pivotally mounted on said base.

2. A lapidary's tool comprising a base, supporting means extending from said base, gem-receiving means rotatably attached to said supporting means, said supporting means being rotatable about an axis perpendicular to the axis of rotation of said gem-receiving means, means for holding respectively each of said means stationary at predetermined positions of rotation, clamping means extending from said base and rotatable about an axis through said base and adapted to clamp a gem against said gem-receiving means, and means attached to said base for pushing one end of said clamping means about the axis of said clamping means whereby the other end of the latter is locked against a gem on said gem-receiving means.

3. A lapidary's tool comprising a base, supporting means extending from said base, gem-receiving means rotatably attached to said supporting means, said supporting means being rotatable about an axis perpendicular to the axis of rotation of said gem-receiving means, means for holding respectively each of said means stationary at predetermined positions of rotation, clamping means extending from said base and rotatable about an axis through said base and adapted to clamp a gem against said gem-receiving means, and means attached to said base for pushing one end of said clamping means about the axis of said clamping means whereby the other end of the latter is locked against a gem on said gem-receiving means. said clamping means and said supporting means being at one end of said base, and a swivel means at the other end of said base, said means for holding said supporting means stationary being attached to said base.

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