March 24, 1942. C. V. LUGINBILL ET AL 2,277,339

DRAWING DIE

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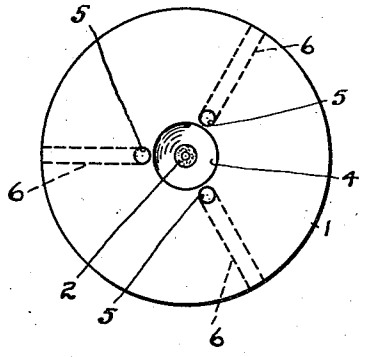


Fig. 1.

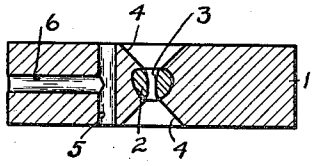


Fig. 2.

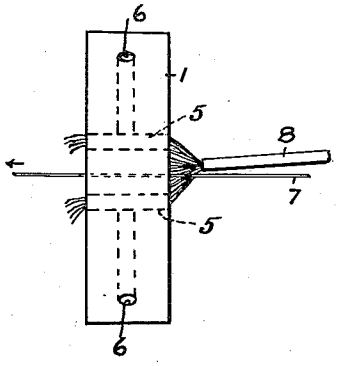


Fig. 3.

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DRAWING DIE

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Application April 18, 1940, Serial No. 330,358

1 Claim. (Cl. 205—29)

The invention relates to drawing dies wherein a body of suitable material, such as a diamond, is mounted in a support and an opening is drilled through it through which the material to be drawn is passed, such as wire.

In the use of diamond dies for drawing wire the heat generated by the moving wire is a serious factor since the diamond may be damaged by excessive heat and its usefulness destroyed.

The object of the invention is to provide a die with a cooling system by which the diamond is protected from excessive heat so that its life is greatly prolonged.

The invention is illustrated in the accompanying drawing in which Figure 1 is a plan view of a die having the invention applied thereto; Fig. 2 is a central vertical cross-section of the same and Fig. 3 is an edge view of the die in operating position.

Referring to the illustrative drawing the die comprises the holder or support 1 in which the diamond 2 is embedded by any of the methods in use, the diamond being drilled to provide the wire receiving opening 3 and the holder having the conical cavities 4 to expose the opening in the diamond.

The channels 5 of any selected number extend through the holder adjacent to the diamond and the radial channels 6 extend from the outer surface or perimeter of the holder to the channels 5 respectively.

In use the die is held in an upright position (Fig. 3) and the wire 7 is drawn in the direction indicated by the arrow. A stream of cold water or solution is directed against the front face of the die, as by the nozzle 8. Heretofore, the cooling medium merely runs down the face of the die and is not very effective to cool the interior of the die and protect the diamond. In our invention some of the cooling medium travels through the channels 5 and cools the metal surrounding the diamond, which cools the diamond. If the mounting of the die in the machine is such that the channels 5 are closed at their rear ends by such mounting then the medium will enter the channels 5 and discharge through the radial channels 6. The channels will be given such size, form or shape as will ensure the entrance and passage of the cooling medium into and through them.

What we claim is:

A drawing die comprising a holder having a drawing member fixed therein, a series of conduits formed in the holder about and adjacent to the drawing member and extending in wire drawing direction from one face of the holder to the opposite face and lateral conduits leading from the former conduits to the outer side of the holder, said conduits being adapted to conduct a cooling medium through the holder which is projected against the face of the holder having the entrances to the conduits therein.

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