GEORGE W. BENTLEY.

Improvement in Machines for Cutting out and Flanging Metallic Disks.

No. 123,667. Patented Feb. 13, 1872.

Fig. 1.

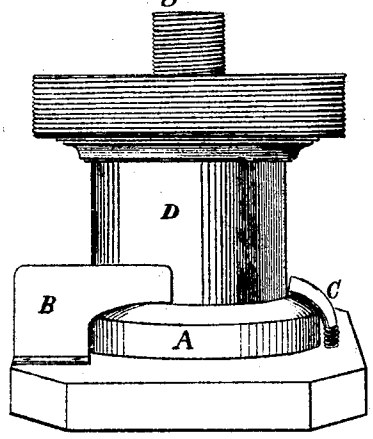
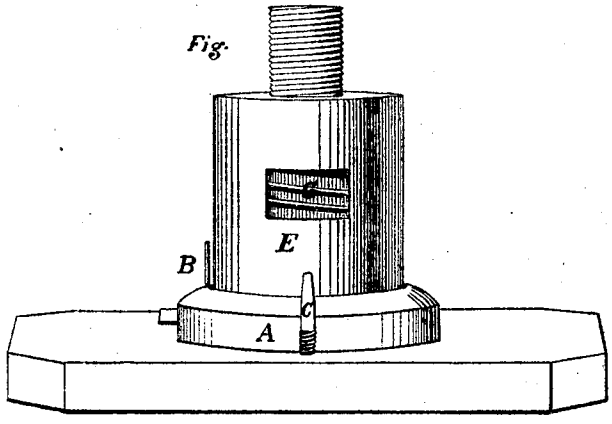


Fig.



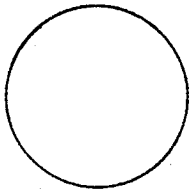


Fig. 4.

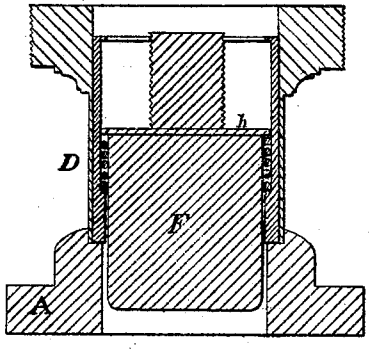


Fig. 3.

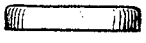


Fig. 5.

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123,667

UNITED STATES PATENT OFFICE.

GEORGE W. BENTLEY, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MACHINES FOR CUTTING OUT AND FLANGING METALLIC DISKS.

Specification forming part of Letters Patent No. 123,667, dated February 13, 1872.

To all whom it may concern:

Be it known that I, GEORGE W. BENTLEY, of Brooklyn, in the county of Kings, New York, have invented, made, and applied to use a new and Improved Combination Die for Cutting and Drawing Up Metals; and that the following is a full, clear, and correct description of the same, reference being had to the accompanying drawing making part of this specification and to the letters of reference marked thereon, in which—

Figure 1 is an end view of my combination die. Fig. 2 is a view of the same, the cutting die being removed. Fig. 3 is a sectional view, showing the "turn-up" in the act of turning up the edge of the blank. Fig. 4 is a view of the blank as punched out by the male die. Fig. 5 is a view of the same as it leaves the machine finished.

In the drawing, made one-half the size of the model, like parts of the invention are indicated by the same letters of reference.

The nature of the present invention consists in the construction, as more fully hereinafter set forth, of a new and useful combination die for cutting and drawing or pressing up metals; the object of the invention being the production of a combination die capable of cutting out and drawing or pressing up metals at one and the same operation, thus greatly expediting the manufacture of cut and drawn or pressed-up articles formed of metal, and reducing the cost of the same.

To enable those skilled in the arts to make and use my invention, I will describe the same.

A shows the female die, secured upon the bed of the press, and provided with the side gauge B and end gauge C to guide the metal as fed to the press. D shows the male die, constructed in the usual manner, and provided with a threaded collar to admit of its being secured in the cross-head of the press. E shows what I term the blank-holder. This consists, in the present instance, of a section of a cylinder, formed of brass or any suitable metal. This section of a cylinder is flanged upon its interior bottom end, and also at its upper end, for the purposes more fully hereinafter explained. F shows the turn-up, used to turn up the edge of the blank, and consists of a solid or hollow cylindrical body of metal, placed within the blank-holder, and moving freely within the same. This "turn-up" is provided with a threaded neck, which allows the turn-up to be secured in the center plunger. G shows a spiral spring, placed between the "turn-up" and the holder, and having its bearings against the flanged bottom end of the holder, and against a collar, *h*, secured upon the upper end of the "turn-up," which collar bears against the flanged upper end of the holder E. The object of the spiral spring is that, as the "turn-up" shall be depressed, as described hereafter, it shall cause the spring to be contracted or compressed, and have a bearing upon the holder so that the holder will, by the pressure of the contracted spring, hold or bear against or upon the blank while the "turn-up" is drawing or pressing the same up.

Such being the construction, the operation is as follows: The metal is fed to the press (in the cross-head of which the male die has been secured) between the male and female dies; and as the male die descends the metal is cut out, as shown in Fig. 4 of the drawing, and rests upon the flanged portion of the female die. The male die now begins to rise, and simultaneously the holder attached to the center plunger is depressed until it is brought into contact with the blank. The "turn-up" now is depressed, contracting the spiral spring, secured as described, and presses down this spring upon the holder while it presses or draws the blank into shape, as shown in Fig. 5 of the drawing. The pressure of the spring upon the holder holds the holder in position upon the blank while the "turn-up" is doing its work of pressing or drawing up the metal.

The advantage resulting from the pressure of the spring upon the holder while the turn-up is depressed is that the metal blank, while being drawn or pressed, is prevented from "puckering" or buckling, and a far superior article is produced.

The blank, having been finished, passes through the female die, and the turn-up and holder are carried back by the upward movements of the center plunger.

The machine having been supplied with metal again, the operation, just described, is repeated.

Having now set forth my invention, what I claim is—

The combination of the holder E, turn-up F, spring G, female die A, and male die D, substantially as and for the purposes set forth.

GEORGE W. BENTLEY.

Witnesses:
GEO. H. REDDING,
C. FREDK. HINE.