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J. SHIFFMAN ET AL
CRYSTAL SETTING DEVICE

Filed Nov. 21, 1927

1,746,016

Fig-1-

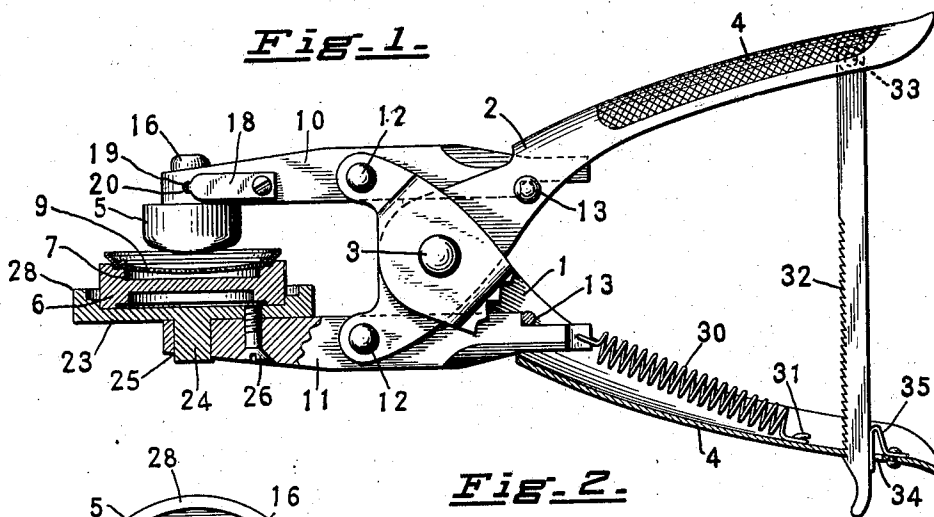


Fig-2-

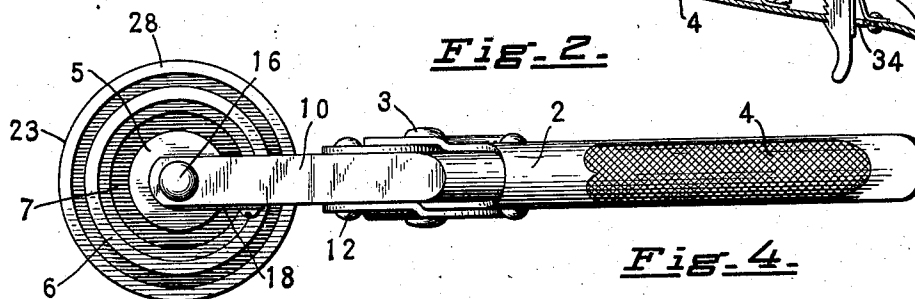


Fig-4-

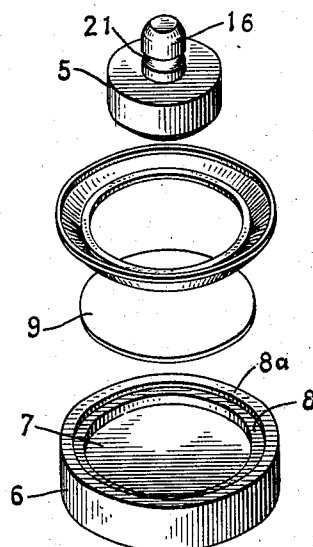
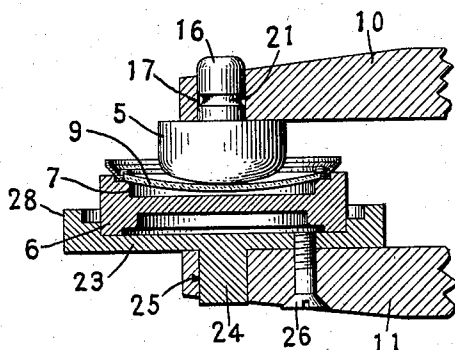


Fig-3-



INVENTORS
Jerome Shiffman & Robert Michel
BY
Lucas Denny & Anderson
ATTORNEYS.

UNITED STATES PATENT OFFICE

JEROME SHIFFMAN AND ROLICK MISHEL, OF BROOKLYN, NEW YORK

CRYSTAL-SETTING DEVICE

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This invention relates to crystal setting tools and more specifically to tools for the deformation of unbreakable crystals to facilitate their insertion in a bezel.

5 An object of this invention is to provide a simple and practical device of the character described by means of which the crystal may be inserted with ease and without danger of destroying the crystal.

10 It is a further object to provide a device of the character described in which crystals of different sizes may be inserted with a maximum of simplicity and with a minimum of apparatus.

15 It is a further object in a device of the character described which may be inexpensively manufactured and yet which will be simple and efficient in operation.

20 Other objects will be in part obvious and in part pointed out hereinafter.

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:

25 Fig. 1 is a side view partly in section of a preferred embodiment of the invention.

Fig. 2 is a top plan view of the same.

30 Fig. 3 is a fragmentary view similar to Fig. 1, showing the parts in closed position with bezel and crystal in place.

Fig. 4 is a group perspective of the elements to be assembled.

35 In the embodiments illustrated, the machine comprises a pair of levers 1 and 2 pivoted together as shown at 3, having at one end thereof handles 4 adapted to be gripped by the hand. One of these levers, as for example lever 1, has at its outer extremity a plug 5. The other lever 2, has at its extremity, means for supporting a socket member 6, recessed on its upper face as shown at 7 to provide a rim 8 for the support of a watch crystal shown at 9. The dimensions and proportions of the parts are such that as the handles 4 are tightly gripped by the hand, the plug 5 will be caused to bear upon the central portion of the crystal 9 depressing it into the recess 7 to dish the crystal.

50 In the particular embodiment illustrated,

there is provided at the ends of the levers 1 and 2 remote from the handles, a pair of jaws 10 and 11 which are pivoted to the levers 1 and 2 as shown at 12 and which are slidably articulated to the levers as shown at 13 on the other side of the pivot 3 to constrain the jaws to a parallel movement from and toward each other as the handles are gripped.

In this embodiment, the plug 5 may be provided with a stud 16, fitting into a recess 17 in the jaw 10. This stud is held in place by a spring 18 having a point 19 extending through an opening 20 in the side of the jaw 10 to engage an annular groove 21 in the stud 16. In this manner the stud 5 is held in place by the spring but may be readily removed at will.

The jaw 11 is provided with a plate 23 having a centrally disposed stud 24 fitting into a recess 25 in the jaw 11 and this plate may be held in place by a screw 26 extending through the jaw. This plate 23 has an upstanding annular flange 28 concentric with the plug 5 and adapted to receive and support the outer periphery of the socket member 6 so that the socket member will be held in place during operation but may be readily removed and replaced when desired.

The socket member is preferably provided with a plurality of recesses of different diameters and depths so as to provide a plurality of rims 8 and 8^a to support crystals of different diameters and a compound recess of the character described may be provided in each face of the socket member as illustrated. This makes it possible to utilize the same socket member for a plurality of different diameters of crystal, the socket member herein shown being adapted to operate successfully with at least four different crystal diameters, at least two for each face. Each of the rims or crystal seats 8 and 8^a will ordinarily accommodate more than a single size or diameter of crystal because standard crystals ordinarily vary in size by small differences in diameter less than the width of these rims. Each face of the socket member will therefore ordinarily accommodate more than two different sizes of crystals.

Means are provided for normally holding

the jaws in extended position, comprising a spring 30 connected at one end to one of the parallel jaws and at the other end to a fixed stud 31 within the handle and means are provided for releasably holding the jaws in their compressed condition comprising a ratchet member 32 pivoted as at 33 to one of the handle members extending through a slot 34 in the other handle member, the side of which slot is sharpened to provide a tooth for engagement with the ratchet and a spring 35 urges the ratchet into engagement with the tooth. This ratchet should have comparatively fine teeth.

It is preferred that the parts more particularly the plug 5 and the socket member 6 and the plate 23 be made of bakelite as it has been found that this substance affords the necessary strength consistent with lightness while at the same time it possesses the peculiar property that it does not damage the face of the crystal by its contact therewith.

It is felt that the operation of the machine will be clear from the above description.

The bezel is inserted over the jaw 10 with the proper socket member in place to receive the crystal. The crystal is then centered above the recess 7 with its periphery upon the rim next smaller in diameter than the diameter of the crystal. Thereupon the jaws are compressed forcing the plug member 5 down into the center of the crystal and deforming the latter. As the handles 4 are pressed, deformation of the crystal is retained by the ratchet member 32.

It is one of the important features of my invention that the machine may be turned over to permit a ready inspection of the edge of the crystal while the bezel is being inserted in place and since the machine is light and readily handled, it may be turned over completely to permit the ready visible inspection of the entire periphery of the crystal to make certain that it is entirely inserted before the deforming pressure is released. This feature is important as a release of the pressure with the crystal partially inserted will cut the edge of the crystal upon the sharp edge of the bezel and thereafter even if properly inserted, it will not form so tight a joint as a perfect crystal would do. As soon as the bezel is properly placed, the ratchet 32 may be released with the little finger and the pressure upon the crystal being released, the assembled crystal and bezel may be removed.

Since certain changes may be made in the above construction and different embodiments of the invention can 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 fol-

lowing 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 our invention, what we claim as new and desire to secure by Letters Patent, is:

1. A device of the character described including, in combination, a pair of levers pivoted together, each having a handle at one end, a plug connected to the other end of one of said levers, a socket member having a plurality of concentrically arranged raised peripheral crystal supporting rims or seats of different diameters and having a recess inside said seats and depressed therebelow so as to support the crystal only at the edges thereof while leaving space for lateral warping at the central portion of said crystal, and a support for said socket member at the other end of the other lever and having a seat for removably supporting said socket member, said plug and said crystal supporting seats being so spaced and relatively positioned that as said handles are pressed together by hand, the plug will engage a crystal supported by any one of said seats to warp it laterally toward said recess.

2. A device of the character described including, in combination, a pair of levers pivotally connected together each having a handle at one end, a plug connected to the other end of one of said levers, a socket member having a raised peripheral crystal supporting rim or seat at each of the opposite sides thereof and a recess inside of each of said seats and depressed therebelow so as to support a crystal only at the edges thereof while providing space for lateral warping at the central portion of said crystal, and a support for said socket member carried by the other end of the other lever, said plug and said crystal supporting seat being so spaced and relatively positioned that as said handles are pressed together by hand with a crystal upon said supporting rim, the plug will engage the central portion of the crystal so as to offset it laterally toward said recess, said socket support including a supporting plate carried by its supporting lever and having a supporting seat for receiving and removably supporting said socket member with either face thereof outwardly disposed.

3. A device of the character described including, in combination, a pair of levers pivoted together, each having a handle at one end, a plug connected to the other end of one of said levers, a socket member having a plurality of concentrically arranged raised peripheral crystal supporting rims or seats of different diameters and having a recess inside said seats and depressed therebelow so as to support the crystal only at the edges

thereof while leaving space for lateral warping at the central portion of said crystal, a support for said socket member at the other end of the other lever and having a seat for removably supporting said socket member, said plug and said crystal supporting seats being so spaced and relatively positioned that as said handles are pressed together by hand, the plug will engage a crystal supported by any one of said seats to warp it laterally toward said recess, said socket support including a supporting plate detachably carried by its supporting lever and having a seat for receiving and removably supporting the socket member, and a ratchet mechanism for automatically retaining the crystal in warped condition.

In testimony whereof we affix our signatures.

JEROME SHIFFMAN.
ROLICK MISHEL.