C. G. SMITH.

JEWELRY.

APPLICATION FILED AUG. 22, 1919.

1,392,604. Patented Oct. 4, 1921.

Fig. 1

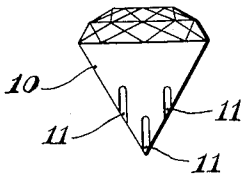


Fig. 2

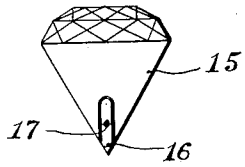


Fig. 3

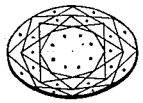
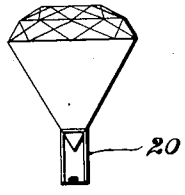


Fig. 4



Witness

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JEWELRY.

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To all whom it may concern:

Be it known that I, CHARLES G. SMITH, a citizen of the United States, residing at Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Jewelry; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in jewelry and more particularly to improvements in the natural and artificial gems employed in connection with jewelry.

It is one object of the present invention to improve and beautify both natural and artificial gems in such a manner that they shall be visible in darkness as well as in light. A further object of the invention is to improve certain natural gems in such a manner that the natural beauty arising from the character and composition of the gem is greatly enhanced.

With these objects in view, the features of the invention consist in the embodiment in both natural and artificial gems of certain radioactive substances which coöperate with the gem in a manner to greatly enhance the natural beauty of the gem by daylight and at the same time render the gem luminous and clearly visible in the dark.

In the drawings illustrating the preferred form of the invention Figure 1 represents either a natural or an artificial gem having a luminous radioactive substance embodied therein; Fig. 2 represents a gem showing an alternative method of embodying the radioactive substance therein; Fig. 3 illustrates an artificial gem of bakelite or similar material having small particles of radioactive substance embedded throughout; and Fig. 4 represents a naturally luminous gem which coöperates with a radioactive material positioned at the base.

The present invention utilizes in a new manner certain properties of radioactive substances by which the energy constantly thrown off may be converted into light. According to one form of the invention, a radioactive material is combined with a phosphorescent material to produce a self-luminous paint which embodied in a crystal illumines and makes it readily visible in the dark. According to another form of the invention the radioactive material is embodied in a form of crystal which is naturally phosphorescent so that energy given off by the radioactive material in coöperation with the natural structure of the crystal renders the crystal luminous and visible in the dark.

In the form of the invention shown in Fig. 1, a radioactive substance is combined with a phosphorescent substance to produce a luminous paint which is applied to the crystal in such a manner as to render it luminous and clearly visible as to the entire configuration in the dark. In order to secure this result without interfering with the natural beauty of the crystal in the daylight, the crystal indicated at 10 is conveniently provided with a series of recesses 11 formed therein which may be produced by drilling or otherwise and vary in number as well as direction. These recesses are coated with the self-luminous paint, illuminating the crystal in the dark, but at the same time, permitting light to enter at the base of the crystal to illuminate the crystal in daylight. In this form of the invention the crystal may be either artificial or natural and in this connection it is found that the formation of the crystal of glass with a colloidal agent held in suspension produces an extremely beautiful effect after dark as the colloidal agent enhances the visibility of the light rays as they pass through the crystal. One form of this colloidal agent which may preferably be employed is the use of gold in finely divided particles held in suspension in glass.

Fig. 2 illustrates an alternative and highly desirable form of the invention which consists in the embodiment within a crystal 15 of a transparent hermetically sealed tube containing a particle of radioactive material under high pressure. As shown in the drawing, the tube 16 consists of a thick glass casing in which is suspended a small particle 17 of radioactive material. This tube contains either air, hydrogen or some other gas under a relatively high pressure, for example, approximately fifty atmospheres. This gas is made luminous by the discharge of energy from the radioactive material and as this luminosity is far greater than that produced by the combination of a radioactive material with the phosphorescent material the efficiency of the device from a standpoint of illumination is fairly high. The jewel may be made a va-

riety of colors by a proper choice of the gas which is employed within the hermetically sealed tube, for example, the hydrogen gas when employed gives off red rays. A further advantage of this construction is that residing in the fact that the life of the radioactive material is practically indefinite and in consequence the permanency of the jewel is not limited by the character of the phosphorescent substance as is necessarily the case where a luminous paint is depended upon to give the desired illumination.

Fig. 3 illustrates a slightly modified form of jewel in which a molded gem of clear bakelite or similar substance has embedded therein a number of particles of luminous paint.

Fig. 4 represents a form of the invention in which a natural crystal having phosphorescent properties as a ruby or diamond is provided with a radioactive substance mounted in the base as indicated. This radioactive substance may be attached directly to the base of the jewel or held at a slight distance therefrom by a suitable frame as indicated at 20. With this form of jewel the radioactive substance coöperates with the natural structure of the crystal to make the latter luminous and cause it to emit light rays in the dark.

While it is preferred to employ the specific construction and arrangement of parts shown and described, it will be understood that this construction and arrangement is not essential except so far as specified in the claims, and may be changed or modified without departing from the broader features of the invention.

The invention having been described, what is claimed is:

1. A jewel comprising a transparent crystal having a polished top surface to reflect light rays, a gas filled recess entering the body of the crystal adjacent the base, and a radioactive substance located within the recess and serving to render the crystal luminous in the dark without interfering with its properties in the light.

2. A jewel comprising a transparent crystal having a polished top surface to reflect light rays, a recess entering the body of the crystal adjacent the base, and a transparent hermetically sealed tube located within the recess and containing a radioactive substance suspended in gas under a high pressure.

3. A jewel comprising a transparent crystal having a polished top surface to reflect light rays, a recess entering the body of the crystal adjacent the base, and a transparent hermetically sealed tube located within the recess and containing a small particle of radium suspended in hydrogen under a high pressure.

CHARLES G. SMITH.