

(No Model.)

2 Sheets—Sheet 1.

J. C. BALZER.

METHOD OF AND DIES FOR FORGING CUTTING PLIERS.

No. 283,458.

Patented Aug. 21, 1883.

Fig. 1.

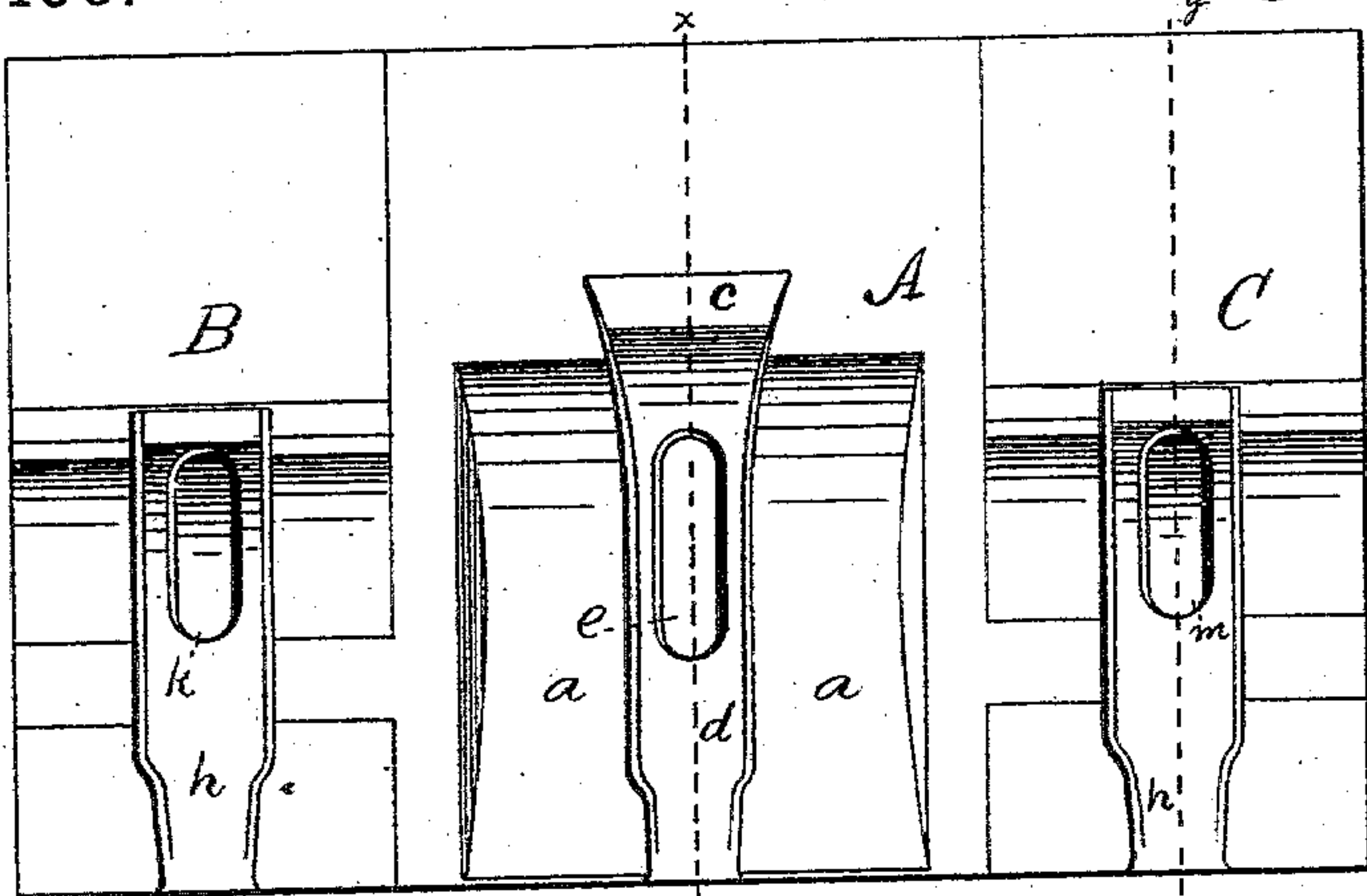


Fig. 2.

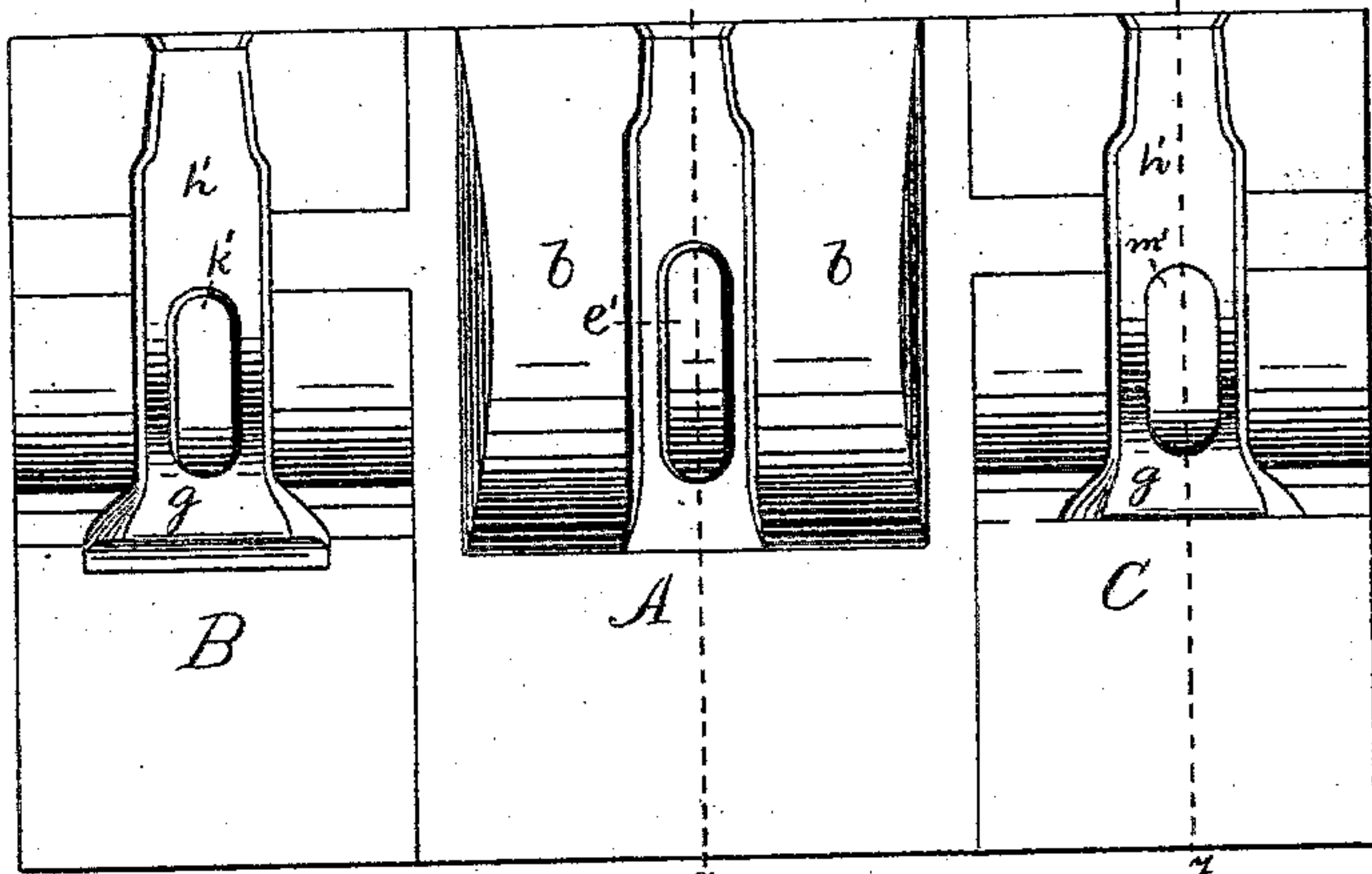


Fig. 3.

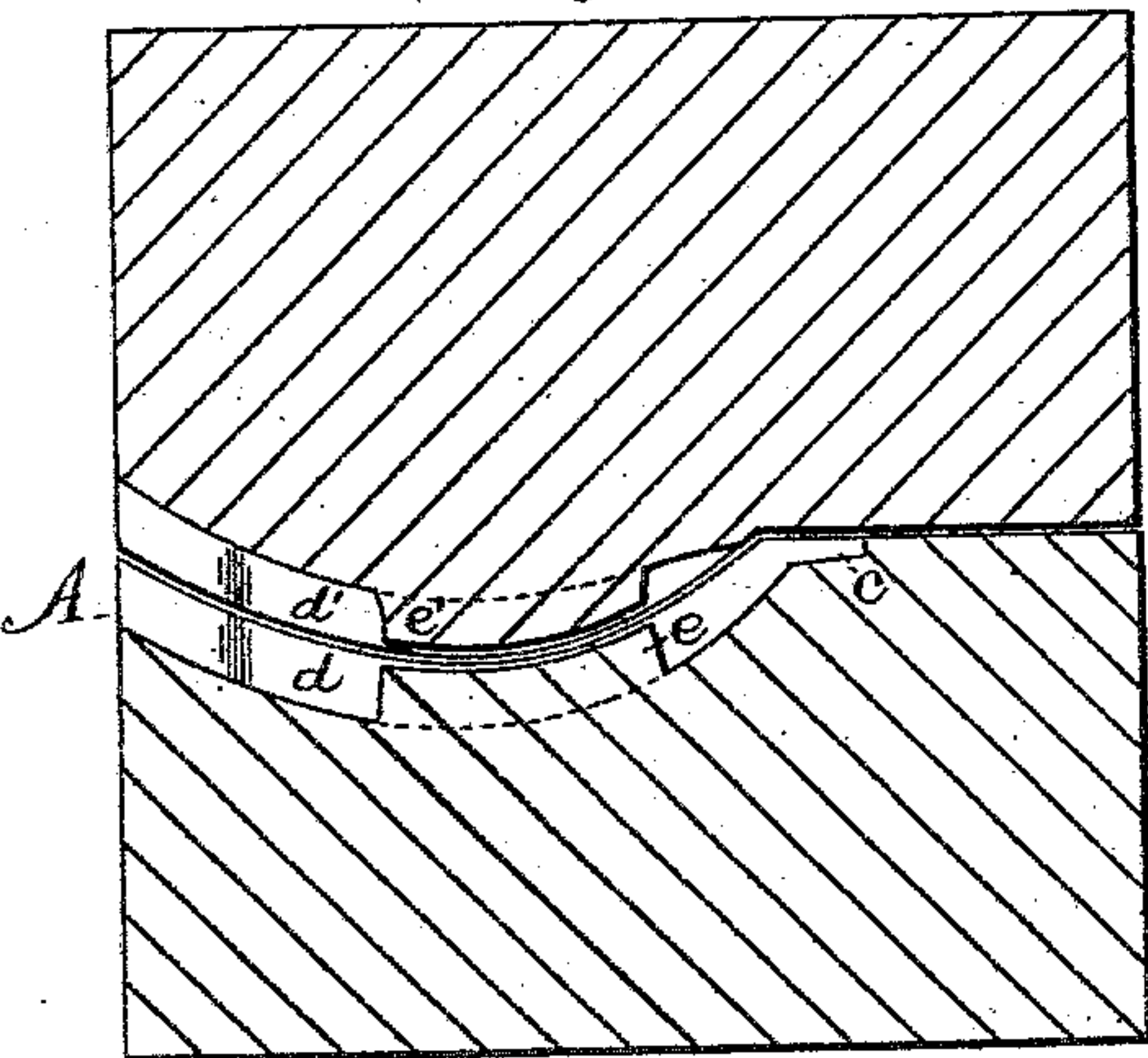
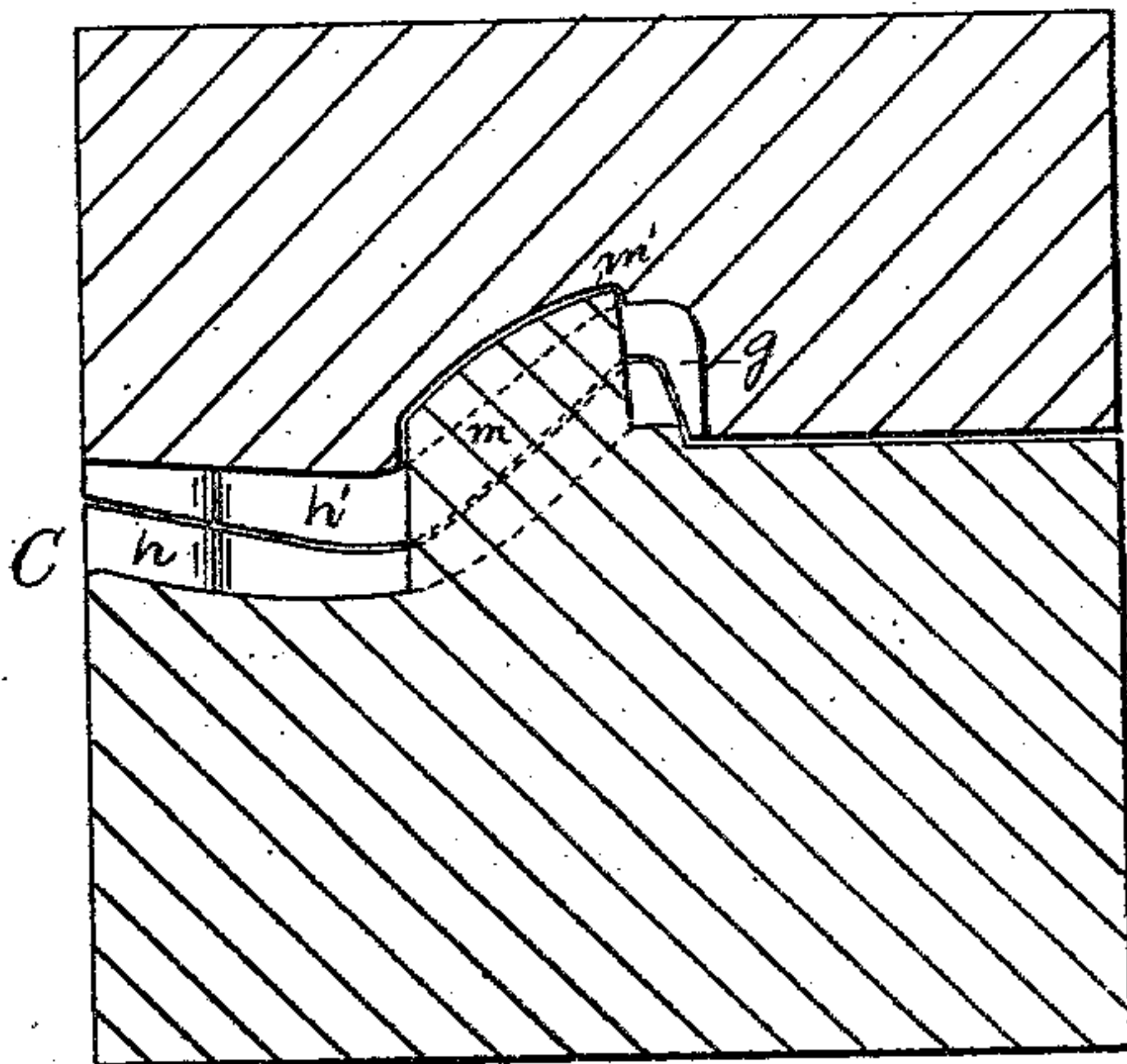


Fig. 4.



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(No Model.)

2 Sheets—Sheet 2.

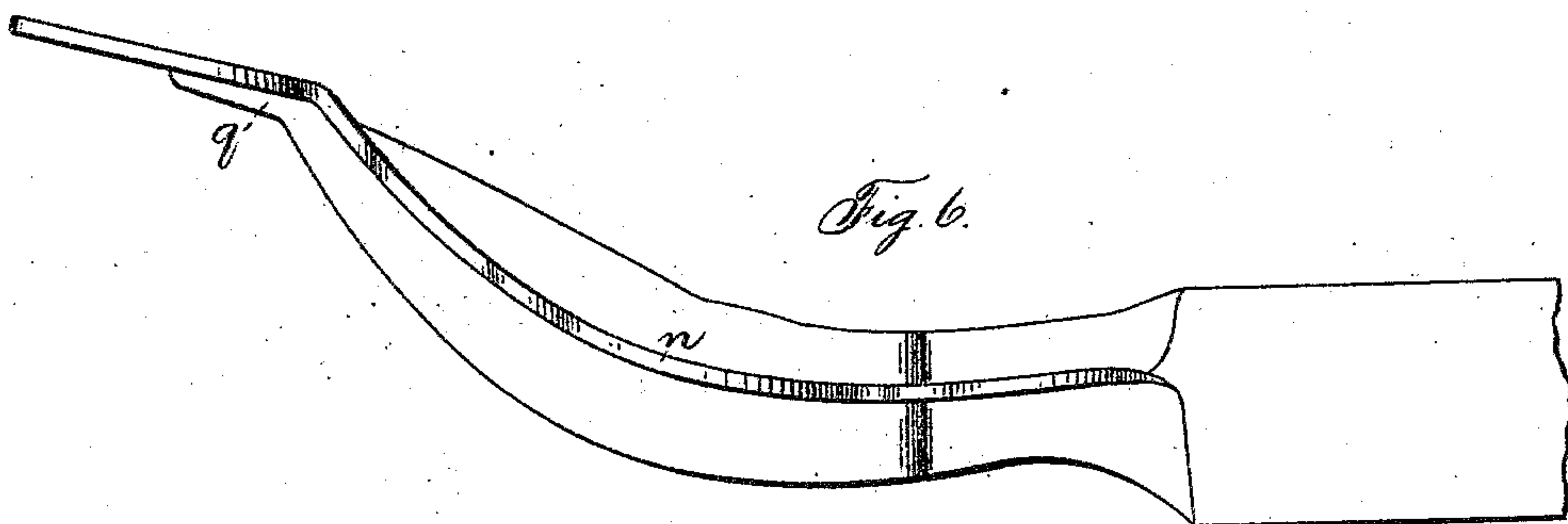
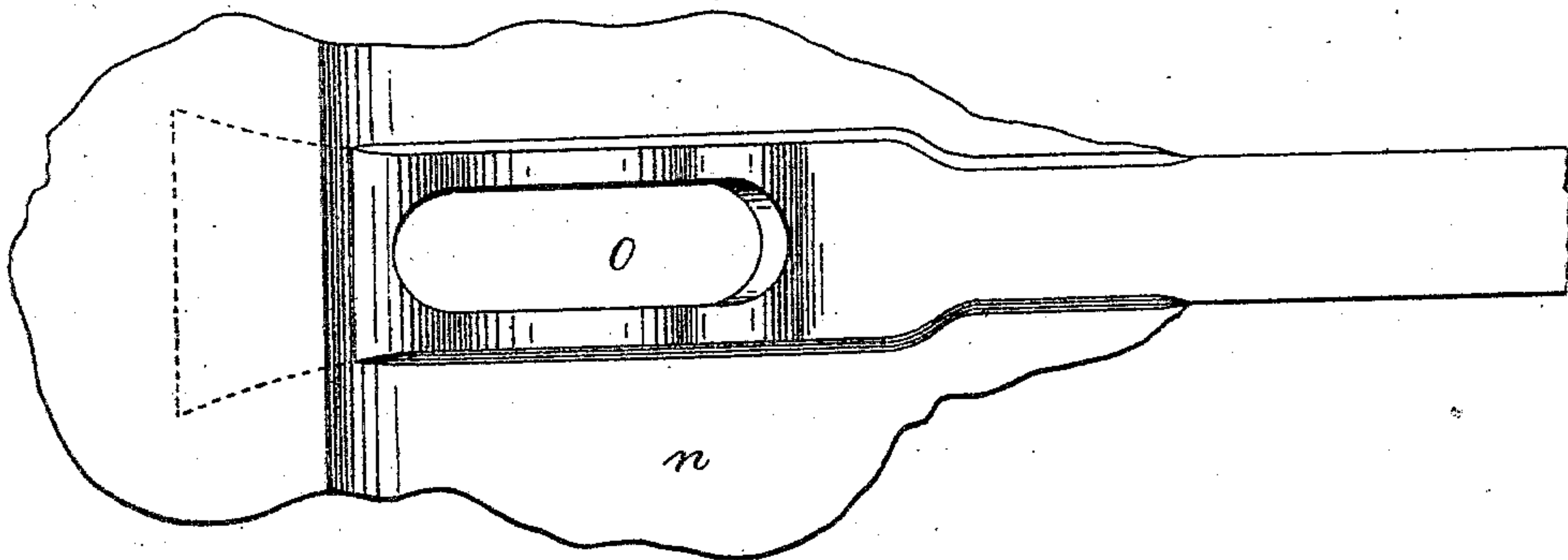
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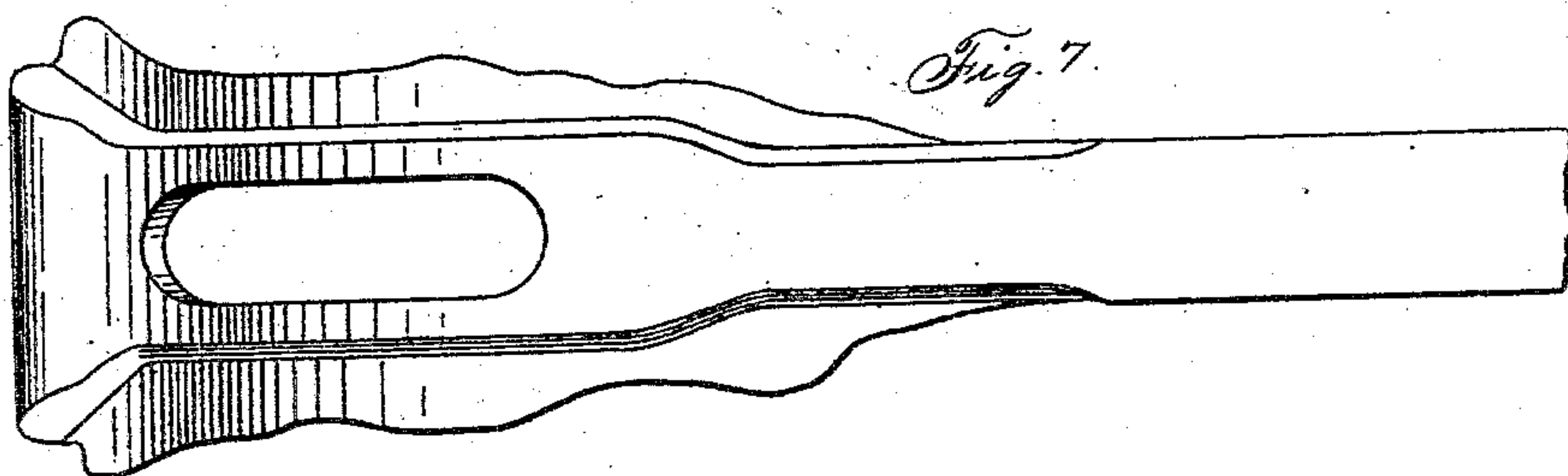
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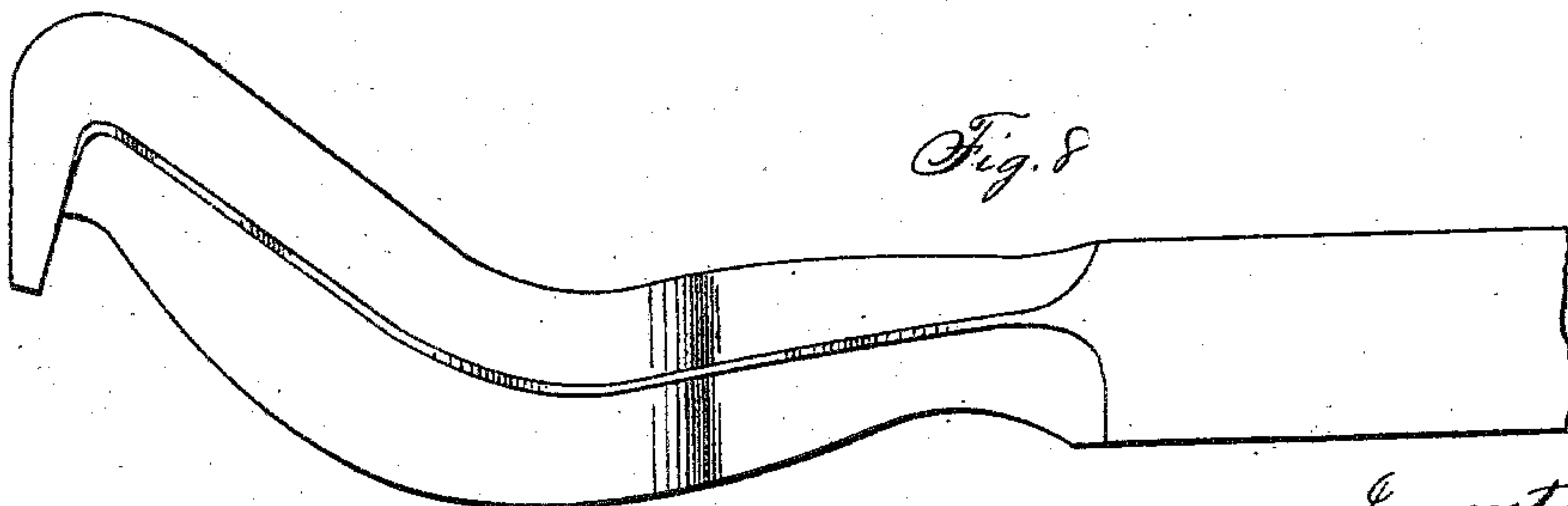
*Fig. 5.*



*Fig. 6.*



*Fig. 7.*



*Fig. 8.*

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# UNITED STATES PATENT OFFICE.

JOHN C. BALZER, OF SOUTHTON, CONNECTICUT.

## METHOD OF AND DIE FOR FORGING CUTTING-PLIERS.

SPECIFICATION forming part of Letters Patent No. 283,458, dated August 21, 1883.

Application filed October 30, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. BALZER, of Southington, in the county of Hartford and State of Connecticut, have invented certain  
5 new and useful Improvements in Methods of and Dies for Forging Cutting-Pliers, of which the following is a specification.

My invention relates to improvements in methods of and dies for forging cutting-pliers  
10 mainly by means of swaging and trimming dies, as hereinafter described.

In the accompanying drawings, Figure 1 is a plan view of my lower die-block and swaging-dies. Fig. 2 is a like view, showing the  
15 under face of the companion die-block and dies. Fig. 3 is a vertical section of my dies on line *xx* of Fig. 1. Fig. 4 is a vertical section of the same on line *yy* of Fig. 1. Fig. 5 is a plan view of the blank as produced by the die  
20 A. Fig. 6 is a side elevation of the same. Fig. 7 is a plan view of the blank as produced by the die C, and Fig. 8 is a side elevation of the same.

My invention relates to forming the head  
25 of that part of cutting-pliers which has an eye in the vicinity of the joint, and through which eye the companion part extends.

The dividing-line of the die A is first horizontal from the rear edge of the die forward, and  
30 then curved substantially on the arc of a circle, the curve extending down into the lower die-block, as at *aa*, Fig. 1, while the lower face of the upper die-block extends downwardly in a corresponding manner, as at *bb*, Fig. 2. A  
35 shallow and wide recess, *c*, is sunk in the lower half of the die A, for forming a rudimentary cutting-lip, and a deeper recess, *d*, to form the body of the head, in connection with a like recess, *d'*, formed in the upper half of said die  
40 A. In the recesses *d d'* projections *e e'* are placed to form the eye. The dividing-line of the dies B and C is first horizontal from the rear edge of the die forward, then slanting upward and downward again, somewhat in the  
45 form of an inverted V, and then slightly inclining upward again. They are both provided with a recess, *g*, for forming the cutting-lip; but instead of being in a horizontal position, as in the die A, it is in substantially a  
50 vertical position, and it is in the upper instead of the lower part. The recesses *h h'* for

forming the body of the head, are substantially like the recesses *d d'* of die A, except that they more nearly approach the form and proportion of a finished head. The die B has the  
55 eye projections *k k'*, while the die C has only one eye-projection, *m*, of greater height, and passing into a depression, *m'*, in the upper half. A bar of metal is brought to the proper  
60 heat and is struck by the die A, thereby producing the blank shown in Figs. 5 and 6, leaving a projecting fin, *n*, at the edge, and a diaphragm, *o*, in the eye. The rudimentary cutting-lip *q*, Fig. 6, is indicated by broken lines in Fig. 5. The diaphragm *o* and fin *n* are  
65 next removed by means of trimming-dies of ordinary construction, and having a contour corresponding to the part to be trimmed. A small plate of steel is then welded or partially welded upon the upper side of the lip *q*  
70 by a blow or two of a hand-hammer. The blank with the steel on is then brought to a proper heat and struck in the die B, and then in the die C, thereby producing the form  
75 shown in Figs. 7 and 8. It is then again trimmed, after which it is ready for finishing in any ordinary manner, and to have the eye spread open for the insertion of the companion part.

I claim as my invention—

1. That improvement in the art of forging  
80 cutting-pliers which consists of swaging the stock into the form shown in Figs. 5 and 6, removing the surplus metal therefrom, welding a steel plate to the rudimentary lip, and  
85 then swaging into the form shown in Figs. 7 and 8, substantially as described.

2. The cutting-plier-blank die A, having the horizontal recess for forming the cutting-lip, the recesses for forming the body of the  
90 blank-head, and the eye-forming projections in said recesses, substantially as described, and for the purpose specified.

3. The series of dies A B C, for the progressive formation of cutting-plier blanks,  
95 substantially as described, and for the purpose specified.

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Witnesses:

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ABEL S. ALCOTT.