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K. SCHRÖTER ET AL

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DRAWING DIE

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Fig. 1.

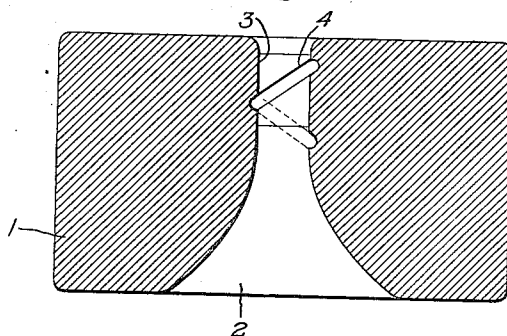
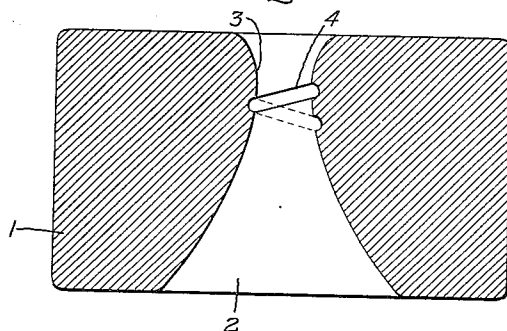


Fig. 2.



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DRAWING DIE

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3 Claims. (Cl. 205—29)

When wires are drawn through dies they are provided with a lubricant in order to decrease the friction. This lubricant, however, does not entirely fulfill its purpose, because it is removed from the wire immediately before the latter enters the die. In order to overcome this disadvantage, various methods have been proposed such as the introduction of lubricant into the die under pressure; but this provided only a slight improvement over the prior practice.

In accordance with the present invention, a further lubrication of the wire is made possible by providing in the canal, within the die, a groove throughout its entire length or a considerable part of it, particularly in the shape of a helix. In this manner, a contact is always brought about between the wire and the lubricant, even within the canal of the die, so that no lubricant can be stripped off the wire, with the result that the latter is not so easily spoiled and the die is less subject to wear.

The most satisfactory lubrication could be accomplished if several helical turns of small pitch were provided within the die; however, this would unduly increase the friction of the wire within the die. On the other hand, a minimum friction would be obtained by a simple straight groove in the direction of the canal. Between these two extremes, a helical groove, consisting of a single turn within the canal, constitutes a practical compromise. Dies built in this manner will furnish a wire, the surface of which is very smooth, and the dies themselves will not be subject to undue wear.

The above described lubricating canal can be provided in the die either by subsequent cutting or by means of suitable mold. In the case of drawing dies made of sintered carbide alloys, a groove is provided, according to the invention, in the pressed or pre-sintered molded part so that final sintering, which is required for completing the drawing die, is accomplished only after the helical groove has been provided.

The novel features which we believe to be characteristic of our invention are set forth with particularity in the appended claims. The invention itself however will best be understood from reference to the following specification when considered in connection with the accompanying drawing in which Fig. 1 is a cross sectional view of a wire drawing die embodying the features of the present invention, while Fig. 2 is a cross sectional view of a wire drawing die illustrating a modified form of our invention. On the drawing like numerals denote like portions of the die.

In both figures of the drawing 1 denotes the massive part of the drawing die, 2 the inlet side of the canal and 3 the effective part of the latter; that is to say, the drawing canal proper. The numeral 4 designates a helical groove which is provided within the die in accordance with the invention. In the embodiment disclosed in Fig. 1, this helical groove has a considerable pitch so that the groove extends nearly throughout the entire length of the effective part of the drawing-canal 3; in the case of Fig. 2, the helical groove has a relatively small pitch so that it covers only about the first half of the drawing-canal.

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

1. A drawing die having a helical groove adapted to contain lubricant, said groove consisting of a single turn.
2. A drawing die having a helical groove in the effective portion of the drawing canal, said groove consisting of a single turn.
3. A drawing die having a helical groove, said groove extending substantially the entire length of the effective portion of the drawing canal, said groove consisting of a single turn.

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