

(No Model.)

D. D. WILLIAMSON.
Die for Buttons.

No. 239,357.

Patented March 29, 1881.

Fig. 1.

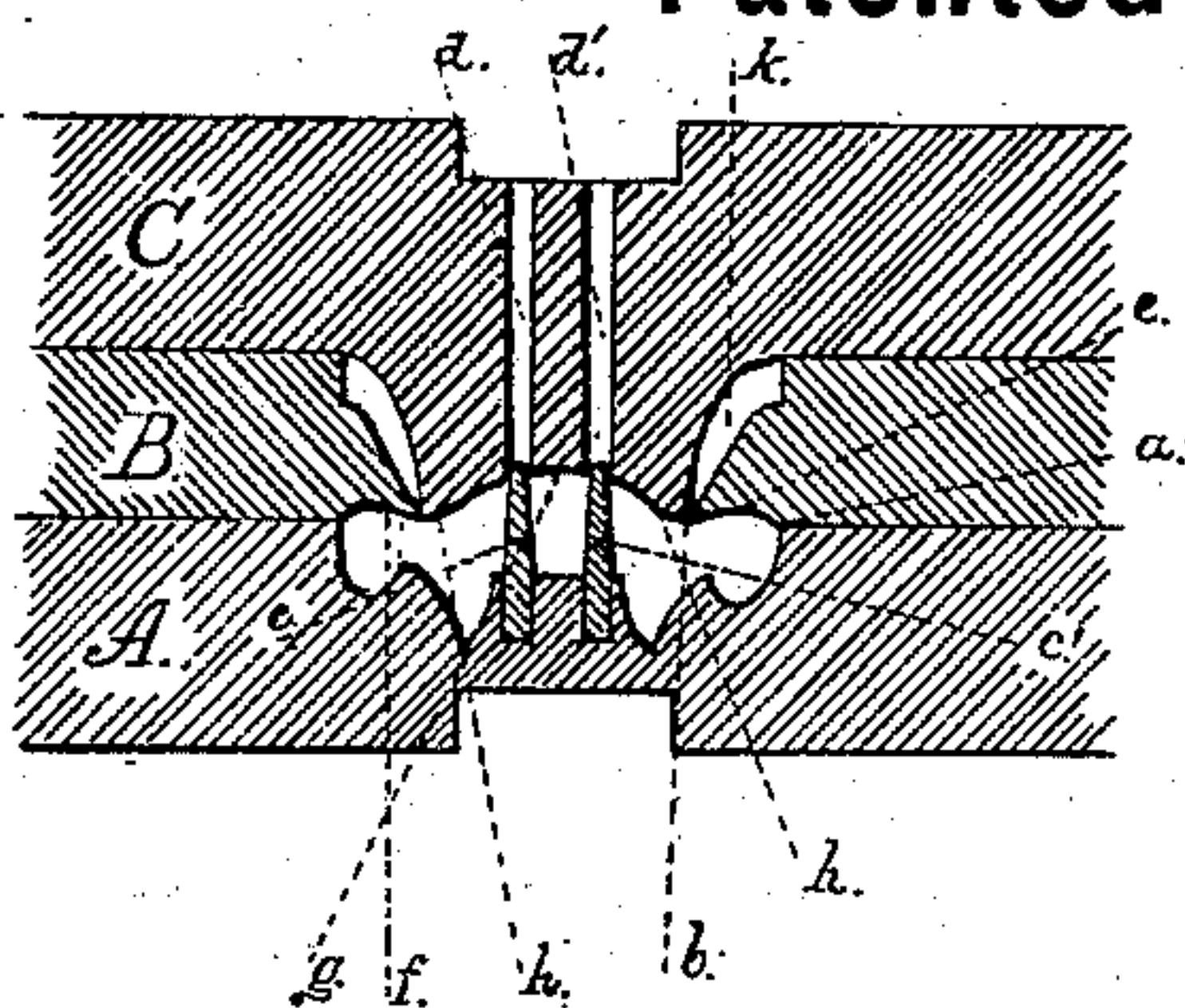


Fig. 2.

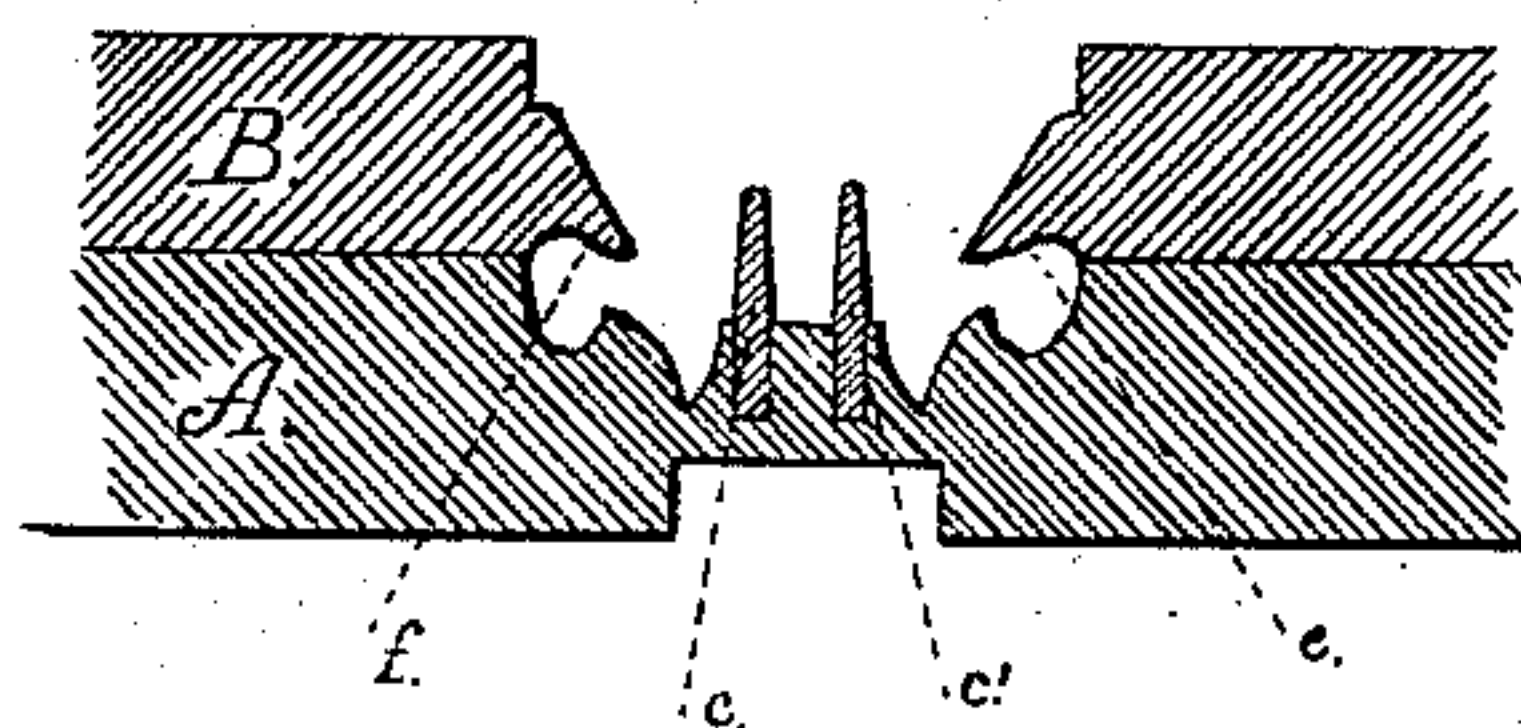


Fig. 3.

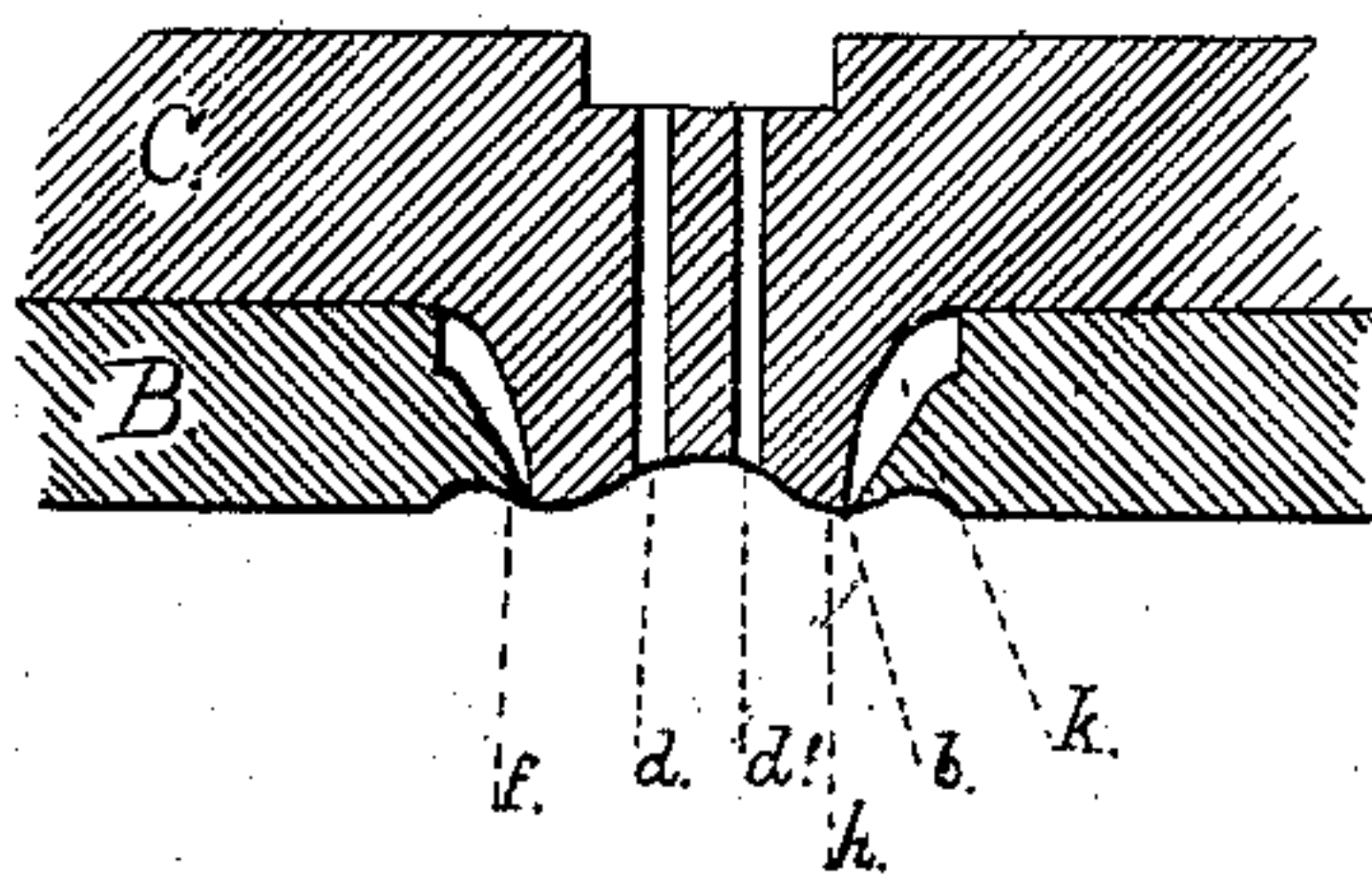


Fig. 4.

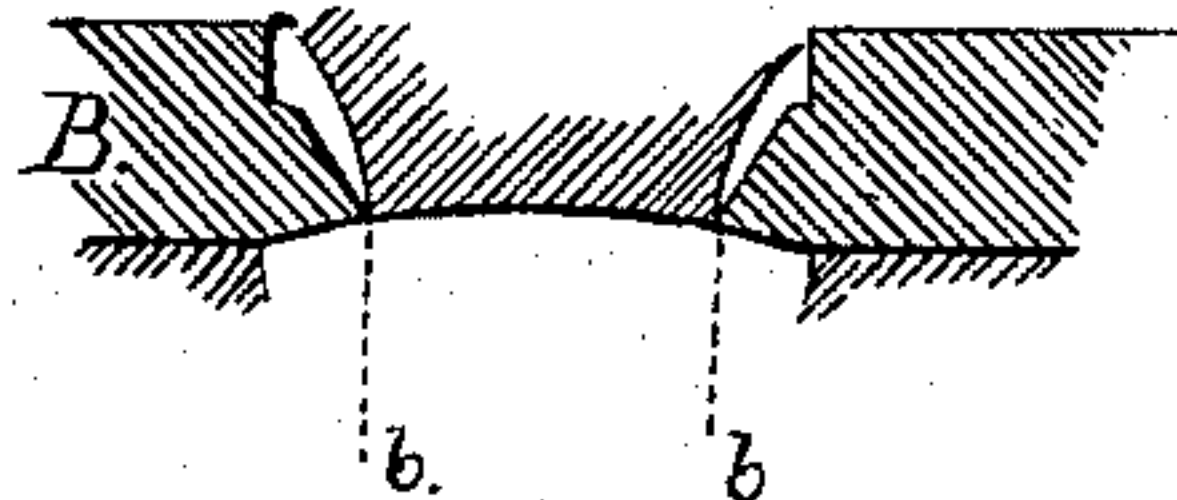


Fig. 5.

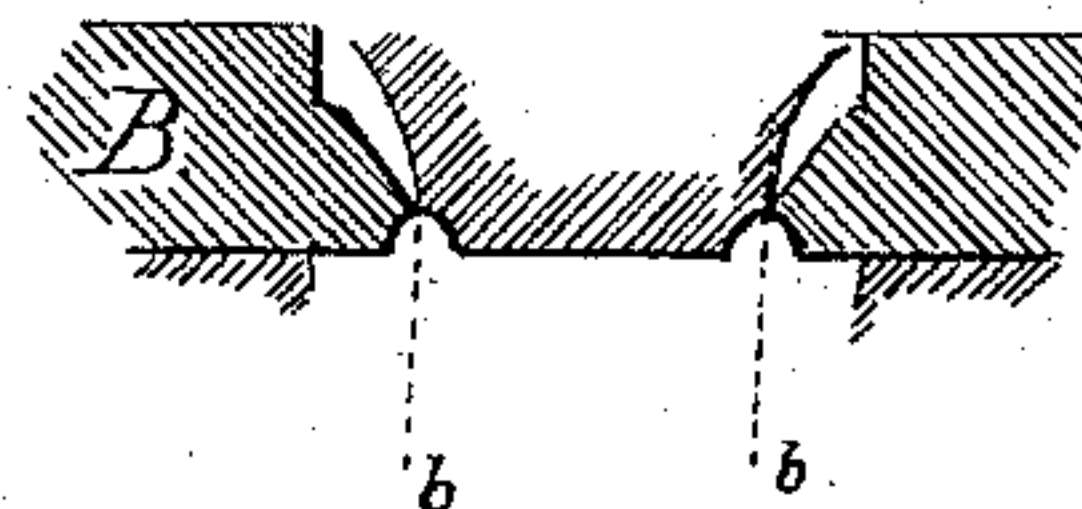
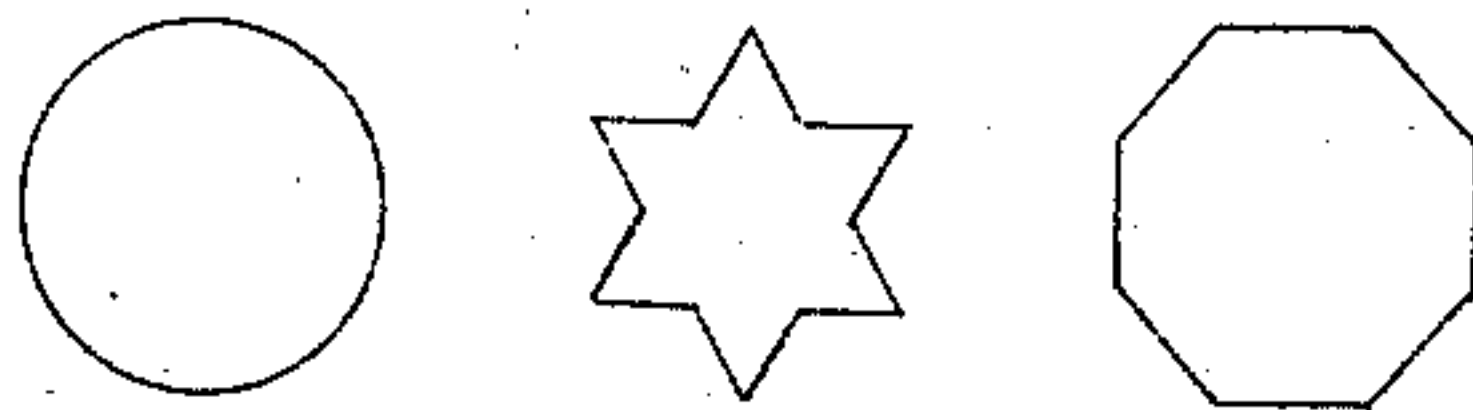


Fig. 6.



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UNITED STATES PATENT OFFICE.

DOUROC D. WILLIAMSON, OF NEW BRUNSWICK, NEW JERSEY.

DIE FOR BUTTONS.

SPECIFICATION forming part of Letters Patent No. 239,357, dated March 29, 1881.

Application filed January 28, 1881. (No model.)

To all whom it may concern:

Be it known that I, DOUROC D. WILLIAMSON, of New Brunswick, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Dies for Buttons, of which the following is such full, clear, and exact description as will enable others skilled in the art to which this my invention relates to make and use the same when taken in connection with the accompanying drawings, in which—

Figure 1 shows a vertical section through the center of the face-die, ring-die, and male die. Fig. 2 shows same section through female die, consisting of face and ring dies. Fig. 3 shows same through ring-die and male die. Fig. 4 shows same section through modification of male die and ring-die. Fig. 5 shows same section through another modification of male die and ring-die. Fig. 6 shows face of male die in various outline.

Heretofore and before this my invention, dies for buttons, whether such buttons were formed of composition, rubber, or horn, or like substances, were made to consist of two parts—that is, a female die and a male die—between which the button was formed, the joint between the two dies being formed at the edge of the button about its greatest circumference. Projecting pins were provided on one or both dies to partially form or mark the thread-holes. After the button had been removed from the dies it was finished by removing the feather from the edge thereof, which was formed at the joint between the two die-pieces, and the holes were subsequently drilled, making frequent handling of the buttons necessary in finishing, whereby they became marred or scratched.

This my invention consists in so forming the male and female die that the joint between them will be removed slightly inward from the edge of the button; in the combination of projecting pins in one die extending to the face of the other and into holes provided therein for them when the dies are closed; in the formation of the joint between the two dies at a projection on the face of each, so that the projections will form in the button a groove in which any feather formed in the joint will be

contained; and the various constructions and combinations hereinafter claimed.

My invention is especially applicable to the forming of buttons from composition, rubber, horn, or like material, but may be advantageously used for other purposes.

The female die consists of the face-die A and ring-die B. The face-die A contains the reverse of the form to be given to one face of the button out to the greatest diameter, and the ring-die B contains the reverse of the form to be given from the greatest diameter at the line of the face-die A around the edge of the button and a portion of the other or back face of the button. The face-die A and ring-die B are shown in position in Fig. 2. The ring-die has on its face the groove *e* and projection *f*, so as to form in the face formed thereby—the back face of the button—a groove about it a short distance from the edge thereof.

At or near the center of the die A the pins *c c'* are rigidly fastened, projecting up to and entering the holes *d d'* in the male die C provided for that purpose. When the dies are closed together these pins form the thread-holes in the buttons.

The portion of the face-die A and the portion of the ring-die B which come together and form the joint *a* are accurately ground and fitted together, so that the joint *a* between them will not permit any feather to be there formed.

The male die C is made to closely fit within the ring-die B and form with it the working-joint *b*. The face of the male die C is here shown having a concave or depression, *g*, at the center and curving to nearly flat at the edge, making the projection *h* about it, so that the faces of the male die C and the ring-die B will, when brought to a closed position, as shown at Fig. 3, have about or at the edge of the joint *b* a projection formed of *f h*, through the center of which *b* the joint is, so that any feather formed in the joint *b* will be in the depression in the button formed by projections *f h* and below the back face of the button.

The face of the male die and ring-die may be made without the projections *f* and *h*, and are so shown in Fig. 4; but buttons made in dies without projections *f* and *h* are apt to have a feather formed in the joint *b*, project-

ing beyond the face of the button, which must be removed to give a good finish, while buttons made in dies having the projections *f* and *h* have any feather that may be formed in the joint *b* at the bottom of the groove made by the projections *f* and *h*, and wholly below the back face of the button.

The male die C and ring-die B may be made so that the joint *b* will be formed in a depression in the dies, as shown at Fig. 5, whereby there will be made on the button formed therein a projection or bead, on which any feather formed in the joint *b* would be, and from which it could be removed with little labor or danger of marring the button.

The face of the male die may have a circular boundary, or star-shaped, octagonal, or other form, as shown in Fig. 6, the inside of the ring-die B, which forms with the male die the joint *b*, being made of corresponding shape.

The dies may be cut to make round, oval, octagonal, spherical, or other forms of button having the same peculiarities as those described herein without departing from my invention.

The male die and ring-die are each cut away so as to form the groove or annular space *k* between them, into which the waste stock will be forced through the working-joint *b* by the operation of the dies.

The operation of the dies is as follows: When forming buttons of composition which is nearly liquid, plastic or powdered, the die A and ring-die B are securely fastened together so as to form the female die, into which a sufficient amount of the composition is deposited, and the male die is forced down upon it, pressing the composition tightly in the die, any surplus or waste stock being forced into the groove *k*. The male die C and ring-die B are then separated from the face-die A and the button removed. The button so made is found to be finely finished and provided with thread-holes, ready for the market without further finishing, unless a male die and ring-die without projections *f* and *h* are used, when it may be necessary to remove a feather formed in the joint *b* from the button.

When rubber, horn, or a composition of more firm and solid consistency is used to form but-

tons from, it is usually cut or formed in blanks of proper size to be fed to the dies. The blanks may be inserted before bringing the ring-die B and face-die A together, or they may be formed of such diameter as will pass through the ring-die when it is in position on the die A, and of such a thickness that it will contain stock sufficient to fill the die when the male die C is brought into its closed position. Buttons so formed are to be removed as above described.

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

1. The combination of the male and female dies, the working-joint between which is removed slightly within from the greatest diameter of the female die, substantially as specified and set forth.

2. The combination of a face-die, and a ring-die for forming the edge and a portion of the reverse face near the edge with a male die fitting the inner edge of the ring-die, substantially as specified and set forth.

3. The female die, formed by the combination of the face-die and ring-die projecting over the face-die, substantially as specified.

4. The ring-die provided on its face, at or near the edge thereof, with the projection *f*, in combination with the male die provided on its face with the projection *h*, at or near the edge thereof, so that the projections *f* and *h* form substantially one projection when the dies are closed, substantially as specified.

5. The combination, with the male die and ring-die, of the annular groove or space *k* between the body of the male die and the body of the ring-die, of less diameter than the diameter of the female die adjoining the working-joint between the two dies, substantially as specified and set forth.

6. The combination of the face-die provided with pins *c c'*, rigidly attached thereto, and a ring-die for forming the edge and a portion of the reverse face near the edge, with a male die fitting the inner edge of the ring-die and provided with perforations *d d'* to receive the pins *c c'*, substantially as specified and set forth.

DOUROC D. WILLIAMSON.

Witnesses:

JOSEPH J. SULLIVAN,
E. IRONS.

Correction of Letters Patent No. 239,357.

It is hereby certified that in Letters Patent No. 239,357, issued March 29, 1881, for an improvement in "Dies for Buttons," the name of the inventor and grantee, wherever it appears in said Letters Patent, and in the specification attached thereto and forming a part thereof, was erroneously written and printed Douroc D. Williamson instead of Douwe D. Williamson, the correct name of said inventor and grantee; that the proper corrections have been made in the files and records of the Patent Office and are hereby made in said Letters Patent.

Signed, countersigned, and sealed this 4th day of April, A. D. 1881.

[SEAL.]

A. BELL,
Acting Secretary of the Interior.

Countersigned:

E. M. MARBLE,
Commissioner of Patents.