

J. GREENWOLD.
DIES FOR MAKING WASHERS.

No. 176,119

Patented April 11, 1876.

Fig: 1.

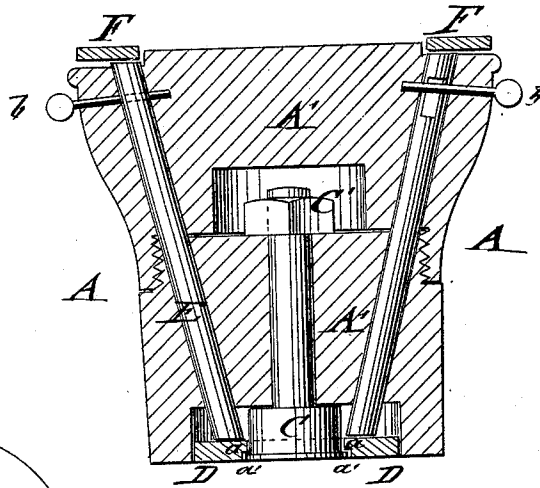


Fig: 3.

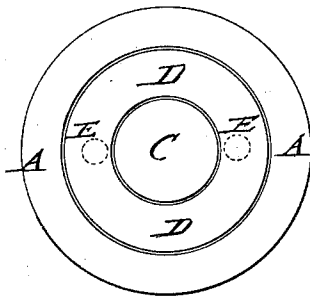


Fig: 4.

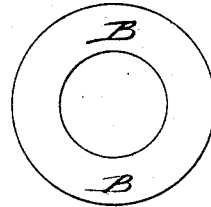


Fig: 2.

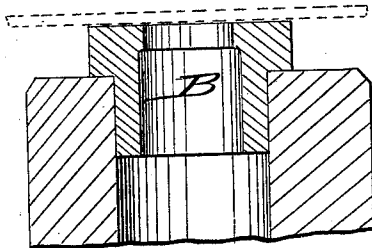
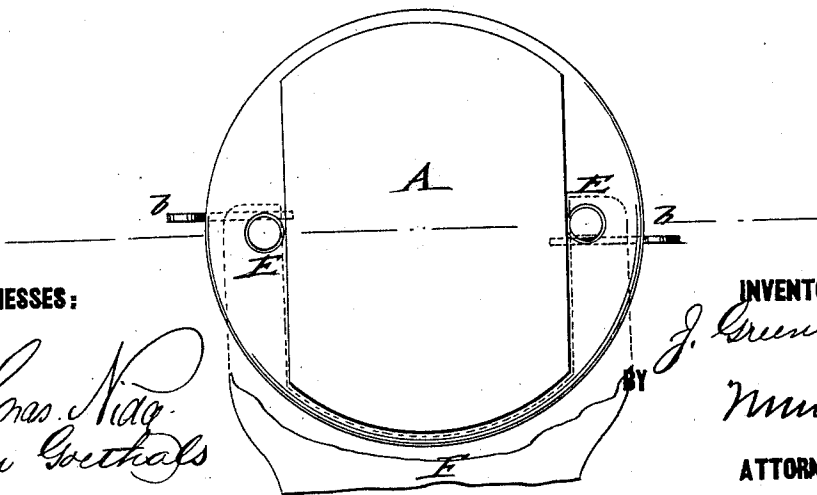


Fig: 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JACOB GREENWOLD, OF BUFFALO, NEW YORK, ASSIGNOR TO HIMSELF
AND WILLIAM L. WALLACE, OF SAME PLACE.

IMPROVEMENT IN DIES FOR MAKING WASHERS.

Specification forming part of Letters Patent No. **176,119**, dated April 11, 1876; application filed
January 22, 1876.

To all whom it may concern :

Be it known that I, JACOB GREENWOLD, of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Dies for Cutting Washers, of which the following is a specification :

In the accompanying drawing, Figures 1 and 2 represent vertical central sections of my improved dies for cutting out washers. Figs. 3 and 4 are bottom and top views respectively of the movable and of the stationary die ; and Fig. 5 is a top view of the movable die.

Similar letters of reference indicate corresponding parts.

My invention has reference to dies for cutting washers and similar articles at one operation, the dies being intended to be used with a common drop-press or punch. The invention consists in making the movable die in two sections that are screwed together, and attaching the central punch by shank and screw-nut to the lower section.

In the drawing, A represents the punching-die, which is made of two sections, A', screwed together. The lower section is made with an outer cutting-edge for punching the outer circumference of the washer in connection with the outer edge of the stationary die B. The lower section A' is provided with a central interior punching-die, C, that is securely attached thereto by a bottom shoulder and a screw-nut, C', applied to its shank, the shank extending through the lower section, and projecting above the same with the screw-nut C', into a recess of the upper section. The stationary die B has a central perforation, into which the puncher C of the movable die fits for the purpose of cutting the interior edge of

the washer simultaneously with the outer edge by one stroke of the press. A ring-shaped plate, D, of the size of the washer to be cut, is retained by an inner overlapping flange, *a*, on a shoulder or rim, *a'*, of the puncher C, sliding readily in upward direction, but being prevented by the shoulder from dropping off the die. Sliding clearer pins or rods E rest on the ring-plate D, and extend in perforations of both sections A' to the upper end of die A, being there brought at the upstroke in contact with a fork, F, that forces pins E and ring plate D downward to cause the dropping of the washer without difficulty. Stop-pins *b*, in connection with recesses or slots of the sliding clearer-rods E, define the extent of motion of the clearer in the die, and secure them thereto.

The dies may be employed to cut washers or other articles that require to be first punched and then repunched for a hole or aperture, and may be worked with advantage in a punch at a saving in time and material, as it enables the utilization of scrap-iron.

The movable die may be readily taken out pieces by withdrawing the stop-pin, taking out the clearer-pins, and unscrewing the die-sections.

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

The movable die A, being made of two sections, A', screwed together, and of a central puncher attached by shank and screw-nut to the lower section, substantially as described.

JACOB GREENWOLD.

Witnesses:

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O. TOTTEN.