W. H. DEY.

LUMINOUS ARTICLE AND METHOD OF MAKING THE SAME.

APPLICATION FILED NOV. 16, 1920.

1,422,841. Patented July 18, 1922.

Fig. 1,

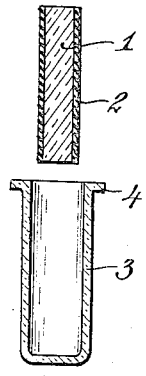


Fig. 2,

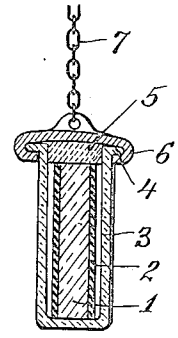


Fig. 3,

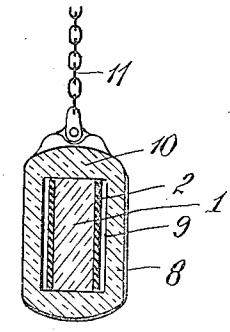


Fig. 4,

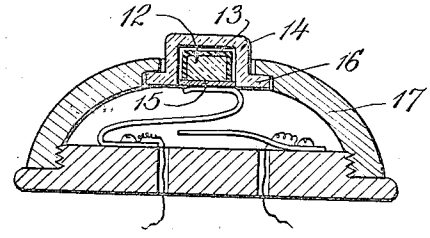


Fig. 5,

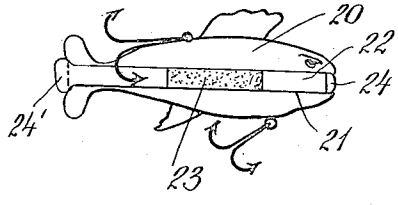
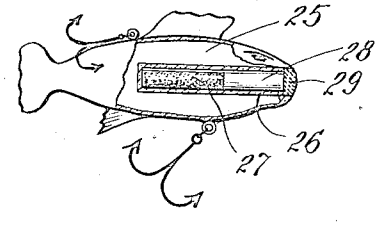


Fig. 6,



Inventor
William H. Dey
By his Attorneys
Pennie, Davis, Marvin & Edmonds.

UNITED STATES PATENT OFFICE.

WILLIAM H. DEY, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO UNITED STATES RADIUM CORPORATION, A CORPORATION OF DELAWARE.

LUMINOUS ARTICLE AND METHOD OF MAKING THE SAME.

1,422,841. Specification of Letters Patent. Patented July 18, 1922.

Application filed November 16, 1920. Serial No. 424,379.

To all whom it may concern:

Be it known that I, WILLIAM H. DEY, a citizen of the United States, residing at Jersey City, in the county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Luminous Articles and Methods of Making the Same; 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.

In the manufacture of small articles which are luminous in the dark, for instance, as push-buttons of electric bells or pendants to be attached to the pull-cords of electric lights, it has been customary to provide the article with a recess, which is either painted on the inside with a radio-active paint or composition or is filled with a radio-active powder. If the first method be adopted, it is necessary to make the recess of sufficient size to permit of the application of the paint; on the other hand, if the recess is filled with radio-active powder, only the outer portion of the powder is of any substantial illuminating value, the luminosity of the central part being screened by the outer layers. As commercial radio-luminous substances are very expensive, economy in their use is obviously of the utmost importance. The present invention aims to eliminate the waste involved in painting a recess with a radio-active composition or filling it with radio-active powder, while at the same time preserving undiminished the luminosity of the finished product. It is also an object of the invention to simplify the method of manufacture whereby economy is effected both in the quantity of luminous substance used and in the labor charge and whereby a product that is uniform in quality and luminosity is obtained.

The characteristic feature of the invention is the use of a luminous rod or core, which is inserted in an appropriate recess in the push-button, pendant, or other article which is to be made luminous. This rod is preferably of glass coated with a film of radio-active paint. Such a rod is comparatively inexpensive and the radio-active paint can be easily applied to a considerable length thereof, after which pieces may be clipped off of any length desired for use in articles of a given size. As the glass rod is of practically uniform cross-section and the film of paint thereon of practically the same thickness throughout, the luminous rods produced are necessarily uniform in quality and luminosity. Nor is there here any waste of radio-active material such as occurs when a powdered substance is used, the outside layers of which screen the luminosity of the central part. On the contrary, the glass rod permits the luminous rays of the radio-active material to pass directly through it and thus add to the illuminating power of the radio-active material on the other side.

The luminous rod is inserted in a transparent or translucent casing. The bores of those casings are apt to vary considerably in diameter so that if the casings were to be filled with radio-active powder or coated on the inside with radio-active paint, the ones with the larger bores would naturally use more of such paint or powder, making them more expensive to the manufacturer while adding practically nothing to their market value. With the uniform luminous rods of the present invention, such variation in the bores is of no great moment, provided only the bore be large enough to receive the glass rod with its luminous coating. The glass casing which receives the luminous rod is substantially circular and therefore exercises a magnifying effect which enhances the illuminating power of the rod.

The glass rod coated with the luminous material may be very easily and very securely sealed within the recess, making it impervious to moisture. For this reason the invention is also particularly applicable to making luminous artificial bait.

These and other advantages of the present invention will be more clearly understood from the following description, taken in conjunction with the accompanying drawings in which Fig. 1 shows the luminous rod and the glass casing before assembling; Fig. 2 shows these articles assembled into a pendant for the pull-cord of an electric light; Fig. 3 shows a modification of the pendant; Fig. 4 shows the invention applied to a push button for electric bells; and Figs. 5 and 6 show two forms of the invention as applied to artificial bait.

Referring to the drawings in which similar reference characters indicate similar

parts, 1 is a rod or core, preferably made of glass because of its light-transmitting power, but which may be made of any other suitable transparent or translucent material. The rod is provided on the outside with a film of radio-active paint 2. Such a luminous rod may be made very rapidly and at relatively small cost, and sections of it, like that shown in Fig. 1, may be cut off for use in luminous articles of various sizes. These rods are readily made of uniform cross-section and the luminous paint applied thereto in a film of uniform thickness, thereby giving a product of known luminosity and known cost. The luminous rod is now inserted in a hollow glass casing 3, the bore of which is somewhat greater than the diameter of the rod itself. This casing may be provided with flanges 4. The luminous rod is now sealed in the casing 3 by means of the seal 5, which may be of wax or glass. One method of forming the seal is by heating and fusing the upper end of the glass rod 1. A flanged ring 6 is now engaged over the flanges 4 and serves to attach the luminous pendant to the pull-chain 7 which operates an electric light.

The modification shown in Fig. 3 has a glass casing 8 provided with a bore 9 in which the luminous rod is inserted as in Figs. 1 and 2. In this instance, the glass 8 of the casing is fused over the luminous rod, as indicated at 10, to seal it in. A pull-chain 11 may be attached for operating an electric light.

Fig. 4 shows the invention as applied to a push-button for electric bells. The glass rod 12 is provided with a film of luminous paint 13 on the sides and on the top; it is then inserted in the hollow glass casing 14, and is sealed in that casing with a seal 15 of any suitable character. The casing 14 is flanged, as indicated at 16, for mounting it in the housing 17 of the push-button.

The modifications shown in Figs. 5 and 6 show the invention as applied to artificial bait. In Fig. 5 the body of the artificial minnow, indicated at 20, is made of glass or translucent material, and is provided with a bore 21 extending throughout its length. A rod 22 coated with luminous material as indicated at 23 is located in the bore. In this particular instance the rod is sealed in by fusing its ends so that the seals 24 and 24′ are integral with the rod itself.

In the modifications shown in Fig. 6 the body of the minnow is provided with a bore 26 which extends part of its length and in which is inserted the luminous rod 27. A retaining element 28 which may be integral with or separate from the glass rod 27 holds said rod in place. A seal 29 of glass or wax hermetically seals the opening 26.

While I have illustrated several applications of my invention, it should be understood that it is in no way limited to the specific examples given but may be applied equally well to other luminous articles. In particular, the proportions of the various parts employed may be altered over a wide range while still employing the invention. For instance, in Figs. 1 and 2 the pendant is shown as made from ordinary glass tubing whose interior diameter is approximately three-quarters of the exterior diameter. Instead, however, a capillary tube might be employed having an interior diameter approximately one-quarter of the exterior of the diameter. All such modifications of the construction and arrangement of the parts illustrated I cover by the terms of the claims appended hereto.

I claim:

1. A luminous article, comprising a glass casing provided with a bore, and a glass rod the diameter of which is slightly less than the diameter of the bore, painted with luminous paint, located in the bore.

2. A luminous article comprising a glass casing provided with a bore, a glass rod the diameter of which is slightly less than the diameter of the bore, painted with luminous paint, located in the bore, and means for sealing the rod in the bore.

3. A luminous article comprising a casing provided with a bore, a rod, surfaced with luminous paint, fitting loosely in the bore, and means for sealing the rod in place in the bore.

4. A luminous article comprising a light transmitting casing provided with a recess, and a rod of substantially uniform cross-section the diameter of which is slightly less than the diameter of the recess surfaced with a film of luminous paint located in the recess.

5. A luminous article comprising a light transmitting casing provided with a recess, a rod of substantially uniform cross-section made of a light-transmitting material located in the recess, and a film of luminous paint on the surface of the rod and unattached to the interior of said recess.

6. The method of making a luminous article, comprising coating a relatively long rod of substantially uniform cross-section with a film of luminous paint, cutting off a piece of such rod of the length of a recess in a casing, and inserting such piece of coated rod in place in the recess in the casing.

In testimony whereof I affix my signature.

WILLIAM H. DEY.