

(No Model.)

R. BUTTERWORTH.

DIE.

No. 343,563.

Patented June 15, 1886.

Fig.10.

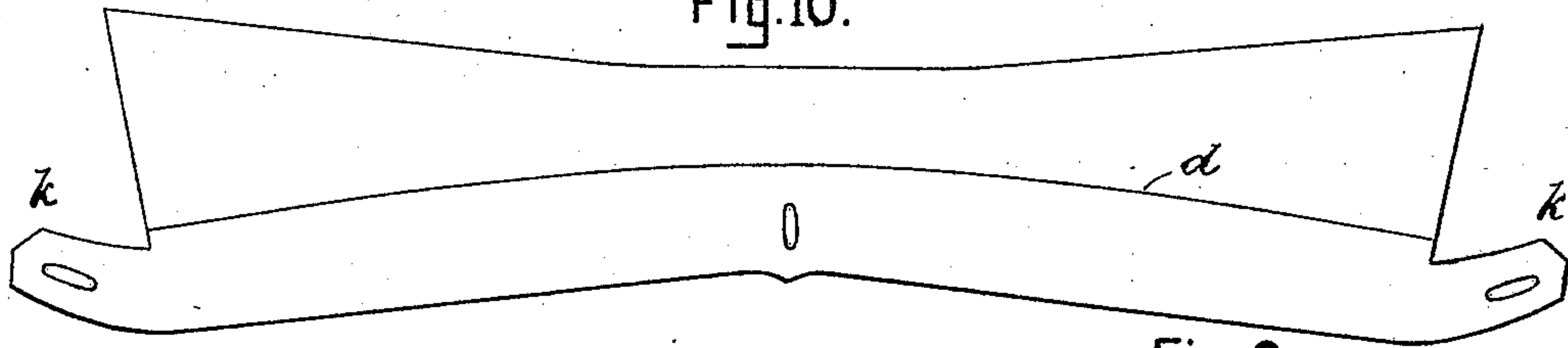


Fig.6.

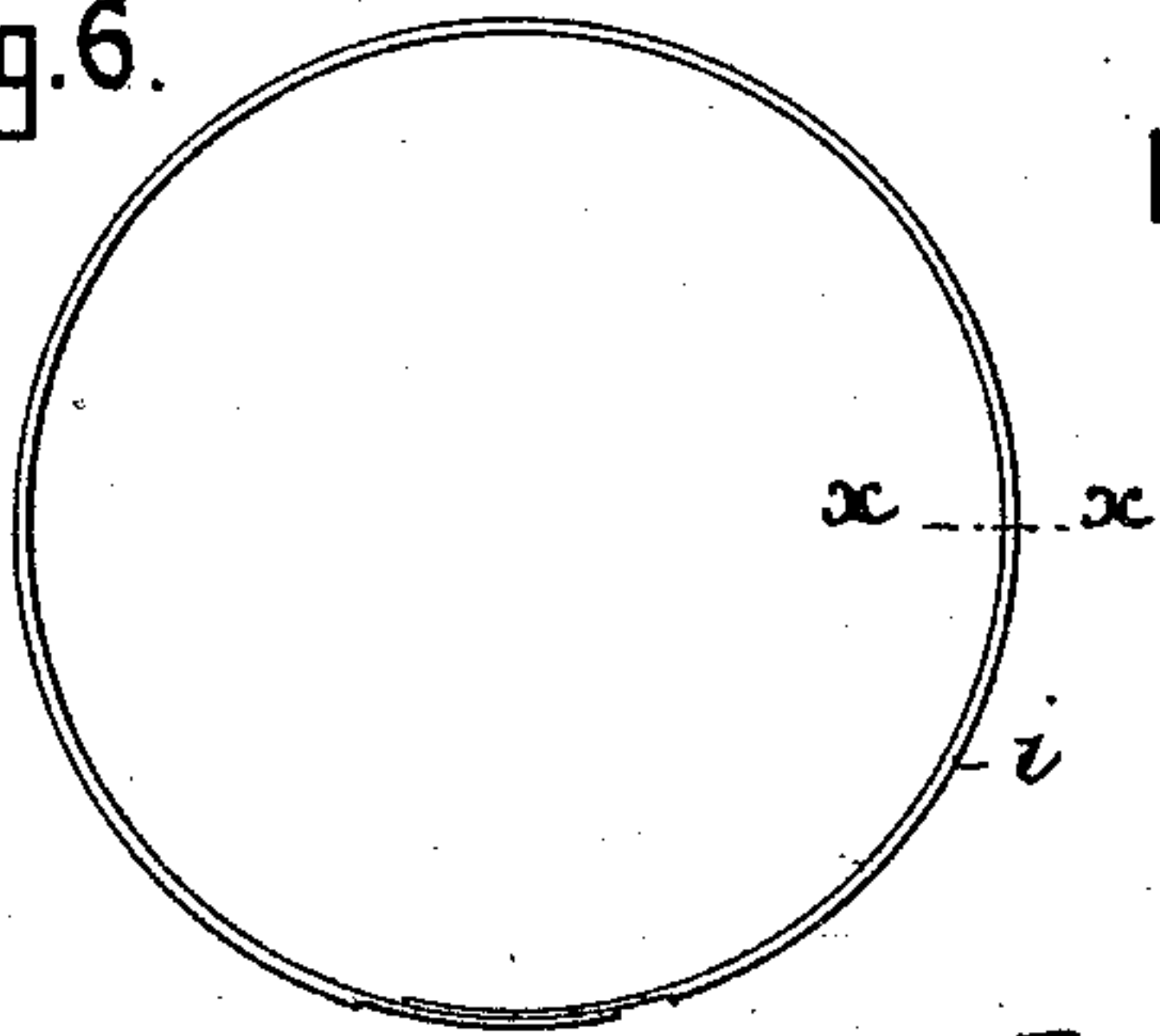


Fig.7.

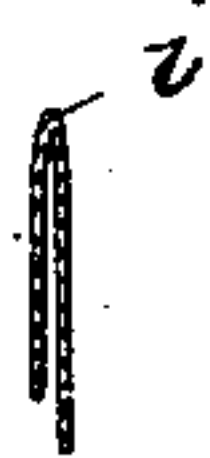


Fig.8.

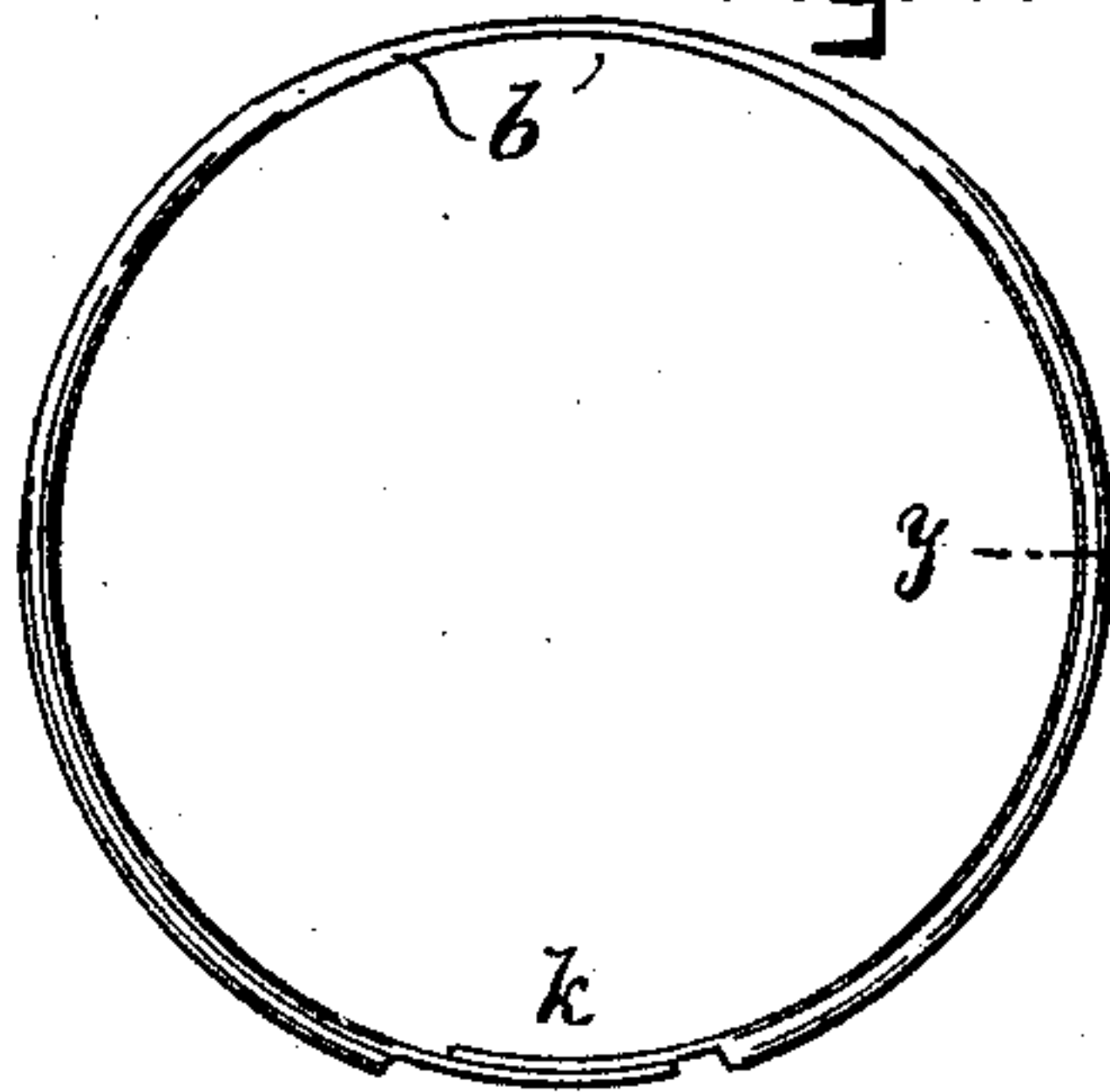


Fig.9.



Fig.4.

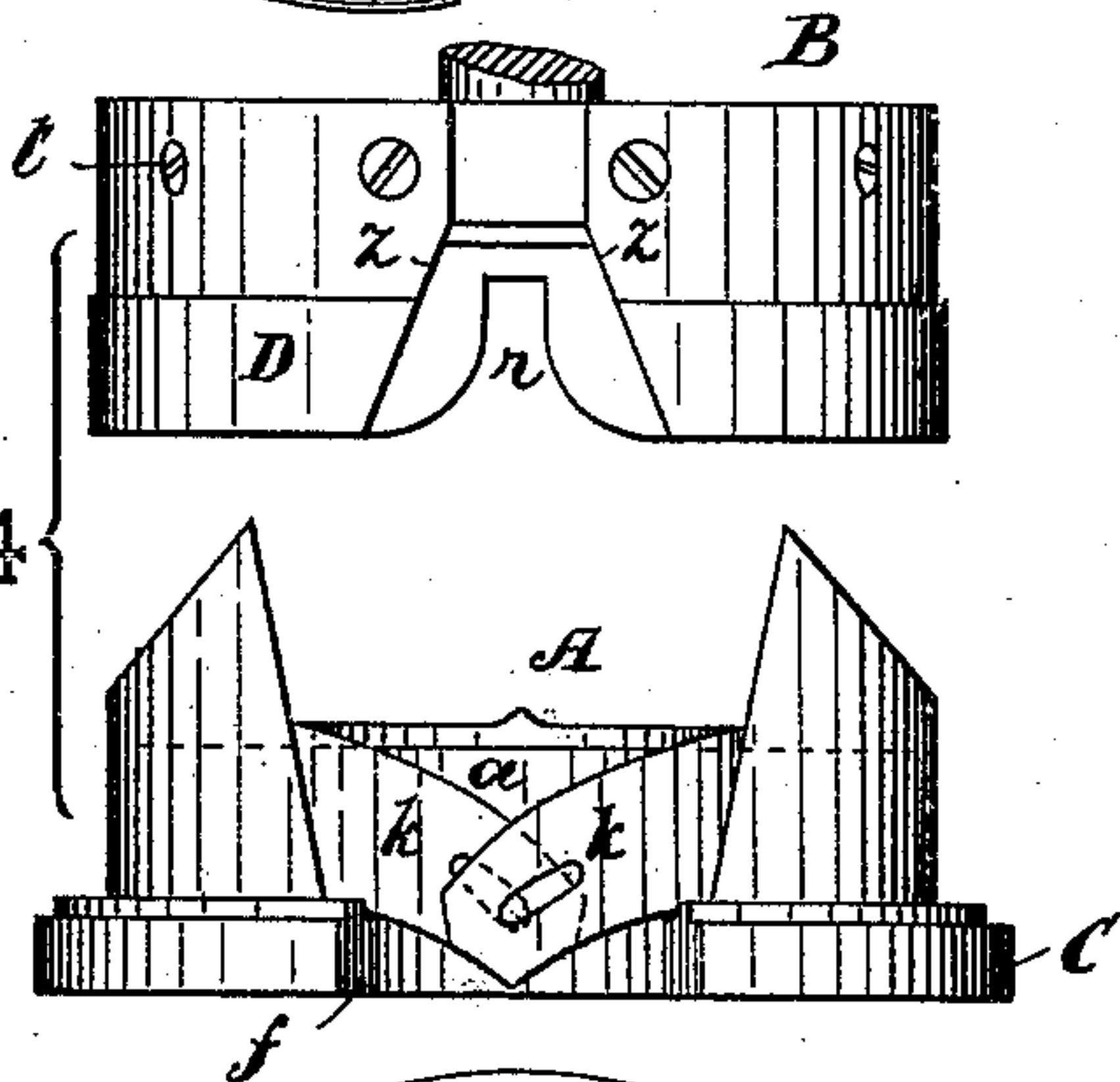


Fig.5.

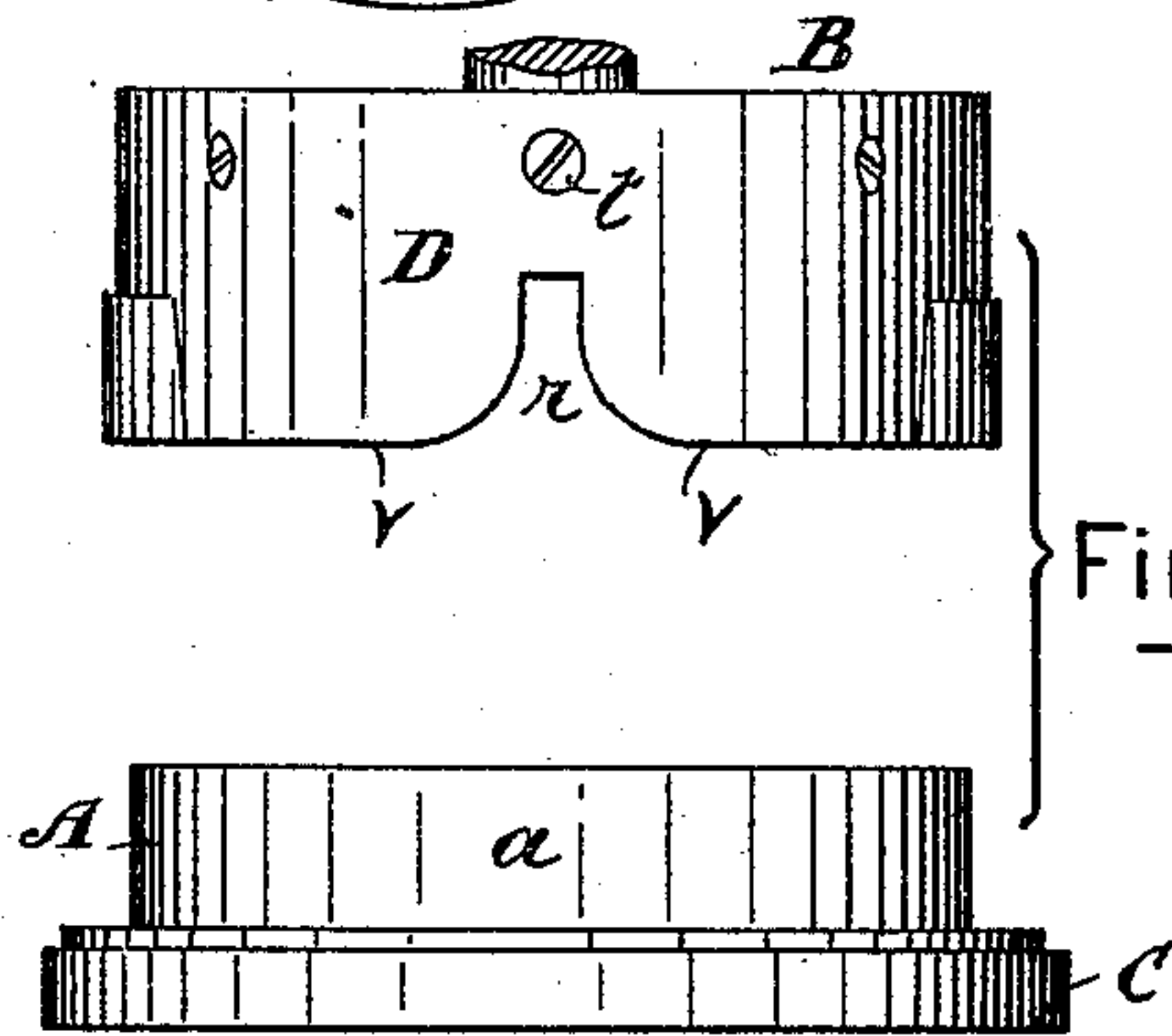


Fig.2.

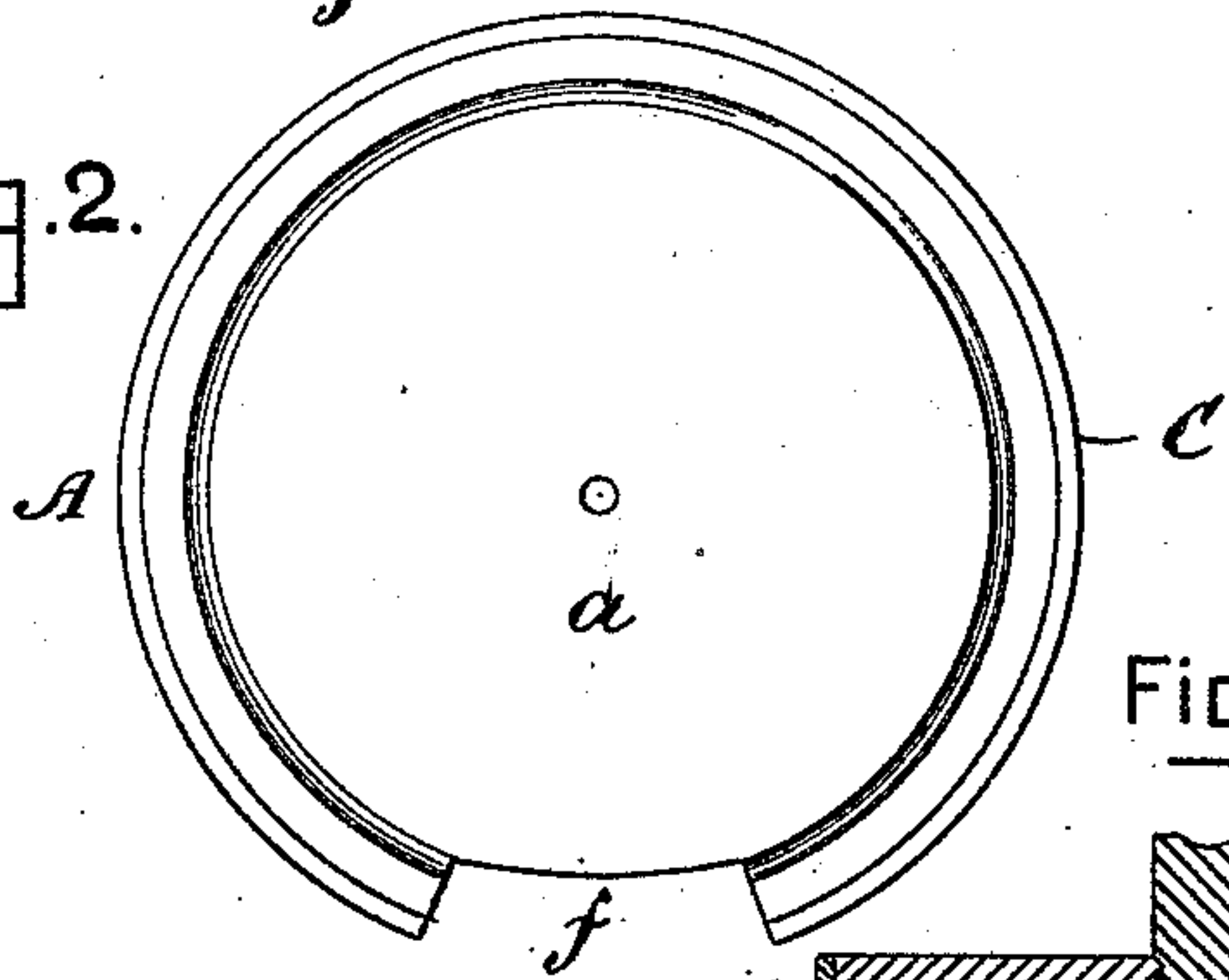


Fig.3.

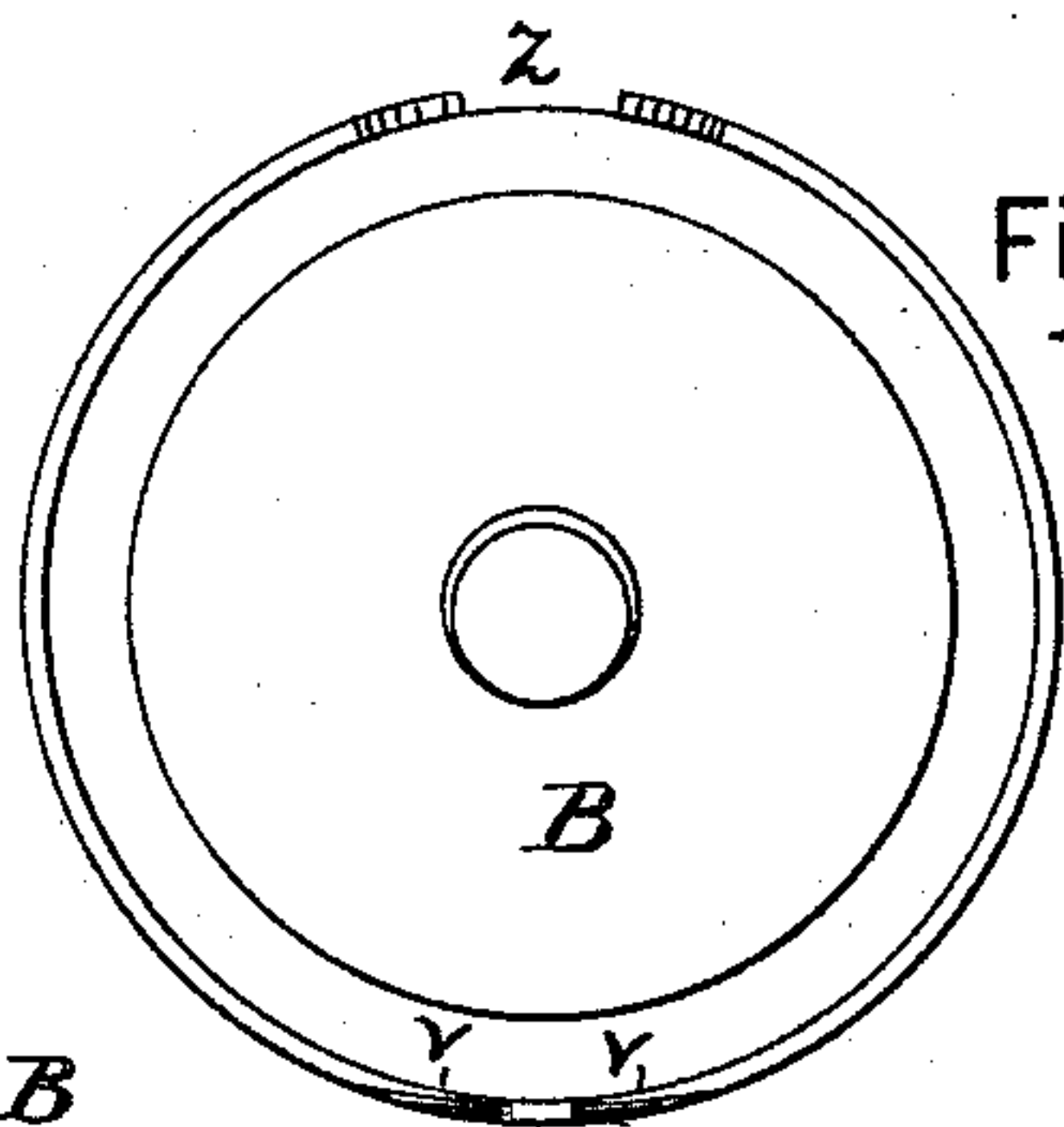
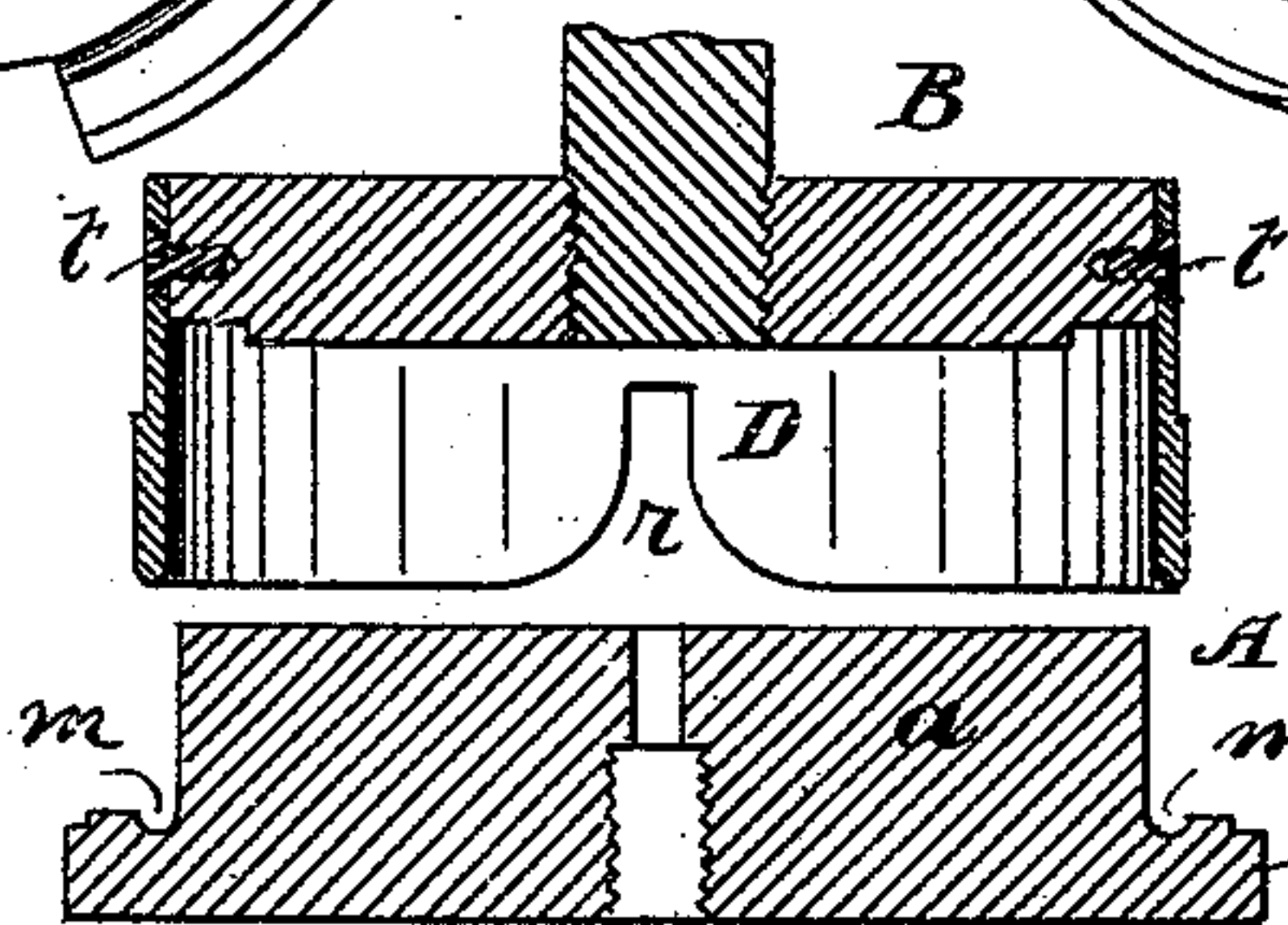


Fig.1.



Witnesses.

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# UNITED STATES PATENT OFFICE.

ROBERT BUTTERWORTH, OF SOMERVILLE, ASSIGNOR TO HIMSELF AND THE  
REVERSIBLE COLLAR COMPANY, OF BOSTON, MASSACHUSETTS.

## DIE.

SPECIFICATION forming part of Letters Patent No. 343,563, dated June 15, 1886.

Application filed January 18, 1886. Serial No. 188,958. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT BUTTERWORTH, of Somerville, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Dies, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical transverse section of my improved dies represented as in position for use; Fig. 2, a top plan view of the bed-die; Fig. 3, a bottom plan view of the upper die; Fig. 4, a front elevation of the dies with a collar in position to be molded; Fig. 5, a rear elevation of the dies; Fig. 6, a top plan view of an ordinary turn-down collar; Fig. 7, a vertical transverse section of the same taken on line *x x* in Fig. 6; Fig. 8, a top plan view of my improved turn-down collar; Fig. 9, a vertical transverse section of the same taken on line *y y* in Fig. 8, and Fig. 10 a plan view of a blank or collar before it is folded.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

As I propose to make the collar shown in Fig. 8 and the process or method of making the same the subject-matter of other applications for Letters Patent, I do not herein claim, broadly, either said collar or process.

My present invention, or that forming the subject-matter of this application, relates to that class of dies which are employed in the manufacture of paper or cloth-faced paper collars for molding or forming the same after they are cut; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, the object being to produce a simple, cheap, and effective device adapted to mold or form the collar at its folding line or edge, in imitation of the best turn-down linen collars.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the bottom or bed die, and B the upper or movable die. The bed-die is provided with a horizontally-projecting flange, C, at its base, which is cut away, as shown at *f*, at or near the front of the die. An annular groove, *m*, is formed in the top of the flange C, at its inner edge, said groove being curved in cross-section and corresponding in contour with the form it is desired to give the collar at its upper or folded edge. The upper die, B, is provided with a downwardly-projecting annular flange or cylinder, D, which is cut away at the front, as shown at *z*, and at the rear, as shown at *r*, said flange being secured to the body of the die by the screws *t*. The lower edge of the flange D is rounded to correspond with the contour of the groove *m*, but is made narrower or thinner in cross-section than the width of said groove, thereby preventing the flange from binding or sticking in the groove when the body of the collar at its folding-line is forced down into the same in molding it, as hereinafter described. The flange D, at the rear of the die B, is also reduced in thickness on either side of the space *r*, as best seen at *v v* in Fig. 3, the object being to produce a thin place, *b*, in the curved upper or folded edge of the collar, and at its rear, as shown in Fig. 8, so that the collar may be bent around or fitted to the neck of the wearer with greater ease than would be possible if the upper edge were folded throughout its length on a large curve, as shown in Fig. 9, and without breaking or crimping at the back.

The object in cutting out the flange D at or near the rear of the die B, as shown at *r*, is to prevent the band of the collar from being wrinkled or corrugated at that point by the molding process as the upper die descends.

The object in cutting out the flange C at or near the front of the die A, as shown at *f*, is to enable the ends *k* of the band of the collar to be held by the fingers of the workman during the process of molding, the flange D at or near the front of the die B being cut, as shown at *z*, for a like purpose, or to prevent said last-named flange from interfering with the hands of the workman.

In the use of my improvement the "collar-



blank" or unfolded collar, as shown in Fig. 10, is creased in the ordinary manner on the folding-line  $d$ , and turned down or folded in the usual manner on said line by the hands of the workman. The collar thus folded is then reversed, or turned upside down, and drawn tightly around the body or hub  $a$  of the bed-die A, its folded edge on the line  $d$  being disposed in or immediately adjacent to the groove  $m$  in the flange C, and the ends  $k$  of its band overlapped, as shown in Fig. 4, in which position it is firmly held by the fingers of the workman pressing said ends against the hub. The die B is then caused to descend, the flange D passing downwardly between the flap and band of the collar and forcing a portion of its body at the folding-line into the groove  $m$ , thereby permanently stretching and molding it at the upper or folded edge, as shown in Figs. 8 and 9, in a manner which will be readily obvious without a more explicit description.

When turn-down paper or cloth-faced paper collars are folded and rolled in the usual manner, the upper or folded edge,  $i$ , is left comparatively sharp or thin, as shown in Figs. 6 and 7, thereby injuring the appearance of the collar and affording but little space for the scarf or necktie.

All turn-down linen collars of the best patterns and quality when properly laundered necessarily have the appearance of being folded at the upper edge on a large curve, and, as it is very desirable, in order to meet the requirements of the trade, to have paper and cloth-faced paper collars made in imitation of the same, my improved turn-down paper or cloth-faced paper collar is molded or stretched on the folding-line  $d$ , as described, thereby permanently folding it on a large curve, as shown in Figs. 8 and 9, improving its appearance and affording space for the necktie. The flange C is preferably cast or formed integral with the body or hub  $a$  of the die A; but it may be made separately or formed in any suitable bed, if desired. The hub  $a$  serves to assist in keeping the collar in proper position preparatory to and while being molded, as described, and it may be constructed of any suitable materials and supported in any suitable manner, whether integral with the flange C or not, it being essential, of course, that it should rise above the plane of the groove  $m$  and be arranged concentrically therewith. The flange D may also be made integral with the die B, if preferred, and not reduced at  $v$ , as described. The space or opening  $r$  may also be omitted, although I deem it preferable to use said space, and also to reduce the rear portion of the flange D at  $v$ , as shown and described.

I do not confine myself to having the die B work vertically, as the dies may be so arranged that it may work horizontally or in some other direction. The die A may also be arranged to move instead of the die B, if preferred.

By forcing a portion of the body of the col-

lar at the folding-line into the groove  $m$ , as described, the folded edge is not only molded or formed on a large curve in cross-section, as shown in Figs. 8 and 9, but is also molded in such a manner, by being crowded or forced down into the groove, as to slightly stretch the stock of the flap longitudinally and slightly condense the stock of the band longitudinally at and near the folding-line between the flap and band, thereby giving the collar a good "spring" and keeping it in better shape than when not so molded.

It will be understood that in use the die A is to be properly secured to the bed of a suitable press, and the die B to the cross-head or plunger of the same, or vice versa, it being deemed unnecessary to show such press or the entire appliances for securing the dies in position therein.

Having thus explained my invention, what I claim is—

1. In a device for molding or forming a paper or cloth-faced paper collar, the die A, provided with the annular groove  $m$ , in combination with the die B, provided with the annular flange D, said flange being adapted to force a portion of the body of the collar at its folding-line into said groove when the dies are brought sufficiently near together and mold or form the same, substantially as described.

2. In a device for molding or forming a paper or cloth-faced paper collar, the die A, provided with the annular groove  $m$ , and having an upwardly-projecting centrally-disposed body or hub,  $a$ , around which the collar may be placed and held in position to be molded at its folding-line by a companion die adapted to force a portion of the body of the collar into said groove when the dies are brought sufficiently near together, substantially as set forth.

3. In a device for molding or forming a paper or cloth-faced paper collar, a bed provided with the annular groove  $m$ , and a hub or body,  $a$ , disposed concentrically with said groove and adapted to assist in keeping the collar in proper position preparatory to and while being molded, in combination with a die adapted to force a portion of the body of the collar at its folding-line into said groove and mold the same when the dies are brought sufficiently near together, substantially as described.

4. In a device for molding or forming a paper or cloth-faced paper collar, the die B, provided with the flange D, having the thin portion  $v$  at or near the rear of said die, substantially as and for the purpose set forth.

5. In a device for molding or forming a paper or cloth-faced paper collar, the die B, provided with the space or opening  $r$  at or near the rear portion of said die, substantially as and for the purpose described.

6. In a device for molding or forming a paper or cloth-faced paper collar, the die B,



provided with the flange D, having the space or opening *z* at or near the front portion of said die, substantially as and for the purpose set forth.

- 5 7. In a device for molding or forming a paper or cloth-faced paper collar, the die A, provided with the flange C, said flange having

the space or opening *f* at or near the front of said die, substantially as and for the purpose described.

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Witnesses:

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