Dec. 26, 1961 R. L. McCARY 3,014,354

SETTING FOR DETACHABLY OR PERMANENTLY MOUNTING A STONE

Filed Feb. 25, 1958

Fig. 1.

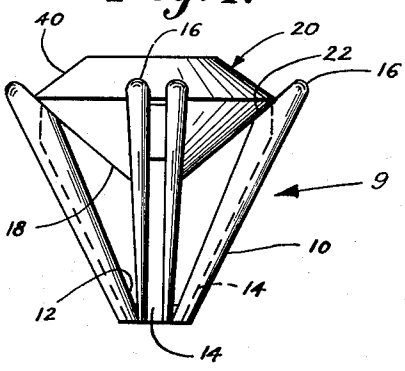


Fig. 2

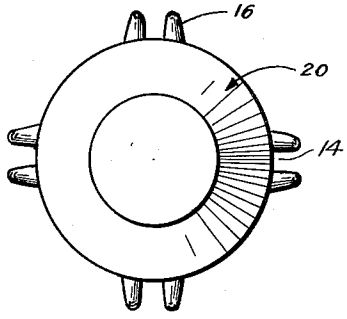


Fig. 7.

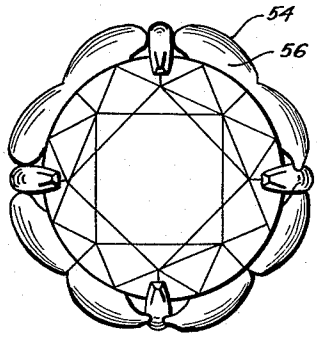


Fig. 3.

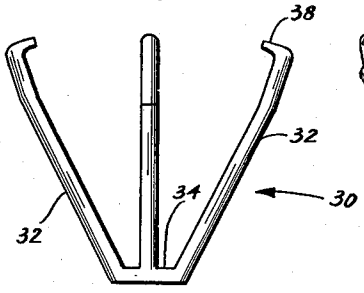


Fig. 6.

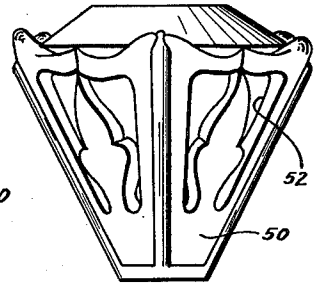


Fig. 4.

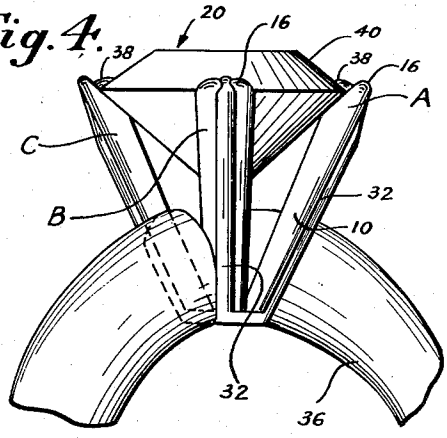
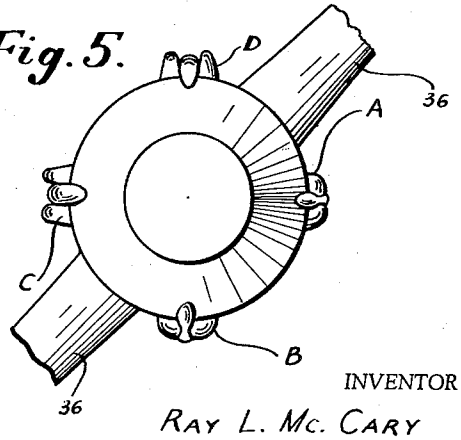


Fig. 5.



INVENTOR

RAY L. MC. CARY

BY Cushman, Darby & Cushman

ATTORNEYS

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SETTING FOR DETACHABLY OR PERMANENTLY MOUNTING A STONE

Ray Lambert McCary, Shreveport, La., assignor of one-third to McCary Jewelers, Inc., Shreveport, La., a corporation of Louisiana

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3 Claims. (Cl. 63—27)

This invention relates to a setting for precious stones. The setting is intended primarily for use in connection with a ring but, as will be obvious from the foregoing specification, it may also be used in the setting of precious stones upon other items such as brooches, bracelets, watches, and the like. However, for ease and convenience of discussion, the setting about to be described will be discussed in terms of a setting for a single stone diamond engagement ring, sometimes known as a "diamond solitaire."

The usual method of setting the selected stone in a "diamond solitaire" consists of starting with a ring band having a number of prongs extending outwardly therefrom at slightly diverging angles. The metal of the interior surface of each of the prongs is cut away to form a seat for the stone, the stone is pressed into seating engagement with the ledges or seat formed, and then the portions of the metal between the seat and the free end of the prongs are bent to extend over the top of the stone so as to lock it in its position on the seat. Both the cutting of the seat and the bending of the metal over the stone is a highly skilled job which if not properly performed will either cause the stone to (1) break, or (2) become easily loosened and hence lost. The metal that is cut away to form a seat is, of course, irretrievably lost, and thus the particular setting cannot be used again for mounting a stone, other than one of substantially the same size as the stone originally mounted.

While all jewelry stores maintain a small stock of mounted diamond solitaires, it is not practical to maintain a complete line of every ring style, in every size mounting, with every type of diamond, the latter varying infinitely in weight, color and quality. Rather, the average jewelry store maintains a fairly good selection of loose, or unmounted, diamonds, and a wide selection of settings, i.e., pronged ring bands, with the expectation that the customer will make a separate selection of the ring setting and the particular precious stone he wants mounted therein.

It frequently occurs that the customer is unable to form an accurate mental picture of the precise ocular effect that will be obtained from the combination of a particular stone and a particular setting and he then asks the jeweler if he can see the stone permanently mounted so that he can make a final determination of whether he wishes to make the purchase. In such a situation, the jeweler has to explain that the ocular effect can only be approximatized by loosely placing the stone on top of the prongs inasmuch as mounting the diamond, by cutting away the metal as explained hereinabove, would render the setting useless for any stones other than those of the same size and shape, and that this cannot be done until the customer has finally determined that he wishes to purchase the setting in question. Actually, the jeweler frequently has a second, and equally valid reason for declining to mount the stone prior to sale, and this is the fact that he is not sufficiently skilled to do this personally, but rather must send the stone and the setting out of his shop to a specialist.

Naturally, this situation tends to impede sales of diamond mountings inasmuch as some customers are loath to (and indeed sometimes refuse to) make a commitment to purchase the completed diamond mountings without

being able to first obtain an accurate impression of how it will look when finally assembled. When this situation arises, the jeweler is faced with the necessity of deciding whether to lose the sale completely or take a chance on a financial loss by mounting the stone in the hope that the customer will like the sum effect well enough to make the purchase.

It is therefore an object of this invention to provide a setting for precious stones in which the stone may be temporarily mounted, without physically modifying the setting, to give substantially the same ocular impression as will be received when the stone is permanently mounted therein.

It is another object of this invention to provide a setting in which a precious stone can be permanently mounted by a jeweler having only ordinary skills, and lacking the skill necessary to mount the stone by a technique involving cutting away minute portions of the prong.

It is another object of the invention to provide a setting in which a precious stone may be permanently mounted by a semi-skilled jeweler without danger of injury to the stone.

It is still another object of this invention to provide a setting in which a precious stone may be permanently mounted by a semi-skilled jeweler without danger of the stone becoming subsequently loosened and then lost.

These and other objects of this invention will be fully understood from the following detailed description of a typical preferred form and application of the invention, throughout which description reference is made to the accompanying drawings in which:

FIGURE 1 is an elevational view of a head unit with a stone resting therein;

FIGURE 2 is a plan view of the head unit and stone illustrated in FIGURE 1;

FIGURE 3 is an elevational view of a prong unit;

FIGURE 4 is an elevational view of a prong unit with a head unit and diamond mounted therein;

FIGURE 5 is a fragmentary perspective view of a complete ring mounting consisting of the head unit and diamond illustrated in FIGURE 1 and the prong unit illustrated in FIGURE 3;

FIGURE 6 is a plan view of a prong unit with a modified head unit and diamond mounted therein; and

FIGURE 7 is an elevational view of a prong unit with a modified head unit and diamond mounted therein.

Referring to the drawings, and more particularly to FIGURE 1, there is shown a head unit, generally indicated at **9**, which consists of four posts **10** which may be joined together at their bases or, as in the preferred embodiment, joined to a common base plate **12**. The posts all extend away from the same side of the common base, or base plate **12**, and diverge outwardly at identical angles from the center line or axis of the head unit as a whole. The exterior surfaces of each of the posts, that is to say, the surfaces furthest away from the axis or center line of the head unit as a whole, define a slot **14** extending longitudinally the length of the post. On the free ends of each of the posts **10** are formed a pair of projections or tabs **16** which are spaced apart a distance equal to the width of the slots **14**. The interior surfaces of the posts, relative to the head unit as a whole, are cut away at an angle corresponding to that of the pavilion or bottom facets **18** of the precious stone to be mounted therein. In the case of a diamond of the modern "brilliant" cut, this angle is 49° from the axis of the stone and, hence, the axis of the head unit in which it is to be mounted. It will be noted, as shown in FIGURE 1, that when a diamond, generally indicated at **20**, is mounted in the head unit, the precut surfaces define a stone supporting surface, or seat, **22**, and that the tabs **16** extend out-

wardly of the head unit as a whole, and, hence, away from the precious stone mounted therein.

In FIGURE 3 there is shown a prong unit, generally indicated at **30**, which consists essentially of four prongs **32** which may be joined together at their bases or, as in the preferred embodiment, joined to a common base plate **34**. The prongs all extend away from the same side of the common base, or base plate **34**, and are cantilevered therefrom to diverge outwardly at identical angles from the center line or axis of the prong unit **30** as a whole. This angle is the same as the angle of the posts **10** of the head unit **9**. The prongs **32** have a width closely approximating the width of the slots **14** in the posts **10**, so that they can be fitted therewithin, as will be discussed hereinafter. Each prong **32** has its free end bent inwardly, of the prong unit as a whole, to define a prong head **38**. The undersurface of each prong head is, when the prongs are in their natural or relaxed position, formed at an angle of 56° from the axis of the prong unit. As will be understood, this angle corresponds to the angle of the crown facet **40** of the "brilliant cut" diamond **20** illustrated in FIGURE 1.

While for purposes of illustration of the structure a diamond is illustrated as resting on the seat **22** on the head unit **9**, in actual practice a diamond is not installed in the head unit until after the latter has been fitted within the prong unit **30**. That is to say, the head unit **9** is axially aligned with the prong unit **30** and the two are then fitted together with the main portions of the respective prongs **32** resting within the respective slots **14** of the posts **10** of the head unit **9**. When this is done, the free end **38** of the prongs **32** will extend inwardly between the tabs **16** and over the respective seats **22**. The head unit **9** is then welded or otherwise joined to the prong unit **30**. When the setting is to be used on a ring, the shank **36** of the latter is then welded to diametrically opposite surfaces of the head unit, as shown in FIGURE 4, although it is within the contemplation of the invention that it may be joined to any other portions of the head unit by any other means.

When a particular diamond has been selected and is to be set in the setting, it is inserted under any two adjacent prongs, with the underside or pavilion of the diamond resting on the respective seating surfaces **22** disposed directly under these prongs, and then the two remaining prongs are flexed back to allow the stone to drop beneath them to the respective seating surfaces **22** directly thereunder. Upon release of the prongs, they will spring back to a position whereby the undersides of their free ends **38** will rest on the crown facet **40** of the diamond. As has been previously explained, the undersurface of the prong heads are formed at an angle corresponding to that of the crown facets so that there is a flush engagement between the contacting surfaces of the prong heads and the diamond.

In FIGURES 4 and 5, the head unit **9** is completely within the prong unit **30**. In these figures, two of the posts, A and B, have their tabs **16** bent over to cover a portion of their corresponding prong heads **38** so as to prevent the prongs **32** from moving outwardly of the prong unit **30** as a whole and thus preventing the disengagement of the prong head of the prong and the diamond. The tabs of a third and fourth post (C and D) are illustrated while still extending outwardly in their primary position, that is to say, not yet bent over to engage their corresponding prong heads.

It should now be understood that when a jeweler wishes to display a diamond **20** in a setting which has been selected by a customer, the diamond is fitted into the prong unit **30**. The tabs **16** are not bent over to lock the prongs **32** in position. If the customer is not pleased with the particular setting, the prongs **32** are merely bent back, that is to say, away from the axis of the prong unit **30** enough to allow the diamond to be withdrawn.

In FIGURES 6 and 7 there is illustrated the identical invention as applied to a more elaborate setting, such as the so-called "illusion head" setting, which utilizes a rim of filigreed, or otherwise decorated, bright metal about the perimeter of the diamond to create an illusion of the presence of a larger stone. In some cases the illusion head is suspended from the post **10** but in the embodiment illustrated the post may be dispensed with and the head unit formed by four panels **50**, which may be filigreed as at **52** for a decorative effect, joined at their bottom or joined to a common base plate. The juncture of the edges of the panels **50** defines the equivalent of slots **14**. In such a case the inner surface of the panels **50** may be cut out to define a seat and a portion of the decoratively cut metal **54** forming the illusion head **56** (FIGURE 7) will serve the same function as the tabs **16**. That is to say, they will extend upwardly or outwardly when the head unit as a whole is being inserted into the prong unit and may then be bent around the prongs, in the manner which has been disclosed, if the customer decides he wishes the particular diamond **20** to be permanently mounted in the setting.

It will be understood that it is within the contemplation of this invention that various size settings may be constructed in accordance with this invention. That is to say, a given setting will accommodate diamonds within a range of approximately 10 points, e.g., a half carat size setting can be used to accommodate a diamond of from 45 points to 55 points. In some cases the range might be greater, depending upon the particular type diamond used and the particular style of the setting which incorporates this invention.

It should now be obvious that it is within the contemplation on this invention to use any of a large number of styles of settings to obtain the novel mounting means disclosed herein, and the fact that only two embodiments are here illustrated should not be deemed as defining any limitation upon the inventive concept disclosed. It should also be understood that while I have illustrated and discussed my invention in terms of its application to settings on rings, it is applicable to settings in many other environments. Therefore, I wish to reserve to myself any variations or modifications that may appear to those skilled in the art and falling within the scope of the following claims:

I claim:

1. A setting for a precious stone comprising: stone supporting surface means for supporting the pavilion of the stone; a plurality of cantilevered prong means; a prong head on the free end of each of said prong means, each of said prong heads extending inwardly of said stone supporting surface means, the underside of each of said prong heads defining a stone gripping surface for pressing against an upwardly facing facet of a stone residing upon the stone supporting surface means to hold the pavilion of the stone fast upon the stone supporting surface means; said prong means being spaced from one another peripherally about the stone supporting surface means to define geometrically patterned spaces whicle allow an unobstructed view of those upwardly facing facets of a stone residing on the stone supporting means which are located within those spaces; means connecting the cantilevered ends of each of said prong means to said stone supporting surface means; each of said prong means being so designed and constructed of a flexible material as to allow the prong head thereof to move in a plane extending toward and away from a stone residing upon the stone supporting means; means for preventing all movement of the prong heads in directions other than along said planes; means for permanently locking each of said prong heads in a position to bear down on a stone residing on said stone supporting surface, said locking means comprising ductile tab means for bending over an outwardly facing surface of said prong means; said tab means being located adjacent to said prong means and connected to

said stone supporting surface means said tab means projecting outwardly beyond the outwardly facing surface of said prong means.

2. A setting for a precious stone comprising: a head unit having a base and means extending therefrom defining outwardly facing stone supporting surface means; a prong unit comprising a plurality of prongs joined to and around a common base; said units being rigidly connected at their bases; each of said prongs having a prong head extending inwardly of said prong unit, the free ends of each said prong head being located on a level above said stone supporting surface means and having an inwardly facing stone engaging surface; said means extending from said head unit comprising a plurality of posts extending obliquely outwardly from the same side of said head unit base in surrounding relationship thereto, the surface of each of said posts exterior to the head unit as a whole being longitudinally slotted to interfittingly receive a prong of said prong unit; said prongs being normally positioned in said slots with their heads projecting inwardly of said posts beyond the interior surfaces of said posts, said prongs being freely springable in and out of said slots; ductile tab means for each prong, said tab means extending outwardly of said head unit and being defined by the free ends of each of said posts; each of said tab means having a length sufficient to extend

transversely over an exterior surface of the nearest prong of said prong unit, whereby a precious stone mounted on said stone supporting surface means and having portions disposed between said surface means and the stone engaging surface of said prong head will be locked in place upon the bending of respective said tab means into contact with the exterior surface of the respective said prongs.

3. The structure defined in claim 2 in which portions of the interior surfaces of said posts are shaped to correspond with the pavilion of the precious stone to be mounted therein, said shaped surfaces defining said stone supporting surface means.

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