

(No Model.)

2 Sheets—Sheet 1.

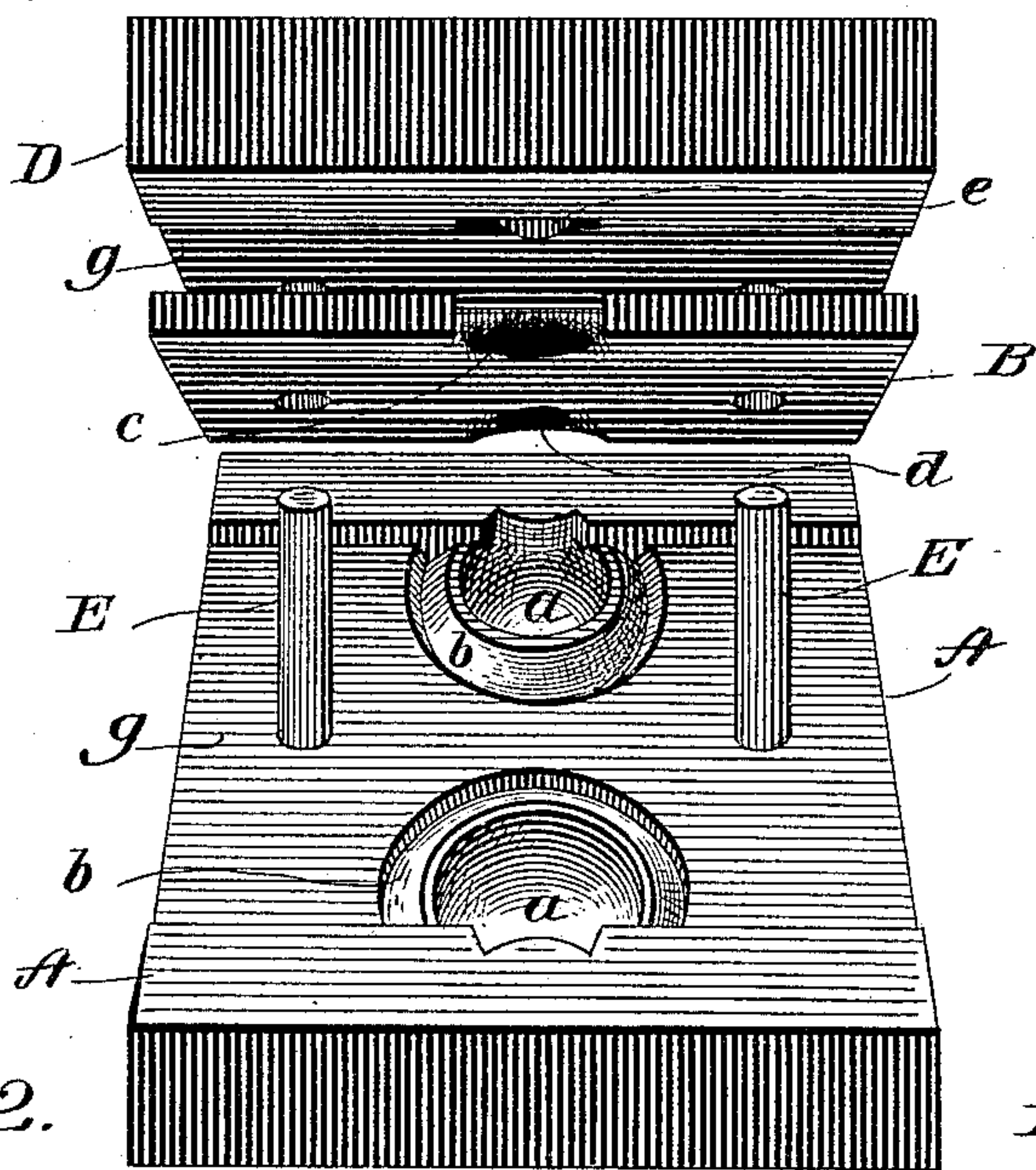
T. B. BENWELL.

DIE FOR COVERING SHOE LACING HOOKS WITH PYROXYLINE MATERIAL.

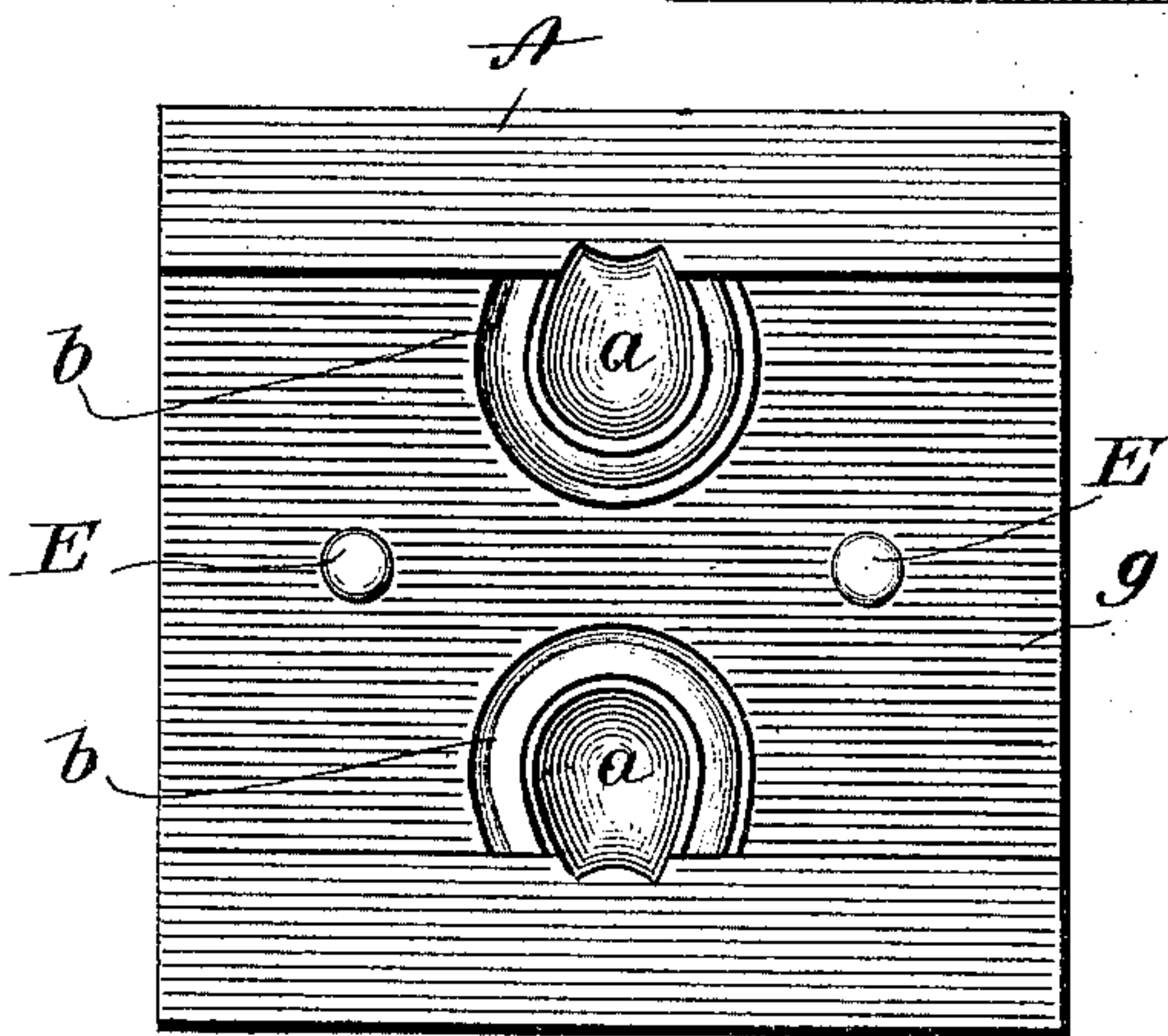
No. 427,958.

Patented May 13, 1890.

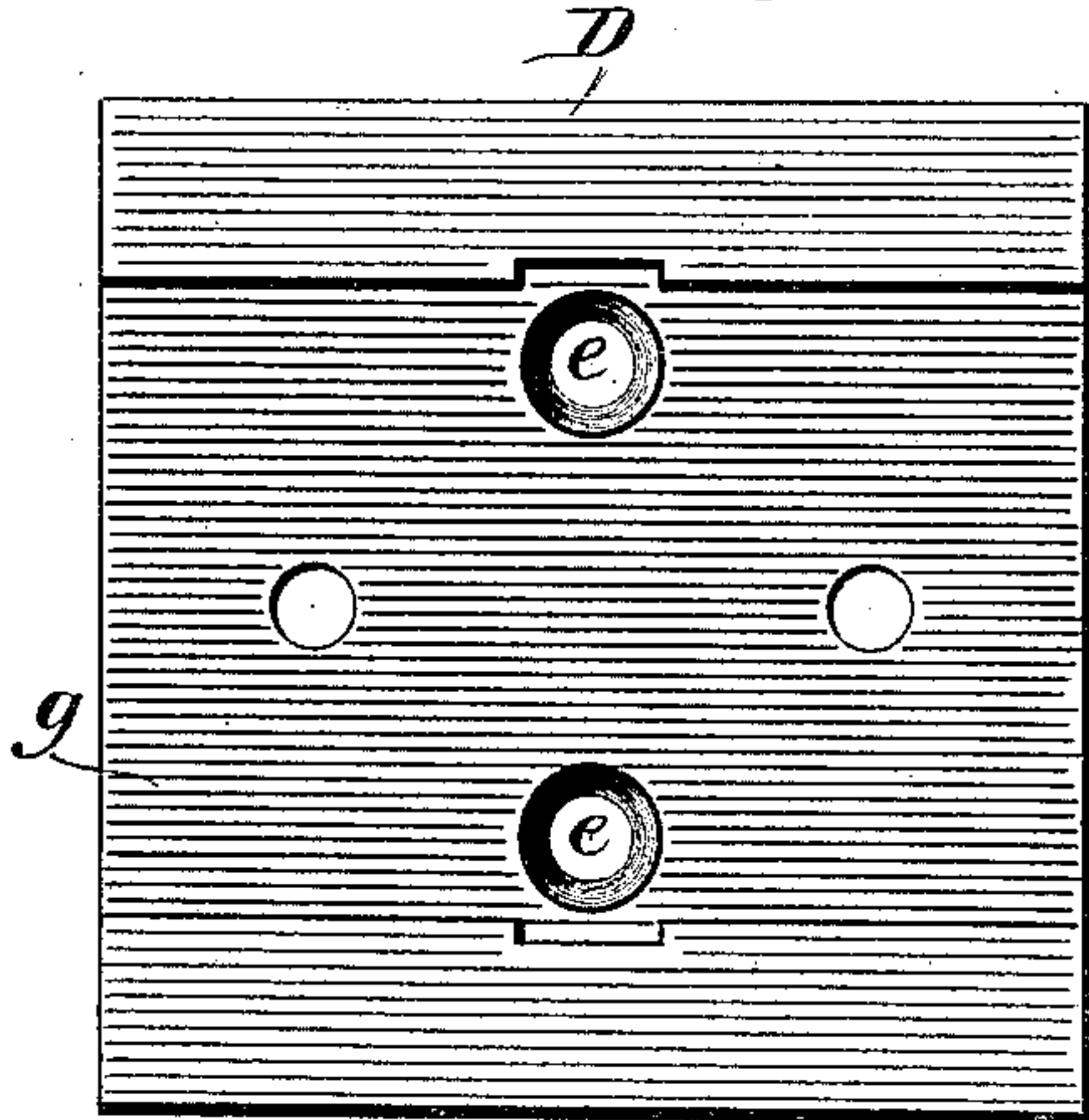
*Fig. 1.*



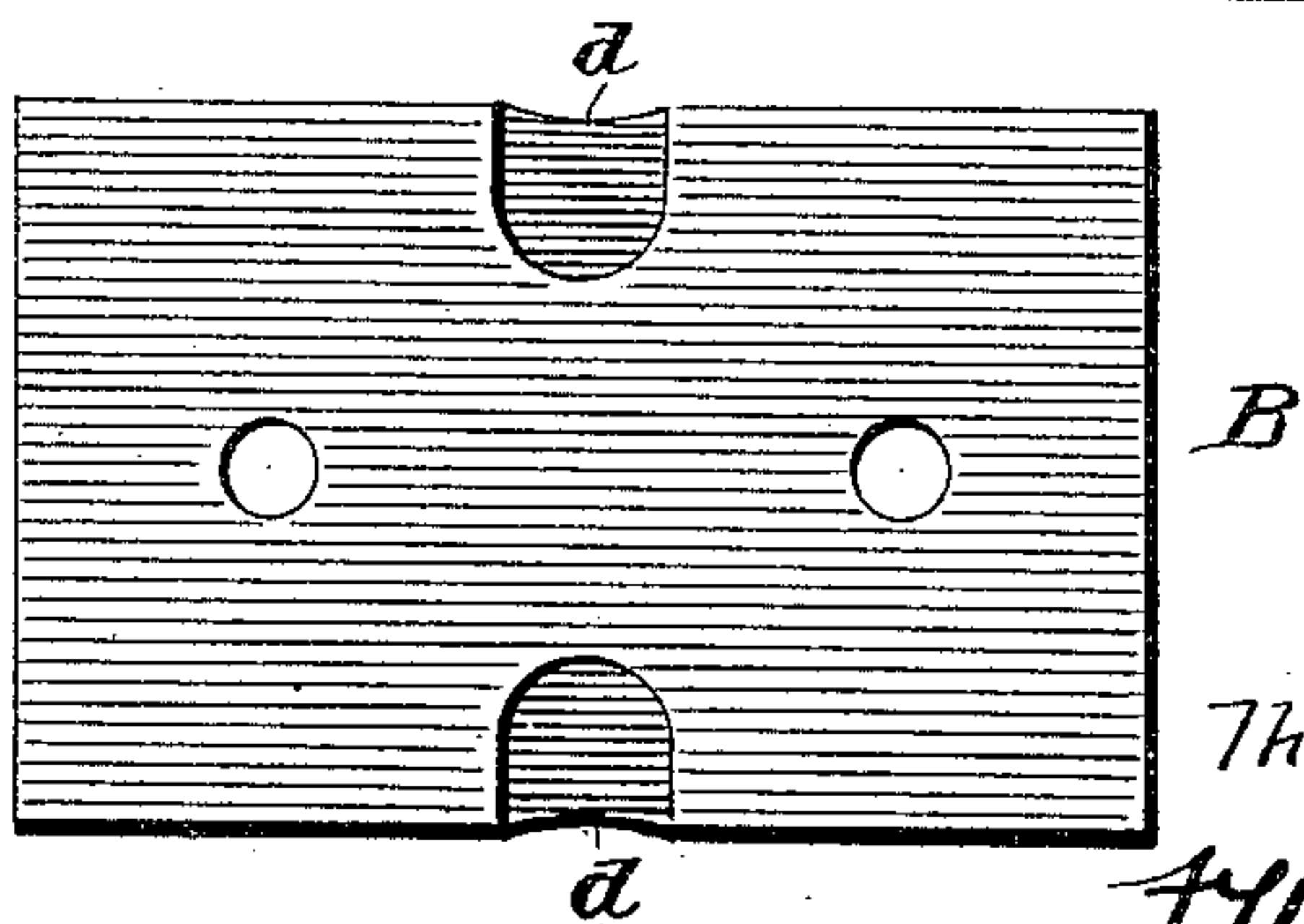
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



WITNESSES:

*J. H. Finch*  
*Chas. H. Fleming*

INVENTOR

*Thomas B. Benwell*

BY

*T. W. Smith Jr.*

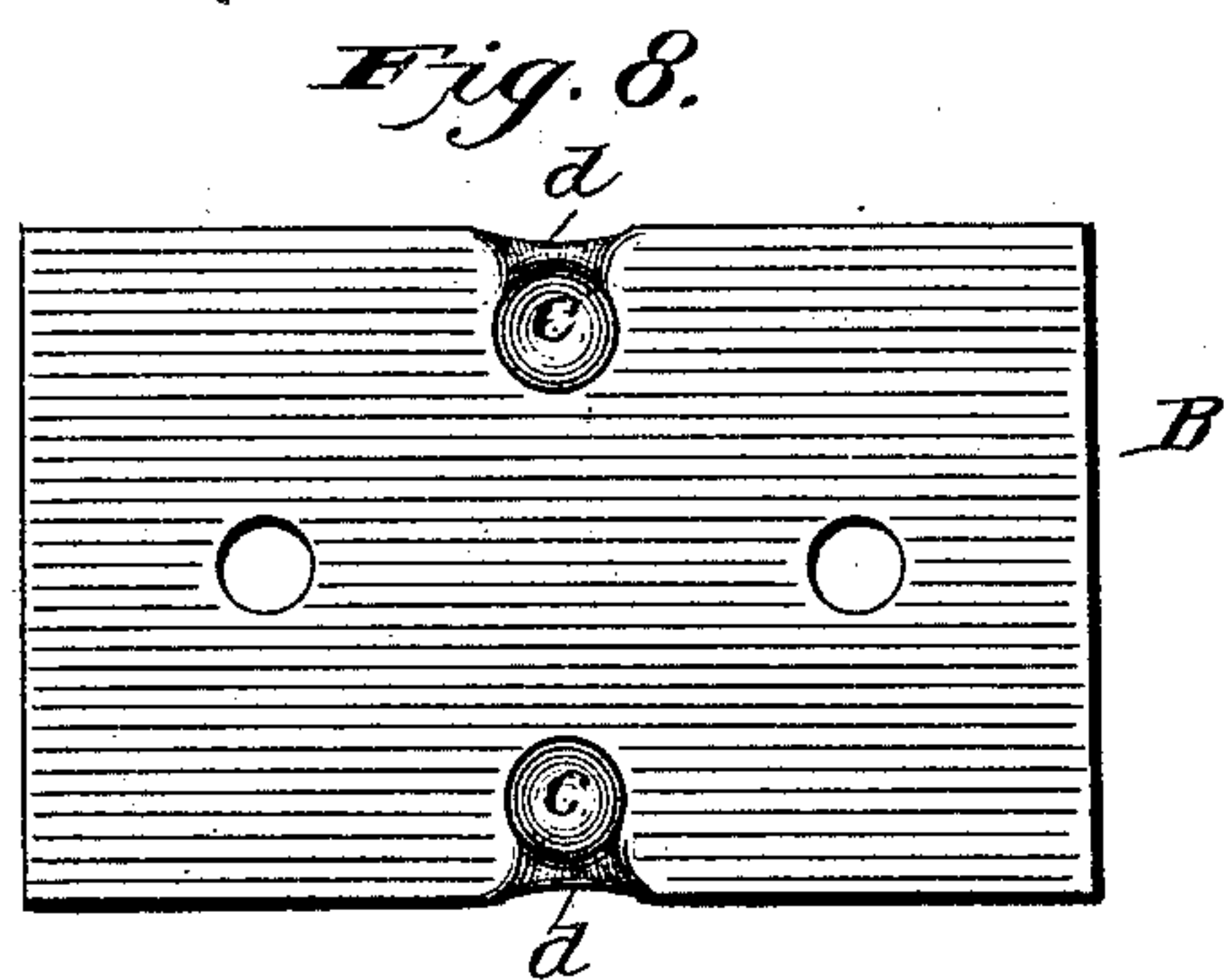
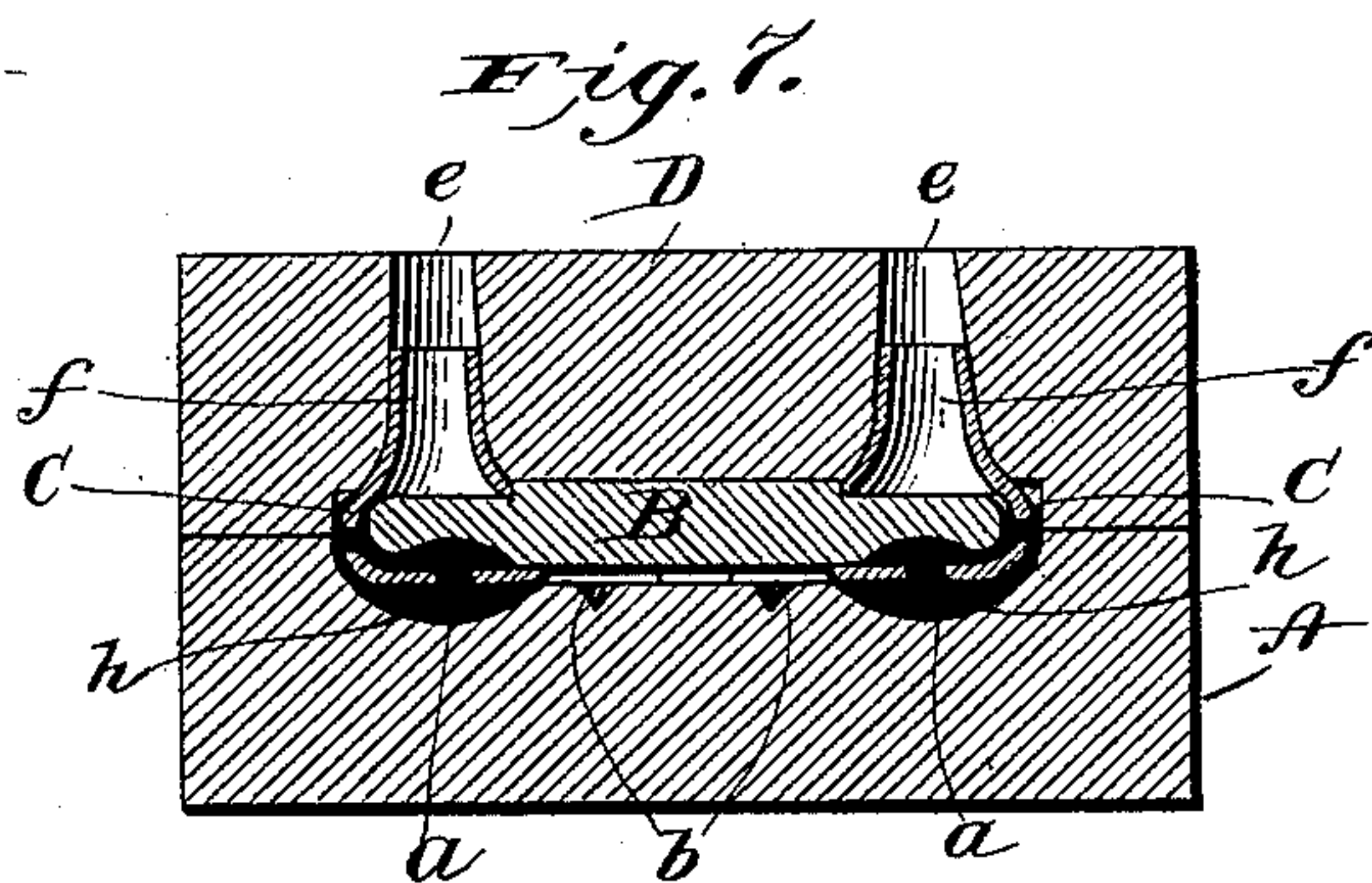
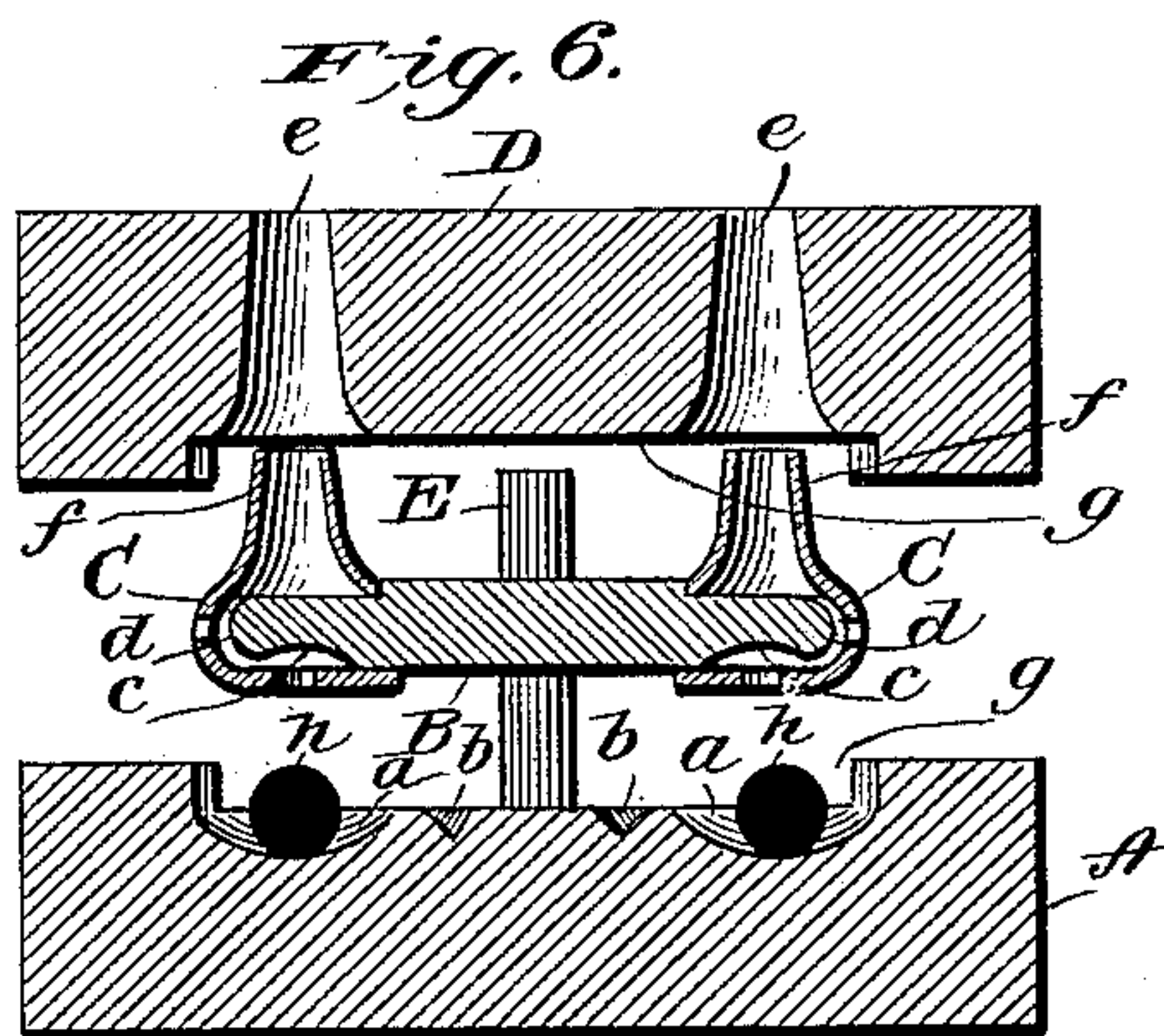
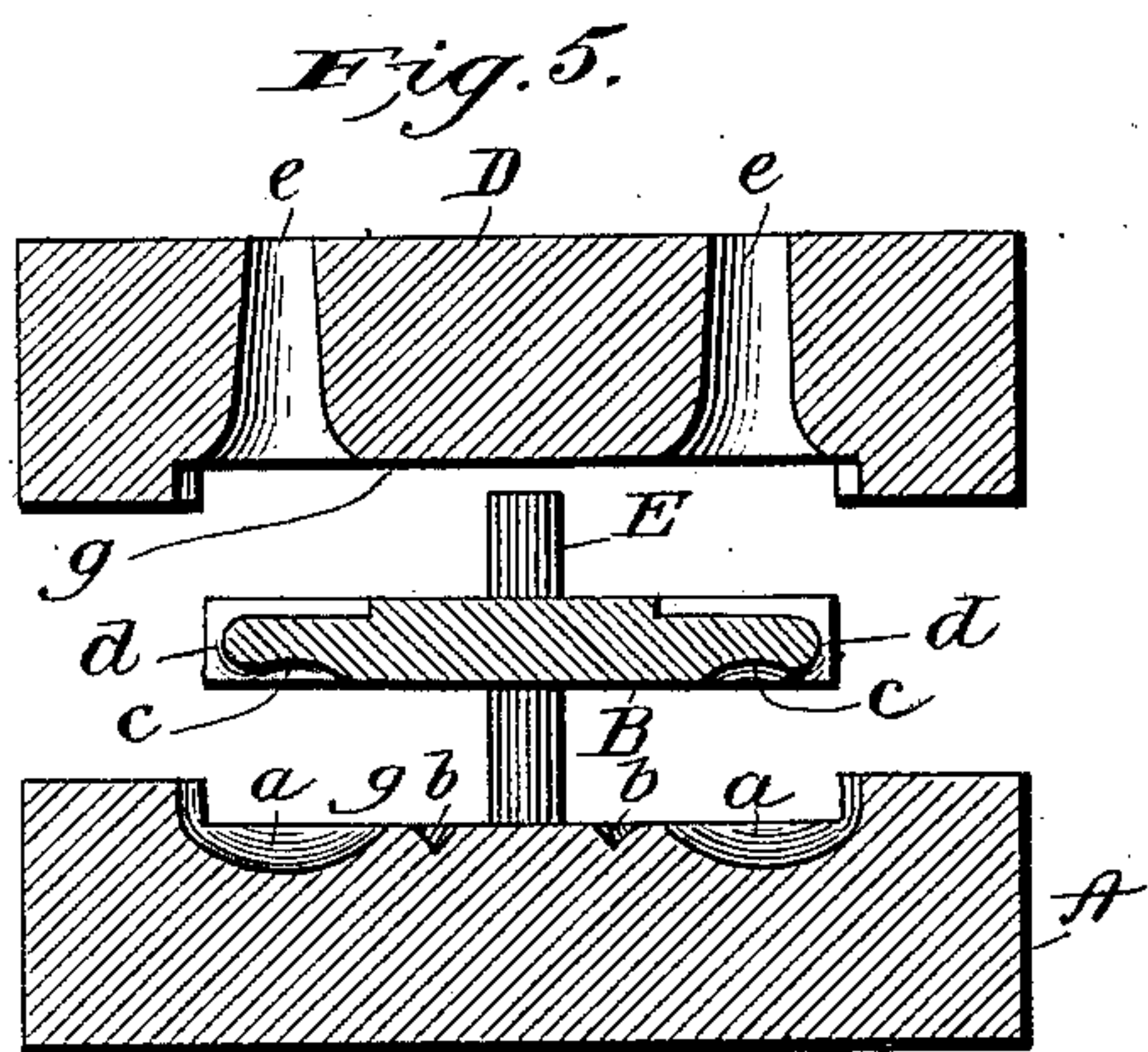
ATT'Y

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WITNESSES:

*J. S. French -*  
*Chas. H. Fleming*

INVENTOR

*Thomas B. Benwell*  
*T. W. Smith Jr.*

BY

ATT'Y



# UNITED STATES PATENT OFFICE.

THOMAS B. BENWELL, OF NEWARK, NEW JERSEY, ASSIGNOR TO WILLIAM H. SMIDT AND EBERHARD L. PUPKE, BOTH OF NEW YORK, N. Y.

DIE FOR COVERING SHOE-LACING HOOKS WITH PYROXYLINE MATERIAL.

SPECIFICATION forming part of Letters Patent No. 427,958, dated May 13, 1890.

Application filed March 15, 1890. Serial No. 343,997. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS B. BENWELL, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Dies for Covering Shoe-Lacing Hooks with Pyroxyline Material; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has reference to certain improvements in the construction of dies for the forcing and compression of pyroxyline material around the perforated heads and shanks of shoe-lacing hooks, and has for its object to rapidly and uniformly cover said heads and shanks.

In the accompanying drawings, Figure 1 is a perspective showing the parts of my improvement in detached condition preparatory to being assembled for use; Fig. 2, a plan of the lower die; Fig. 3, a bottom view of the upper die; Fig. 4, a plan of the intermediate bar; Fig. 5, a sectional elevation of my improvement with the parts properly assembled preparatory to compression; Fig. 6, a view similar to Fig. 5, but showing the lacing-hooks attached to the intermediate bar and the pyroxyline material in the lower die; Fig. 7, a view similar to Fig. 6, but showing the dies compressed and the pyroxyline material forced around the hook; and Fig. 8, a bottom view of the intermediate bar.

Similar letters denote like parts in the several figures of the drawings.

A is the lower die, having depressions *a* and surrounding gutters *b*.

B is the intermediate bar, on which the hooks C are assembled, the bottom of said bar being concaved, as seen at *c*, while the extreme edge of said bar is cut away and rounded, as seen at *d*, so that when the hooks are properly attached to the bar there will be a free space between said bar and the shank and head of said hook, as clearly seen at Fig. 6. The upper die D is perforated at *e* to accommodate the eyelets *f* of the hooks.

Dowel-pins E are extended from the lower die through the bar and upper die in order to guide and retain the parts in proper position, and the meeting faces of the dies are cut away to provide a sort of recess *g*, within which the bar is inclosed when the dies are brought together.

From the foregoing description it will be apparent that the combined contours of the depression *a* in the lower die and the concavity *c* and edge *d* in the bar will, when said die and bar are brought together, conform to the general shape of the head and shank of the covered hook.

The operation of my improvement is as follows: A pellet *h* of pyroxyline material is placed in the depression *a* of the lower die, and the two dies and the intermediate hook-carrying bar then compressed together by hydraulic or other powerful pressure. The lower die is heated in any suitable and ordinary manner, so that the pellet will melt or be rendered plastic. As the parts are compressed the fluid or plastic pyroxyline will be forced through the perforated head and shank of the hook and within the free spaces on opposite sides of said head and shank. Any surplusage of pyroxyline material will overflow into the gutter *b*. The dies when sufficiently cooled are separated and the bar stripped of the finished hooks.

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

1. The herein-described means for covering the perforated heads and shanks of shoe-lacing hooks, consisting of a lower die having a depression and an intermediate bar cut away and concaved, whereby the combined contours of said depression, cut-away, and concaved portions conform to the shape of the finished hook-head, and an upper die having perforation to accommodate the eyelets of the hooks, substantially as set forth.

2. The combination of the lower die which contains the pyroxyline material, the intermediate bar to which the hooks are attached, and the upper die, substantially as shown and described.

3. The combination of the die A, having  
depression *a* and surrounding gutter *b*, the  
die D, having perforation *e*, the intermediate  
bar B, having cavity *c* and cut-away edge *d*,  
5 and the dowel-pins extending from the die A  
through the die D and intermediate bar, sub-  
stantially as set forth.

In testimony whereof I affix my signature in  
presence of two witnesses.

THOMAS B. BENWELL.

Witnesses:

W. H. SMIDT,

EBERHARD L. PUPKE.