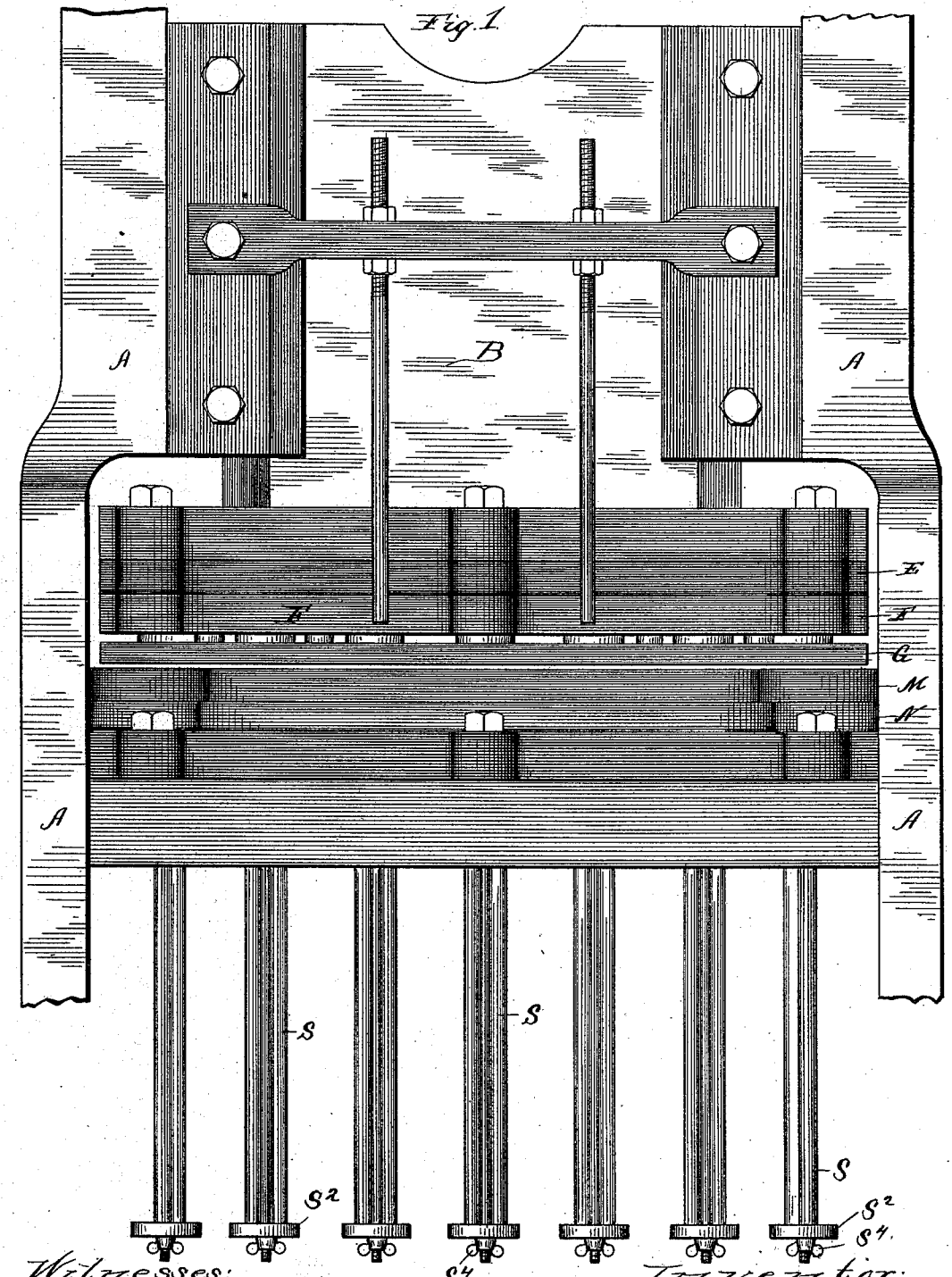
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J. G. HODGSON.

GANG DIE PRESS.

No. 413,668. Patented Oct. 29, 1889.

Fig. 1.



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Fig. 2.

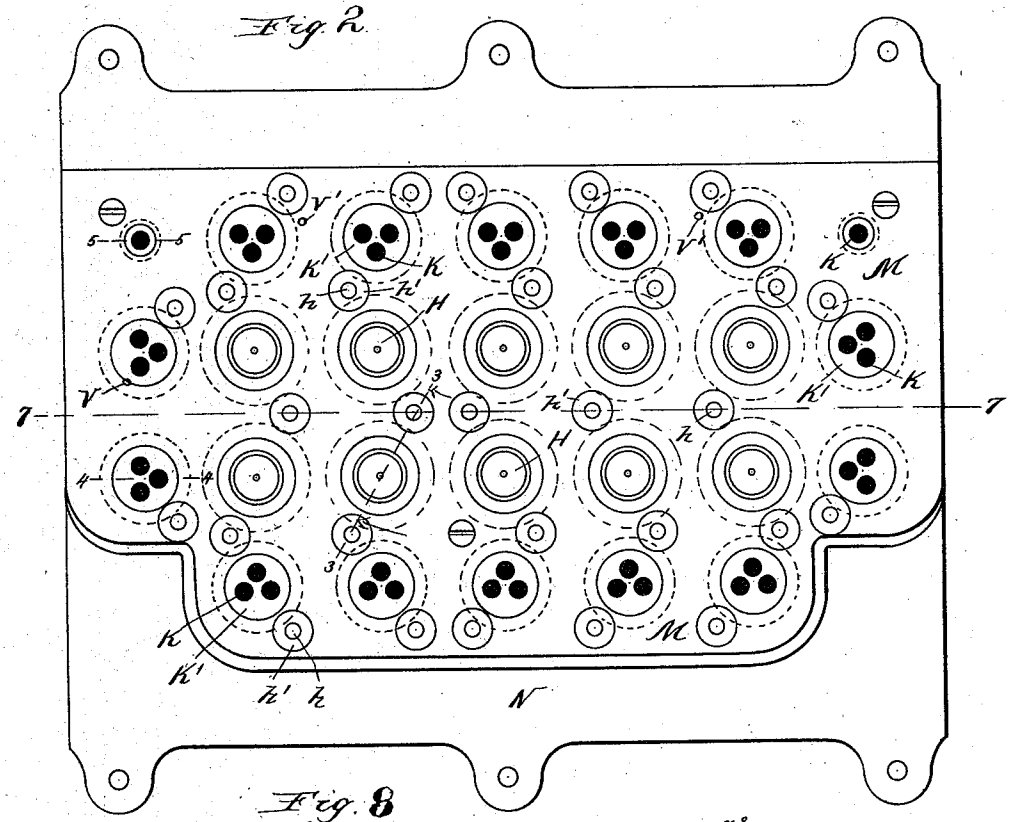
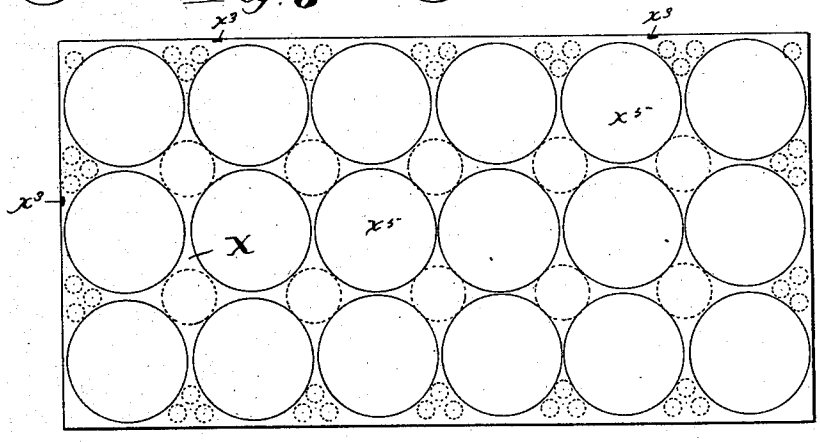


Fig. 8.



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Fig. 4.

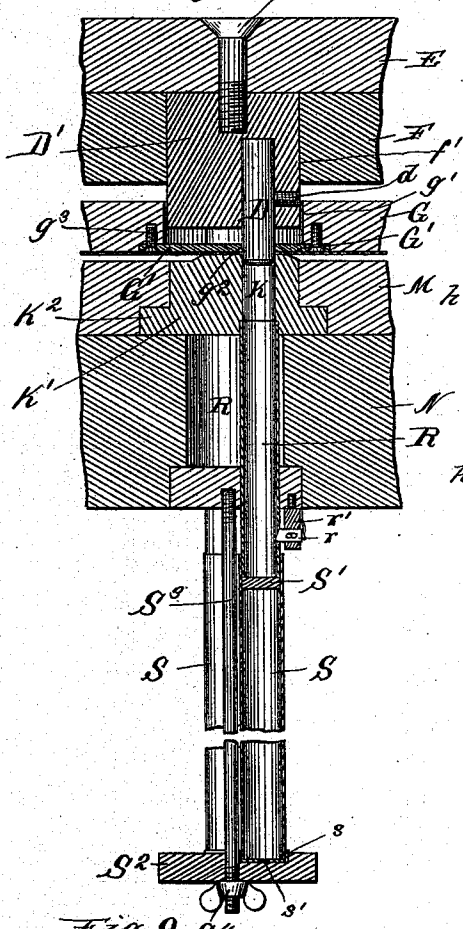


Fig. 3.

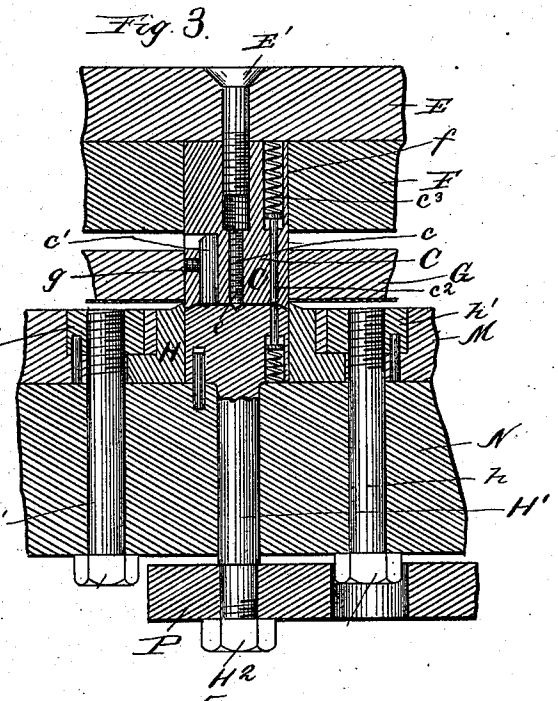


Fig. 5.

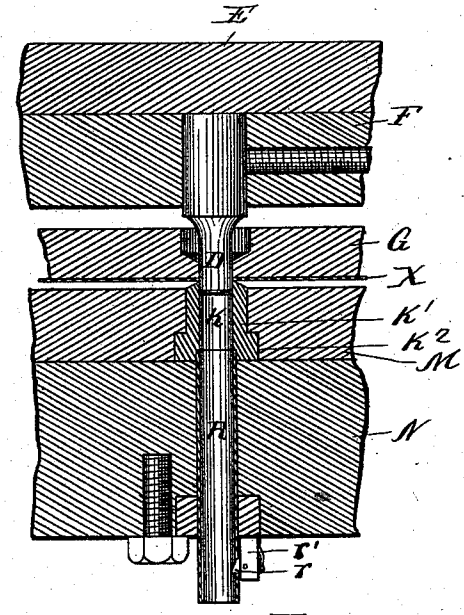


Fig. 9.

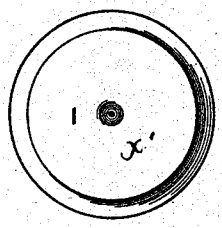


Fig. 11.



Fig. 10.

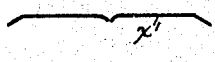


Fig. 12.



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Fig. 6.

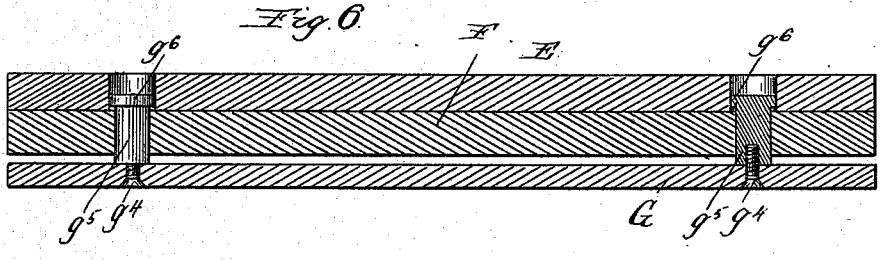
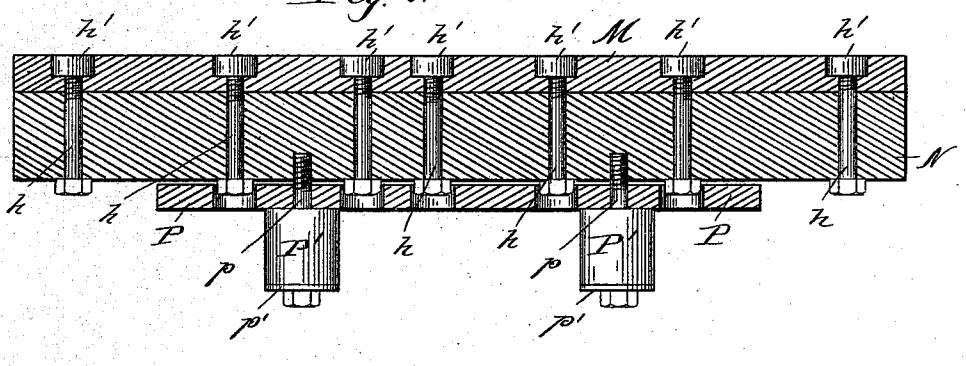


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN G. HODGSON, OF MAYWOOD, ILLINOIS, ASSIGNOR TO EDWIN NORTON, OF SAME PLACE, AND OLIVER W. NORTON, OF CHICAGO, ILLINOIS.

GANG-DIE PRESS.

SPECIFICATION forming part of Letters Patent No. 413,668, dated October 29, 1889.

Application filed August 23, 1889. Serial No. 321,694. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. HODGSON, a citizen of the United States, residing in Maywood, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Gang-Die Presses, of which the following is a specification.

My invention relates to improvements in gang-die presses.

The object of my invention is to provide a gang-die press of a simple, durable, and efficient construction by means of which the button-blanks and can-cap blanks may be simultaneously cut from the entire scrap-sheet of tin which is left after the can-head blanks have been cut therefrom, so that the scrap may be utilized to the fullest extent and all the blanks cut and formed cheaply and expeditiously.

My invention consists in the novel devices and novel combination of parts and devices herein shown and described, and more particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 is a front elevation of a machine embodying my invention. Fig. 2 is a plan view of the machine, showing a gang of female dies. Figs. 3, 4, and 5 are enlarged vertical sections taken on lines 3 3, 4 4, and 5 5, respectively, of Fig. 2. Fig. 6 is a vertical longitudinal section of the stripper-plate, die-plate, and bed-plate which are carried by the reciprocating cross-head. Fig. 7 is a vertical longitudinal section on line 7 7 of Fig. 2. Fig. 8 is a plan view showing the scrap-sheet from which the button-blanks and can-cap blanks (indicated by the dotted lines) are to be cut. Figs. 9 and 10 are plan and sectional views, respectively, of one of the can-cap blanks cut from the sheet; and Figs. 11 and 12 are corresponding views of one of the button-blanks.

In the drawings, A represents the frame of the machine, which may be of any suitable construction.

B is the cross-head, which reciprocates in suitable guides on the frame of the machine, and by which the gang of upper or male dies C D are operated.

E is the movable die head or plate attached to the cross-head B, and in or upon which the male dies C D are secured or carried. The die-head E is provided with a socket-plate or match-plate F, having holes or sockets f, to receive the dies C, and holes or sockets f', to receive the stock-blocks D′, in which the button-blank dies D are secured in groups. The dies C and the die-carrying blocks D′ are secured to the plate E by screws E′.

G is a smoother or stripper plate having holes g g' for the dies C and die-blocks D′ to fit in. This stripper or smoother plate G is provided with supplemental plates G′, which are furnished with holes g^2 for the male dies D to fit in and project through. The plates or disks G′ are secured to the plate G by screws g^3. The dies D, in groups of three, are secured to the die-blocks D′ by screws d. The stripper-plate G is secured by screws g^4 to pins g^5, having heads g^6, which pins project through suitable holes in the match-plate F.

The die C is furnished with a vent-hole-punching die c at its center. The die C may also be furnished with a marking-die c', for putting a mark or indentation upon the can-cap for purposes of identification or trade-mark. The die C is furnished with an ejecting-pin c^2, actuated by a spring c^3.

H and K are the female dies, corresponding to the male dies C and D, respectively.

M is the match-plate, in which the female dies H and the stock-blocks K′ for the dies K are secured. The holes or sockets in the match-plate M correspond to those in the upper match-plate F, and the two plates M and F are in practice rigidly secured together while they are being bored or drilled, so that the whole number of male and female dies of the gangs will accurately counter each other. The match-plate M is secured to the bed or die plate N, which is attached rigidly to the frame of the machine. The can-cap-cutting dies H are secured in place by bolts h, having nuts h' countersunk in the match-plate M. The dies H are furnished with shanks H′, which project through the bed-plate N, and which are secured to a spring-supported plate P by nuts H^2. The plate P is preferably provided with rubber springs P′, which are secured to the bed-plate N by threaded bolts p, furnished with collars or washers p'. This spring-supported plate P gives the necessary

yielding movement to the dies II. The stocks or die-blocks K′ have shoulders or collars K^2, which serve to secure them rigidly in place between the plates M and N. The female dies K consist simply of cutting-edges formed by cylindrical holes extending entirely through the block K′. There are three dies or holes K in each of the die-blocks K′, corresponding to the three male dies D in the die-block D′. As the button-blanks *x* are cut, they feed down through the die-hole K into a feed-tube R, the upper end of which is secured to the die-block K′. The lower end of the feed-tube R is attached to a button-blank-receiving tube S. The receiving-tube S fits over the end of the feed-tube R, and it is furnished with a close-fitting frictional disk, wad, or piston S′, to support the button-blanks and prevent their dropping or turning on edge. The cap *s* of the receiving-tube S is furnished with a central hole *s′*, through which a wire or rod may be inserted when the button-blanks are again fed out of the receiving-tube S into the button-machine. The feed-tube R is furnished with a spring pawl or catch *r*, mounted on a stud *r′*. The purpose of this spring-actuated catch *r* is to support the button-blanks in the feed-tube R while the receiving-tube S is being removed and replaced by another after being filled. A group of three receiving-tubes S are supported by a plate S^2, attached to the frame by a rod S^3, furnished with a thumb-nut S^4. At two of the corners of the sheet X single button-blanks *x* are punched out, as indicated in Fig. 8. This is done by single male and female dies D K, as is clearly shown in Fig. 5. At the opposite corners of the sheet, where the workman takes hold of the same in placing or adjusting it between the dies, no blanks are cut.

In order to properly register the sheet between the dies, so that perfect blanks will be formed by each pair of male and female dies, a registering notch x^3 is cut in edges of the sheet at the time the can-head blanks are cut therefrom, and this registering-notch x^3 fits against a guide-pin V, and the edges of the sheet against guide-pins V′ V′, which are attached to the match-plate M, as is clearly indicated in Fig. 2. The scrap-sheet X is the refuse left after cutting out the can-head blanks, (indicated by the large circles x^5 in Fig. 8,) according to the method and machine heretofore patented in Letters Patent No. 304,352, of September 2, 1884, and No. 361,286, of April 19, 1887. When the can-heads are cut out in this way by gang-dies, the spaces left in the sheet between the can-heads are absolutely regular and uniform in size and location, so that it is thus possible for me to produce a machine for cutting out the can-caps *x′* and the button-blanks *x* from the interstices. I am thus enabled to utilize almost the entire sheet of tin and leave very little actual final scrap or waste.

I claim—

1. In a machine for cutting out button-blanks and can-caps from the interstices of a scrap-sheet, the combination, with a bed die-plate N, of a match-plate M, a gang of can-cap-cutting female dies H, a gang of button-blank-cutting female dies K, guide or gage pins V V′, a reciprocating cross-head B, die-carrying plate E, secured thereto, match-plate F, a gang of can-cap-cutting male dies C, and a gang of button-blank-cutting male dies D, operated by said cross-head B, substantially as specified.

2. In a machine for cutting out button-blanks and can-caps from the interstices of a scrap-sheet, the combination, with a bed die-plate N, of a match-plate M, a gang of can-cap-cutting female dies H, a gang of button-blank-cutting female dies K, guide or gage pins V V′, a reciprocating cross-head B, die-carrying plate E, secured thereto, match-plate F, a gang of can-cap-cutting male dies C, and a gang of button-blank-cutting male dies D, operated by said cross-head B, said male dies D being mounted in stock-blocks D′, secured to said plates E F, substantially as specified.

3. In a machine for cutting out button-blanks and can-caps from the interstices of a scrap-sheet, the combination, with a bed die-plate N, of a match-plate M, a gang of can-cap-cutting female dies H, a gang of button-blank-cutting female dies K, guide or gage pins V V′, a reciprocating cross-head B, die-carrying plate E, secured thereto, match-plate F, a gang of can-cap-cutting male dies C, and a gang of button-blank-cutting male dies D, operated by said cross-head B, and feed-tubes R, extending from said female dies K, substantially as specified.

4. In a machine for cutting out button-blanks and can-caps from the interstices of a scrap-sheet, the combination, with a bed die-plate N, of a match-plate M, a gang of can-cap-cutting female dies H, a gang of button-blank-cutting female dies K, guide or gage pins V V′, a reciprocating cross-head B, die-carrying plate E, secured thereto, match-plate F, a gang of can-cap-cutting male dies C, and a gang of button-blank-cutting male dies D, operated by said cross-head B, feed-tubes R, extending from said female dies K, and receiving-tubes S, attached to said feed-tubes R, substantially as specified.

5. In a machine for cutting out button-blanks and can-caps from the interstices of a scrap-sheet, the combination, with a bed die-plate N, of a match-plate M, a gang of can-cap-cutting female dies H, a gang of button-blank-cutting female dies K, guide or gage pins V V′, a reciprocating cross-head B, die-carrying plate E, secured thereto, match-plate F, a gang of can-cap-cutting male dies C, and a gang of button-blank-cutting male dies D, operated by said cross-head B, feed-tubes R, extending from said female dies K, and receiving-tubes S, attached to said feed-tubes R, said receiving-tubes S having frictional wads or pistons S′ to support the blanks as they are fed into the receiving-tube, substantially as specified.

6. The combination, with a hollow female die, as K, of a feed-tube R, provided with a spring-catch *r*, for supporting the blanks in the feed-tube, substantially as specified.

7. The combination, with a hollow female die, of a feed-tube R and a receiving-tube S, substantially as specified.

8. The combination, with a hollow female die, of a feed-tube R and a receiving-tube S, said receiving-tube S being furnished with a frictional wad or piston S′, substantially as specified.

9. The combination, with a hollow female die, of a feed-tube R and a receiving-tube S, said receiving-tube being furnished with a frictional wad or piston S′, and said feed-tube R having a spring-pawl *r*, substantially as specified.

10. In a machine for cutting blanks from the interstices of a scrap-sheet, the combination, with a gang of male and female dies arranged in a regular and definite order, of guide-pins or registering devices for registering the position of the scrap-sheet in respect to the dies, substantially as specified.

11. In a machine for cutting blanks from the interstices of a scrap-sheet, the combination, with a gang of male and female dies arranged in a regular and definite order, of guide-pins or registering devices for registering the position of the scrap-sheet in respect to the dies, and a smoother-plate descending in advance of the male dies for smoothing and flattening out the scrap-sheet, so that the interstitial spaces of the sheet will properly register with the gang of dies, substantially as specified.

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EMMA HACK.