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3,548,471

GEM POSITION FIXING TOOL

Filed June 10, 1968

FIG. 1

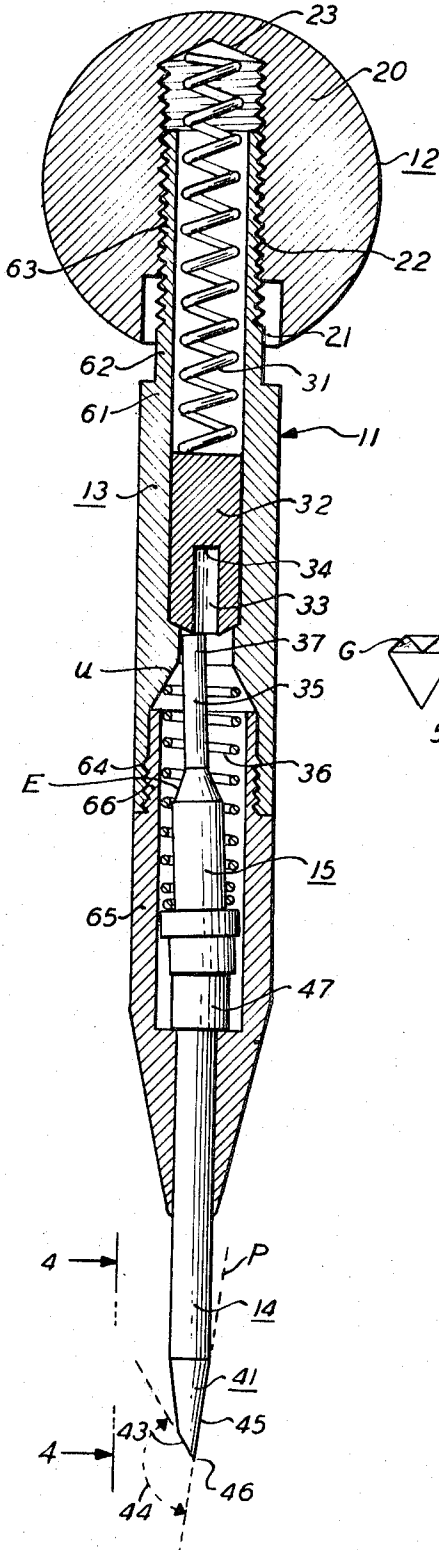


FIG. 2

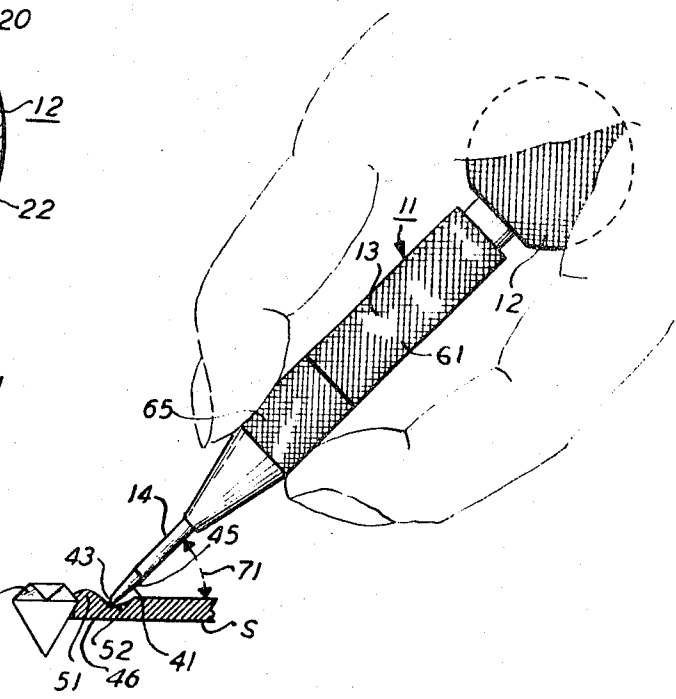


FIG. 3

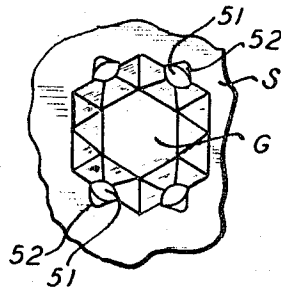
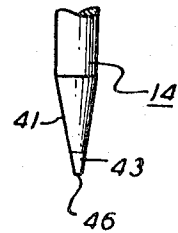


FIG. 4



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GEM POSITION FIXING TOOL
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1 Claim

ABSTRACT OF THE DISCLOSURE

A gem position fixing tool for the setting of gems, adapted to provide hammer-action movement of a cutting edge into the setting metal to thereby form gem-setting segments.

This invention relates to the position fixing of gems in settings, and more particularly to a gem position fixing tool adapted to be hand pressure operated to provide a hammer action movement of a sharp cutting surface into the setting material to thereby enable convenient and accurate mounting of gems in settings.

Pursuant to the invention the gem position fixing tool can be readily operated in a simple fashion by hand movement and pressure on the head portion of the tool to provide a swift sharp striking blow through the internal mechanism to the sharp cutting tip to thereby displace and press up against the gem portions of the setting metal thereby fixing the gem in the setting.

The devices proposed for this purpose heretofore have generally been objectionable due to their complexity and high cost of initial manufacture and difficulty of use, and inaccuracy in operation. These objections in devices heretofore proposed have been eliminated in the gem position fixing tool of this invention which is efficient, accurate and convenient to use.

In the drawings wherein similar reference characters indicate like parts,

FIG. 1 is a vertical elevational cross-sectional view of a gem position fixing tool embodying the invention,

FIG. 2 is a side elevational vertical view showing the tool in operation,

FIG. 3 is a top plan view of a gem in a setting effected pursuant to the invention, and

FIG. 4 is a vertical, fragmentary view taken on line 4—4 of FIG. 1.

As will be seen from the drawings forming part hereof, this invention relates to a gem position fixing tool operated at an incline to the gem setting material surface as will be described below, such that the tool head member can be compressed down along the body member, imparting a striking blow through the internal mechanisms therein to the cutting tip which digs out a portion of the metal and presses it up against the gem creating a setting thereby.

The gem position fixing tool 11 (FIG. 1, for example), comprises a head member 12, a body member 13, a cutting tip 14, and a hammer-action operating mechanism 15.

The head member 12 is comprised of a shaped body portion 20, having a channel hollow portion 21 therein, with annular teeth 22 thereon, and a bearing surface 23 therein.

The body member 13 consists of a hollow upper member 61, having a neck portion 62 with tooth segments 63 thereon and having lower toothed segments 64 thereon; and a hollow lower member 65 having tooth portions 66 thereon.

The cutting tip 14 (FIG. 1) comprises a cutter head 41, having a receiving surface 47 thereon. As shown, the cutter head portion 41 located at the outer end of the cutting tip 14 is of frusto-conical configuration. The outer

end of the cutter head 41 terminates in an oblique, continuous planar surface 43 of generally oval configuration disposed at an acute angle to the axis of the cutting tip 14 and forms with the outer surface of the conical cutter head 41 at the extreme outer end or tip thereof, a curved, sharp cutting edge 46.

The hammer-action operating mechanism 15 is comprised of an upper spring member 31, a hammer member 32 having an aperture 33 and a bearing surface 34 therein, and a pin member 35 having a lower spring member 36 thereabout.

The gem setting (shown in FIG. 3) consists of the gem G set in the setting material S by virtue of the formed position-fixing segments 51 which are created from material removed and pressed from areas 52 in the setting material S.

In operation (FIG. 2) for example, the gem position fixing tool 11 is positioned so that its tip 46 is at an acute angle 71 to the surface of the setting metal S; pressure is applied to the head member 12 as shown in FIG. 2 causing the cutter head 41 to move against the pin member 35.

The pin member 35 is normally canted in a position such that its neck portion 37 is adjacent the mouth of the aperture 33 in the hammer member. As the pin member 35 is moved by pressure from the cutter head 41, it pushes the hammer member 32 against the upper spring member 31. Such movement continues (on continued pressure by the operator on the head member 12) until the pin member edge E has moved against the upper body member edge U, whereupon the neck portion 32 is directed into the aperture 33; on striking the bearing surface 34, the neck portion 37 transmits a sharp striking blow through to the cutter head 14, causing a sharp movement of the cutter head 14 into the setting metal S, creating an aperture therein and thereby pushing the removed material against the gem G to create a formed position-fixing segment 51 thereby creating a setting.

As these formed position-fixing segments 51 are created about the outer extremities of the gem G, a setting has been effected by a simple operation of hand pressure transmitting a sharp striking blow to the metal surface.

The head member 12 can be rotated on the complementary means consisting of the teeth 22 and the toothed segments 63, thereby increasing or decreasing the tension on the upper spring member 31 to provide greater or lesser force to the cutting tip as desired for a shallower or deeper cut in the setting material. The tool is best operated at an acute angle 71 with the surface of the metal setting (FIG. 2) and the planar surface 43 is best oriented at an obtuse angle 44 with respect to the plane P which is tangent with the surface 45 of the conical wall of the cutter head 41 and passes through the tip end 46 of the cutter head portion 41 (FIG. 1).

While the foregoing disclosure of exemplary embodiments is made in accordance with the patent statutes it is to be understood that the invention is not to be limited thereto or thereby, the inventive scope being defined in the appended claims.

The invention claimed is:

1. An automatic gem position fixing tool, for position fixing a gem in a setting material comprising: an elongated hollow body member having a restriction intermediate the opposite ends thereof; a generally spherical head member adjustably mounted for axial movement on one end of said hollow body member; a cutting tip extending outwardly from the other end of said hollow body member and having a receiving surface thereon slidably mounted in the hollow body; and hammer action operating means in said hollow body member, said hammer action operating means comprising a hammer member having an aperture in the bottom portion thereof with a bearing

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surface therein slidably mounted in the hollow body member between the restriction and the head member, a compression spring positioned between the hammer member and the adjustable head member resiliently urging the hammer member against said restriction, a pin member slidably mounted in the hollow body member and disposed between the hammer member and the receiving surface of the cutting tip, and a compression spring positioned between the restriction and the pin resiliently urging one end of the pin into engagement with the said receiving surface, the other end of the pin, adapted to be received in the aperture in the hammer member and to engage the bearing surface therein, normally being positioned adjacent to and out of alignment with said aperture, a tapered surface on said pin, and a tapered surface on said restricted portion of the hollow body member configured to cooperate with the tapered surface on the pin upon actuating the tool for moving said other end of the pin into alignment with the aperture in the hammer member, the outer end of said cutting tip comprising a cutter head

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portion of frusto-conical configuration terminating in an oblique, continuous, planar surface of generally oval configuration disposed at an acute angle to the axis of the cutting tip and forming with the outer conical surface of the cutter head portion at the tip end thereof, a sharp, curved, cutting edge adapted to cut into gem setting material at an acute angle to the surface thereof with the oval planar surface pressing the cut material against a portion of a gem.

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