

(No Model.)

L. T. TOUGAS.

APPARATUS FOR AND METHOD OF CUTTING ELASTIC SOLES OR HEELS.

No. 277,085.

Patented May 8, 1883.

Fig:1.

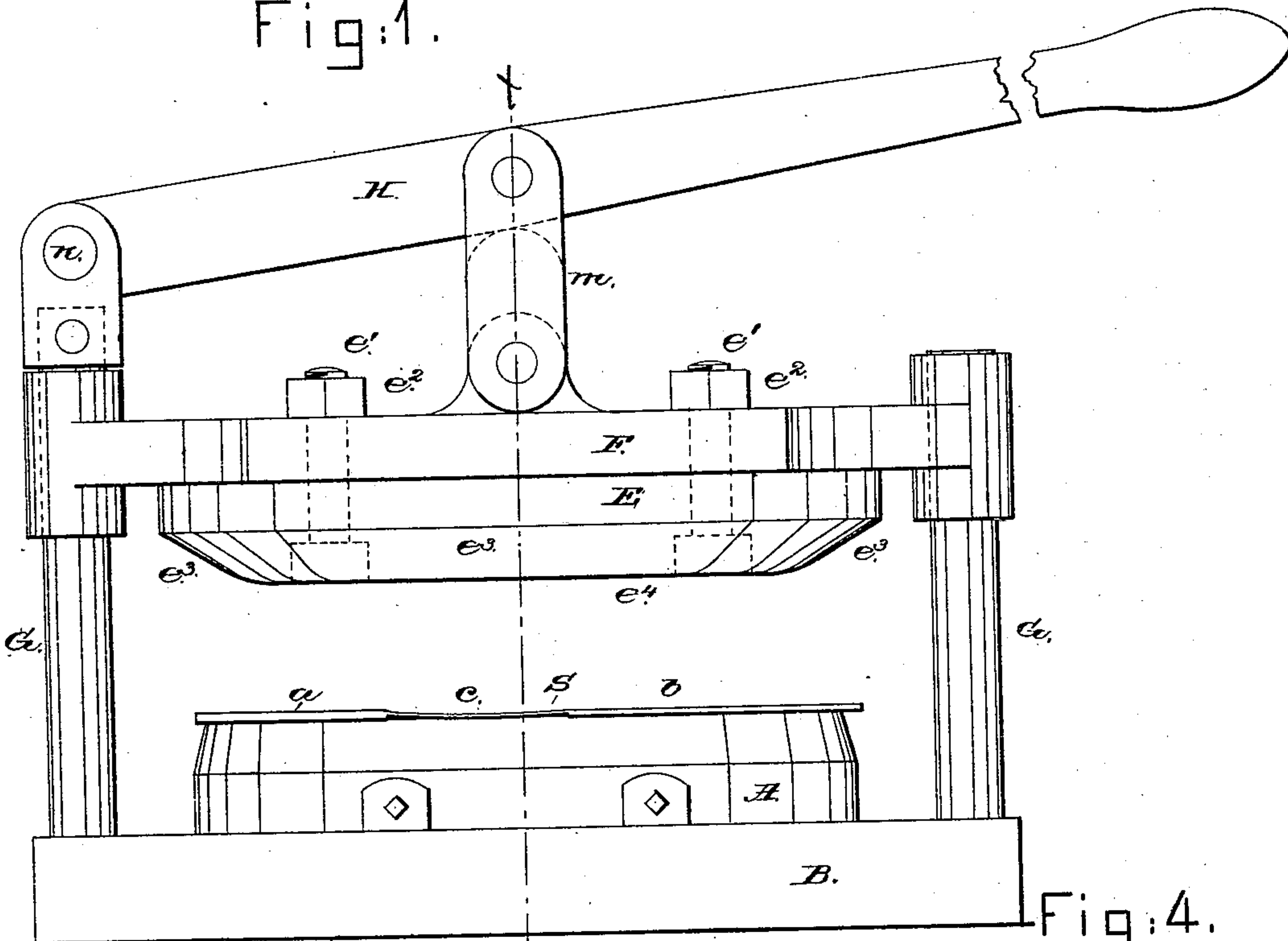


Fig:2.

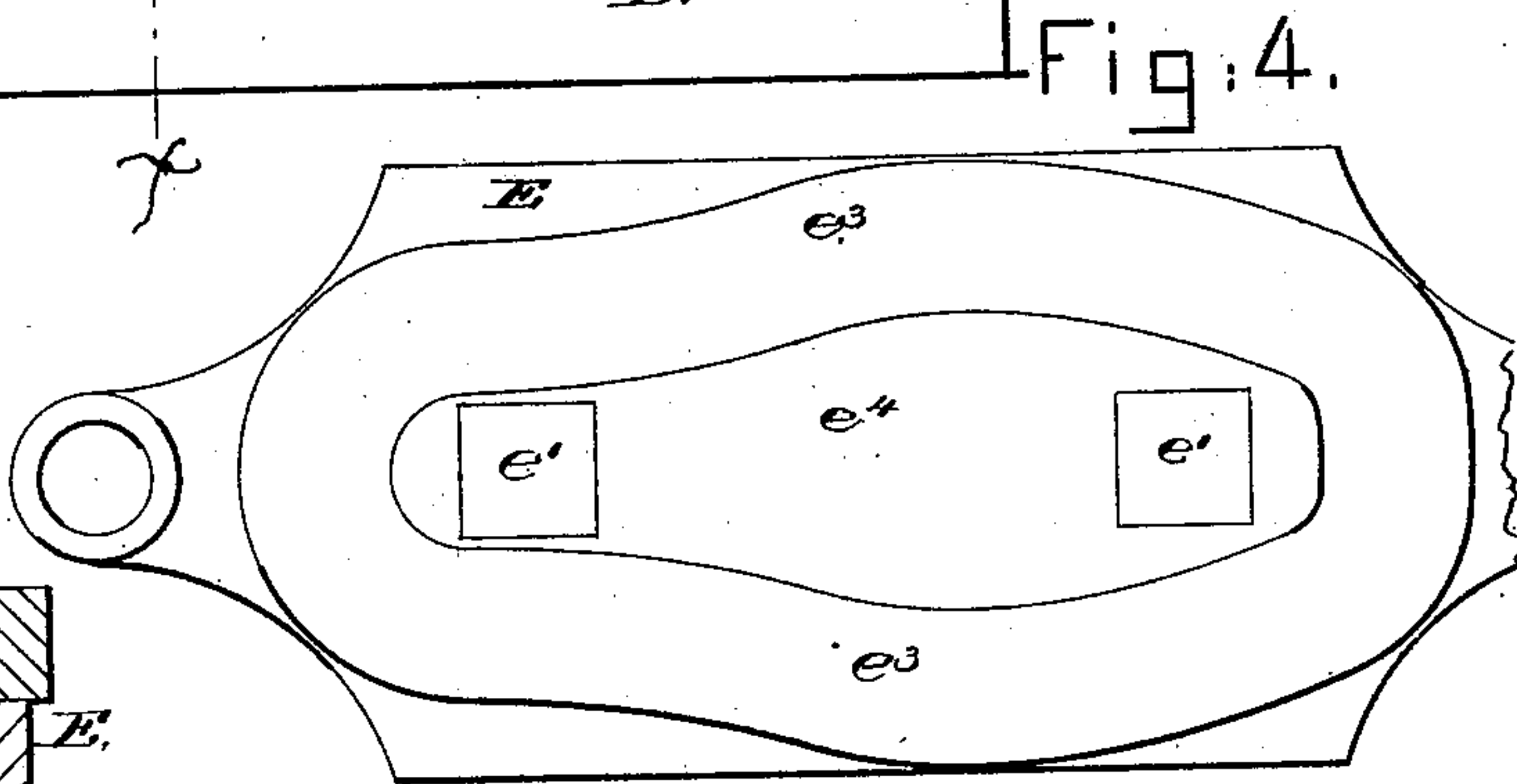
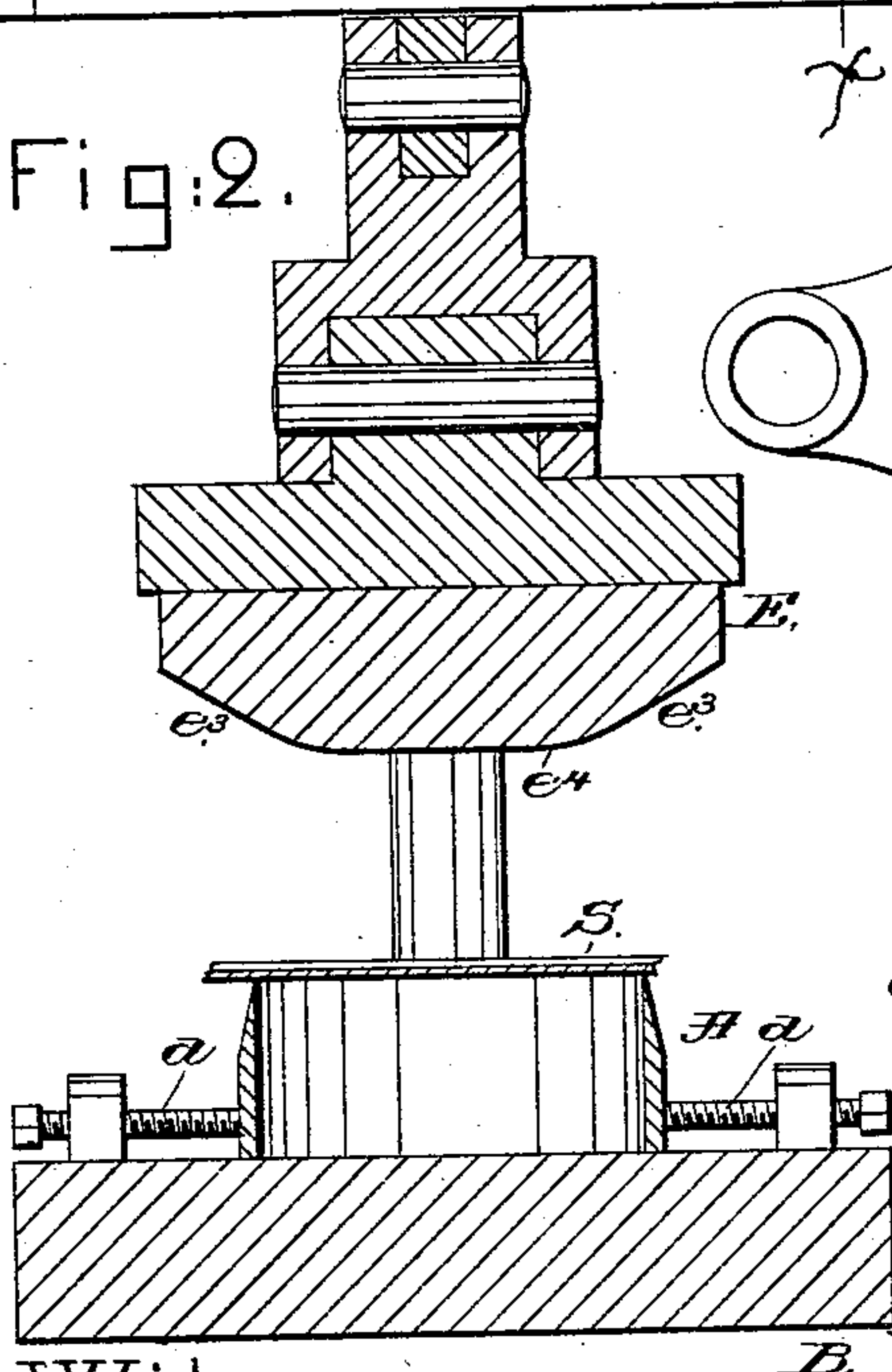


Fig:3.

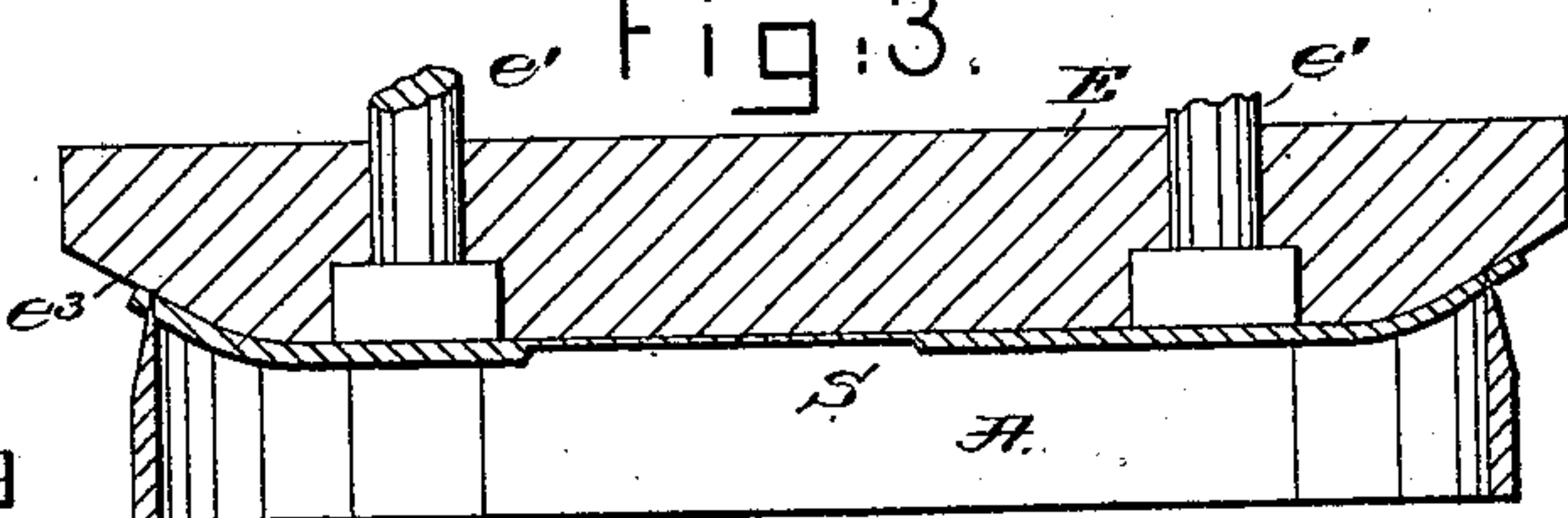
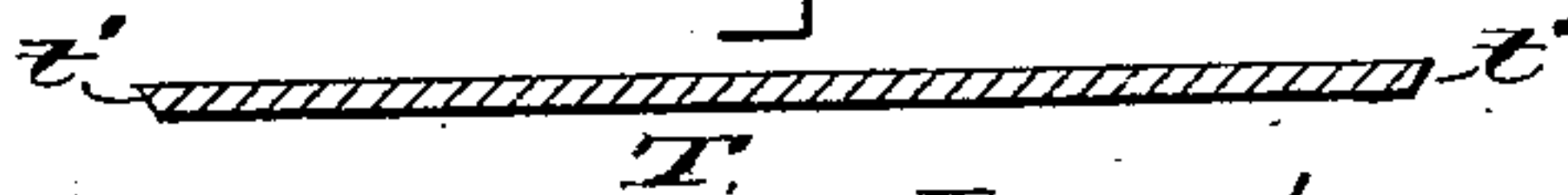


Fig:5.



Witnesses.

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# UNITED STATES PATENT OFFICE.

LOUIS T. TOUGAS, OF MILFORD, MASSACHUSETTS.

APPARATUS FOR AND METHOD OF CUTTING ELASTIC SOLES OR HEELS.

SPECIFICATION forming part of Letters Patent No. 277,085, dated May 8, 1883.

Application filed March 9, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS T. TOUGAS, of Milford, county of Worcester, State of Massachusetts, have invented an Improvement in Apparatus for and Method of Cutting Soles or Heels, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 In the manufacture of india-rubber or over shoes the outer edges of the sole and heel are chamfered in order to secure the desired finish at the edge. In leather soles the edges are vertical, and such soles are commonly cut out  
15 by means of dies; but the india-rubber or elastic soles having chamfered edges have always been cut out by hand.

20 The object of my invention is to cut out these india-rubber or elastic soles and bevel their edges by means of a die.

By experience I have discovered, by making the plunger or male die convex, or so that it bulges outward, that the edges of the sole in elastic material—such as india-rubber—and  
25 soft material—such as cloth—may be cut beveling. By making the male die in this way it is enabled to first come in contact with the central part of the material of the sole, while the said material outside of it rests in contact with the  
30 cutting-edge of the female die, and as the two dies are made to approach each other the central part of the material covering and located at the central part of the said die is gradually forced more and more into the female die until  
35 the inclined or beveled part of the male die and the blade, both having been brought against the material in the same line, complete the cutting operation, and by reason of having forced the material into the central part of the  
40 female die prior to its complete severance the edges of the sole cut out from the said material left beveled all about it. Cutting out these soles rapidly by means of dies materially cheapens their cost and makes a better finish.

45 My invention consists in a female die or cutter combined with a male die or plunger having an outwardly bulged or convexed face, substantially as will be described, whereby the material to be severed is enabled to be  
50 forced into the central space of the cutting-die in such manner as to bend the edge of the article cut out by the said die and plunger;

also, in that improvement in the art or method of cutting out soles and heels which consists in depressing the same more at its center than at its edges or cutting-point during the act of  
55 cutting, whereby the same is drawn substantially as described to enable the cutting-edge of the die to sever the material on a bevel.

It will be noticed in my invention that that  
60 part of the plunger directly above the edge of the knife is inclined with relation to the cutter, which latter is vertical, whereas in all other sole-cutters known to me the plunger at this point has been at right angles to the vertical  
65 cutter.

Figure 1 in side elevation represents a sufficient portion of a sole-cutting apparatus embodying my invention, the material to be cut  
70 resting upon the cutting-die. Fig. 2 is a section of Fig. 1 on the dotted line *xx*; Fig. 3, a detail showing the die and plunger in longitudinal section and as closed upon the material; Fig. 4, a view of the face of the plunger, and Fig. 5 a cross-section of the sole cut out  
75 by the apparatus shown.

The material for the soles and heels of india-rubber boots and shoes, and for other articles of india-rubber, which, when shaped, is to have its edges beveled or chamfered, will be pre-  
80 sented to the die and plunger in sheet form, and will be properly fed past the said die from a roller on which it is wound. For soles the material *S* herein shown has (see Fig. 1) a thick part, *a*, for the heels, a thick part, *b*, for  
85 the main or front part of the sole, and a thinner part, *c*, for the shank.

The cutting or female die *A*, of suitable shape for the production of the sole or other article to be cut by it, is adjustably held upon  
90 the bed-plate *B* by the adjusting-screw *d*. The inner side of this die is vertical, and has the usual sharp or knife edge.

The plunger or male die *E*, attached to the vertically-reciprocating cross beam or head *F*  
95 by the bolts *e'* and nuts *e''*, has its face beveled outwardly or bulged outwardly or convexed, as at *e''*, from its edge toward its central portion, *e''*, which first comes in contact with the material *S*, as shown in the drawings, so that  
100 as the plunger and die approach each other the material *S* will rest upon the edges of the cutting-die on one side at the same time that the central portion, *e''*, of the plunger rests against



the opposite side of the said material. The further approach of the die and plunger causes the central part,  $e^4$ , of the latter to force or draw the material S down into the die, as in 5 Fig. 3, and as the sharp edge of the die A begins to sever the material the latter is so presented between the die and plunger and is so drawn as to enable the die A to sever the material on the bevel, leaving beveled edges  $t'$  10 all about the sole T, as in Fig. 5.

In Fig. 3 it will be seen that that portion  $e^3$  of the face of the plunger which crosses the cutting-edge of the die is inclined in position with relation to the vertical inner wall of the 15 die A. This is an essential feature of my invention. The cross-head F slides on the upright guide-rods G, and is moved through a suitable link,  $m$ , connected with a pivoted lever, H; but instead of such devices for 20 moving the plunger the latter may be moved in any way common to sole-cutting apparatus; or, if desired, the die A may be reciprocated and the plunger remain at rest. The form shown is, however, preferable, as the soles, 25 when cut out, fall through the die.

I have described soles and heels as the articles to be cut out with beveled edges, as at  $t'$ ; but I desire it to be understood that the appa-

ratus shown may be used to cut out any other india-rubber or cloth article which it is desired 30 to form with a beveled edge.

I claim—

1. A cutting-die and a plunger having a portion of its face beveled or bulged outwardly, combined with means to operate one 35 of them, whereby the plunger is made to enter the die and force the material to be severed into the central part thereof, and then to sever it, as described, leaving a beveled edge upon the article cut out by the die and plunger, sub- 40 stantially as set forth.

2. That improvement in cutting soles and heels from elastic material which consists in forcing the same into the central part of the die below its cutting-edge, and drawing the 45 said material in a direction across the edge of the said die while the said material is being severed, thereby forming beveled edges, substantially as set forth.

In testimony whereof I have signed my name 50 to this specification in the presence of two subscribing witnesses.

LOUIS T. TOUGAS.

Witnesses:

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• BERNICE J. NOYES.