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HOLDER FOR DIE GRINDING

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Fig. 2.

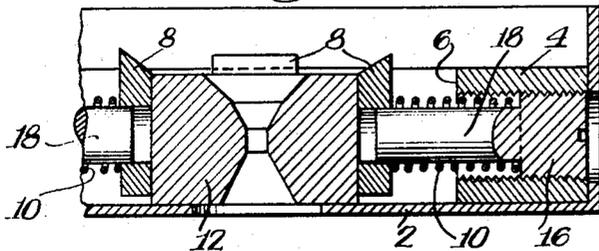
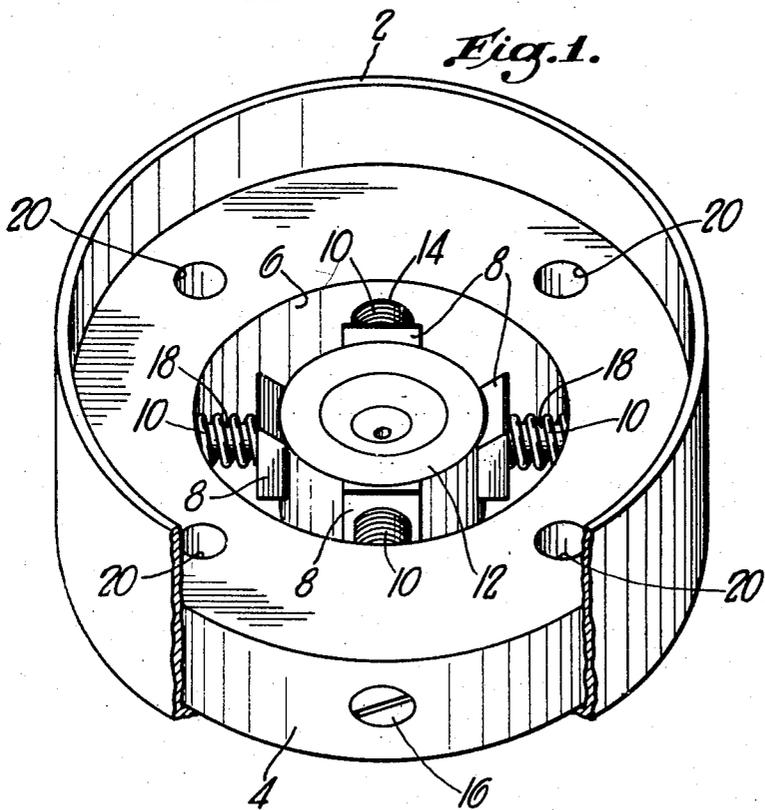


Fig. 1.



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HOLDER FOR DIE GRINDING

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2 Claims. (Cl. 51—217)

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This invention relates to a die holder and more particularly to a holder for positioning a wire drawing die in a grinding or lapping machine.

Heretofore, when it became necessary to grind a wire drawing die, the die was placed in a cylindrical cup and fixed in position with set screws that extended through threaded openings in the sides of the cup. The cup holding the fixed die was then placed upon the work platform of the grinding machine, the revolving grinding pin was brought into engagement with the die and a liquid solution of an abrasive in suspension allowed to flow thereover. When the grinding operation was completed, the die was removed from the cylindrical cup by hand and washed in a solvent oil to remove the adhering abrasive particles.

One of the shortcomings of this method was the time consuming operation involved in manipulating the set screws to position and firmly fix the die within the cylindrical cup preparatory to grinding and in removing the die after grinding was completed.

Another serious disadvantage inherent in this method was the need for the operator to handle the die with his bare fingers after the grinding operation and also after the solvent rinse, thereby subjecting his skin to the deleterious effects of the abrasive solution and the solvent oil. It has been found that the abrasive solutions and the oil solvents commonly used in this type of operation are irritating to the human skin and contact with them frequently causes infection or other skin afflictions.

It is an object of my invention to provide a die holder which will hold a die securely in the correct position during a grinding or lapping operation.

Another object of my invention is to provide such a die holder which allows the die to be inserted or removed expeditiously by means of a tool, thereby eliminating the need for the operator to expose his skin to the harmful effects of the materials used in die grinding and cleaning operations.

It is still another object of my invention to provide such a die holder that is simple and rugged in construction and inexpensive to manufacture.

These and other objects will become more apparent after referring to the following specification and attached drawing, in which:

Figure 1 is a perspective view, with parts broken away, showing a wire drawing die positioned within the die holder of my invention; and

Figure 2 is a cross-sectional view showing the

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details of the retention means of the invention.

Referring more particularly to the drawing, reference numeral 2 indicates a cup-shaped cylindrical case in which is removably fitted a base plate 4 having a central opening 6 therethrough. The sides of case 2 project upwardly from the base plate 4 so as to confine the grinding compound to the surface of the base plate and prevent it from splashing over the outer edges thereof. A shoe 8 is mounted on the projecting end of each of four compression springs 10. The die contacting surfaces of the shoes 8 are shaped to fit against the outer surface of a die 12. Each of the springs 10 project into the opening 6 from a radial hole 14 which is threaded internally and extends horizontally through the base member 4. An adjusting screw 16 is screwed into the outer end of each hole 14. The shaft of screw 16 is provided with a reduced end portion 18 which projects from the hole 14 in the direction of the shoe 8 and is surrounded by the spring 10. The abutment on the shaft of screw 16 at the base of the reduced portion forms a bearing surface for the end of spring 10. Vertical drain holes 20 extend through base member 4. Similar holes (not shown) are also provided in the bottom of the casing 2.

In operation, the die 12 is placed in the central opening 6 and the shoes 8 brought in contact with the outer side surface of die 12 by turning the adjusting screw 16 of each of the spring members 10 until the die 12 is positioned firmly and held in position in the center of central opening 6 by means of the compressive force exerted by the contacting shoes 8. The plate member 4, so prepared, is then inserted into the case 2 which, in turn, is mounted on the platform of the lapping or grinding machine and operations completed in the usual manner. The abrasive solution used during the operation drains through holes 20 and the holes provided at the bottom of the case 2. After the grinding or lapping operation has been completed, the operator may then remove the die from the central opening 6 by inserting the prongs of a pair of forceps, tongs or similar tool in the openings between shoes 8 to grip the die 12 and lift it out. If desirable, the die may be allowed to remain in the die holder and the entire holder immersed in a solvent oil to wash off the grinding abrasive.

From the foregoing, it can readily be seen that the operator can handle the die expeditiously without having his hands come into contact with the grinding compound or the solvent oil.

While one embodiment of my invention has

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been shown and described, it will be apparent that other adaptations and modifications may be made without departing from the scope of the following claims:

I claim:

1. A die holder comprising a cup-shaped casing, a base plate having a central opening there-through, the sides of said casing projecting upwardly from said base plate, the peripheral surface of said base plate being in slidable contact with the inner wall of said casing so that the base plate can be readily removed from the casing, said base plate having at least one vertical drain hole therethrough, said base plate having a plurality of spaced-apart, internally threaded, radial holes therein extending horizontally from its outer side to said central opening, a compression spring in each of said horizontal holes projecting therefrom into said central opening, a shoe mounted on the projecting end of each of said springs, said shoes being shaped to fit against the outside surface of the die, and an adjusting screw threaded into the outside end of each of said horizontal holes and against said spring.

2. A die holder comprising a cup-shaped casing having an open upper end, a base plate having a central opening therethrough, the peripheral surface of said base plate being in slidable con-

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tact with the inner wall of said casing so that the base plate can be readily removed from the casing, the sides of said casing projecting upwardly from said base plate, said base plate having at least one vertical hole therethrough, said base plate having a plurality of spaced-apart, internally threaded, radial holes therein extending horizontally from its outer side to said central opening, a compression spring in each of said horizontal holes projecting therefrom into said central opening, a contacting shoe member mounted on the projecting end of each of said springs, each of said shoes being provided with a concave contacting surface adapted to fit against the convex periphery of the die, and an adjusting screw threaded into the outside end of each of said horizontal holes and against said spring.

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The following references are of record in the file of this patent:

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