

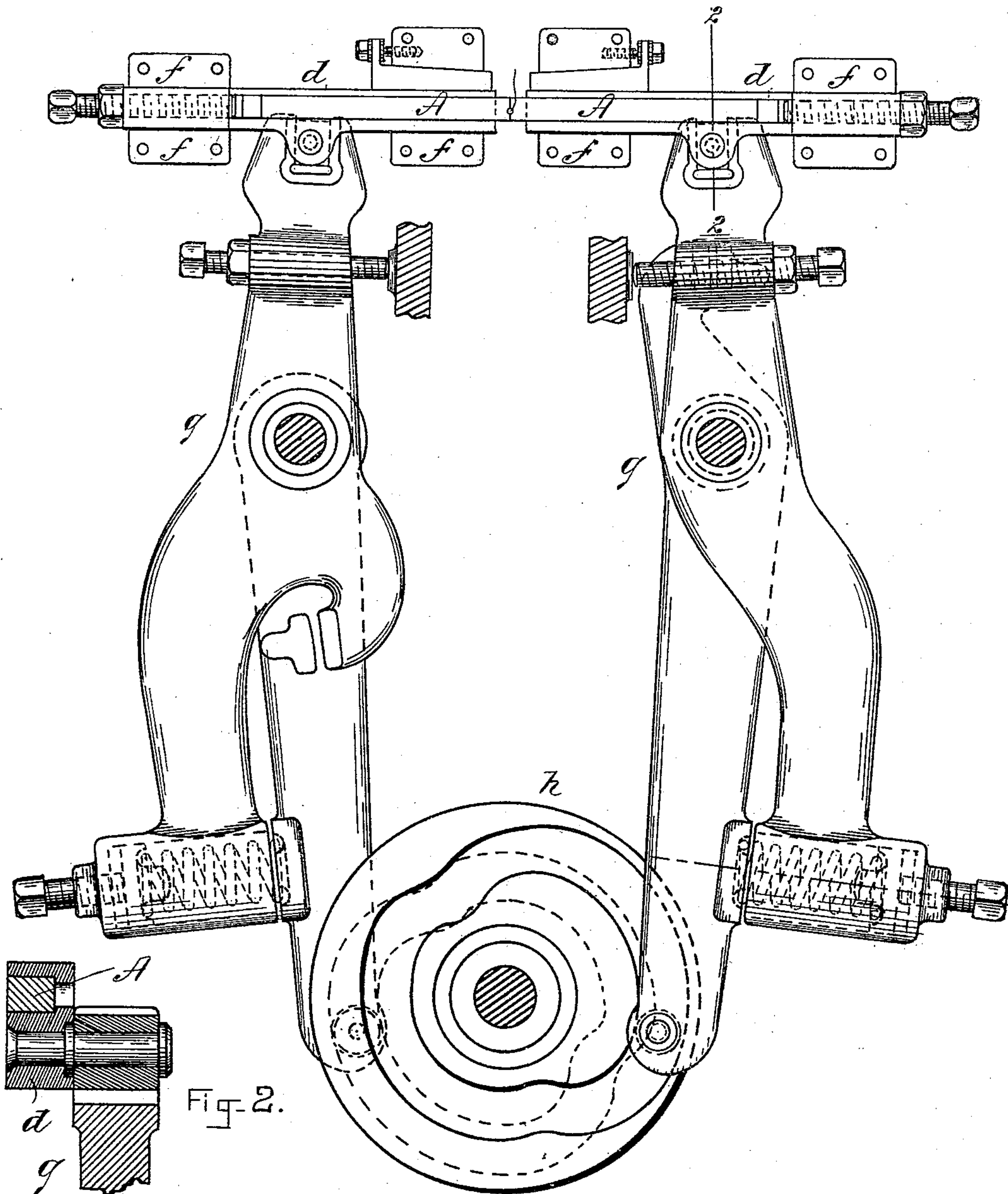
(No Model.)

2 Sheets—Sheet 1.

R. L. ELLERY.  
DIE FOR USE IN MAKING SHANK BUTTONS.

No. 459,359.

Patented Sept. 8, 1891.



WITNESSES:  
*G. M. Chamberlain.*

*J. W. Garfield*

Fig 1.

INVENTOR:  
Robert L. Ellery,  
by *Chapman & Co.*  
Attys.

(No Model.)

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Fig. 3.

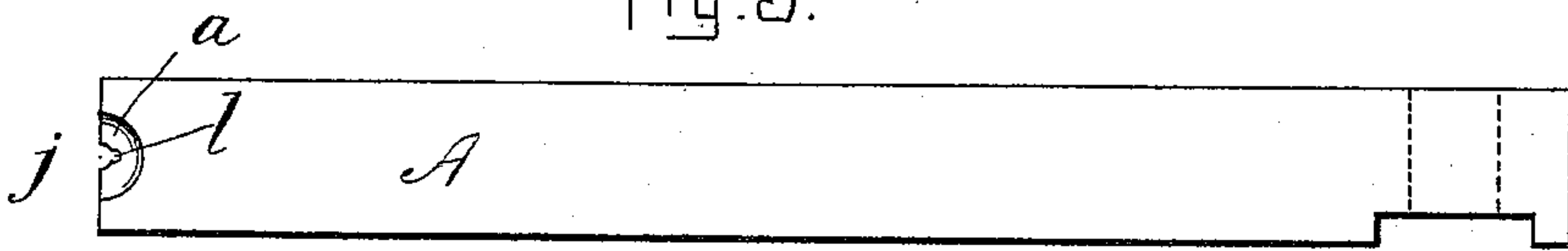


Fig. 4.

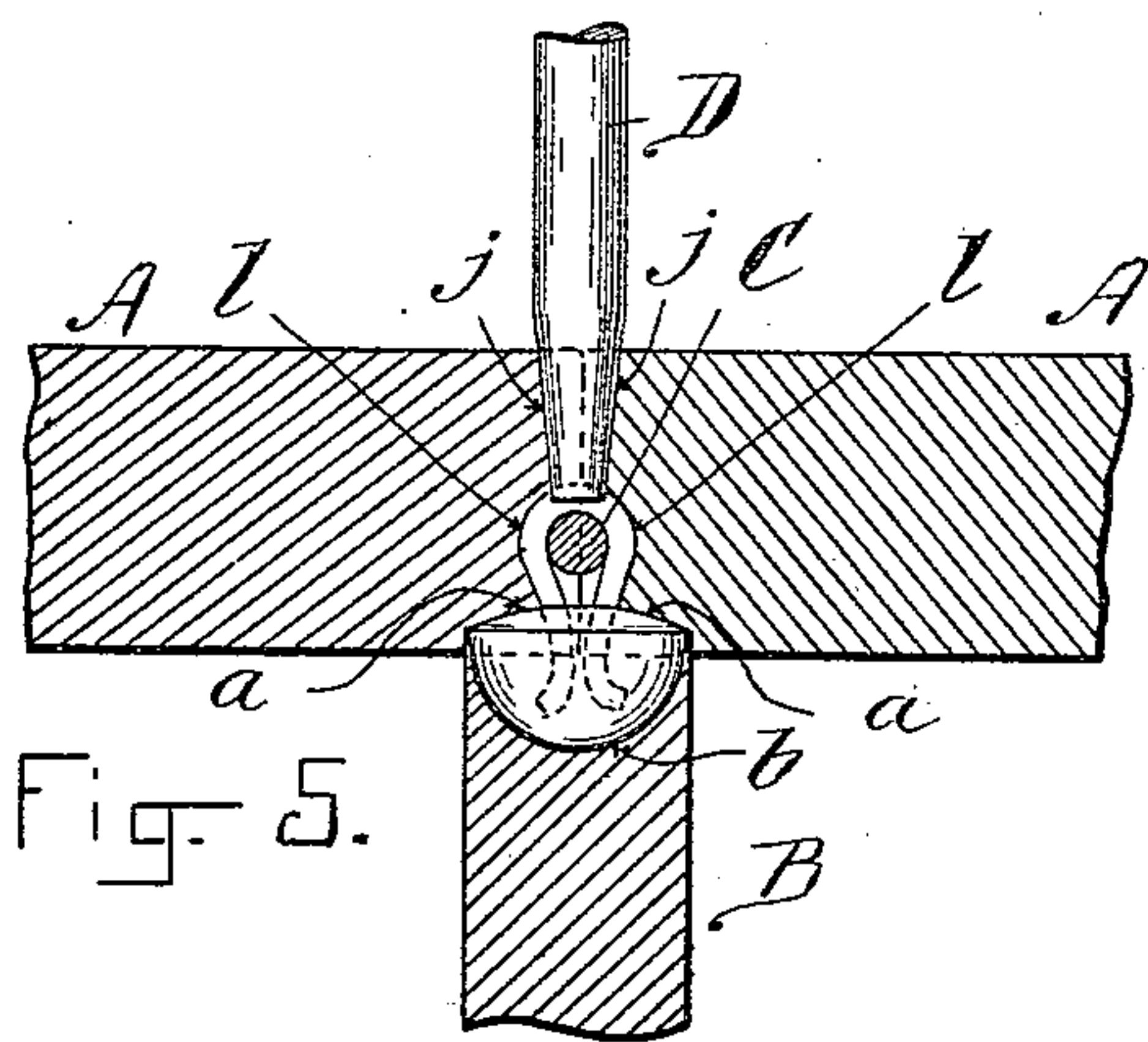


Fig. 5.

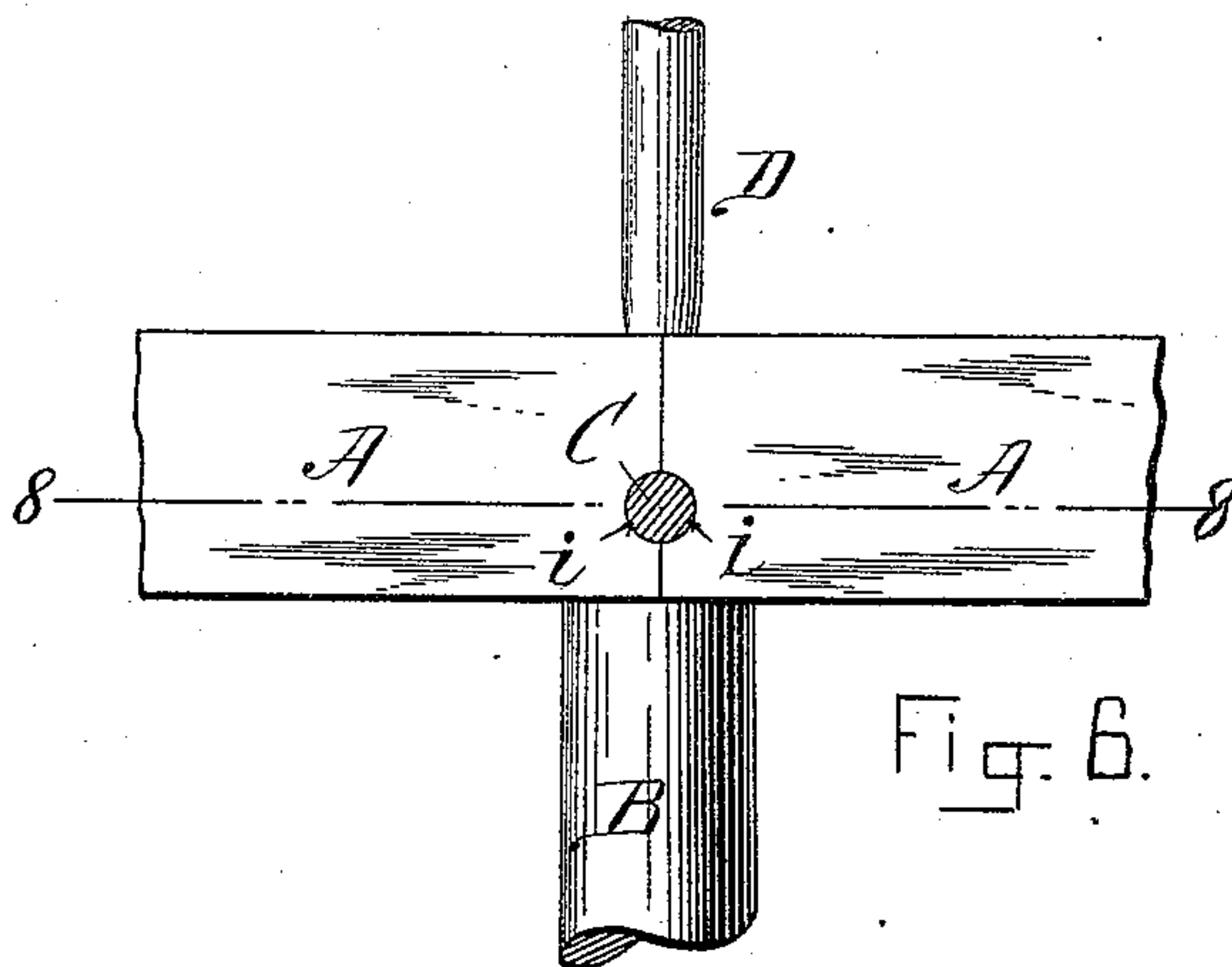


Fig. 6.

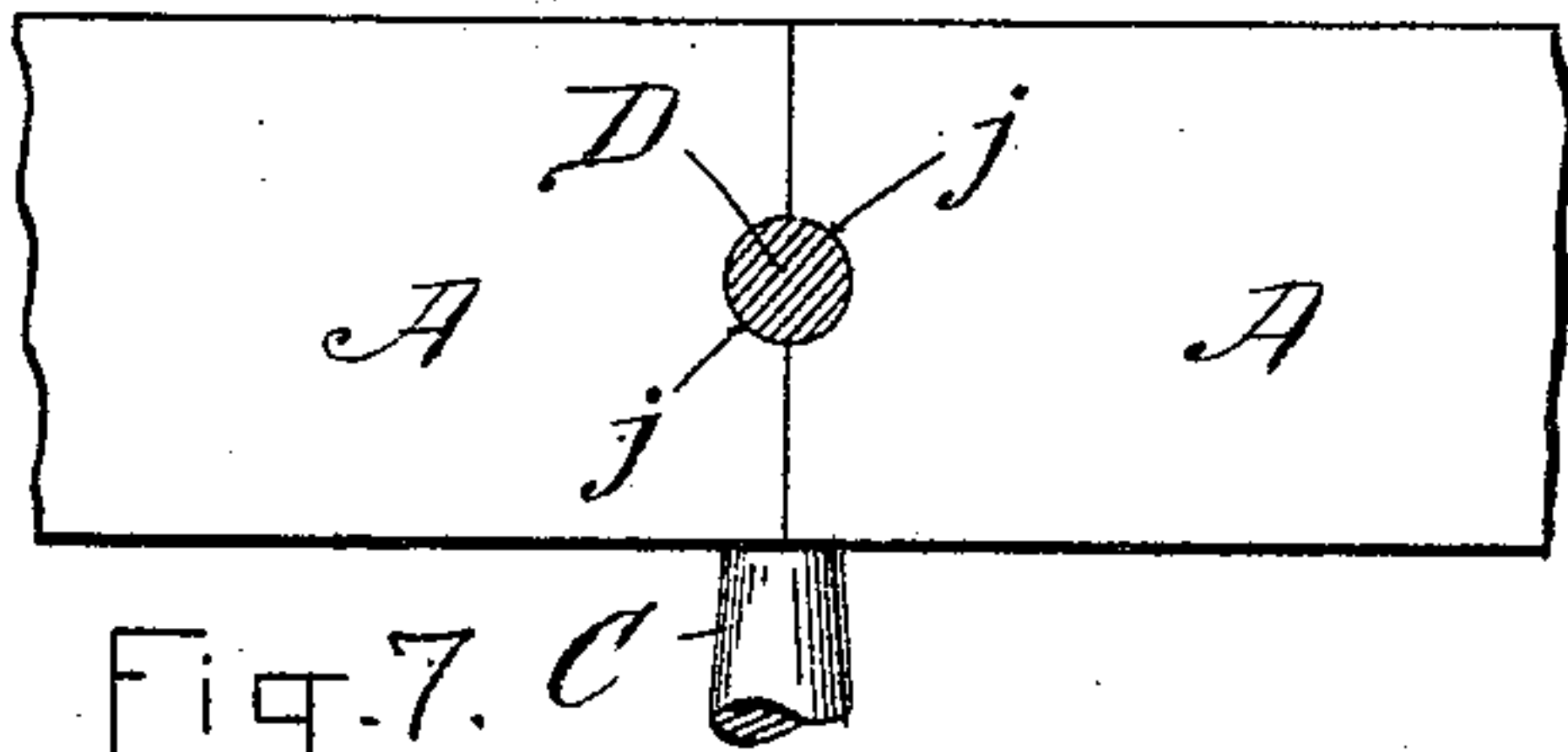


Fig. 7.

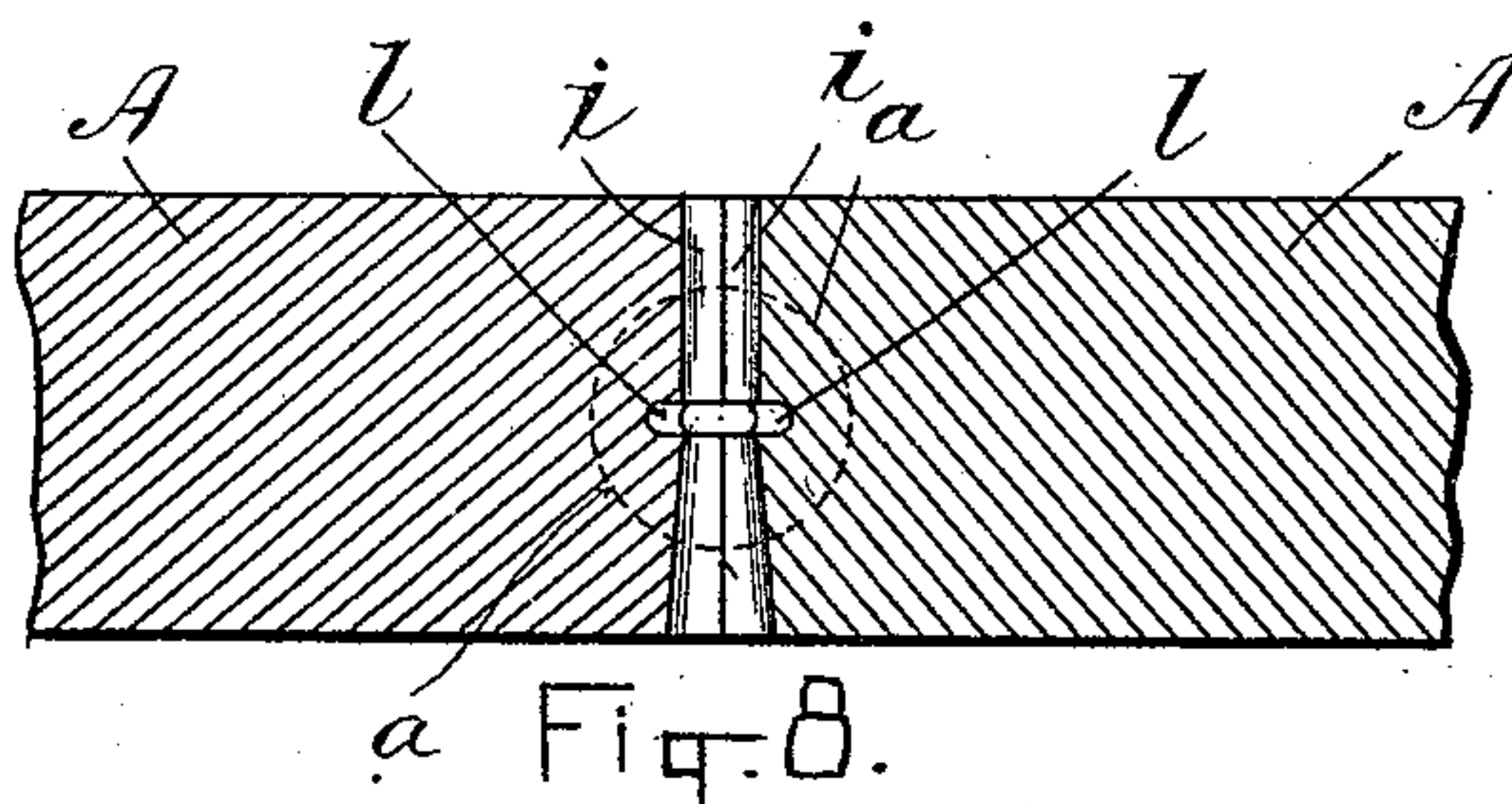


Fig. 8.

WITNESSES:  
G. H. Chamberlain.

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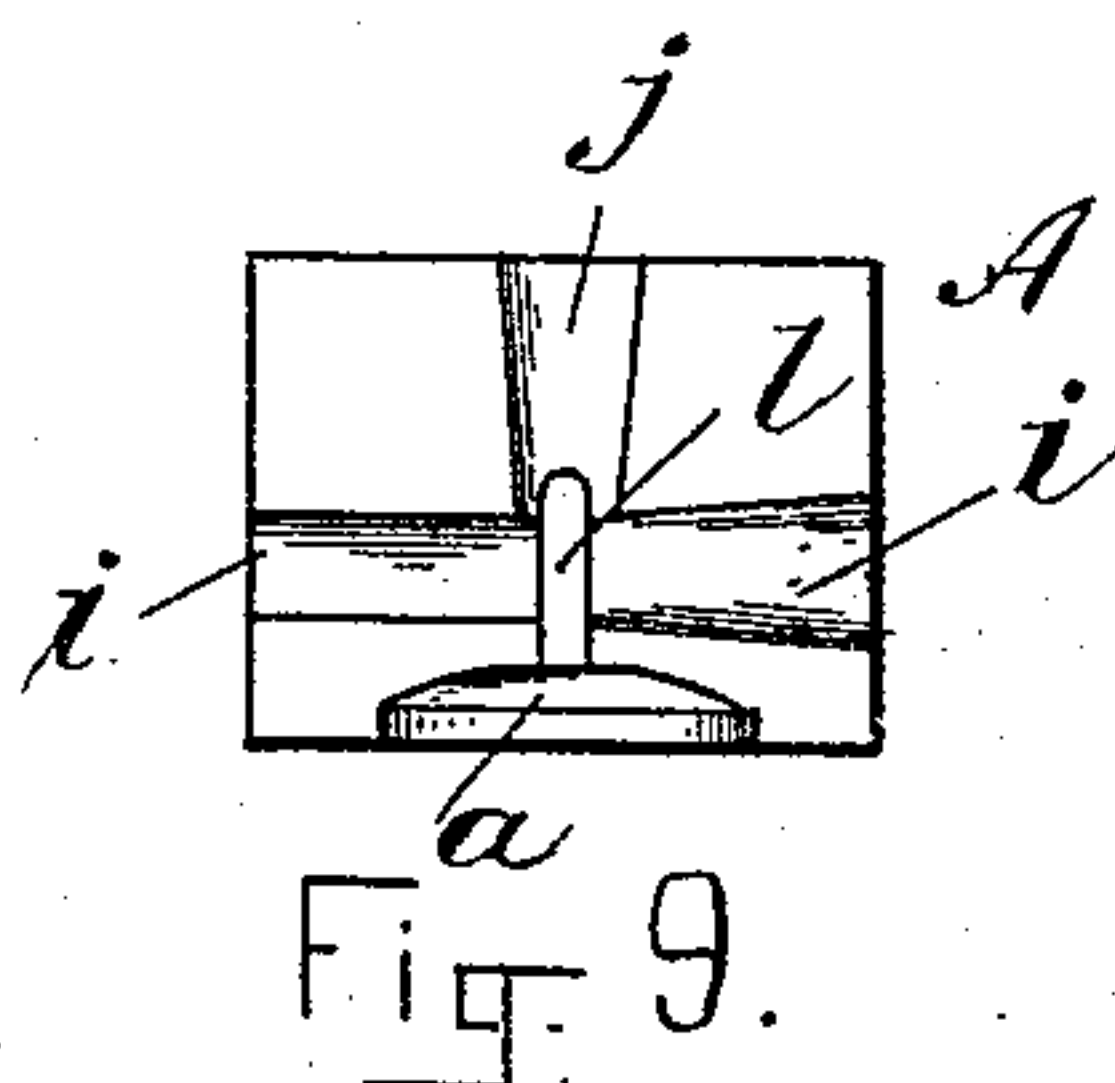


Fig. 9.

INVENTOR:  
Robert L. Ellery.  
by Shapin & Co. Attys



# UNITED STATES PATENT OFFICE.

ROBERT L. ELLERY, OF TAUNTON, ASSIGNOR TO THE MORLEY BUTTON MANUFACTURING COMPANY, OF BOSTON, MASSACHUSETTS.

## DIE FOR USE IN MAKING SHANK BUTTONS.

SPECIFICATION forming part of Letters Patent No. 459,359, dated September 8, 1891,

Application filed December 6, 1890. Serial No. 373,814. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT L. ELLERY, a citizen of the United States, residing at Taunton, in the county of Bristol and State of Massachusetts, have invented new and useful Improvements in Dies, of which the following is a specification.

This invention relates to improvements in dies for use in the manufacture of shank buttons, especially buttons for boots and shoes, the improvements being to the end of enabling the button-making machine to produce buttons which are absolutely alike and accurate, the shank and eye in any one button always being in the same arrangement and engagement with the button-head as in another, all as is very important where the buttons are intended to be sewed onto the boots or shoes or other fabric by automatic machinery, as is possible under the use of certain machines well known in the trade.

The invention particularly relates to a pair of dies movable to and from each other in a longitudinal line, having at and near to their adjacent and contacting ends die-openings for forming the under portion of the button-body and compressing the same over the shank, a portion of the die for forming the head of the button being comprised in another part movable by its working end to the button-forming place in the machine at right angles to the line of movement of said paired dies.

The invention consists in the formation of the pair of separable dies, substantially as will hereinafter more fully appear, and be set forth in the claims.

In the accompanying drawings, Figure 1 is a front elevation, on a comparatively small scale, of the separable dies, supporting and girding devices therefor, and means for insuring the reciprocatory movements thereof. Fig. 2 is a sectional view in illustration of details of construction, taken on the line 2 2, Fig. 1. Fig. 3 is a plan of the under side of one of the dies of a pair of separable dies, and Fig. 4 is a side view of same, the scale on which said last two views are drawn being somewhat larger than that of the preceding views, but smaller than that of the remaining views. Fig. 5 is a central longitudinal ver-

tical sectional view of the abutted end portions of the pair of separable dies and a central sectional view of the die which is movable at right angles to said paired dies and adjacent thereto and showing a button as being molded and also the eye forming or supporting pin and the eye-holding pin as in their operative relations. Fig. 6 is a side elevation of said parts, the eye forming or supporting pin, however, being in cross-section. Fig. 7 is a plan view of said parts with the eye-holding pin in horizontal and transverse section. Fig. 8 is a horizontal longitudinal section of the dies on the line 8 8, Fig. 6; and Fig. 9 is a view taken at the working end of one of said dies.

A A in the drawings represent the shaping-dies, which are for the under half of the button-body, which body is more or less of a general spheroidal form, said dies being separable one from another, moving in a common line longitudinally of both die-blocks, and B represents the die, having the proper depression *b* therein for forming the top half of the button, which is substantially of a hemispherical form, and said die moves in a line at right angles to the length of the dies A A and coincident with the plane of contact between the ends thereof.

No particular construction of or means for operating the die B is prescribed, such die or operating devices therefor constituting no part of this invention.

C represents the "eye-forming pin," as termed, although, so far as the present invention in dies *per se* is concerned, it is perhaps more properly to be regarded as an eye-supporting pin, and D is the eye-holding pin.

The dies A A are fixed in die-carriers *d*, which are mounted to slide in fixed bearings *f f*, suitably formed on the frame of the machine, and said carriers are given their reciprocatory movements toward and from each other by means of the engagement therewith of the levers *g g*, operated from the cam *h*.

The button under the arrangement of the dies and other devices, as shown, is produced with its eye-shank uppermost, and the die-blocks have the depressions *a* in the corners at the proximate ends, which extend to the under surfaces of the blocks, each of which



depression corresponds to and conduces to the shaping of a half of the under hemispherical portion of the button.

It will be here mentioned that in the forming of the button in which the present dies are employed the eye-shank is formed from a straight piece of wire on the eye-forming pin C by mechanism (not shown) and while the dies A A are separated, said eye being supported on the pin C with its legs pending, as indicated in Fig. 5, (standing in a plane corresponding to the slide of said dies,) and being retained by the eye-holding pin D, the confining action of which continues after the eye has been substantially formed. The lower die, which is also a punch, then moves upwardly to force a portion of papier-maché upwardly onto and about the legs of the eye-shank to be penetrated thereby, forming the button from such portion of stock.

Within the end of each die block there is therefore provided above the shaping depression *a* a horizontal transverse groove or channel *i*, whereby when the dies A A are in contact a hole for the accommodation of the eye forming and supporting pin will be provided, which axially is coincident with the plane of abutment of the pair of dies. There is also formed in each die end a vertical groove *j*, which leads from the upper side of the block to the groove *i*, and said grooves conduce to form, when the paired dies are in abutment, a passage for the eye-retaining pin D, which axially is coincident with the said plane of abutment, and also with the center of the button-shaping aperture formed by the depressions *a a*, and also is perpendicular to the axis of the passage for the eye forming and supporting pin. It will further be seen that in the end of each die A there is an aperture *l*, extended in the direction of the length of the slide of the die, the same being formed as a laterally-extended niche leading from the central portion of the horizontal channel *i*, said niche or aperture being extended downwardly, merging into the depression *a*, and when the dies are together said apertures, which have the proper dimensions and ar-

angement relative the one to the other and to the said passage for the eye-forming pin, form a close chamber substantially conforming to the required contour of the button-shank and one the walls of which will hold said button-shank absolutely immovable, so that when the stock from which the button is formed is pressed up onto the shank, the legs of which extend down through the recess formed by the depressions *a a*, and the body is then shaped, the said shank will be permitted to have absolutely no swinging or sliding or shifting motion, whereby the button-eye might have a disposition otherwise than exactly centrally with relation to the body of the button.

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

1. A pair of dies, one movable to and from the other and in their proximate ends provided with depressions leading to the face of the dies next to said ends, which are adapted for shaping the under portion of the button, provided with channels for permitting the entrance between the dies of an eye-supporting pin and having the apertures extending at right angles to the length of said channels, but coincident with the direction of movement of the dies, and conforming substantially to the desired contour of the button-shank, substantially as described.

2. A pair of separable dies in their proximate ends provided with the depressions *a*, provided with the transverse channels *i* and having extending at right angles to the length of said channels, but coincident with the direction of movement of the dies, the apertures conforming substantially to the contour of the button-shank and provided with the channels *j*, which extend to and are perpendicular to the length of said channels *i*, substantially as and for the purpose set forth.

ROBERT L. ELLERY.

Witnesses:

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G. M. CHAMBERLAIN.