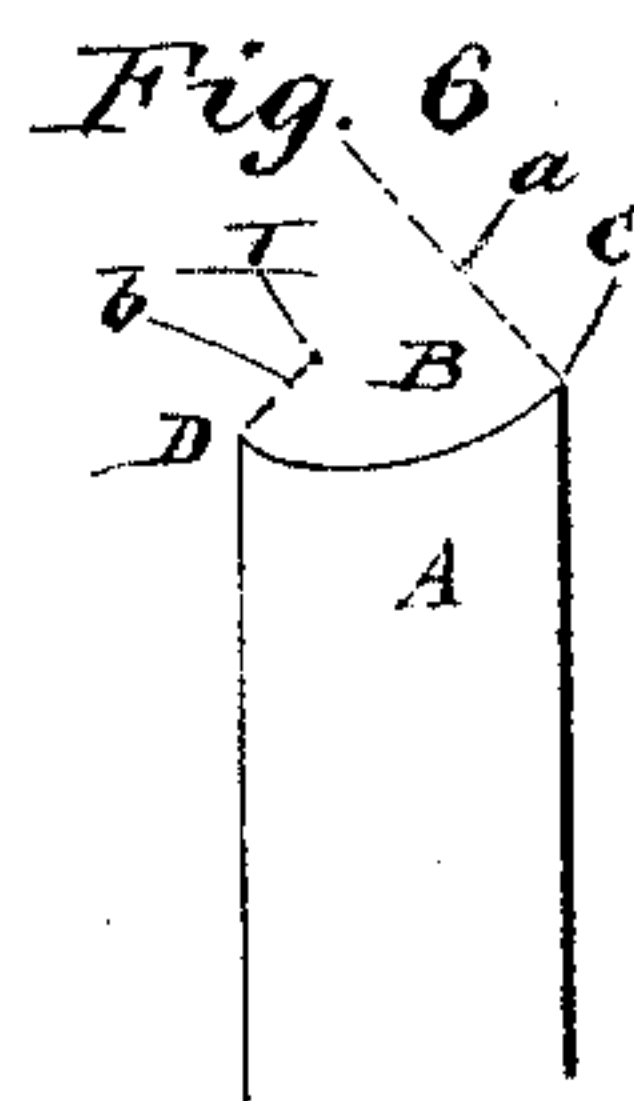
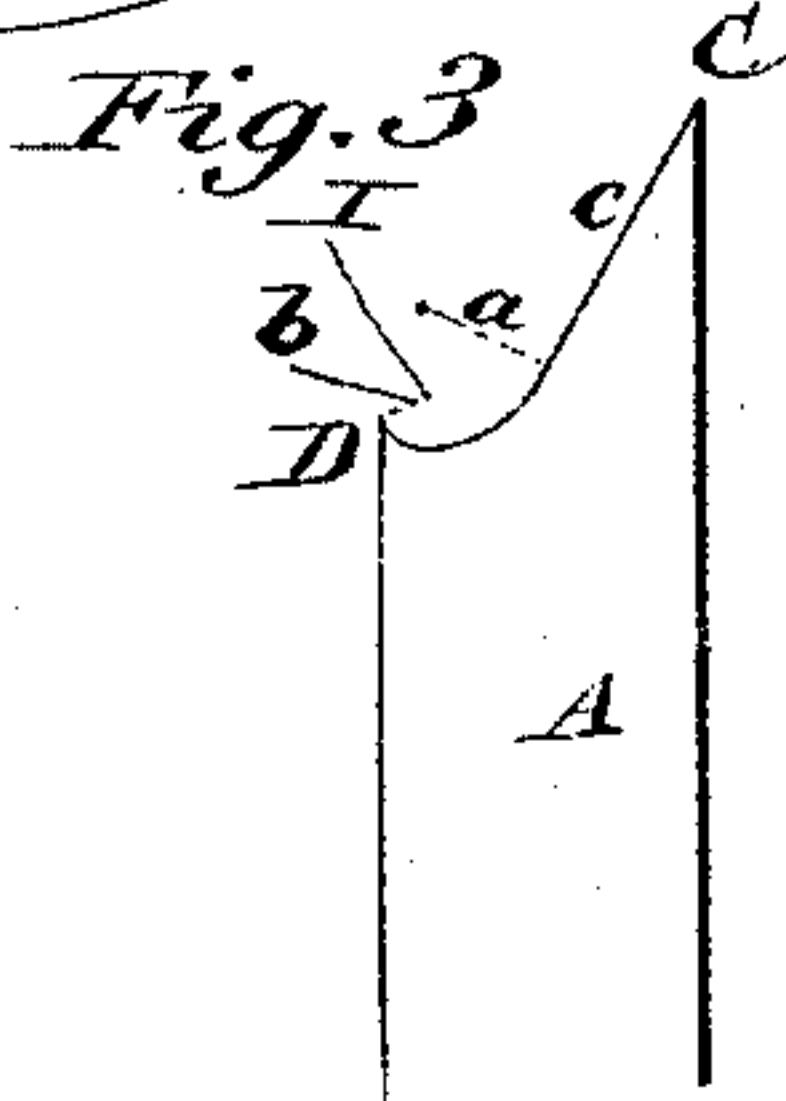
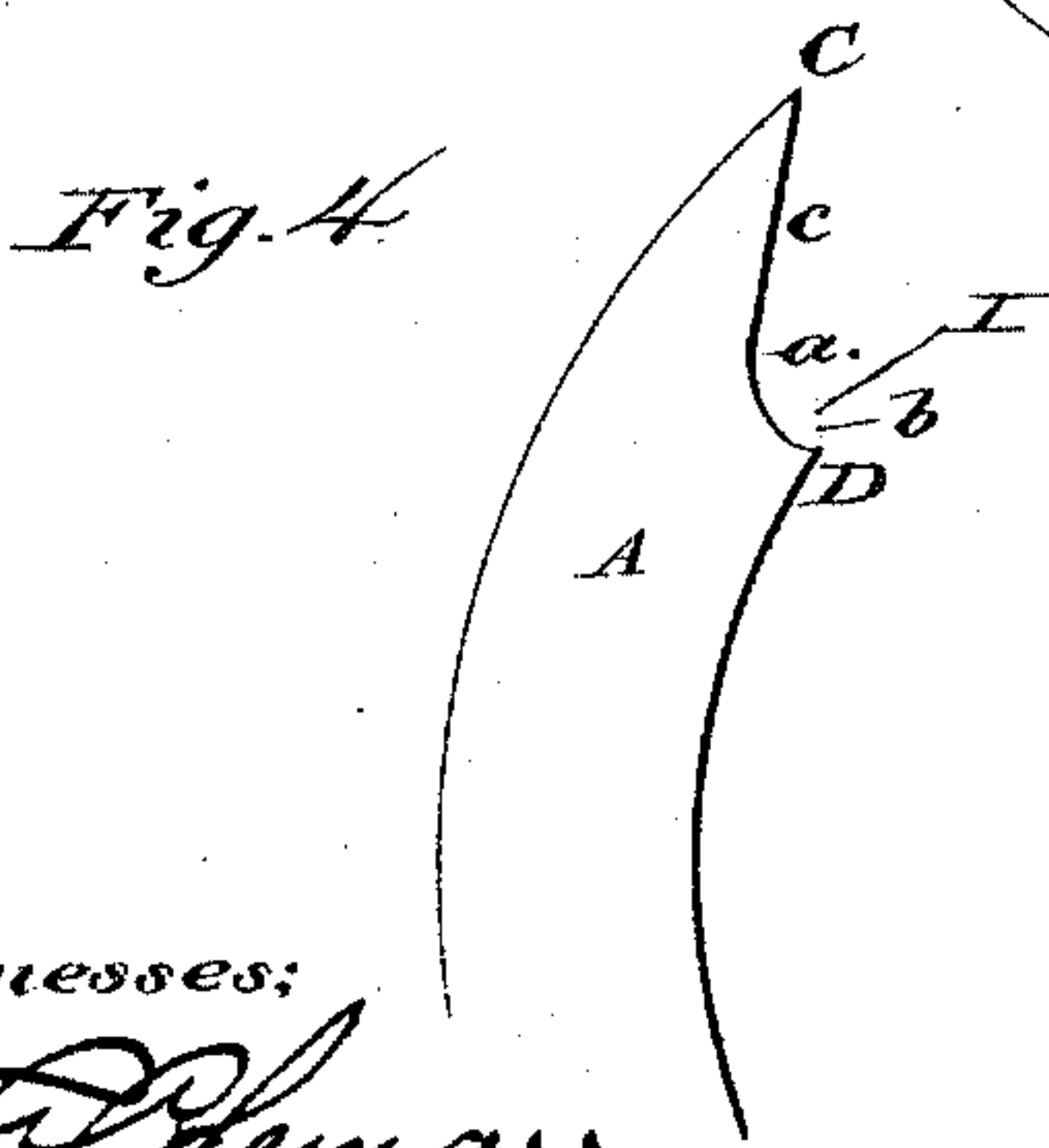
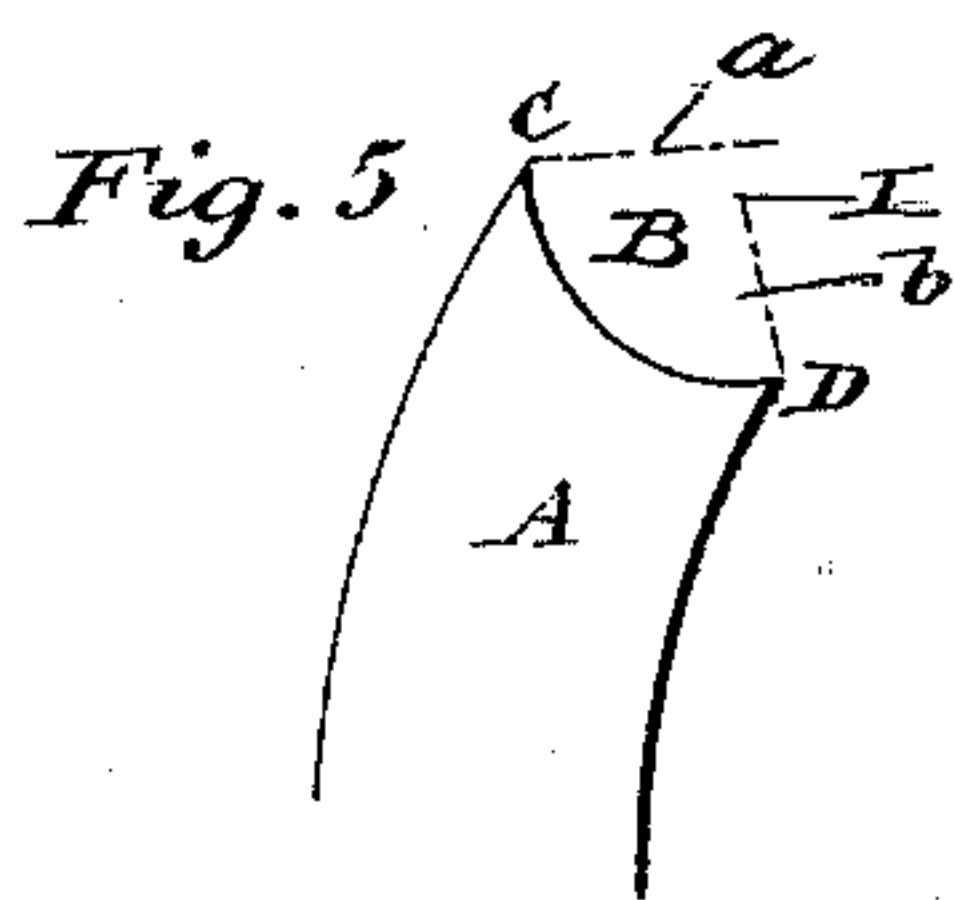
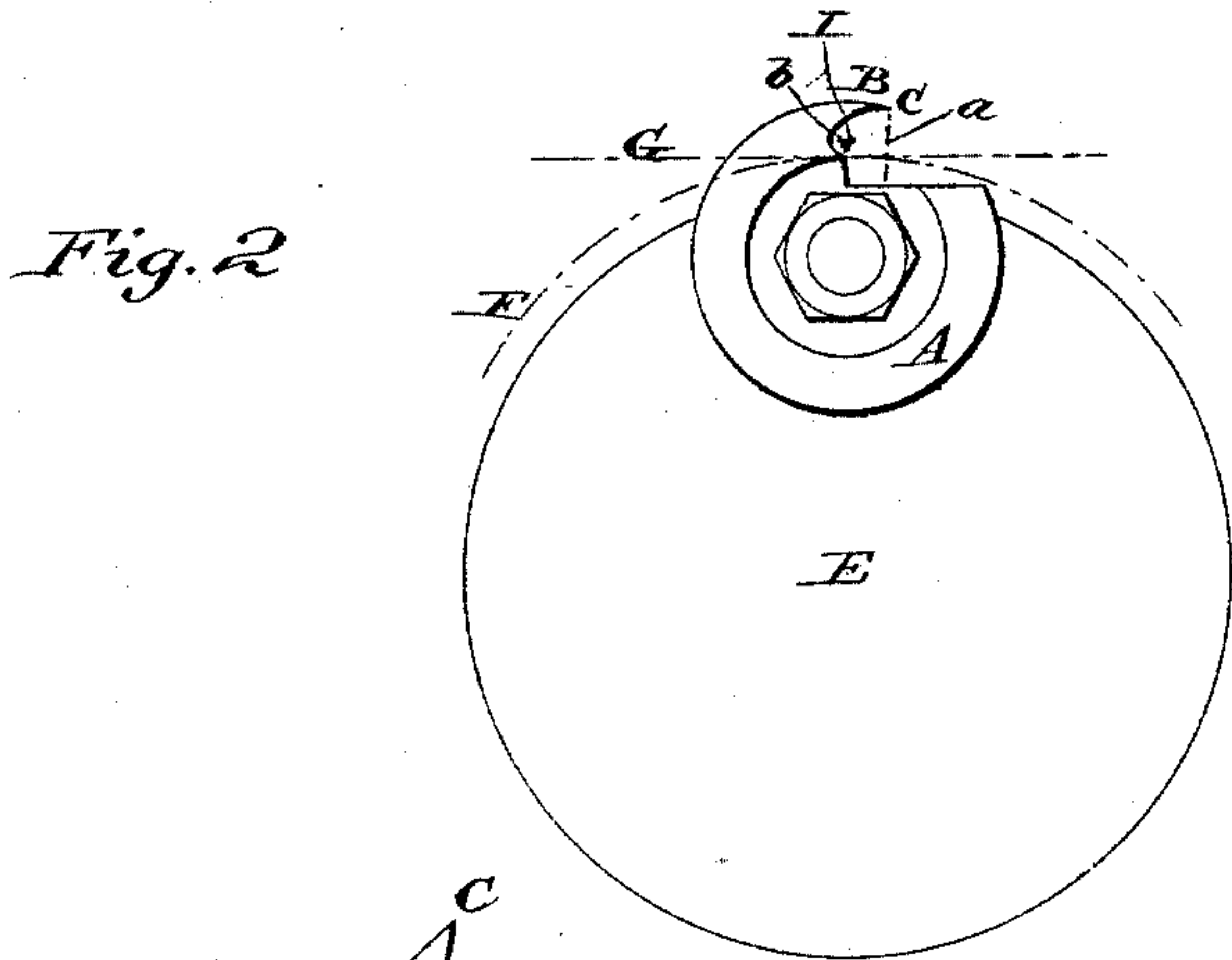
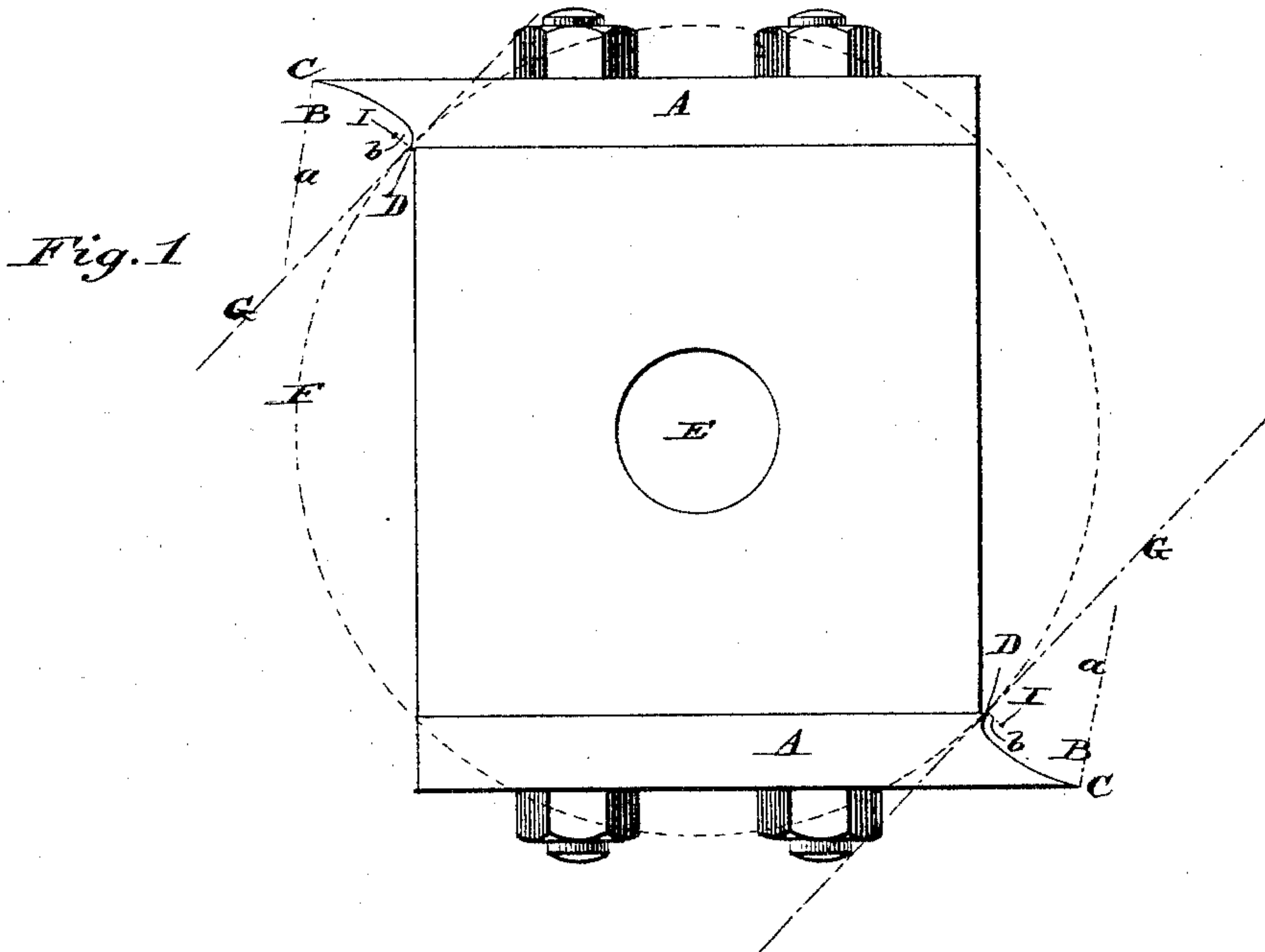


(No Model.)

H. ERNSBERGER.  
CUTTER FOR PLANERS.

No. 497,713.

Patented May 16, 1893.



Witnesses:

*J. F. Heman*  
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Inventor

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*Att'y.*



# UNITED STATES PATENT OFFICE.

HARMEN ERNSBERGER, OF NORTH CREEK, OHIO.

## CUTTER FOR PLANERS.

SPECIFICATION forming part of Letters Patent No. 497,713, dated May 16, 1893.

Application filed June 2, 1892. Serial No. 435,285. (No model.)

*To all whom it may concern:*

Be it known that I, HARMEN ERNSBERGER, a citizen of the United States of America, residing at North Creek, in the county of Putnam and State of Ohio, have invented certain new and useful Improvements in Cutters for Planers, &c., of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improvement in cutters for planers, matchers, and other similar wood-working machinery.

The object of my invention is to provide a cutter with a basil that will break the shavings into chips as they leave the cutting-edge, thereby reducing the force necessary to feed the material against the cutter, and, at the same time, avoiding the splintering of the wood.

My invention consists in forming the basil of the cutter with a concavity whose radius of curvature increases from the remote edge toward the cutting-edge, and whose curvature near the remote edge is such as to turn the shavings forward. By this construction the shavings are gradually folded forward and broken, thereby readily freeing themselves from the cutter.

Figure 1 of the drawings is an end view of a cutter-head with two straight cutters embodying my invention. Fig. 2 is a diagrammatic view of a circular cutter with my improvement. Fig. 3 is a diagrammatic view of a straight cutter in which a portion of the basil next to the cutting-edge is straight. Fig. 4 is a diagrammatic view of a circular cutter with a basil similar to Fig. 3. Figs. 5 and 6 represent, respectively, a circular cutter and a straight cutter having short curved basils.

Referring to Figs. 1 and 2 of the drawings, A is a cutter having a concave basil B, whose curvature diminishes in radius from the cutting-edge C to the remote edge D. The maximum and minimum radii are shown by the dotted lines marked *a* and *b*, respectively.

E is the center of rotation of the cutter when in operation.

F is the orbit described by the remote edge D when so rotating, and G is a tangent to said orbit through the remote edge.

I is the center of curvature of minimum radius, and, as will be apparent, is located outside the tangent G. This location of the said center of curvature results in giving a for-

ward bend to the shavings, as will be apparent from the drawings.

In Figs. 3 and 4 the maximum radius of curvature is not at the cutting-edge C, but is between the cutting-edge and remote edge, the portion *c* of the basil between the maximum radius *a* and the cutting-edge being straight.

In planing the harder kinds of wood, such as hickory, I prefer to use a cutter having the short basil shown in Figs. 5 and 6, for the reason that such a basil gives a cutting-angle greater than that of any of the other forms shown, and consequently the cutters are better adapted for hard service.

My improved basil may be formed by filing, grinding, or otherwise, and may be sharpened in the same way when necessary.

The attachment and operation of cutters provided with my improved basil being similar to that of the ordinary cutter, no description is necessary.

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

1. A smoothing cutter having a concavity in its basil, the radius of curvature increasing from the remote edge toward the cutting edge.

2. In a smoothing cutter, a concave basil, whose curvature increases in radius from the remote edge to the cutting-edge.

3. In a smoothing cutter, a concave basil whose curvature gradually increases in radius from the remote edge to the cutting-edge.

4. A smoothing cutter having a concavity in its basil, the center of curvature of the portion near the remote edge lying outside an imaginary line which passes through the remote edge and is tangent to the orbit of the latter, as described.

5. In a smoothing cutter, a concave basil whose curvature gradually increases in radius from the remote edge to the cutting-edge, the center of curvature of the portion near the remote edge lying outside an imaginary line which passes through the remote edge and is tangent to the orbit of the latter, as described.

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

HARMEN ERNSBERGER.

Witnesses:

H. HANSON,

WILLIAM SCHAFER.