

No. 632,977.

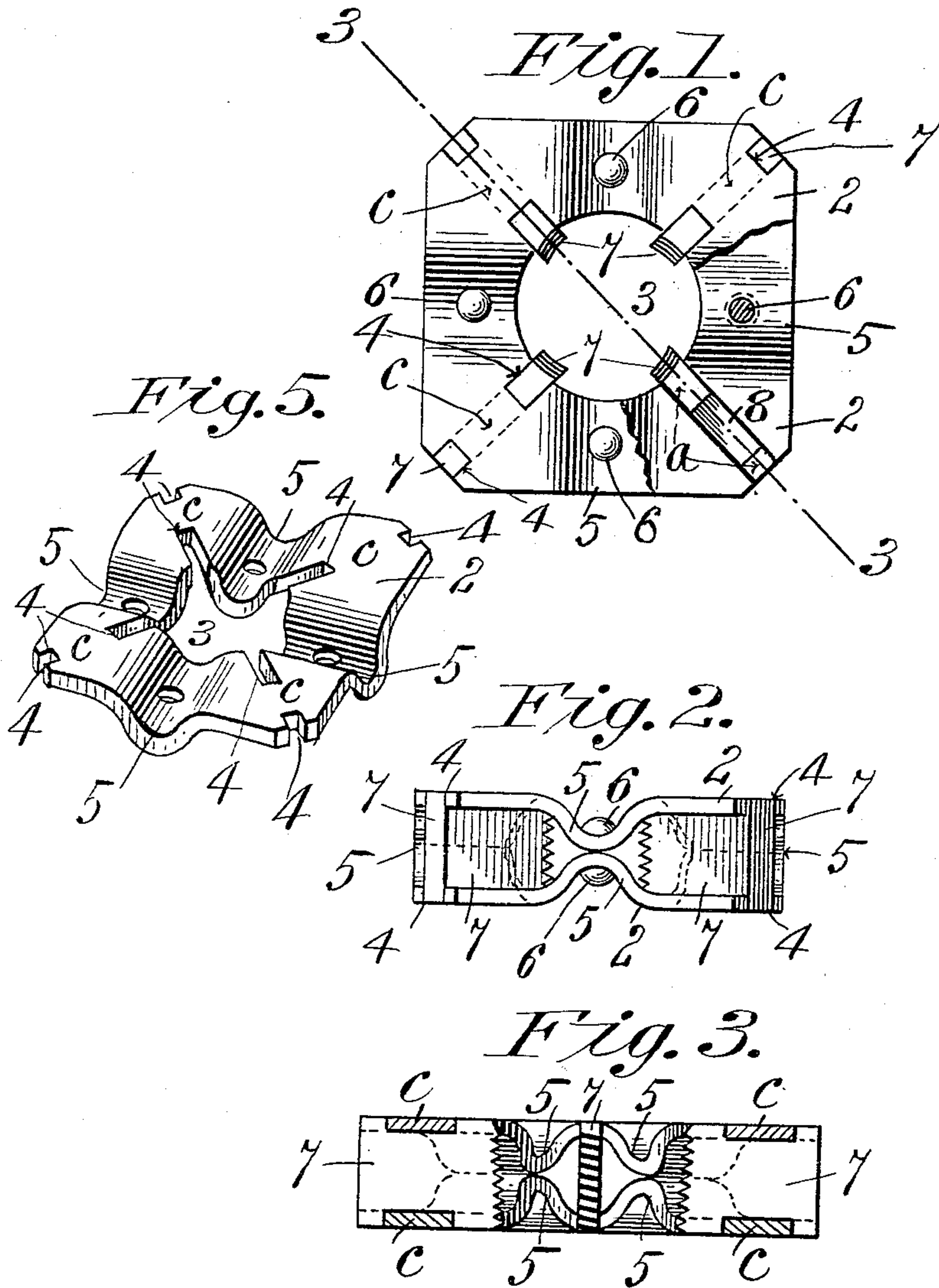
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F. E. WELLS.

DIE FOR CUTTING SCREW THREADS.

(Application filed Jan. 31, 1899.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## DIE FOR CUTTING SCREW-THREADS.

SPECIFICATION forming part of Letters Patent No. 632,977, dated September 12, 1899.

Application filed January 31, 1899. Serial No. 704,040. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERIC E. WELLS, a citizen of the United States of America, residing at Greenfield, in the county of Franklin and State of Massachusetts, have invented new and useful Improvements in Dies for Cutting Screw-Threads, of which the following is a specification.

This invention relates to dies for cutting screw-threads on the ends of metal bars, pipes, and like objects, the object being to provide a die of this class of improved construction in respect to the cost of production and to structural features thereof which contribute to convenience in operating the same and to the production of perfect threads; and the invention consists in the peculiar construction and arrangement of the parts of the die and in means for rigidly holding the same in operative relations for practical use, all as hereinafter fully set forth, and more particularly pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a plan view of a screw-cutting die constructed according to my invention. Fig. 2 is an edge view of the die. Fig. 3 is a transverse sectional view of the die on line 3 3, Fig. 1. Fig. 4 is a perspective view of one of the thread-cutting sections. Fig. 5 is a perspective view of one of the two side plates of the die.

The herein-described improved screw-cutting die involves a construction which supersedes the so-called "solid" die which has been in use many years. Said solid die is made from a piece of flat bar-steel of best quality, ordinarily about two and one-half to three inches or more square and from three-quarters of an inch to one inch in thickness, more or less, according to the size of the die to be produced. Said piece of bar-steel is centrally perforated, and recesses for the chips are milled out in the wall of said perforation to leave three or more ribs therein vertical to the sides of the die on which the cutting screw-threads are formed. After cutting the latter the said threads require to be trimmed and finished by hand-tools to prepare them for the work for which the die is designed.

The foregoing description of the manner of making said solid dies is given in order that the marked simplicity of the improved die

herein shown and described and the manner of making the same, as compared with the former, may be more fully understood, which improved die consists of parts which are constructed and united to form a sectional die possessing all of the practical advantages and conveniences of said solid die, but costing much less to manufacture.

Referring to the drawings, 2 2 indicate the two side plates of the die, which plates in a die for threading a bar of about one inch in diameter are about one-eighth of an inch thick and two and one-half inches square, and they are made by punching them from an iron or soft-steel plate and at the same time, if desired, forming the central opening therein, the deflected abutting portions 5 and the recesses 4 extending inwardly from the border of said central opening and from the four corners of said plate, which recesses in the finished die receive the border projections *a* of the thread-cutting sections 7. The said deflected portions 5 of the said side plates tend to brace and stiffen them and are in practice so arranged as to the extent of the deflection thereof that when the side plates are forced upon the borders of the thread-cutting sections 7 said deflected abutting portions will be slightly separated to the end that when the rivets 6 are applied thereto they will exert a continual tension upon the plate parts, whereby they will more tightly grasp the said thread-cutting sections. The parts *c* of said plates intermediate of said recesses 4 in the finished die (see Fig. 3) are forced into the recesses 8 8 in the opposite edges of each thread-cutting section 7. Said thread-cutting sections are made by cutting them one by one from a flat bar of steel, punching them to form said border-recesses 8 8 and the border projections *a*, and then forming the cutting-thread of the section on one end thereof, the latter being completed, preferably, after the plates containing the said sections shall have been locked together by the rivets 6, or, if preferred, by suitable screws in place of the latter, whereby, should occasion require, said plates may be more conveniently separated for replacing an injured or broken die-section with a new one. The die, constructed as above described, has the said thread-cutting sections 7 so rigidly inter-



locked with the rigidly-connected side plates 2 2, as set forth, that they are practically as immovable as are the corresponding parts of a solid die.

5 Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A die for cutting screw-threads comprising parallel side plates rigidly secured together, central oppositely-located openings 10 through each of said plates, several thread-cutting sections occupying positions radial to said openings and located between, and interlocking with, said plates and adapted to leave a passage between said plates and cutting-sections, and connecting with said central openings, substantially as described. 15

2. A die for cutting screw-threads comprising side plates, central and oppositely-located 20 openings through each of said plates, several thread-cutting sections occupying positions

radial to said openings and located between, and interlocking with, said portions of said plates between said cutting-sections being deflected toward each other, and means for rigidly securing said plates together, at said 25 points of deflection, substantially as described.

3. A die for cutting screw-threads comprising side plates each having a central opening 30 therethrough, and several recesses therein in positions radial to the border of said opening, and several thread-cutting sections each having the recesses 8, and the projections  $\alpha$  for interengagement with said recesses, and with 35 parts of said plates therebetween, and means for securing said plates together and against said sections, substantially as described.

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