

978,302.

G. A. JOYCE.
DIE.
APPLICATION FILED JUNE 25, 1910.

Patented Dec. 13, 1910.

Fig. 1

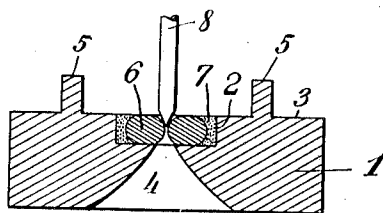


Fig. 2

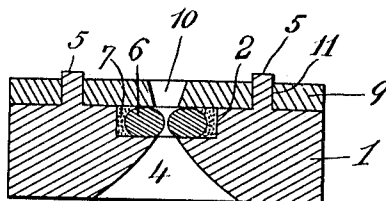


Fig. 3

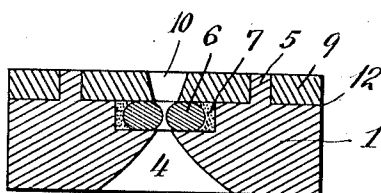
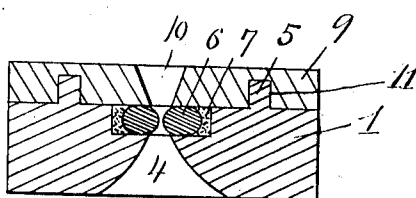


Fig. 4



Witnesses:
Philip D. McLean.
Teresa V. Lynch.

Inventor
George Albert Joyce
By his Attorneys
Brock Beeson Smith

UNITED STATES PATENT OFFICE.

GEORGE ALBERT JOYCE, OF LONDON, ENGLAND.

DIE.

978,302.

Specification of Letters Patent. Patented Dec. 13, 1910.

Application filed June 25, 1910. Serial No. 568,769.

To all whom it may concern:

Be it known that I, GEORGE ALBERT JOYCE, a subject of the King of Great Britain and Ireland, and a resident of London, county of Middlesex, England, (temporarily residing at the borough of Brooklyn, New York city, in the county of Kings and State of New York,) have invented certain new and useful Improvements in Dies, of which the following is a specification.

The present invention relates to dies, and has more particularly reference to dies through which tungsten or other material is expressed.

When mounting a drilled diamond or stone by casting steel around the same, the steel block thus formed takes up the great pressure used in expressing the tungsten through the die. It is well known that the excessive heat of the molten steel and its subsequent contraction when cooling has an injurious effect upon a diamond which has been deprived of its natural skin in the process of being drilled.

The main object of the present invention is to mount a diamond or other die member without exposing it to excessive heat.

Accordingly the invention consists in a mount composed of a plurality of parts in which the die is seated, the said parts being preferably welded together to form a protecting mount. The mount is preferably made of a material having a high tensile strength and a relatively high melting point, such as wrought steel. In the preferred embodiment of the invention the mount is composed of a supporting member, having a die chamber and a bore leading therefrom, and a top plate provided with a bore leading to the die chamber. The die member is seated in the die chamber and is held in position with reference to the bores of the mount by means of a body of material having a relatively low melting point such as shellac, a composition of wax or other material such as bronze. The casting of this body of material around the stone can be done at so low a temperature that it will not injure the diamond. The supporting member and top plate are welded together at a point remote from the die chamber so that the heat will not affect the stone or melt the body of composition holding the stone in place. Preferably the two parts of the mount are provided with complementary pins and apertures, the pins ex-

tending through the apertures to the outside of the mount, at which point the parts thereof are welded together.

The invention further consists in the method of making a die which consists in seating a die in the die chamber of one part of a mount, preferably by means of a body of material having a relatively low melting point, and then welding the two parts of the mount together.

Other features will appear as the specification proceeds.

In the drawings the invention is embodied in a concrete and preferred form, but changes may of course be made without departing from the legitimate and intended scope of the invention, as expressed in the claims hereof.

In the said drawings: Figure 1 is a vertical sectional view of the supporting member showing the diamond in position and the body of material cast around the diamond to hold it in position. Fig. 2 shows the top plate in position on the supporting member, the view being vertical in cross section. Fig. 3 shows the finished product after the parts are welded together, this view being likewise in vertical cross section. Fig. 4 shows a modification.

Similar characters of reference indicate corresponding parts in the different views.

1 indicates the supporting member of the mount made of wrought steel and provided with the die chamber 2, extending downwardly from its upper surface 3.

The bore leading from the die chamber is shown at 4, and 5 indicate pins rising from the upper surface 3 of the said supporting member.

The drilled diamond or die is indicated at 6. This is placed in the die chamber 2 and a body of bronze or other material 7 is cast around the said stone, which latter is held by the guiding pin 8 during the process.

9 is the top plate forming close contact with the diamond and provided with the bore 10 leading to the die chamber and having the apertures 11 into which the pins 5 extend. These pins extend clear through the apertures.

The two parts of the mount are welded together by applying heat, electrical or otherwise, locally to the pins which will then fuse. Heat may also be applied locally at the meeting edges of the two parts of the mount circumferentially around the line in-

licated by 12. After the parts are welded together the mount may be placed in a lathe to smooth it off.

In Fig. 4 I have shown a modified form of the invention. In this view the pins 5 and apertures 11 do not extend clear through the top plate, and the two parts of the mount are not welded together. The pins 5 and apertures 11, in this instance, simply form means for preventing lateral displacement of the two parts of the mount with relation to each other.

What is claimed is:

1. In a die, a mount of a material of high tensile strength and a relatively high melting point, having a die chamber and opposite bores leading thereto, said mount consisting of a plurality of parts welded together at a point remote from the die chamber, a die member seated in said chamber, and a body of material of a relatively low melting point surrounding said die member in the chamber and holding it in alinement with the bores aforesaid.

2. In a die, a mount of a material having a relatively high melting point, and having a die chamber and opposite bores leading thereto, said mount consisting of a plurality of parts welded together at a point remote from the die chamber, a die member seated in said chamber, and a body of material of a relatively low melting point surrounding said die member in the chamber and holding it in alinement with the bores aforesaid.

3. In a die, a steel mount having opposite bores leading to a die chamber and com-

posed of a plurality of parts welded together, a drilled stone seated in said chamber, and a body of composition for holding said stone in said chamber.

4. The process of making a die which consists in seating a drilled stone within the chamber of a supporting member of a mount by casting a body of material having a lower melting point than that of which the mount is composed into said chamber around the stone, and then welding a top plate on the supporting member.

5. The process of making a die which consists in seating a drilled stone within the chamber of a steel supporting member by casting a body of material having a lower melting point than that of steel into said chamber around the stone, and then welding a top plate of steel on the supporting member.

6. In a die, a mount consisting of a supporting member and a top plate, said supporting member having a die chamber extending downward from its upper surface, a drilled stone seated in said die chamber, a body of material of relatively low melting point surrounding said stone in said chamber and the top plate resting on the supporting member and forming close contact with the stone.

Signed at New York, in the county of New York and State of New York this 24th day of June A. D. 1910.

GEORGE ALBERT JOYCE.

Witnesses:

AXEL V. BEEKEN,
LAURA E. SMITH.