R. SHAND.

ARTIFICIAL JEWEL.

APPLICATION FILED AUG. 2, 1920.

1,406,502.

Patented Feb. 14, 1922.

Fig. 1.

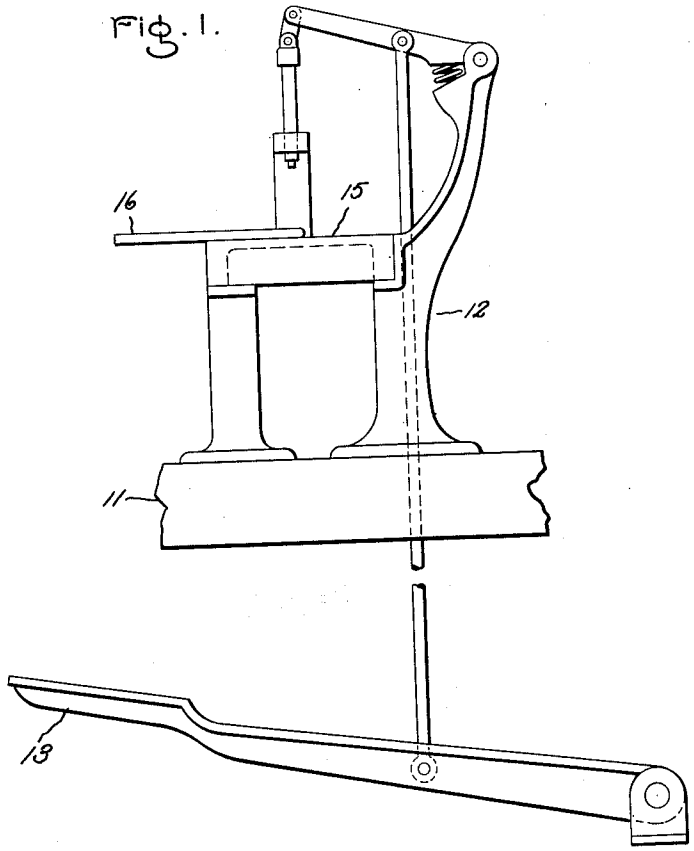


Fig. 2.

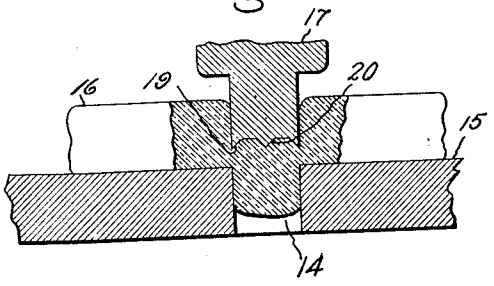
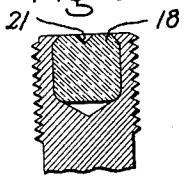


Fig. 3.



Inventor:
Robert Shand,
by Albert G. Davis
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UNITED STATES PATENT OFFICE.

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ARTIFICIAL JEWEL.

1,406,502. Specification of Letters Patent. Patented Feb. 14, 1922.

Application filed August 2, 1920. Serial No. 400,699.

To all whom it may concern:

Be it known that I, ROBERT SHAND, a citizen of the United States, residing at Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Artificial Jewels, of which the following is a specification.

This invention relates to the manufacture of artificial jewels, such as are used for the bearing supports of delicate instruments.

Jewels made from a vitreous material such as glass have been used heretofore. These jewels, however, have had the disadvantage that they did not have uniformity of shape and dimensions; further, the process of manufacture used was expensive and hardly practicable. It is the main object of my invention to manufacture efficiently jewels of vitreous material, such as glass. To this end I employ a punch, appropriately shaped so that it not only cuts the jewel out of material previously rendered plastic by heat, but also forms during the same punching operation the bearing surface therein.

The mode of operation of my invention may be understood from the following description taken in connection with the accompanying drawings, in which Fig. 1 shows the apparatus that may be used for practicing my invention; Fig. 2 is an enlarged view showing how the punch acts to form the jewel; and Fig. 3 shows the completed artificial jewel properly supported in the jewel cup.

Referring now more in detail to the drawings, in which like reference characters refer to like parts throughout, I have shown more or less diagrammatically a work bench 11 which is adapted to support the operating parts of a press 12 which may be used to practice my invention. In this case I show an ordinary foot pedal 13 by means of which the punching operation may be performed. A rod 16 made of glass or other vitreous material, previously rendered plastic, such as by the application of heat, is made use of in the punching operation. This punching operation forces the vitreous material through an aperture 14 located in the table 15, preferably made of metal. The vitreous material 16 may be held on the table 15 by the hand of the operator or by any other appropriate means. The tool or punch 17 used for forcing the plastic material 16 through the aperture 14 has a shape adapted to shear the plastic material and to form the jewel at the same time. The finished jewel 18 as it drops through the aperture 14 has the shape shown in Fig. 3. It is to be noted that the cutting portion of the punch 17 comprises a beveled edge 19 which so shapes the jewel that it has a beveled surface at its outer circumference. The punch 17 also has a portion 20 which serves to form the bearing surface of the jewel, in this case shown as a cupped surface 21, formed in the surface of the jewel 18, and adapted to support the pivot shaft. It is readily seen that by a single punching operation there are two simultaneous acts performed, that of forcing the material through the aperture 14 and of forming a bearing surface. After the punching operation, the jewel is allowed to cool. When the cooling is complete, the jewel is ready for use.

This process of manufacturing artificial jewels has the advantage that it is extremely simple and that it produces a great number of jewels of uniform quality and shape. The shape of the bearing surface may be varied at will by appropriately varying the shape of the punch 17. In practice it has actually been found that the jewels formed by this method have a bearing surface which does not need to be ground or polished in any way.

While I have shown in the accompanying drawings one embodiment of my invention, I do not wish to be limited thereto, but aim to embrace in the appended claims all modifications falling fairly within the scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is,

1. The process of making jewels from a vitreous material, which consists in rendering said material plastic, forcing said material through an aperture by a punching operation, forming simultaneously with said operation, a bearing surface on the material

being forced through the aperture, and allowing said material to cool.

2. The process of making jewels from a vitreous material, which consists in heating said material to render it plastic, punching said material to force the jewel through an aperture, forming simultaneously with this operation, a depression on the upper surface of said jewel for the pivot shaft, and allowing said material to cool.

In witness whereof I have hereunto set my hand this 30th day of July, 1920..

ROBERT SHAND.