

No. 641,701.

Patented Jan. 23, 1900.

G. JOHNSON, JR.

CUTTER.

(Application filed Apr. 30, 1897.)

(No Model.)

Fig. 1.

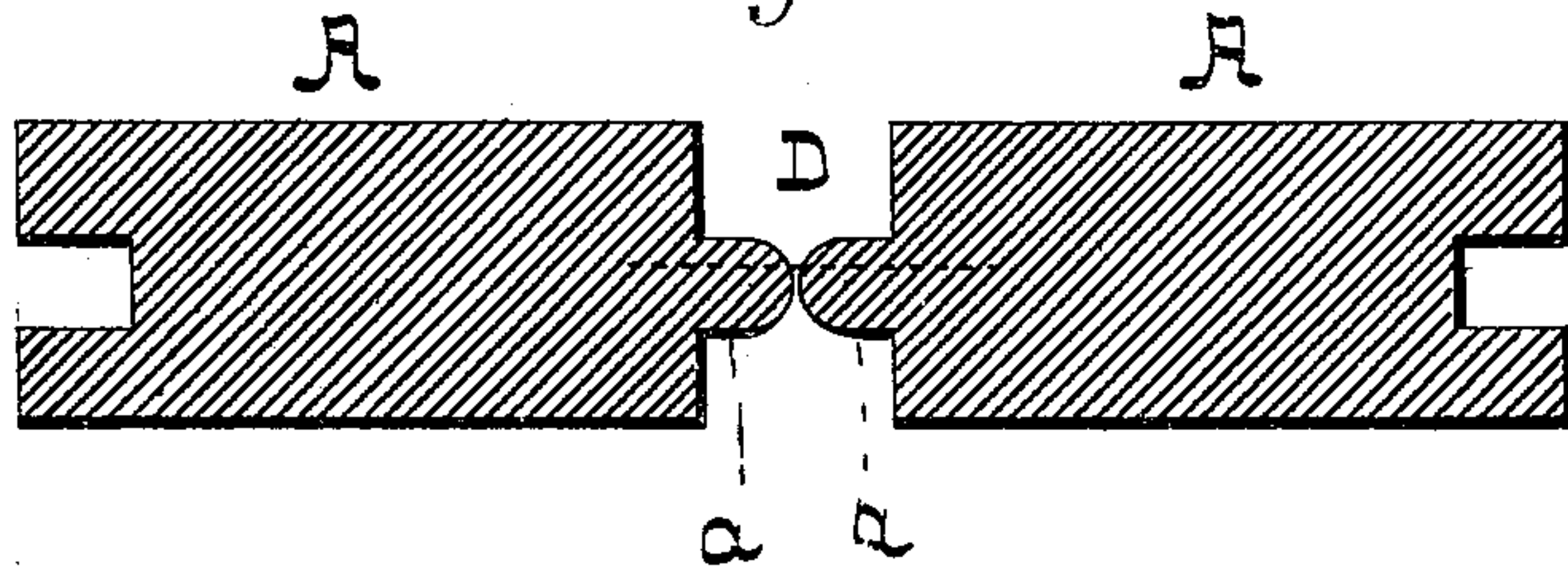


Fig. 3.

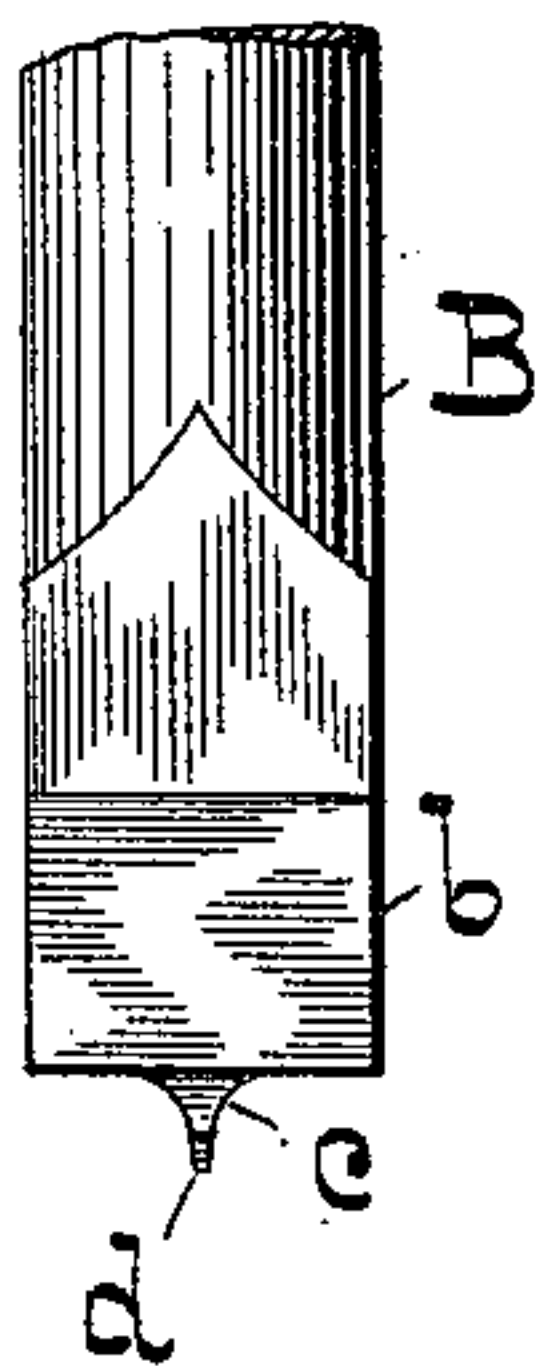


Fig. 2.

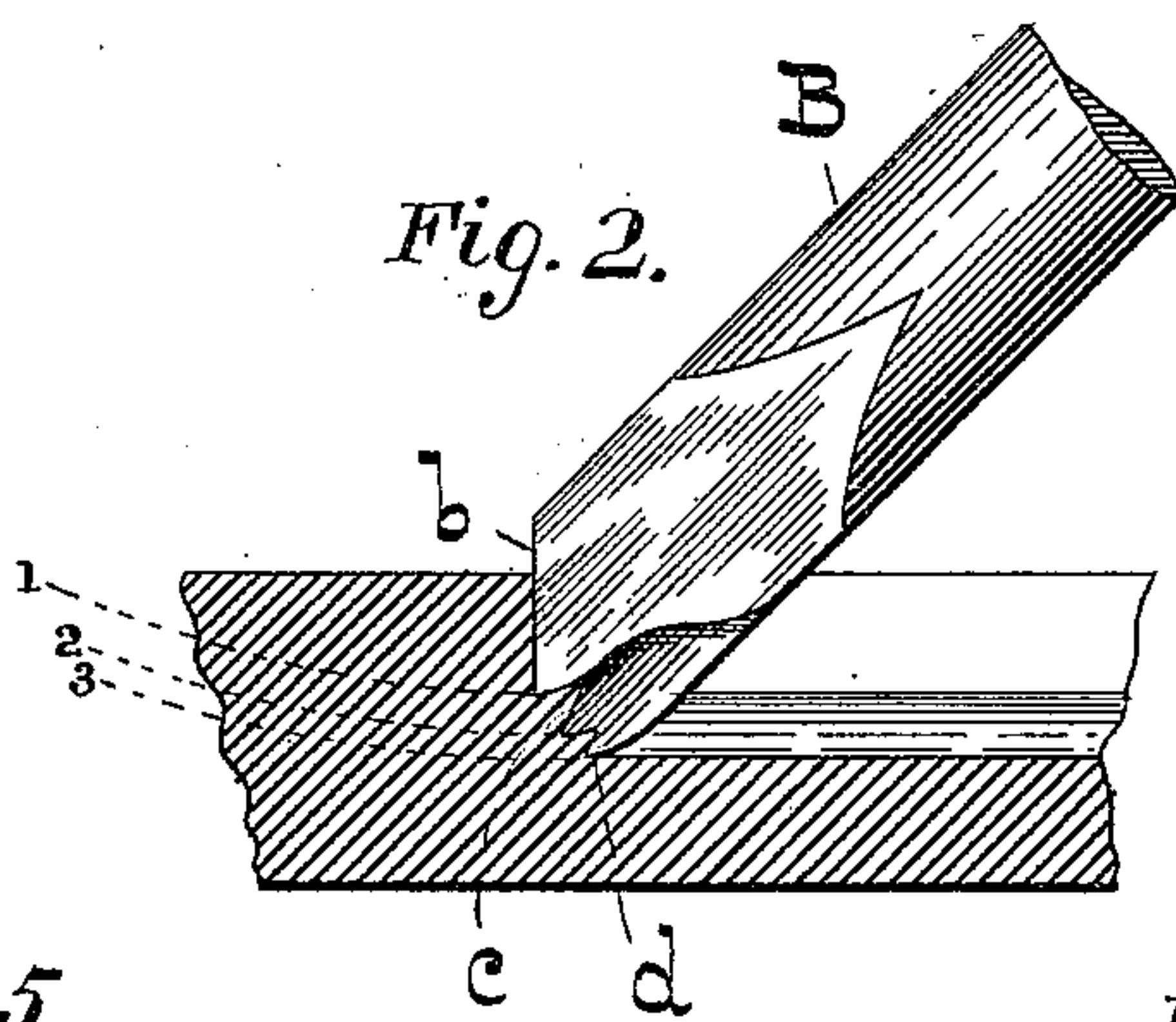


Fig. 4.

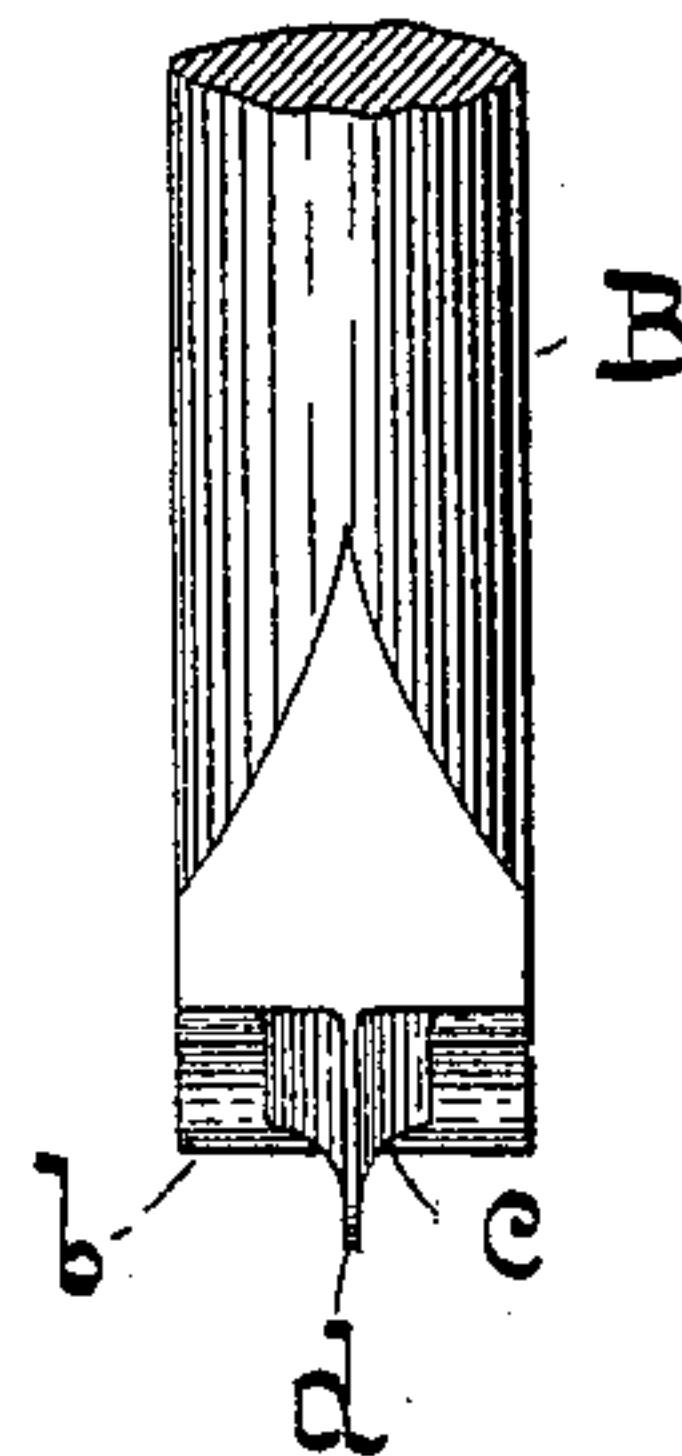


Fig. 5.

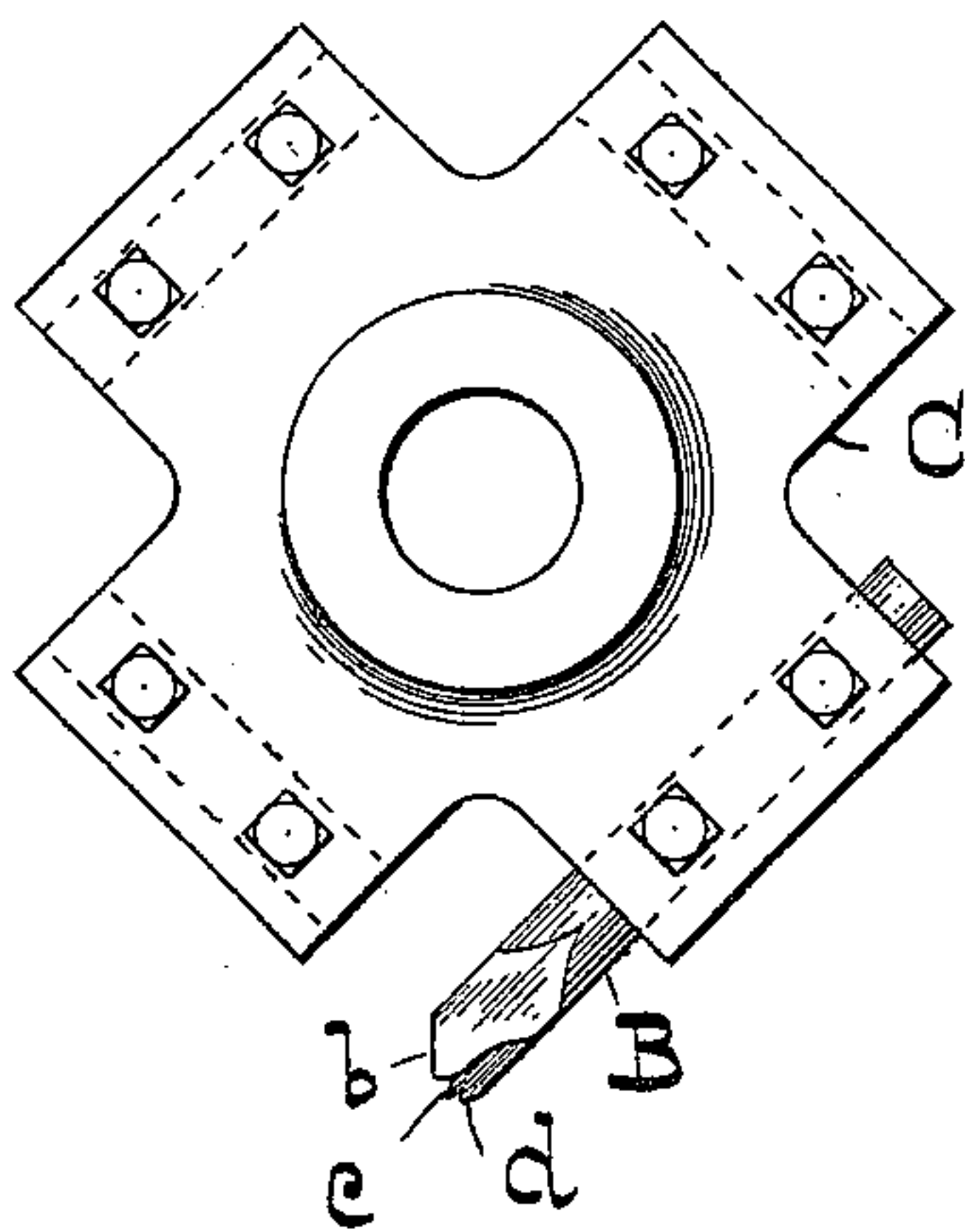
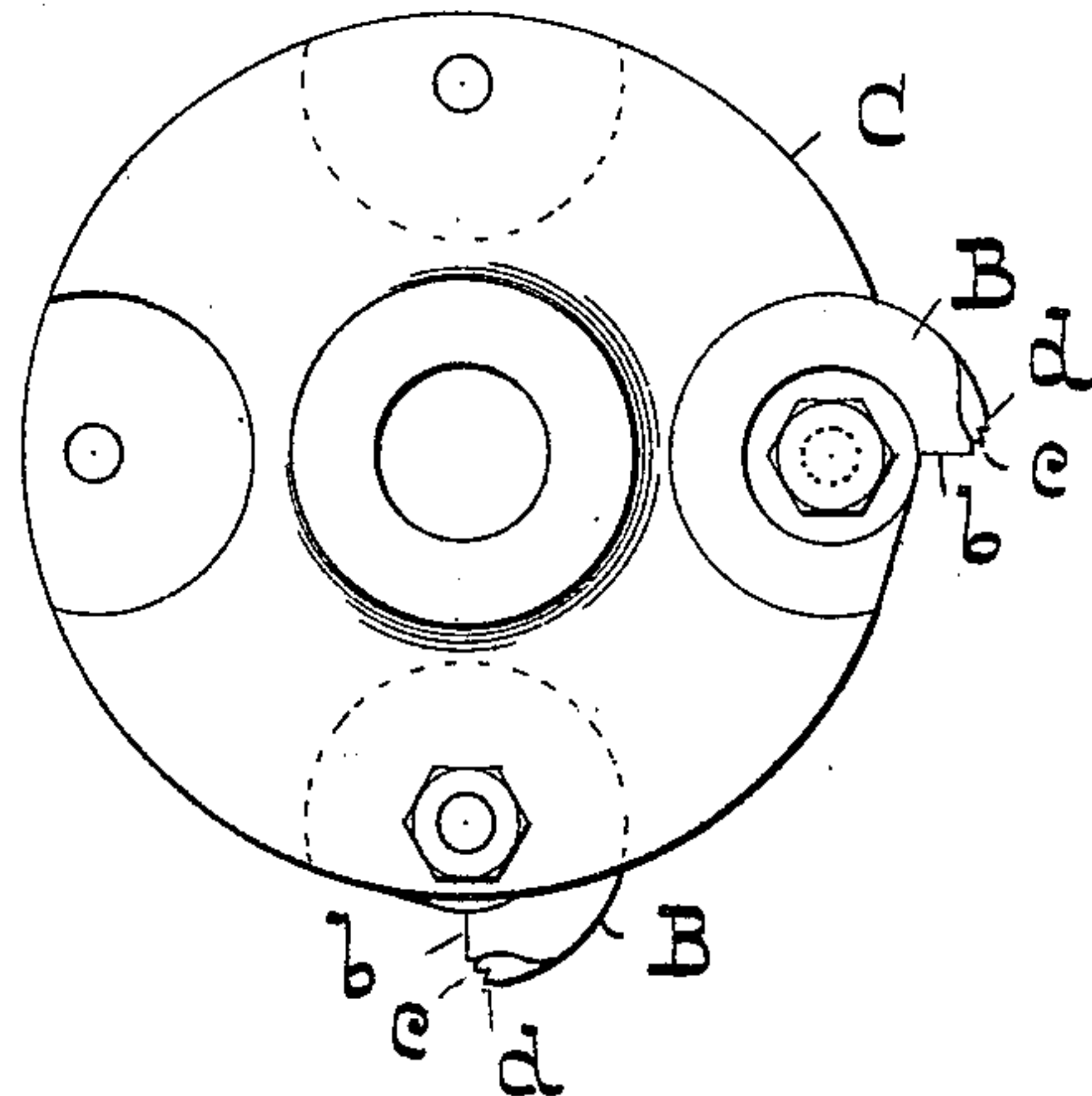


Fig. 6.



-WITNESSES-

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CUTTER.

SPECIFICATION forming part of Letters Patent No. 641,701, dated January 23, 1900.

Application filed April 30, 1897. Serial No. 634,551. (No model.)

To all whom it may concern:

Be it known that I, GREENLEAF JOHNSON, Jr., of the city of Baltimore, in the State of Maryland, have invented certain Improvements in Cutters for Wood-Planing or Flooring Machines, of which the following is a specification.

This invention relates to certain improvements in a cutter adapted, among other purposes, for the reduction of a plank into two boards with tongues on their adjacent edges; and it consists in a peculiar construction of the operative edge of the cutter, whereby the desired groove is effected or cut by two or more cutting edges which act independently of each other, and in the construction of tongue-and-grooved flooring, to so act that the narrowest part or the point of the cutter which separates the plank at the center of the double tongue has not to pass through the material to the full depth of the groove, but only to cut through material left by the cutters which are in advance of it. By this construction of the cutter the fine or thin portions of the same are not subjected to the same strain as are other cutters, and they are therefore less liable to be broken, as will hereinafter fully appear.

In the further description of the said invention which follows, reference is made to the accompanying drawings, in which—

Figure 1 is a sectional view of two tongue-and-grooved boards which have been produced from a plank by a series of the improved cutters in heads, one of which is above and the other below the plank or boards. Fig. 2 is an enlarged side view of the lower end of the improved cutter, showing the same as straight. Fig. 3 is a front edge view of Fig. 2. Fig. 4 is a rear edge view of Fig. 2. Fig. 5 is a side view of a cutter-head, showing the cutters as constructed in the preceding figures secured therein in the unusual manner, the whole being on a reduced scale. Fig. 6 is a side view of a cutter-head, showing the improved cutters as of annular form, a form which is of common design.

Referring now to the drawings, A represents two boards having tongues *a* on their adjacent edges, formed by cutting away the wood above and below the tongues by means

of the cutters forming the subject of the present invention.

In Figs. 2, 3, 4, and 5 the cutters, which are represented by B, are straight, and they are secured within the head C, as shown in Fig. 5:

In Fig. 6 the cutters B are annular in shape; but it will be understood that it makes no difference, as far as the present invention is concerned, whether the cutters are straight or annular, as in either case the cutting edge has the same configuration.

The cutter, as shown, is intended to make three independent cuts, the first to the upper surface of the tongues, the second to the dotted line shown in Fig. 1, and the third to the center of the tongues. To effect this, the cutting edge *b* has a width equal to that of the channel D and the edge *c* a width equal to that of the channel on the said dotted line, while the width of the third edge *d* is as narrow as consistent with strength.

The thickness or depth of the material removed by the several cutting edges is well shown by the dotted circular lines in Fig. 2, wherein it will be seen that the thickness of material removed by the first cutting edge *b* is equal to the vertical distance between the upper circular dotted line 1 and the surface of the board. The depth cut by the second cutting edge *c* is equal only to the distance between the dotted lines 1 and 2, and the depth of cut by the last cutting edge *d* to the distance between dotted lines 2 and 3. From this it will be seen that the portion of the cutter terminating in the edge *d*, which must necessarily be thin, is subjected to considerably less strain than if it had to cut to the center of the plank without the removal of the material by the cutters in advance of it. The same may be said of the second or central portion having the cutting edge *c*. It is therefore evident that with the improved construction of the cutter, as described, the cutter is less liable to break than if the cutting edges were in alinement, as heretofore arranged. Further, the rear cutting edges by having a reduced depth of cut will remain sharp for a greater length of time.

I claim as my invention—

A pair of cutters, oppositely placed, to reduce a plank into two boards with tongues at

their adjacent edges, at one operation, each
one of which comprises three cutting edges,
viz., the first to cut a shallow rectangular
channel, the second which projects beyond
5 the first, and is provided with hollow sides
and is narrower than the first, adapted to cut
to near the center of the tongue, and the third
which projects still farther and has hollow
sides which cut in continuation of the second,

to penetrate to the center of the tongue, the 10
last two edges being set back from the first
in the order named, so as to cut independ-
ently, substantially as, and for the purpose
specified.

GREENLEAF JOHNSON, JR.

Witnesses:

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