

(No Model.)

2 Sheets—Sheet 1.

N. ECCLES.

DIE FOR MAKING CLIP KING BOLTS.

No. 270,404.

Patented Jan. 9. 1883.

fig 1

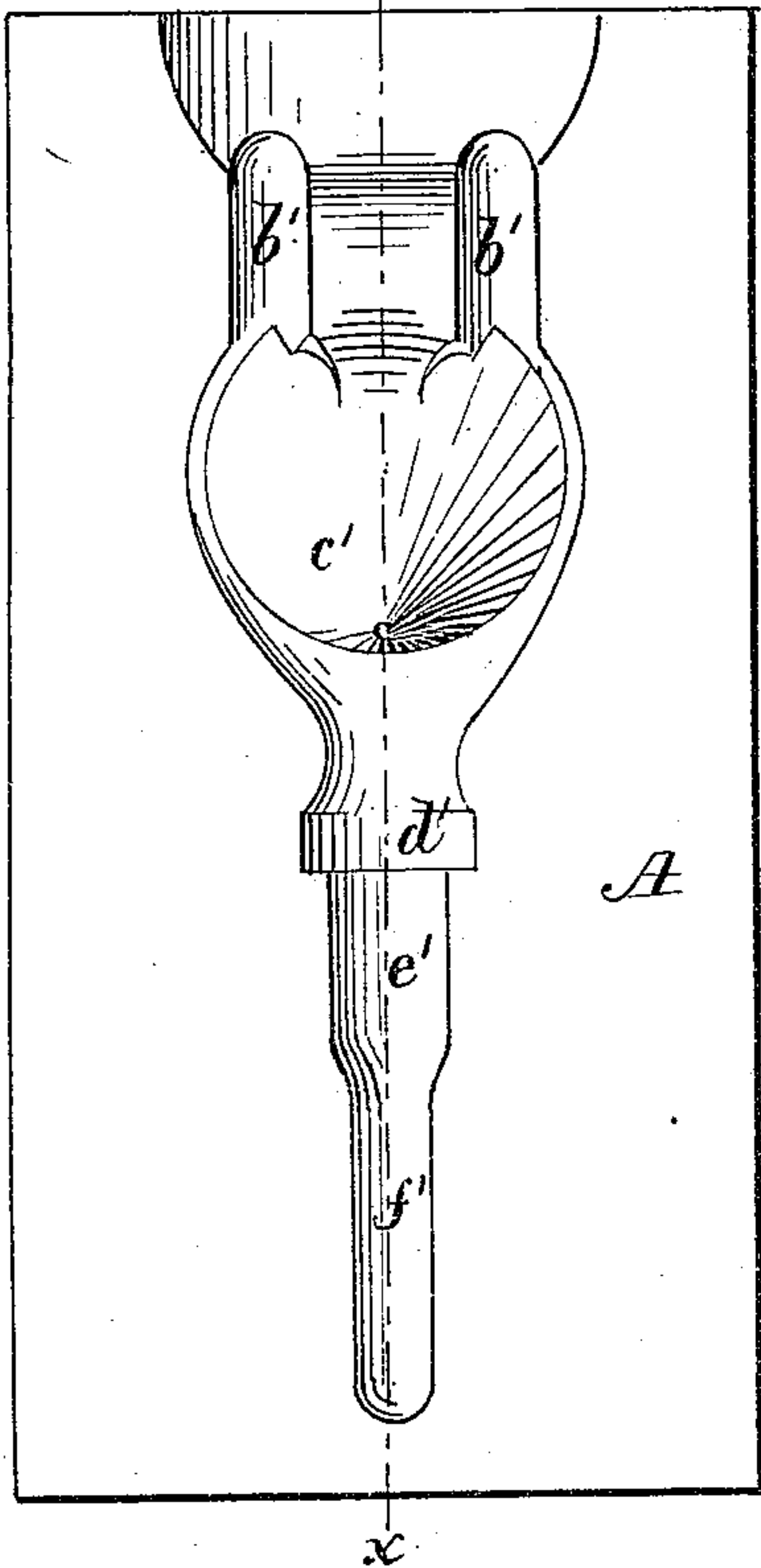


fig 2

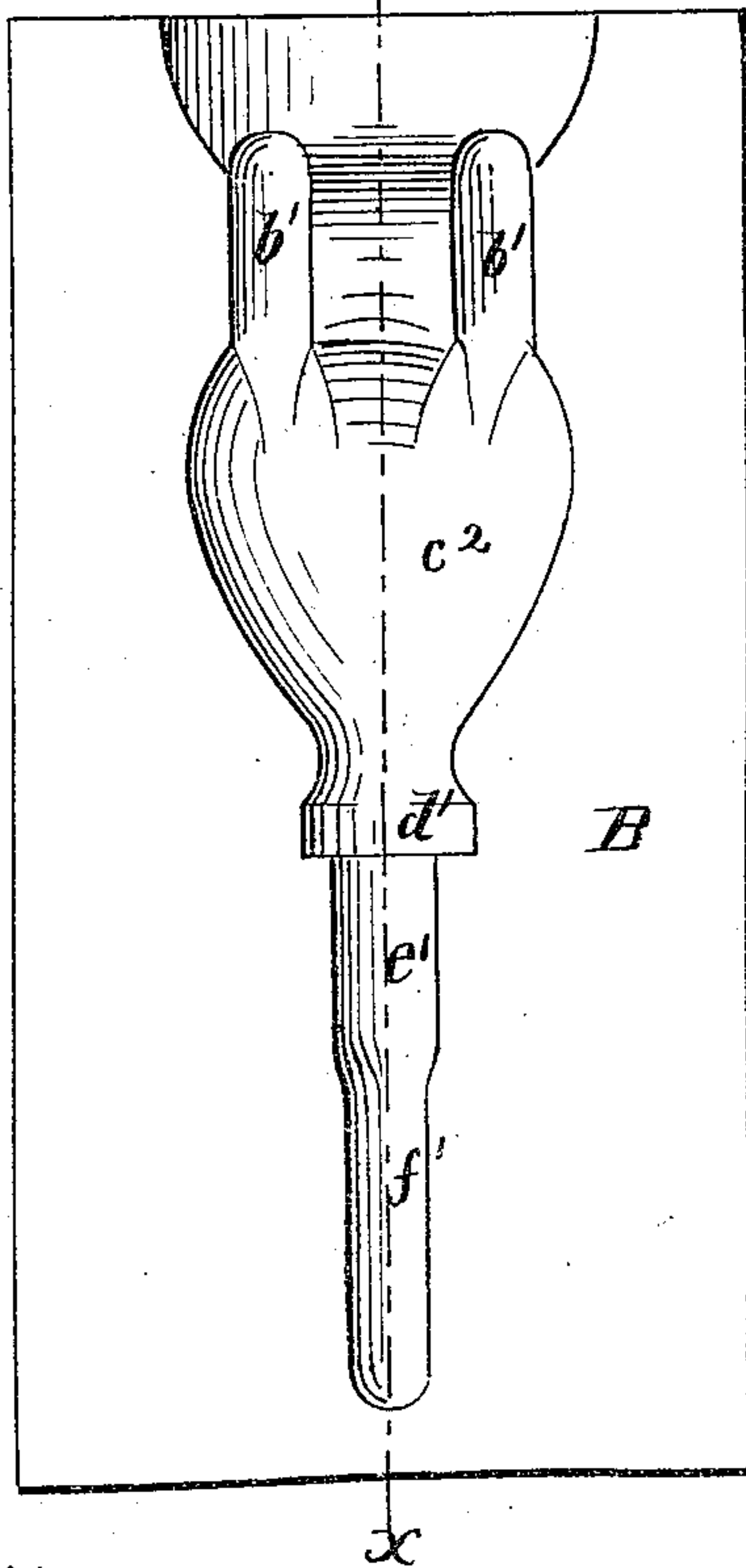


fig 3 y

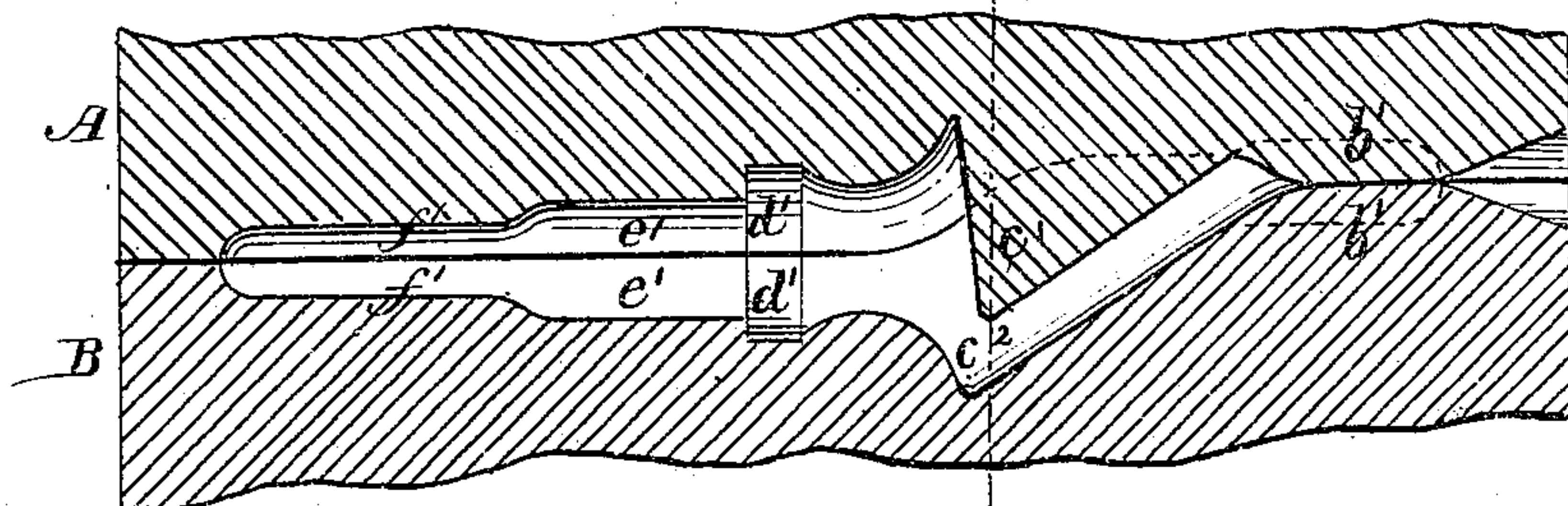
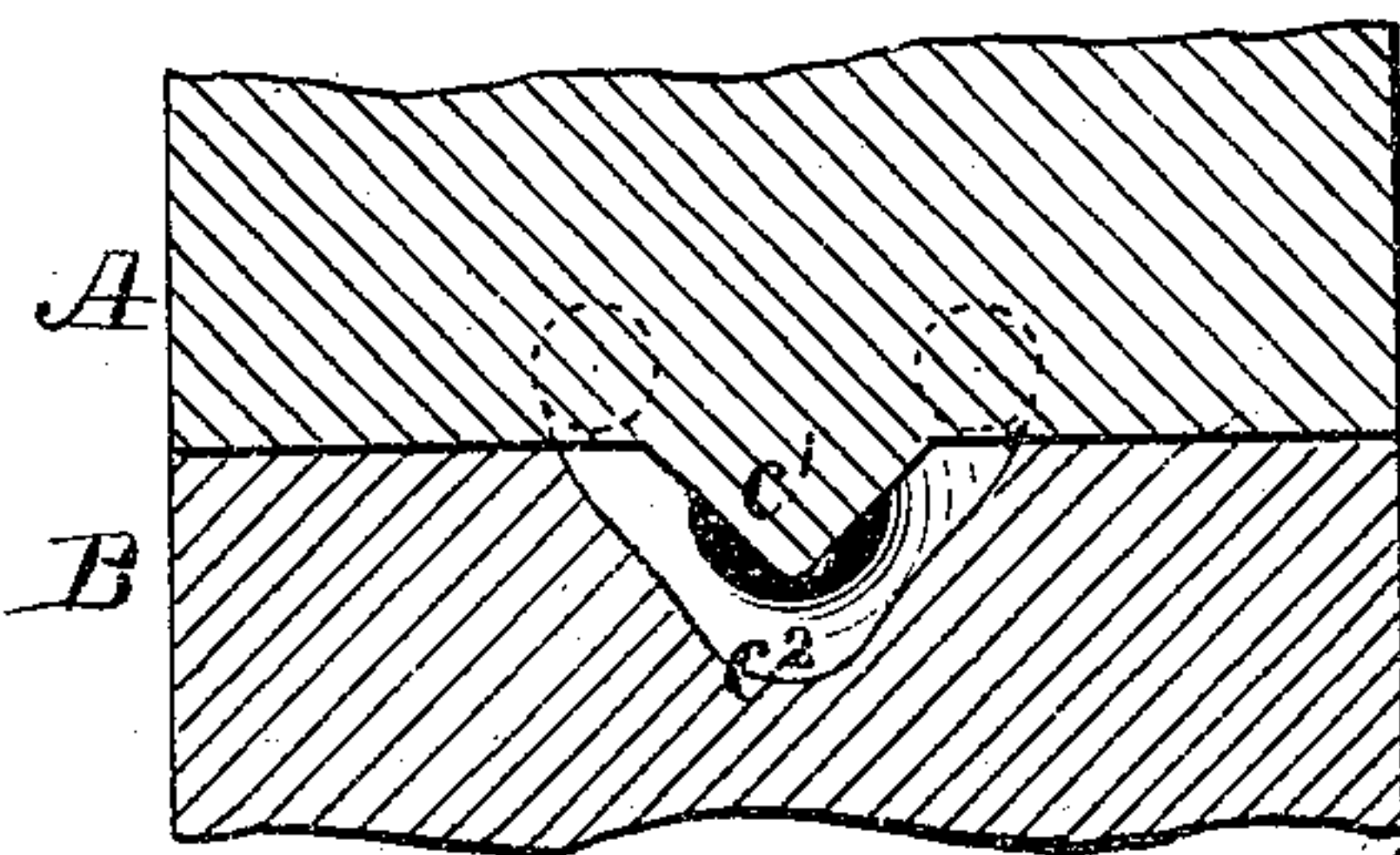


fig 4 y



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(No Model.)

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fig 5

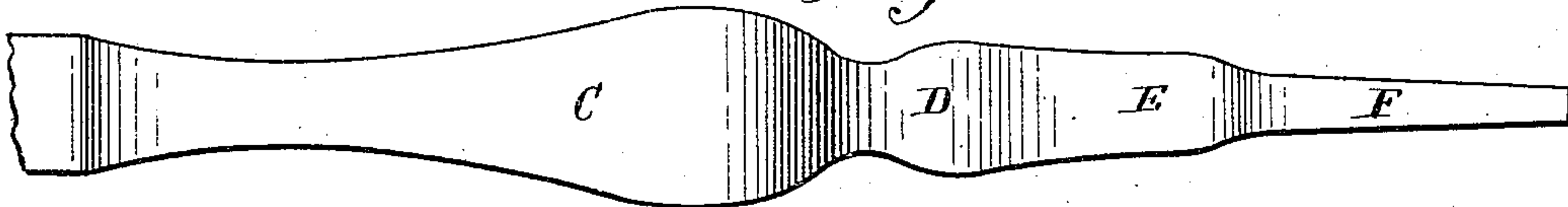


fig 6

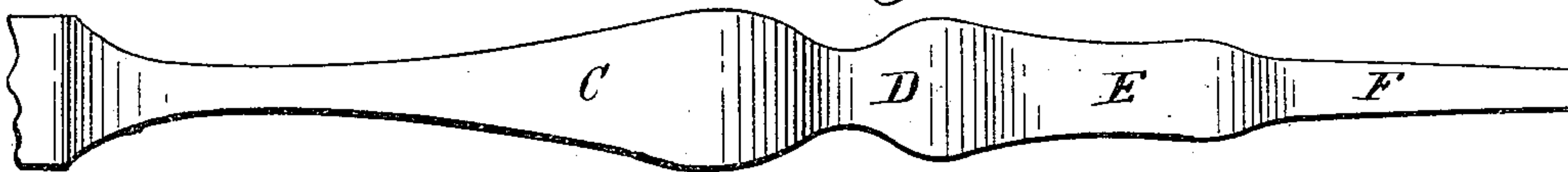


fig 7

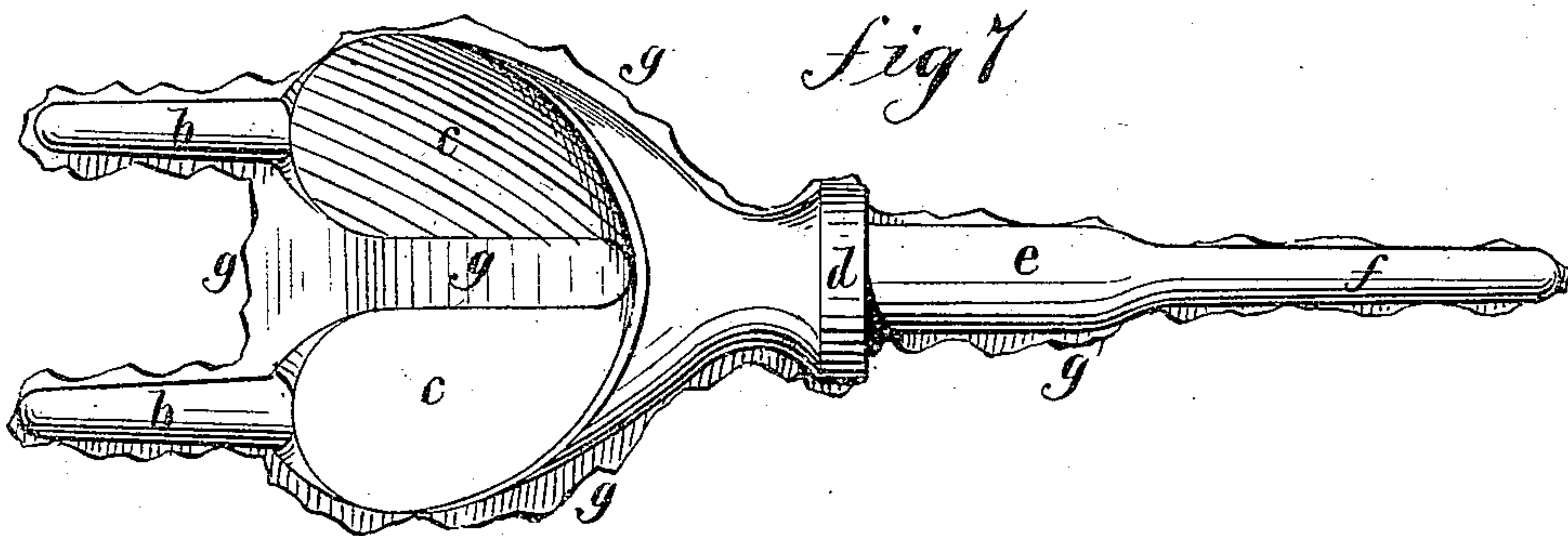


fig 8

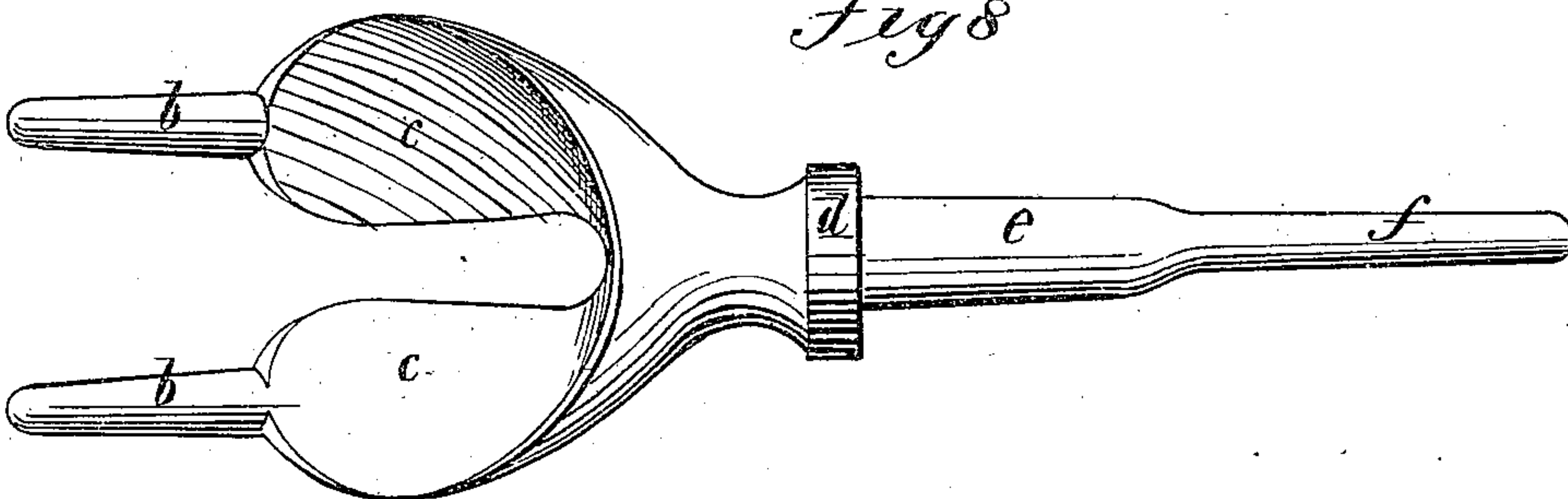
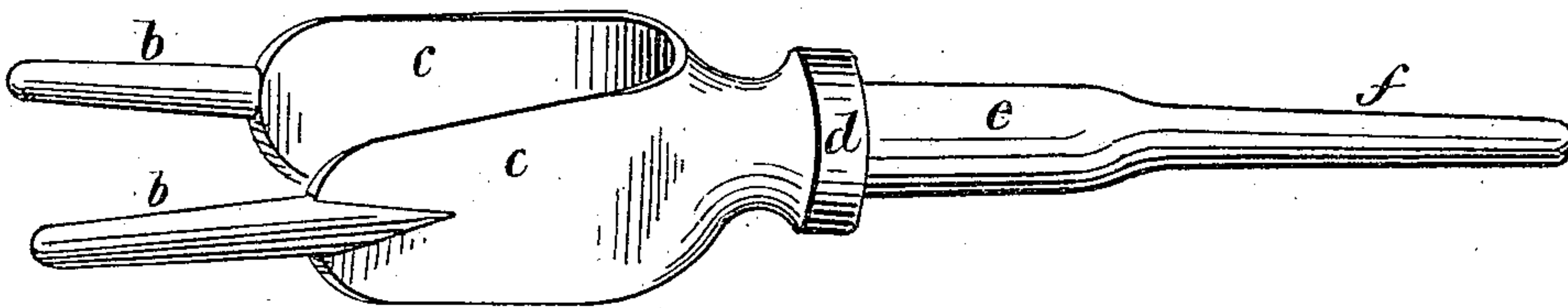


fig 9



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UNITED STATES PATENT OFFICE.

NICHOLAS ECCLES, OF AUBURN, NEW YORK.

DIE FOR MAKING CLIP KING-BOLTS.

SPECIFICATION forming part of Letters Patent No. 270,404, dated January 9, 1883.

Application filed September 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, NICHOLAS ECCLES, of Auburn, in the county of Cayuga and State of New York, have invented a new and useful
5 Improvement in Dies for Making Clip King-Bolts, of which the following is a full, clear, and exact description.

This invention relates to the manufacture of clip king-bolts for vehicles; and it consists in
10 dies of a novel construction for making clip king-bolt forgings, whereby a king bolt of superior finish is produced at a greatly reduced cost, substantially as hereinafter described.

Reference is to be had to the accompanying
15 drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figures 1 and 2 are inside face views of my improved dies; Fig. 3, a longitudinal section
20 of the same on the line $x x$ in Figs. 1 and 2; and Fig. 4, a transverse section thereof on the line $y y$ in Fig. 3. Figs. 5 and 6 are side and edge views of the iron blank or breakdown in its proper shape for introduction within the
25 dies to make a complete king-bolt forging. Fig. 7 is a face view of the forging after being struck up in the dies from the blank or breakdown without reheating, as hereinafter described. Fig. 8 is a face view of the forging
30 as exhibited in Fig. 7 after the fin has been trimmed off, and as ready to be pressed into proper shape; and Fig. 9 is a view in perspective of a finished clip king-bolt ready for cutting the screw-thread on its pins or tines.

The king bolt forging represented in Fig. 9
35 consists of the usual tines, $b b$, on which screw-threads are to be cut for the nuts, which hold the bolt in place, spread and flattened wings $c c$ constituting the clip part of the bolt at the crotch of the tines, a shoulder or bead, d , which
40 forms the supporting-surface of the bolt, a bearing portion, e , and the usual stem portion, f .

The dies A B are formed with recesses $b' b'$
45 for the tines, a convex portion, c' , in the top die, A, and corresponding concave, c^2 , in the bottom die, B, for the clip part $c c$ of the bolt; also, recesses $d' e' f'$ for the shoulder d , and bearing and stem portions $e f$ of the bolt.

The blank or breakdown shown in Figs. 5
50 and 6 is produced from a square bar of iron, which, as it is taken from the furnace, is struck or forged into the required shape, and is afterward placed, during the same heat, with
55 its broadest sides or faces downward and up-

permost in the die B, the portion C of it lying in the part c^2 of said die, and the portions D E F, respectively, in or over the recesses $d' e' f'$. Said blank contains more metal than is
60 required to fill the dies, and consequently fins g are left on the forging formed from the blank by the dies, as shown in Fig. 7, which fins are afterward removed, as shown in Fig. 8, and the trimmed forging subsequently bent and
65 pressed to its required shape. The shape of the blank or breakdown serves to fill the dies by distributing the metal evenly. Repeated blows are given to the top die before the blank in the lower die or between the dies is brought
70 to the form represented in Fig. 7; but it is done at one and the same heat that was necessary to produce the breakdown, thus saving time, labor, and fuel, and reducing waste. The
75 action of the dies is such that the king-bolt may be said to be completed when struck by the die. Thus it is spread and finished flat on the inside faces of the clip part $c c$, the shoulder d is formed, and the clip-bolt is forged to the proper thickness all at one and the same
80 heat, and the bolt left ready, after the fin has been removed, to press into the required shape to fit or attach to any axle.

The dies used to thus produce a clip king-bolt forging essentially differ in their con-
85 struction from other dies which have been employed to make a mere king-bolt blank, and from which the finished blanks are dropped in a pile and allowed to cool, then taken to a press and the fins trimmed off, and said
90 blanks afterward reheated, the tines spread open and forged into shape by another pair of dies, and the blanks, which have been left with their clip ends spread widely open, again
95 heated, the crotch of the clip flattened to conform with the insides of the tines, and the tines straightened into shape. All this labor is avoided by my improved dies, which produce a complete forging instead of a mere blank.

Having thus described my invention, I claim
100 as new and desire to secure by Letters Patent—

The dies A B, constructed and combined for producing the forging represented in Fig. 7, from which, after trimming a completed king-bolt forging, as shown in Fig. 9, is made es-
sentially as herein described.

NICHOLAS ECCLES.

Witnesses:

F. D. WRIGHT,
JOHN L. HUNTER.