(No Model.)

A. J. SMART.

SCREW CUTTING DIE.

No. 303,060. Patented Aug. 5, 1884.

Fig. 1.

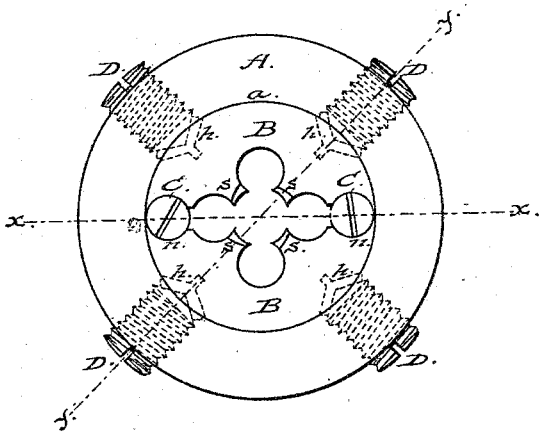


Fig. 2.

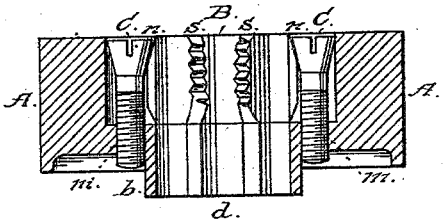
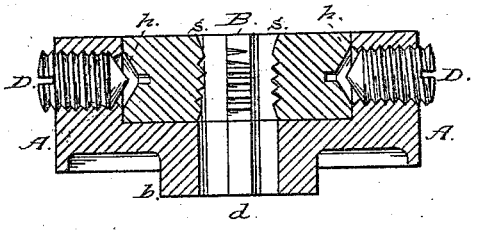


Fig. 3.



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UNITED STATES PATENT OFFICE.

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SCREW-CUTTING DIE.

SPECIFICATION forming part of Letters Patent No. 303,060, dated August 5, 1884.

Application filed June 1, 1883. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. SMART, a citizen of the United States, residing at Greenfield, in the county of Franklin and State of Massachusetts, have invented certain new and useful Improvements in Screw-Cutting Dies; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of dies which are made use of for cutting screw-threads, for which Letters Patent of the United States, numbered 120,266, were granted to J. J. Grant, October 24, 1871; and the nature thereof consists in combining, with the dies and taper-headed screws interposed between the dies four or more set-screws, which may be made to hold the dies firmly in any position to which they have been adjusted by the taper-headed screws.

In the accompanying drawings, in which corresponding parts are designated by similar letters, Figure 1 is a plan of the dies and the stock or holder in which they are placed. Figs. 2 and 3 are transverse sections taken, respectively, on the lines *x x* and *y y* of Fig. 1.

The die stock or holder A is provided with a socket or receptacle, *a*, for the reception of the dies B B, and with a guide, *b*, cast solid therewith, in which is cut an aperture, *d*, which corresponds nearly in shape and size with the cutting-surface of the dies and permits of the passage of the screw. The external shape of the dies B B is such as to allow them to fit easily into the cavity or socket *a*, and they are provided with recesses *n n* on their opposite and adjacent faces, at the sides of the cutting portions *s s*, for the reception of the screws C C, the heads of which have the form of conical frustums. The screws C C fit within the recesses *n n*, of corresponding form in the dies, and work in screw-threaded holes *m m*, cut in the stock or holder. It is obvious, therefore, that when the screws C C are turned inward the tapering heads working against corresponding tapering cavities in the outer parts of the recesses *n n* will force the dies apart, and that when the screws are turned outward a space will be left between the heads thereof and the dies, which will allow the latter to approach each other. In order to regulate the movement of the dies, and also bind them firmly in position when adjusted, I provide four set-screws, D D D D, which work in screw-threaded holes cut in the stock or holder. These set-screws are shown in the drawings as arranged radially at an angle of about forty-five degrees from a plane passing between the dies, and at an angle of about ninety degrees from each other. They are provided with conical points which fit into corresponding conical depressions, *h h*, in the outer surfaces of the dies, so that when turned inward they will not only force the dies toward each other, but also hold them down against the bottom of the socket and relieve the taper-headed screws C C from the racking strain which might otherwise occur.

In using a die similar in construction to that for which Letters Patent No. 120,266 were granted to J J. Grant, in which the die was held down as well as gaged as to size merely by taper-headed screws, experience has demonstrated that some device must be made use of to prevent the loose halves of the die from working up from their seats. This difficulty is obviated according to my present invention by causing the outside screws to sink into recesses in the die, and thus positively hold the pieces down and re-enforce the taper-headed screws. These four screws correspond to the four cutting-points of the dies, and they all support each other, and also the taper-headed screws, while the depressions in the sides of the dies are of such a shape that they permit the points of the outside screws to be so placed that they bear down the dies and hold them firmly in their seats. In order to effect this result the depressions *h h* may be of the conical form shown in the drawings, in which case the dies should be so placed that the vertexes of the cone-shaped depressions are a little above the points of the conical ends of the screws; or angular depressions may be cut in the sides of the dies, care being taken that the latter are so placed that the ends of the screws will bear downward upon being turned inward.

In order to adjust the dies in such a manner as to cut screws of varying depth and different sizes, the taper-headed screws C C are

turned in or from the stock until the requisite distance between the dies is established, and the set-screws D D D D are screwed up to secure the dies in the position at which they have been adjusted, and also to hold them firmly to the bottom of the socket.

Having thus described my invention, I claim and desire to secure by Letters Patent—

The combination of the dies in two sections, provided with peripheral conical cavities, the stock provided with screw-threaded holes, the taper-headed screws C, and the four set-screws with conical points, located each opposite a cutter, and fitting into corresponding conical depressions in the outer surface of the dies, as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT J. SMART.

Witnesses:

JOHN PUTNAM,

JOSEPH H. NUTTING.