

[54] MOUNTING HAVING MOVABLY MOUNTED FLEXIBLE HOOK MEANS

465,179 5/1937 Great Britain ..... 63/29 R

[76] Inventor: Don F. Sengenberger, Rt. No. 3 Box 57, Zion, Ill. 60099

Primary Examiner—F. Barry Shay  
Attorney, Agent, or Firm—Edwin E. Greigg

[22] Filed: Oct. 6, 1972

[21] Appl. No.: 295,551

[52] U.S. Cl. .... 63/29 R

[51] Int. Cl. .... A44c 17/02

[58] Field of Search ..... 63/29 R, 30

[57] ABSTRACT

A gemstone mounting which permits ready removal and replacement of the gemstone has an annular bezel with fixed prongs and movable prongs for holding the gemstone on the bezel. The movable prongs are spring urged against the gemstone to hold it in place. A locking mechanism may lock the movable prongs against the gemstone. All the prongs may be spring urged. The movable prongs have leg portions extending through the bezel and may be attached to an inner annulus having a protruding stem for moving it.

[56] References Cited

UNITED STATES PATENTS

859,162	7/1907	Worth.....	63/30
937,502	10/1909	Allen.....	63/29 R
1,053,539	2/1913	Schlechter .....	63/29 R
3,129,569	4/1964	Ballantyne .....	63/29 R

FOREIGN PATENTS OR APPLICATIONS

650,472	9/1928	France .....	63/29 R
---------	--------	--------------	---------

11 Claims, 14 Drawing Figures

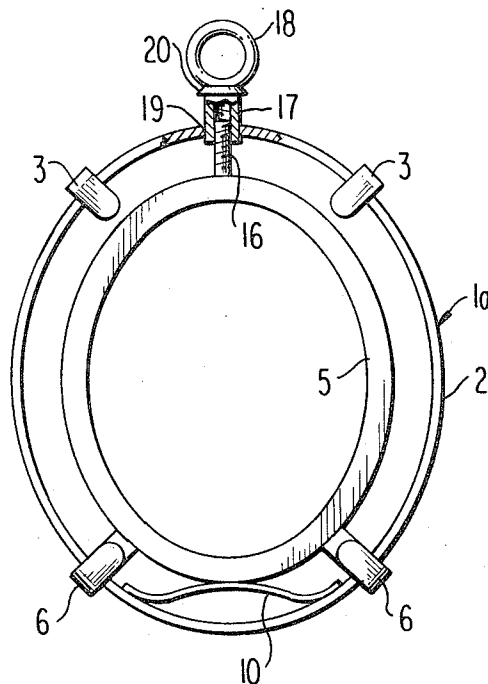


FIG1

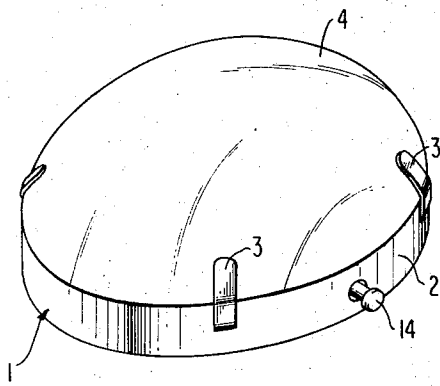


FIG2

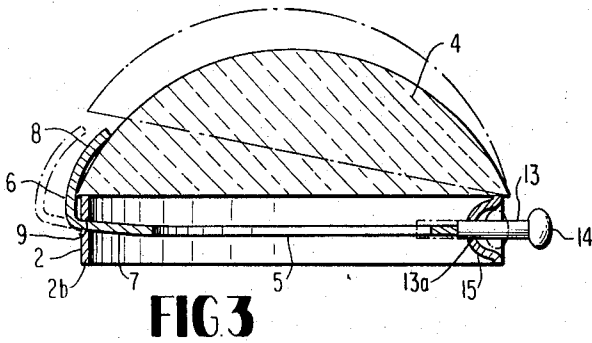
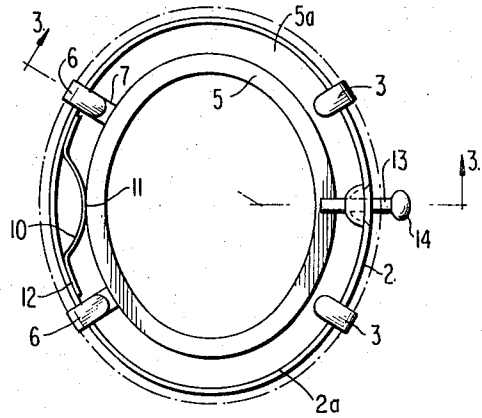


FIG4

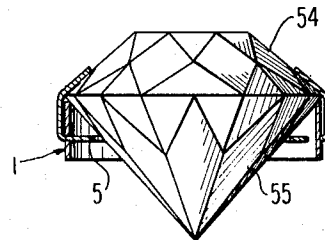


FIG6

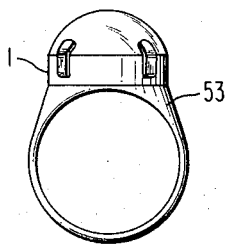


FIG3

FIG4

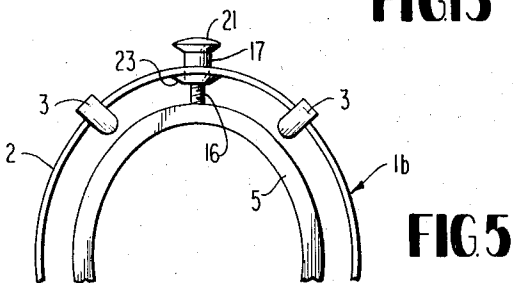
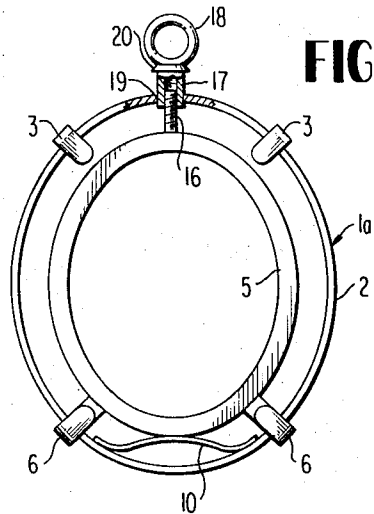


FIG5

FIG 7

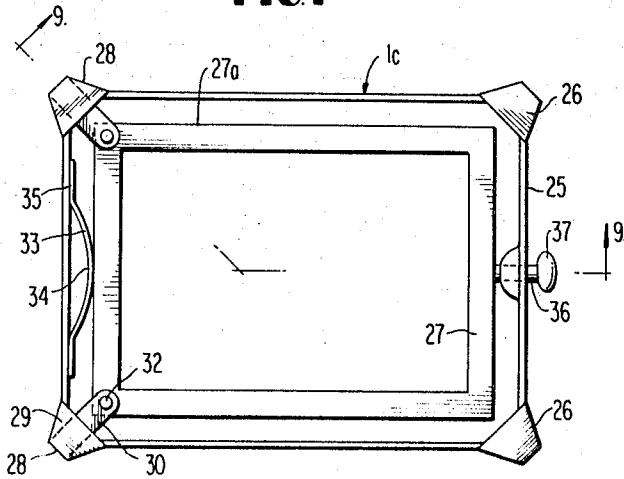


FIG 8

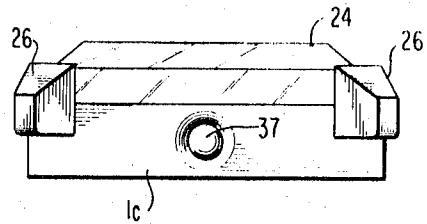


FIG 9

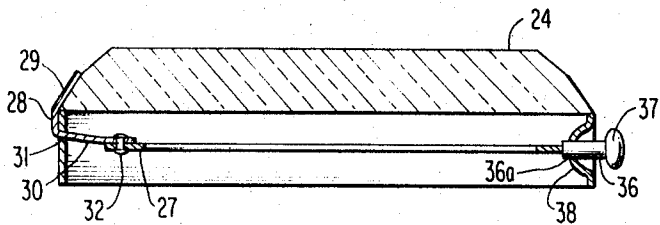


FIG 11

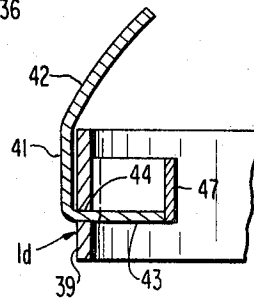


FIG 10

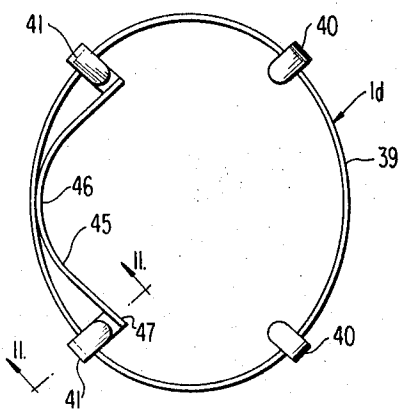
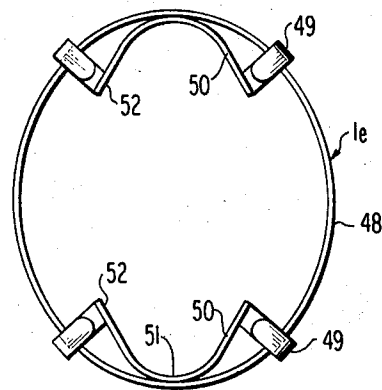


FIG 12



**MOUNTING HAVING MOVABLY MOUNTED FLEXIBLE HOOK MEANS**

**BACKGROUND AND OBJECTS OF THE INVENTION**

This invention relates to gemstone mountings used by the lapidary and jewelry industries, and more particularly to a gemstone mounting permitting ready removal and interchange of an infinite variety and number of gemstone types.

In the lapidary art and jewelry manufacture, it is normal practice to cut most gemstones and manufacture compatible mountings to standard configurations such as round, oval, square, rectangular and marquise dimensional sizes and shapes. The gemstone is then set in the base mounting in a relatively permanent manner; by clinching fixed prongs, rolling over a soft bezel around the gemstone circumference, or cementing the gemstone to the base. There are slight variations employed, but they fundamentally follow the concept of a relatively permanent setting. Such mountings require one skilled in the art, such as a jeweler or lapidarist, to remove and reset a different gemstone and the gemstones are not readily interchangeable without cumulative damage to the prongs and bezel of the mounting, and to the gemstone.

Further, using a finger ring as an example of one of the variety of stone mounted jewelry items such as earrings, pendants, cuff links, etc., it is the practice to have the gemstone an integral part of the completed jewelry item; necessitating the purchase of a number of complete items in order to enjoy a variety of the different kinds of gemstones that one might wish to wear. Ladies, particularly, like jewelry to match or complement their attire and so desire a large variety of jewelry items.

Also oftentimes in the lapidary art, which is gaining ever increasing popularity and interest as a hobby, the involved hobbyist cuts many gemstones from a variety of precious, semi-precious and "garden variety" minerals. To enjoy the use of these personal creations as decorative jewelry presently requires the hobbyist to purchase equivalent numbers of unmounted jewelry pieces or, in the alternative, to also learn the art of silversmithing and gold casting so as to suitably complete his or her artistic endeavors. Currently, the lapidary hobbyist generally has a surplus of unmounted gemstones, which can only be enjoyed in the manner of a coin collector, with the gemstones mounted on a variety of display mediums.

Accordingly, it is the general object of the present invention to provide an improved gemstone mounting which will permit simple setting and release of gemstones without cumulative damage to the setting of the gemstones.

It is another object of the invention to provide an improved gemstone mounting wherein simple mechanical means can be applied to a variety of gemstone mounting configurations, and which will permit simple release and resetting of a variety of gemstones within any one standard dimensional configuration.

It is a further object of the invention to provide an improved gemstone mounting, which will permit simple release and resetting of gemstones; which will permit the mounting thereon of either flat base cabochons or tapered pavilion faceted gemstones and which will preferably provide an open base (or see through

mounting) design for optimum effect of translucent and faceted gemstones.

It is still another object of this invention to provide an improved gemstone mounting, which will permit simple release and resetting of gemstones, and be simple and inexpensive in construction and will provide lapidary hobbyists a practical economic means to display and wear more of the gemstones created by their hobby, as well as to provide an enlarged market for gemstones produced by the lapidary art.

It is still a further object of this invention to provide an improved gemstone mounting, which will permit simple mechanical release and resetting of gemstones by anyone, and which will permit purchase of an individual mounting with a multiplicity of interchangeable gemstones at a cost far less than the equivalent multiple number of gemstone mountings with permanently set gemstones.

It is still a further object of this invention to provide an improved gemstone mounting which will permit simple mechanical release and resetting of gemstones and which can be produced from conventional base metals common to the jewelry industry such as gold, silver, nickel, brass, etc. and combinations thereof including gold filled and plated metals of rhodium, silver, gold, etc.

It is a further object of this invention to provide an improved gemstone mounting which will permit simple mechanical release and resetting of gemstones of the precious, semi-precious, synthetic, or other mineral types common to the jewelry industry and lapidary arts.

Various other objects and advantages of this invention will be more apparent in the course of this disclosure.

**DESCRIPTION OF THE PRIOR ART**

Various patents have been granted for jewelry mounts to permit ready interchangeability of a gemstone on the mount. Typical of such patents found in a search of U.S. Pat. Nos. are 1,053,539 to Schlechter, 1,207,773 to Larson, 2,028,284 to Jackson, 3,129,569 to Ballantyne and 3,115,758 to Eberle et al. None of these patents describes a structure having the simplicity, ease of manufacture, versatility and beauty of my mounting.

**SUMMARY OF THE INVENTION**

In order to achieve the objects of my invention I employ an annular bezel which has prongs or the like thereon to grip a gemstone and also has hook means movably mounted on the bezel to cooperate with the prongs to hold the gemstone on the bezel. The hook means usually comprises a plurality of hooks each of which has a gripping portion and a portion passing through the bezel. The portion passing through the bezel may be urged by spring means or other means located within the confines of the bezel into a position wherein the gripping portion holds the gemstone on the bezel. A locking means may be provided to prevent accidental release of the hook means. Various modifications of the invention may be used to accomplish the objects of invention, some of these modifications being described below.

**BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a perspective view of my mounting holding a gemstone;

FIG. 2 is a top plan view of my mounting with the outline of the gemstone being shown in dotted lines;

FIG. 3 is a section taken on line 3—3 of FIG. 2 but with the gemstone in place, dotted lines showing other positions of the parts;

FIG. 4 is a plan view like FIG. 2 of a modification;

FIG. 5 is a partial plan view like FIG. 4 of another modification;

FIG. 6 is a view looking towards the head of the stem in FIG. 5;

FIG. 7 is a plan view of another modification;

FIG. 8 is a side elevation of FIG. 7 with a gemstone being held by the mounting;

FIG. 9 is a section on line 9—9 of FIG. 7 but showing a gemstone held on the mounting;

FIG. 10 is a plan view of another modification;

FIG. 11 is a section on line 11—11 of FIG. 10;

FIG. 12 is a plan view of another modification;

FIG. 13 is an elevation of my mounting applied to a ring; and

FIG. 14 is a cross section of my mounting holding a faceted gemstone having a tapered pavilion.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIGS. 1, 2 and 3 my gemstone mounting 1 is shown as comprising a generally oval annular bezel 2 having hook prongs 3 fixed thereto for clasping and holding a gemstone 4. An inner annulus 5 is positioned in a plane between the upper edge 2a and lower edge 2b of the bezel and has a shape in plan view corresponding to that of the bezel. Prongs or hooks 6 are attached to the annulus 5 by leg portions 7 at positions opposite to prongs 3 for gripping, clasping and holding the gemstone 4. The prongs or hook means 6 each have a leg portion 7 and a hook part 8. The leg portion 7 slides through an opening 9 in the bezel. When moved to the right as seen in FIG. 3, the hook means 6 grip the gemstone and when moved to the left the hook means 6 release the gemstones. The space 5a between the annulus 5 and the bezel 2 is of the minimum dimension required to move prongs 6 clear of the gemstone.

The legs 7 in unstressed condition each has a slight upward inclination from right to left of about 5° from the horizontal, as shown in dotted lines in FIG. 3, so that when the prongs 6 are moved to the right to a gripping position they are urged downwardly against the upper edge of opening 9 to more securely hold the gemstone.

A spring 10 has a bowed mid-portion 11 secured to annulus 5 and outwardly extending flange portions 12 bearing against the bezel 2. The spring biases the annulus to the right in order to urge prongs 6 to a gripping position. Alternatively the mid-portion of the spring may be secured to the bezel and the flanges bear against the inner annulus. In order to move the annulus 5 to the left against the force of the spring 10 a stem 13 having a head 14 is provided, the stem 13 being secured to the annulus. The stem 13 slides through an aperture 13a in the bezel at the bottom of an indentation or depression 15 in the bezel 2 which receives head 14 when it is pressed to the left to move the annulus against the bias of spring 10.

The gemstone 4 may be placed in position as indicated in dotted lines in FIG. 3 by slipping one edge under the prongs 3 to rest on edge 2a of the bezel and then lowering the other edge on top of the bezel while

prongs 6 are moved away from the bezel in position to be gripped by the prongs 6 when they are moved towards the bezel. To remove the stone the prongs 6 would first be moved to the left and the stone would then be lifted at the left side and slipped away from prongs 3.

Instead of stem 13 and head 14 the arrangement shown in FIG. 4 may be used. As shown in this figure, mounting 1a comprises a stem 16 secured to annulus 5, the stem 16 having right-hand screw threads engaging with internal right-hand screw threads in socket 17. To the end of the socket is secured a ring 18. The socket 17 is slidably received in an opening 19 between the top and bottom edges of bezel 2. The ring 18 is used to turn socket 17 and also serves to receive a necklace chain or the like. When the socket 17 is in the position shown or partly unscrewed from stem or stud 16, the ring 18 may be pressed inwardly to move prongs 6 away from the bezel for positioning or replacing a gemstone. When ring 18 is turned so as to screw the socket 17 inwardly until shoulder 20 formed on the socket abuts the side of the bezel the prongs 6 are locked in place and cannot move away from the bezel, thus locking the gemstone to the bezel. This locking arrangement is desirable in certain types of larger mountings carrying rather heavy gemstones or in mountings carrying precious or semi-precious gemstones, calling for maximum security.

It should be noted also that in FIG. 4 the positions of the parts have been rearranged so that the spring and stem are positioned at opposite ends of the long axis of the oval rather than the short axis as in FIG. 2. Also the positions of the prongs 3 and 6 have been slightly altered so that the prongs 3 and 6 are closer to the long axis. Such an arrangement is suitable for a brooch or pendant.

In FIGS. 5 and 6 a mounting 1b is shown in which the ring 18 and shoulder 20 of FIG. 4 have been replaced by a head 21 having recessed slots 22 for receiving the edge of a Phillips-type screwdriver. A depression 23 on the bezel receives the head 21. The modification of FIG. 5 is essentially like that of FIG. 4 except that a flush surface is provided on the outside of the bezel and greater force can be exerted by a screwdriver to obtain a very tight fit of the parts for more secure locking action.

It will be noted that in the embodiments of FIGS. 4 and 5 the spring 10 is not relied on to furnish the final gripping action of the prongs. The spring, however, is still useful in retaining the gemstone temporarily before and while the socket 17 is being screwed inwardly to locking position.

In FIGS. 7, 8 and 9 a mounting 1c for a rectangular gemstone 24 is shown. In this modification rectangular, annular bezel 25 has prongs 26 located at the corners of the bezel for receiving corners of the gemstone. A rectangular inner annulus 27 is provided between the upper and lower edges of the bezel, the annulus having prongs or hook means 28 secured thereto at corner locations on the opposite side of the bezel from the prongs 26. The hook means 28 at each corner comprises a gripping or hook part 29 and a leg part 30 extending through an aperture 31 in the bezel. Each leg when in unstressed condition has a slight upward inclination of about 5°, as shown in dotted lines in FIG. 3, so that when moved to the right the leg will bear against the upper edge of aperture 31 and urge the hook part

29 downwardly to more securely grip the gemstone. Each leg 30 is also pivoted to a corner of the inner annulus 27 by a headed pin 32 passing through the leg and the inner annulus. Each of the hook or prong portions 26 and 29 is cup-shaped to receive the corners of the gemstone 24.

A spring 33 is positioned between the bezel 25 and the inner annulus 27, the spring having a bowed mid-portion 34 secured to the inner annulus and flat outer portions bearing against the bezel to thereby bias the inner annulus 27 to the right with respect to the bezel and to urge the hook means 28 diagonally inwardly to grip the gemstone. In order to move the inner annulus to the left against the bias of spring 33 and permit placement of gemstone 24 on top of the bezel there is provided a stem 36 attached at one end to the inner annulus and having a head 37 at the other end. The stem 36 slides through an aperture 36a in the bezel at the bottom of an indentation 38. When the head 37 is pressed to the left it is received in the indentation 38. The space 27a between the annulus 27 and the bezel 25 is of the minimum dimension required to move prongs 28 clear of the gemstone.

The operation of the modification of FIGS. 7, 8 and 9 in receiving, gripping and releasing the gemstone is essentially like that of the modification of FIGS. 1, 2 and 3. Also the locking means shown in FIGS. 4 and 5 are applicable to the modification of FIGS. 7, 8 and 9.

In FIGS. 10 and 11 the inner annulus has been eliminated. In these figures a gemstone mounting 1d comprises an oval bezel 39 having secured thereto prongs 40. On the opposite side of the oval there are hook means or prongs 41 each of which has a gripping portion 42 and a leg portion 43 sliding through an aperture 44 in the bezel. A bow spring 45 is secured at its mid-portion 46 to bezel 39 and at its end portions 47 to the ends of the legs 43. If desired, the spring and legs could be made integral. The legs 43 in unstressed condition have a slight upward inclination as do legs 7 in FIG. 3 for the same purpose. The hook means or prongs 41 may be made of the same piece of material as the spring 45, if desired.

In FIG. 12 mounting 1e is similar to mounting 1d but in this modification oval bezel 48 has two pairs of movable hook means or prongs 49. Each prong 49 is configured like the prong 41 and is secured at the end of its leg portion to the end of a bow spring. As shown in FIG. 12 a pair of bow springs 50 are secured at their mid-portion 51 to the bezel 48 at the ends of the long axis of the oval bezel. The legs of prong or hook means 49 are secured to the ends 52 of the springs. The springs bias the prongs inwardly to grip a gemstone placed on the top edge of the bezel.

In order to position a gemstone on bezel 1d preferably an edge of the gemstone would be slipped under prongs 41 with the gemstone tilted as shown in dotted lines in FIG. 3. The ends 47 of spring 45 would then be pressed towards the bezel by a finger or fingers of the user inserted inside the bezel, or by any convenient tool. The gemstone would then be brought down against the edge of the bezel and the spring released whereby the gemstone would be tightly gripped and held on the bezel. To remove the gemstone the parts would be manipulated in a reverse manner.

In order to position or release a gemstone on or from mounting 1e essentially the same procedure is followed as that described with respect to mounting 1d; the gem-

stone being tilted with its edge under one pair of prongs and the other pair of prongs being moved in order to move the gemstone down against the bezel and then hold it in gripped position after release of the moved prongs, or a pair of prongs being moved outwardly and the gemstone then tilted in order to remove it from the bezel.

It should be noted also that in each modification shown the gemstone might be mounted on the bezel by pressing an edge of the gemstone while in tilted position against a pair of spring biased prongs to move them outwardly, then bringing the other edge of the gemstone down against the bezel and releasing the gemstone so that the spring biased prongs move inwardly and the edges of the gemstone are gripped by all prongs. For release of the gemstone reverse manipulations would be used.

In the modification of FIG. 12 a combined type manipulation could be used. An edge of the gemstone could be pressed against one pair of prongs 49 to move them partially outwardly while another pair of prongs is moved by finger or tool pressure also partially outwardly, thus permitting placement or removal of the gemstone.

In each of the mountings described above, a large unobstructed center opening is preferably provided to permit maximum light transfer for relatively clear or translucent gemstones, thus enhancing their beauty. The central clear space also provides clearance for gemstones having central downwardly extending protuberances such as the conventional tapered pavilion bases of faceted gemstones. Further, the annular construction permits the lightest feasible weight for a sturdy mounting. However, this does not preclude the use of a partial or fully enclosed base for the mounting of opaque or other flat base gemstones and wherein other conventional attachments are to be made to the bezel for use as a bolo-tie or belt buckle as examples.

FIG. 13 illustrates, by way of example, the use of mounting 1 to form a ring by attachment of mounting 1 to a finger enclosing part 53.

FIG. 14 shows the use of mounting 1 to hold a conventional faceted gemstone 54 having a tapered pavilion 55 extending through the central opening in inner annulus 5.

Of course, many other uses of the mounting are possible, for example, cuff links, earrings, belt buckles, pendants, brooches, etc. Also the bezel may be decorated as desired by scrolls, filigrees, small side mounted gemstones, etc.

FIGS. 1, 2, 3, 4, 5, 10 and 12 are illustrated in a typical oval form, however, the embodiments shown are equally applicable to round, marquise, diamond or octagonal configurations, and FIGS. 7, 8 and 9 are equally applicable to a square or cushion shape.

What is claimed is:

1. A gemstone mounting comprising an annulus for supporting a gemstone, said annulus having an annular side wall defining an inner space, an upper edge, a lower edge, and at least one aperture extending transversely through said annular side wall and spaced from said edges, means on the annulus for clasping the gemstone to said annulus, movably mounted flexible hook means for clasping the gemstone to said annulus, said hook means having a first portion extending through said aperture and into the inner space defined by said annular side wall and a second portion continuing from

said first portion and extending outwardly from said annular side wall and upwardly above said upper edge, and means situated within the inner space defined by said annular side wall and connected with said first portion of said hook means which extends through said aperture for moving both said portions of said hook means as a unit simultaneously both in a transverse and parallel direction relative to said annular side wall for cooperating with said means on the annulus to grip the gemstone and fasten it to and release it from said annulus.

2. A gemstone mounting as claimed in claim 1, wherein the means for moving said hook means comprises a second annulus and means secured to said second annulus accessible externally of the side wall of said support annulus for moving said second annulus.

3. A gemstone mounting as claimed in claim 1, wherein said first portion of said hook means which extends through said aperture comprises a part inclined upwardly in an outward direction from said lower edge to said upper edge when said hook means is in a release position and said part bears against the edge of said aperture in said annulus to urge said hook means downwardly to secure holding of the gemstone when in a gripping position.

4. A gemstone mounting as in claim 1, wherein said means within the inner space defined by said annular side wall comprises a spring secured at a first location to said annulus and secured at a second location to a portion of said hook means to bias said hook means into a gripping position.

5. A gemstone mounting as in claim 4, wherein said annular side wall has at least two apertures extending transversely therethrough, wherein a pair of hook means is provided each having a first portion extending through a respective one of said apertures and a second portion continuing from said first portion, and wherein said spring is secured at its mid-portion to said annulus and at its end portions to the first portion of respective ones of said hook means.

6. A gemstone mounting as in claim 5, wherein said annular side wall has at least two additional apertures extending transversely therethrough, wherein said means on said annulus for clasping the gemstone comprises a second pair of hook means each of which comprises a first portion extending through a respective one of said additional apertures and a second part continuing from said first portion for gripping the gemstone, and wherein each of said first portions is secured to a spring means for biasing the hook means to a gripping position.

7. A gemstone mounting comprising a first annulus for supporting a gemstone, said first annulus having an annular side wall defining an upper edge, a lower edge,

and at least one aperture extending transversely through said annular side wall and spaced from said edges, means fixed on said first annulus for clasping the gemstone to said first annulus, movably mounted hook means for clasping the gemstone to said first annulus, said hook means having a portion extending through said aperture, a second annulus situated within the confines of said annular wall and connected to said hook means for moving said hook means as a unit relative to said first annulus for cooperating with said fixed means on said first annulus to grip the gemstone and fasten it to and release it from said first annulus, and means secured to said second annulus accessible externally of said annular side wall of said first annulus for moving said second annulus.

8. A gemstone mounting as claimed in claim 7, wherein a spring means acts between the first annulus and the second annulus for biasing the hook means to a gripping position.

9. A gemstone mounting as claimed in claim 7, wherein said means accessible externally of said annular side wall comprises a socket member and a stud member received therein in screw threaded engagement therewith, one of said members being secured to said second annulus and the other of said members having a head engageable with an outer portion of said first annulus, whereby when said socket and stud members are threaded together to shorten their combined length, the head engages said first annulus to lock the hook means in gripping relation, and when the socket and stud members are threaded to increase their combined length, they may be used to move the hook means.

10. A gemstone mounting as claimed in claim 7, wherein said first annulus and said second annulus are of a generally rectangular shape, wherein the side wall of said first annulus has at least two apertures extending transversely therethrough, wherein said fixed means on said first annulus for clasping the gemstone comprises a gripping member at each of two adjacent corners of said first annulus, and wherein said hook means comprises a pair of members each having a first part for gripping the gemstone and a second part extending through a respective one of said apertures of said first annulus, each of said hook members being located at adjacent corners of said first annulus and each of said second parts being pivoted to a corner of said second annulus.

11. A gemstone mounting as claimed in claim 9, wherein a spring means acts between said first annulus and said second annulus for biasing the hook means to a gripping position.

\* \* \* \* \*

55

60

65