

TITLE : A GEMSTONE SETTING

FIELD OF THE INVENTION

This invention relates generally to gemstone settings and more particularly to a
5 gemstone setting with significantly enhanced brilliance and scintillation yet made
available at low cost.

BACKGROUND OF THE INVENTION

Precious and semi-precious gemstone jewelries from time immemorial have been
subject of attraction, interest and status symbol among the human beings.

10 Gemstones either synthetic or natural, are normally cut and polished in order to
enhance their brilliance and scintillation. The most popular cut that is given to increase
the brilliance of a gemstone, particularly the diamond, is a round brilliant cut.

A typical form of a gemstone, for example, a diamond (100) having polished
round brilliant cut is depicted in FIG. 1 accompanying this specification. Such polished
15 round brilliant cut diamond (100) comprises a table, a crown, and a pavilion wherein the
depth of the pavilion is substantially more than the depth of the crown. The polished
round brilliant cut diamond (100) generally has a high coefficient of brilliance,
dispersion and scintillation because the light falling incidentally over the table gets
refracted, internally reflected within the pavilion and then dispersed through the table
20 that enhances the brilliance of the diamond.

Thus, although a polished round brilliant cut gemstone has enhanced brilliance
and scintillation, such gemstone is very expensive. Also, lots of cuts are required to be
made on the gemstone that results in loss of the carat as well as size of the gemstone.

A known jewelry setting arrangement includes a polished gemstone for providing
25 brilliance and scintillation, and the setting is configured to not only retain the gemstone
in position but also expose more surface of the gemstone to light so as to enhance
brilliance and scintillation.

Another known jewelry setting arrangement includes a round brilliant-cut
diamond fitted into a basic mould of the jewelry, with the table and the crown of the

diamond facing upward, and smaller gemstones placed surrounding the diamond in the mould that enhance the brilliance and scintillation of the diamond. Prongs or channel walls of the jewelry setting are used to support the smaller gemstones.

Another jewelry setting structure is disclosed in US Patent Application
5 Publication No. 2007/0157665. Accordingly, the jewelry setting uses a gemstone arrangement and a reflective element arrangement. The gemstone has a table, a crown, a
culet and a pavilion. A reflective element has a base, an apex and a tapered portion. The
reflective element is attached to a retaining means in a way that the culet of the gemstone
and the apex of the reflective element are aligned in close proximity to one another such
10 that they nearly touch. In such arrangement, the ambient light reflected from the
reflective element is directed to the pavilion of the gemstone to enhance the brilliance
and scintillation of the gemstone.

It should be noted that:

- 15 (i) all the above known jewelry setting arrangements attempt to use a
gemstone having a substantially deeper pavilion, which is not only
expensive, but also result in loss of carat and size when cut and
polished in order to enhance the brilliance and scintillation.
- (ii) although the known jewelry setting arrangements provide for more
20 light exposure to the gemstone and special methods of alignments
using various forms of gemstones and setting elements, the brilliance
and scintillation are not sufficiently enhanced.
- (iii) All the above known jewelry setting arrangements involve complex
setting and the cost of the jewelry setting becomes significantly high.

Thus, there exists a need in the art for a jewelry setting arrangement wherein the
25 jewelry setting is (i) significantly less expensive compared to the jewelry settings of prior
art but also (ii) provides for a significantly enhanced brilliance and scintillation of the
gemstone and (iii) simple in arrangement.

SUMMARY OF THE INVENTION

In an embodiment, the jewelry setting comprises a setting socket having at least one base plate and a plurality of prong members extending from said base plate. At least one first gemstone having a substantially non-existent pavilion is secured to the setting.

5 At least one second gemstone having a substantially high reflective property is secured to the base plate, and located a distance predetermined from the first gemstone. The ambient light passing through and thereafter out of the first gemstone is reflected back from the second gemstone such that the brilliance and scintillation of the first gemstone is substantially enhanced giving optical depth to the first gemstone.

10

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows the front view of a typical round brilliant cut diamond.

FIG.2 shows the front view of a rose cut diamond as an example of the first gemstone according to an embodiment of this invention.

15 FIG. 3 shows the top view of the rose cut diamond as an example of the first gemstone according to an embodiment of this invention.

FIG. 4 shows the front view of the first gemstone in combination with the second gemstone according to an embodiment of this invention.

20 FIG. 5 (5a-5c) shows the perspective view of the jewelry setting according to an embodiment of this invention.

FIG. 6 shows the top view of the jewelry setting according to an embodiment of this invention.

FIG. 7 shows the perspective view of the jewelry setting according to an embodiment of this invention.

25

DETAILED DESCRIPTION OF THE INVENTION

Various embodiments of this invention provide a jewelry setting and more particularly to a gemstone setting with enhanced brilliance and scintillation made available at significantly reduced costs. The embodiments of this invention may be used

in connection with various gemstones, such as precious gemstones and semi-precious gemstones either individually or in combination thereof.

Examples of use of the jewelry setting according to the embodiments of this invention include a wearable jewelry, such as earring, pendant, bracelet, etc. Other
5 examples of use of the jewelry setting may also include non-wearable article, such as an object of decorative art, etc. The jewelry setting may also be used for combined wearable and non-wearable purposes.

FIG. 2 shows the front view of a first gemstone (102) used for making a jewelry setting according to an embodiment of this invention. In the embodiment shown in FIG.
10 2, the first gemstone (102) comprises a crown (110), a girdle (116) and a substantially shallow pavilion (106). Alternatively, the pavilion (106) may be absent.

In an example, the first gemstone (102) is a rose-cut diamond having a substantially larger table (108), a thinner crown (110) and a substantially shallow pavilion (106). In a typical example, the rose-cut diamond has the ratio of the depth
15 dimensions of the crown and the pavilion less than the ratio of the fully cut diamond.

For the purposes of illustration, although a rose-cut diamond has been used as an example of the first gemstone (102) for describing the invention, the first gemstone (102) may be a precious gemstone or a semi-precious gemstone.

Examples of precious gemstone include diamond, ruby, sapphire, etc. Examples
20 of semi-precious gemstones include Topaz, Tourmaline and Turquoise. The gemstone may be the one occurring in nature or synthetic, such as industrial diamond, etc.

It should be noted that according to the principles of this invention, by use of a first gemstone (102) having a substantially shallow pavilion or no pavilion, the use of the first gemstone (102) in the jewelry setting is optimized and the cost of the article or end
25 product is significantly reduced.

It should also be noted that the first gemstone (102) having a substantially shallow pavilion or no pavilion for example, a rose-cut gemstone, has substantially low brilliance and scintillation. This is because, as seen in FIG. 2 of the drawings accompanying this specification, the ambient incident light striking the crown (110) of

the gemstone (102) passes through the gemstone (102) without much reflection, as there is no pavilion or substantially shallow pavilion to cause reflection of incident light.

FIG. 3 shows a top view of the first gemstone (102) according to an embodiment of this invention. This invention will be described in detail in the following description.

5 FIG. 4 shows the front view of the first gemstone (102) in combination with a second gemstone (112) according to an embodiment of this invention. In the embodiment shown in FIG. 4, the second gemstone (112) comprises a material having high reflective property. For example, the second gemstone (112) may include a precious or a semi-precious gemstone. Examples of precious gemstone include diamond,
10 ruby, sapphire, etc. Examples of semi-precious gemstone include Topaz, Tourmaline and Turquoise. The second gemstone may be the one occurring in nature or synthetic, such as industrial diamond, etc.

In the embodiment shown in FIG. 4, a plurality of second gemstones (112) is aligned towards the first gemstone (102). For example, for one carat of the first
15 gemstone, e.g. a rose cut diamond, four full cut second gemstones e.g. diamonds of one cent or one full cut diamond of 10 cents may be used such that one or more second gemstone (112) is seen through the first gemstone (102) when viewed through the top (see FIG. 6). The alignment of the first and the second gemstones (102, 112) into the jewelry setting according to the principles of this invention is explained in detail in the
20 following description.

FIG. 5 (5a – 5c) shows the jewelry setting according to an embodiment of this invention. Accordingly, the jewelry setting comprises a setting socket (104). The setting socket (104) comprises a base plate (120) and a plurality of prongs (114) extending vertically upwards from the base plate (104). A plurality of metallic grains (118) is
25 provided in the base plate (120). The first gemstone (102) is secured to the setting socket (104) using the prongs (114). A plurality of the second gemstone (112) is studded on to the base plate (104) through the metallic grains (118). A predetermined distance is maintained between the first gemstone (102) and the second gemstone (112).

In one embodiment, the base plate (120) and the prongs (114) are constructed
30 from a mirror polished reflective metal. Examples of mirror polished reflective material

include Gold (in all alloys and colours), Palladium, Platinum and Silver. This is done to enhance brilliance and scintillation to the first gemstone.

In an alternate embodiment, the setting socket (104) can have a channel, a bezel or any other setting instead of the prongs (114).

5 In one embodiment, the distance maintained between the first gemstone (102) and the second gemstone (112) is about 0.8mm to 2mm.

In another embodiment, the distance maintained between the first gemstone (102) and the second gemstone (112) is about 0.8mm to 1.6mm.

10 In one embodiment, the metallic grains (118) are closely arranged such that each second gemstone (112) is studded on to the metallic grains (118).

FIG. 6 shows the top view of jewelry setting according to an embodiment of this invention.

15 FIG. 7 shows a perspective view of the jewelry setting according to an embodiment of this invention. As shown in FIG. 7, the second gemstones (112) are positioned facing the first gemstone (102).

In the arrangement according to this invention as seen in FIG 6 and FIG.7, when direct light falls on several facets of table (112) the first gemstone (102), a major chunk of light after striking the table (112) passes straightaway through the first gemstone (102). A minimal amount of light after striking the surface of the first gemstone (102) gets reflected. The direct light entering the first gemstone (102) gets diffracted and are subjected to multiple internal reflections and again are reflected out of the first gemstone (102). However, the amount of light subjected to such multiple internal reflections are significantly less and most of the direct light entering the first gemstone (102) simply passes through (leaks through) the first gemstone (102). This is because the optical depth
20 of the first gemstone (102) is minimized due to the presence of shallow pavilion (106) or absence of pavilion. The light after passing through the first gemstone (102), strikes the plurality of second gemstones (112). Since the second gemstone (112) has substantially high reflecting property, the light after passing through the first gemstone (102) is subjected to reflection and multiple internal reflections via each second gemstone (112).
25

The light reflected from the second gemstone (112) is then thrown back towards the crown (110) and table (108) of the first gemstone (102). The light thrown back again undergoes multiple reflections in the first gemstone (102). This reflected light finally comes out of the first gemstone (102) thus increasing the brilliance and scintillation of the overall first gemstone (102) thereby providing a virtual optical depth to the first gemstone (102).

It should be noted that the first gemstone (102) having a shallow pavilion or no pavilion, due to which the size and cost are significantly reduced, when set in combination with a plurality of the second gemstones (112) having substantially high reflective property in the setting socket (104) according to the principles of this invention, has increased coefficients of brilliancy, dispersion and scintillation. The first gemstone (102) which does not have a natural glitter due to shallow pavilion or no pavilion, is thus added with glitter comparable to a brilliant cut gemstone at a fraction of the cost of the jewelry setting having a brilliant cut gemstone.

The cost reduction attained by the jewelry setting according to this invention over the jewelry setting using a brilliant cut diamond may vary between 30 % to 90 %.

Thus, various specific embodiments of this invention provide a jewelry setting using a gemstone having a substantially shallow pavilion or no pavilion and a plurality of gemstones having high reflective property. However, the invention may be practiced with modifications and all such modifications will be deemed to be within the scope of the claims claimed herein under:

Claims:

1. A jewelry setting, comprising:

- (i) a setting socket;
- (ii) said setting socket comprising at least one base plate and a plurality of prong members extending therefrom said base plate;
- (iii) at least one first gemstone having a substantially non-existent pavilion secured to the setting;
- (iv) at least one second gemstone having a substantially high reflective property secured to the base plate, and located a distance predetermined from the first gemstone **wherein** the ambient light passing through and thereafter out of the first gemstone is reflected back from the second gemstone such that the brilliance and scintillation of the first gemstone is substantially enhanced giving optical depth to the first gemstone.

2. A jewelry setting as claimed in claim 1 wherein the first gemstone comprises a rose-cut gemstone.

3. A jewelry setting as claimed in claim 1 wherein the first gemstone is at least one of a precious and a semi-precious gemstone made artificially or occurring as a natural material.

4. A jewelry setting as claimed in claim 3 wherein the second gemstone is at least one of a precious material and a semi precious material made artificially or occurring in nature.

5. A jewelry setting as claimed in claim 1 wherein the distance between the first and the second gemstone is in the range of about 0.8mm to 2mm.

6. A jewelry setting as claimed in claim 5 wherein the distance between the first and the second gemstone is in the range of about 0.8mm to 1.6mm.

- 5 7. A jewelry setting as claimed in claim 1 wherein the base plate of the setting socket comprises a plurality of metallic grains arranged close to each other wherein the second gemstone is studded to the metallic grains.
- 10 8. A jewelry setting as claimed in claim 1 wherein the base plate and the prong members of the setting socket are constructed from a material that substantially enhances brilliance and scintillation of the first gemstone.
9. A jewelry setting as claimed in claim 8 wherein the base plate and the prong members of the setting socket are constructed from a material comprising predetermined mirror polished precious metals.
- 15 10. A jewelry setting as claimed in claim 1 wherein the setting socket is configured having a profile suitable for use with at least one of an ear ring, pendant and wearable article of jewelry and objet d' art.