

(No Model.)

F. ARMSTRONG.
THREAD CUTTING DIE.

No. 269,153.

Patented Dec. 12, 1882.

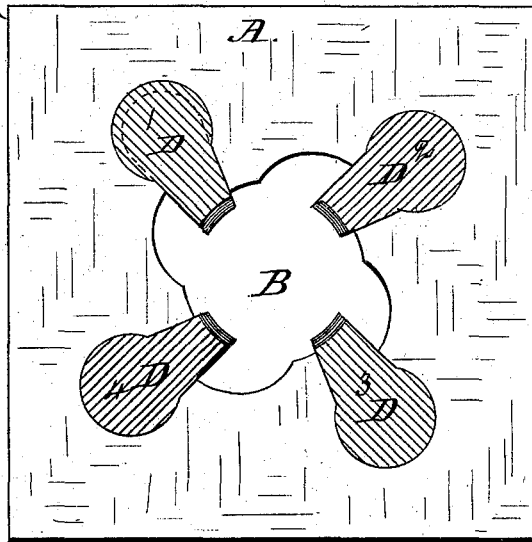
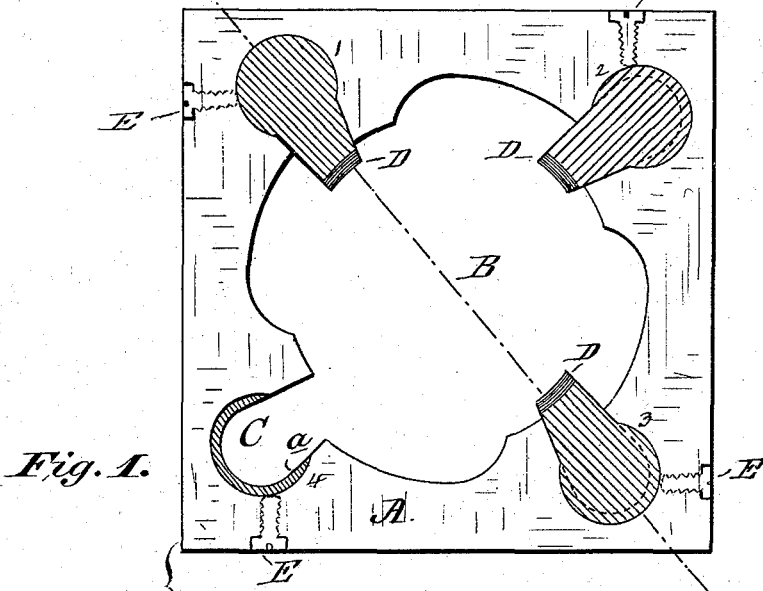
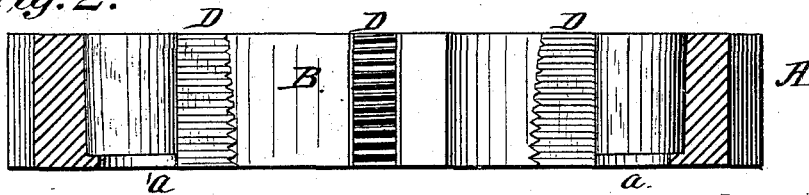


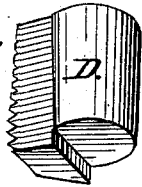
Fig. 2.



Witnesses:

J. C. Brecht,
John Tyler

Fig. 3.



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UNITED STATES PATENT OFFICE.

FRANK ARMSTRONG, OF BRIDGEPORT, CONNECTICUT.

THREAD-CUTTING DIE.

SPECIFICATION forming part of Letters Patent No. 269,153, dated December 12, 1882.

Application filed September 7, 1881. (No model.)

To all whom it may concern :

Be it known that I, FRANK ARMSTRONG, a citizen of the United States, residing at Bridgeport; in the county of Fairfield and State of Connecticut, have invented new and useful Improvements in Thread-Cutting Dies, of which the following is a specification.

My invention relates to certain new and useful improvements in dies for cutting screw-threads upon pipes and bolts.

Prior to my invention screw-cutting dies have been made in two forms—viz., the solid or non-adjustable die and the adjustable or variable die. The latter, while they may be adjusted to cut threads upon pipes of different diameters, have the disadvantage in ordinary use of frequently being accidentally or ignorantly altered in their adjustment, resulting in great annoyance, and hence for many purposes the solid or non-adjustable dies are preferred; but in this class another disadvantage follows—viz., it becomes necessary to have a special die for every size pipe or bolt upon which a thread is to be cut, and, as the dies should be made of fine steel, it is obvious that a large amount of metal is necessary to produce any considerable number of sizes, and this involves not only great expense in the cost of material, but also in skilled labor to produce the dies.

My invention has for its object to secure the advantages incident to both classes of dies, while avoiding all the objections named; and with these objects in view my invention consists in making a series of die frames or holders of base metal—such as malleable cast-iron—having central openings of varying sizes, and providing said frames at suitable points surrounding said openings with fixed seats for and furnishing them with removable threaded or other suitable cutters, which shall bear a predetermined relation to the center of said frames or holders, the cutters and seats of any number being alike, so that the cutters may be removed from one block and located in another of different size, whereby with one set of cutters and any number of frames or holders, cutting-dies may be produced adapted to cut pipes or bolts of any desired diameter, as will be hereinafter and in detail explained.

In order that others may fully understand my invention, I will proceed to describe the construction and operation of the same, referring by letters to the accompanying drawings, in which—

Figure 1 is a plan view of two of my improved frames or holders, having central openings of different sizes, and adapted to pass over pipes or rods of two different diameters. I have shown one of these holders fitted with four threaded cutters, and the other with three, one being removed to expose the seat upon which the cutter rests when in place. Fig. 2 is a vertical section of one of the holders, taken at the line *xx* of Fig. 1, and Fig. 3 is a bottom perspective view of one of the cutters removed.

Similar letters denote like parts in all the figures of the drawings.

A A are cast malleable-iron frames or holders with central opening, B, adapted to receive a pipe or bolt upon which a thread is to be cut. Surrounding the pipe-opening B are arranged two or more openings or vertical channels, C, which are formed with special reference to the reception of independent thread cutters or tools D. The grooves or channels C have near the bottom thereof an inwardly-projecting flange or seat, *a*, upon which rests the bottom of the cutter or tool D when in its proper position, where it is held against accidental displacement by a single binding-screw, E, passing in through one edge of the block or frame A. The cutters D are formed, as shown, with cylindrical backs, and the forward-projecting portion with slightly-converging sides, all exactly conforming to the shape of the channels or grooves C, so that when the tools are seated in the channels or grooves they will be in exact and proper position to cut the thread upon the pipe or bolt passed centrally through the block or frame A. The cutters and their respective channels or seats are numbered, and are so accurately formed and proportioned that cutter No. 1, taken from one block or frame, will fit in seat No. 1 of any other block or frame. For instance, suppose that the block or frame A, being designed for use in cutting threads upon inch-pipe, is equipped with four cutters, all properly held in place by binding-

screws, as described. Now, suppose it is desirable to cut a thread upon a two-inch pipe. To accomplish this, it is only necessary to loosen the binding-screws E, remove cutters 1 2 3 4 from the block or frame, and to transfer them to seats 1 2 3 4 in another block or frame intended for two-inch pipe. The cutters are secured therein by the binding-screws, and the instrument is now ready for use either in a stock, lathe, or other pipe-thread-cutting machine. It will be observed that the cutters bear a positive and fixed relation to the center or axis of each block or frame within which they may be located, and hence the frames may be readily centered to perform their work. The lower ends of the cutters are formed, as shown at Fig. 3, so that they will seat themselves upon the flange *a* in the block or frame, while the top and bottom of the cutter lie flush with the sides of the said frame.

While I have shown the cutters with cylindrical backs and converging sides, I do not wish to confine myself to this particular shape, as any other may be adopted, provided it be such as to prevent any movement of the cutters when seated in the blocks or frames.

It will also be understood that cutters adapted to cut threads of different pitches may be substituted for each other in my improved

frames or holders, and from the construction and arrangement of the parts that a series of cheap, durable, and positively accurate thread-cutting dies are produced.

What I claim as new, and desire to secure by Letters Patent, is—

1. The block or frame A for screw-cutting dies, having a central opening for the passage of the pipe or bolt to be cut and vertical channels at points surrounding such central pipe-passage and forming seats therein of the exact size and contour of the holding parts or shanks of the cutting-dies, in combination with the removable dies to be seated therein and means for fastening them firmly in position, substantially as and for the purpose described.
2. A series of plates constructed as described, and adapted to cutting pipes or bolts of different sizes, in combination with a set of dies adapted to be used interchangeably with said die-plates, substantially as set forth and described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANK ARMSTRONG.

Witnesses:

T. R. CRUTTENDEN,
F. T. STAPLES.