No. 742,000. PATENTED OCT. 20, 1903.

J. BROOKS.

DISK CUTTER.

APPLICATION FILED JULY 6, 1903.

NO MODEL.

Fig. 2.

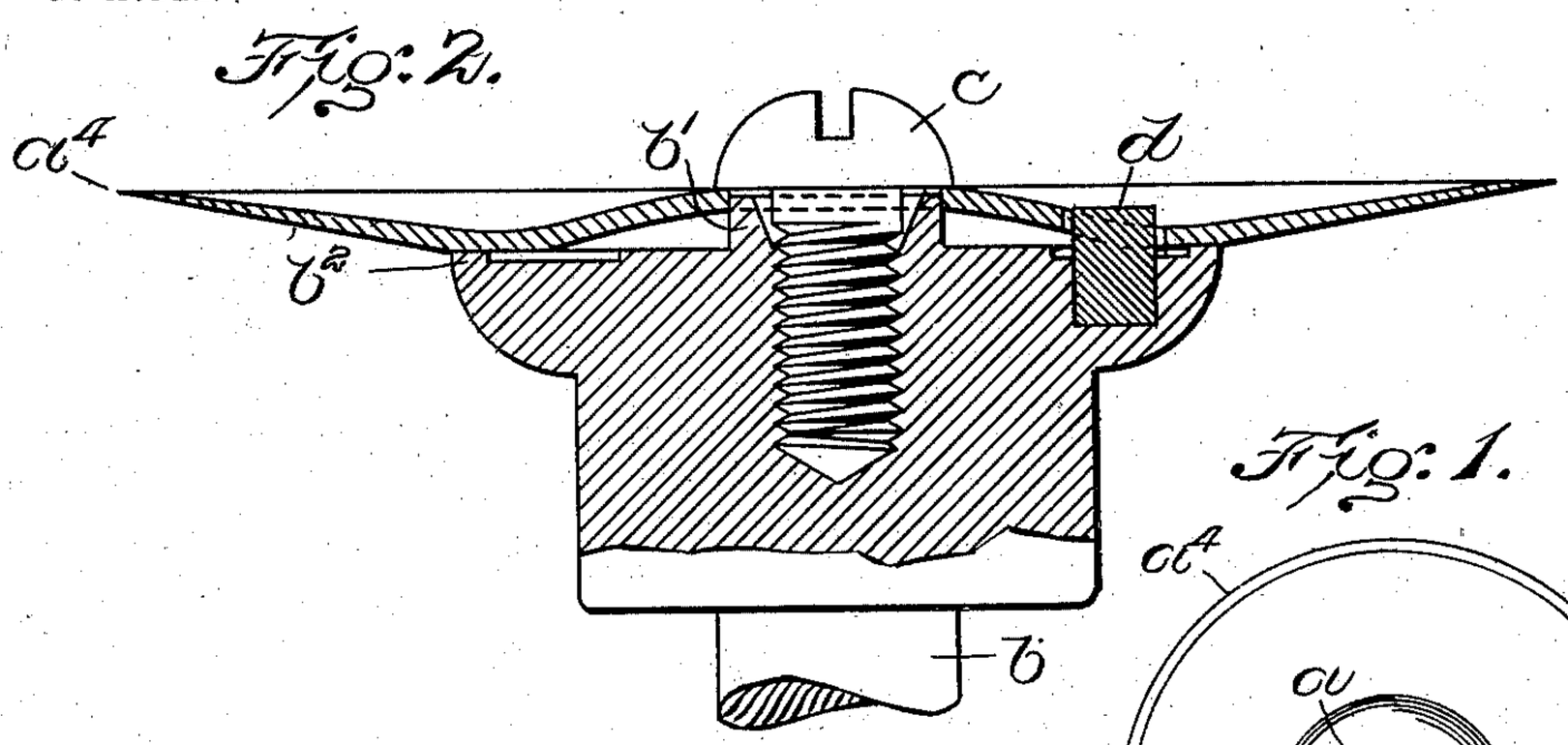


Fig. 1.

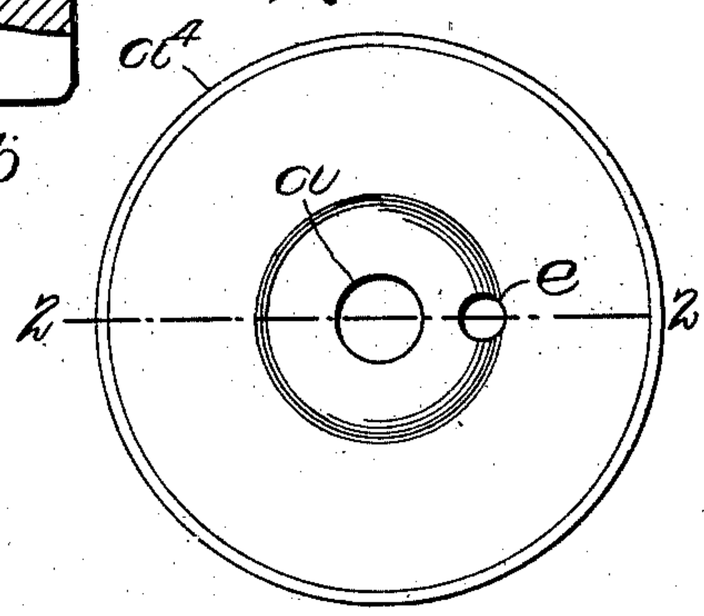


Fig. 3.

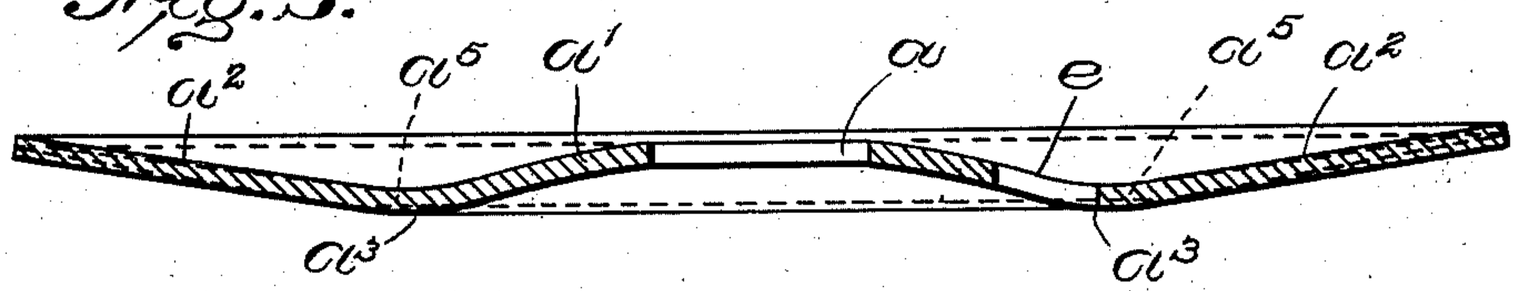


Fig. 4.

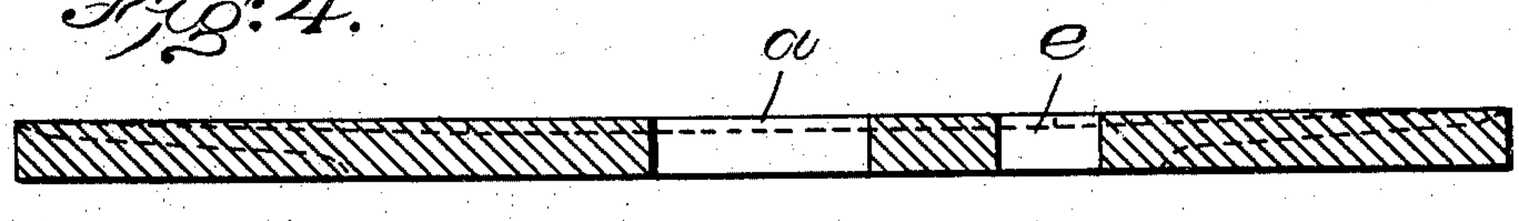
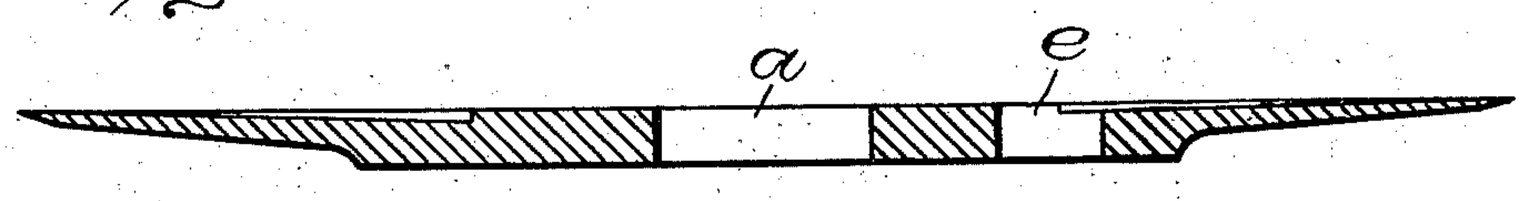


Fig. 5.



Witnesses:
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No. 742,000. Patented October 20, 1903.

UNITED STATES PATENT OFFICE.

JOHN BROOKS, OF BROCKTON, MASSACHUSETTS.

DISK CUTTER.

SPECIFICATION forming part of Letters Patent No. 742,000, dated October 20, 1903.

Application filed July 6, 1903. Serial No. 164,328. (No model.)

To all whom it may concern:

Be it known that I, JOHN BROOKS, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Disk Cutters, of which the following is a specification.

This invention relates to disk or circular cutters such as are employed in leather-skiving machines; and it has for its object to provide a disk cutter having a continuous circular edge at a reduced expense for labor and material in comparison with disk cutters as heretofore made, and, further, to provide a disk cutter of improved quality and durability.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side view of a disk cutter. Fig. 2 represents an enlarged section on line 2 2 of Fig. 1, showing my improved construction of disk cutter and also showing a portion of the shaft or holder which supports and rotates the cutter. Fig. 3 represents a sectional view of the blank from which the cutter shown in Fig. 2 is made. Fig. 4 represents a sectional view of the blank used in producing the ordinary type of circular cutter heretofore used. Fig. 5 represents a sectional view of the ordinary form of circular cutter.

The same letters of reference indicate the same parts in all the figures.

In carrying out my invention I form a disk of relatively thin sheet metal. The central portion of the disk is provided with an orifice a to receive a tubular projection b', supported by the shaft b, which supports and rotates the cutter. The central or hub portion a' of the cutter is cupped or dished, said portion being raised at one side and recessed at the opposite side. The said hub portion, as here shown, is substantially concavo-convex. The marginal portion a^2 of the disk is inclined upwardly and outwardly from the base a^3 of the central or hub portion a', so that the outer or upper surface of the disk has an annular recess or depression surrounding the dished hub portion. The disk above described is shown in full lines in Fig. 3. To convert the disk into an operative cutter, the upper and lower surfaces of its marginal portion are ground away, as shown in Fig. 2 and by dotted lines in Fig. 3 to form a cutting edge a^4, extending continuously around the cutter. Preferably the under side of the base portion a^3 is ground off to form a flat annular face a^5, as indicated by dotted lines in Fig. 3.

The shaft b is provided with a flange or shoulder having a flat annular seat b^2 to support the annular face a^5 of the cutter. The cutter is attached to the shaft b by means of a screw c, the head of which bears upon the outer or raised side of the hub portion of the cutter. The shaft is provided with a pin or stud d, which enters an orifice e, formed for its reception in the cutter.

It will be seen that the dished form of the hub portion of the cutter causes the elevation of the screw-head-supporting portion of the said hub portion above the plane of the facé a^5 by a space considerably greater than the thickness of the sheet of metal of which the cutter is composed. The central or hub portion of the cutter is therefore given a sufficient height to enable its outer side to project above the collar or extension b' of the shaft b. It will also be seen that owing to the fact that the marginal portion outside of the central or hub portion is inclined upwardly or outwardly the strength of the cutter as a whole is enhanced, owing to the fact that in use it would be practically impossible to buckle or deflect the edge of the cutter laterally because of the two opposite bends of the cutter as a whole.

Heretofore disk cutters of this class have been made from a blank of sheet metal formed in cross-section as shown in Fig. 4, the thickness of the blank at all parts being equal to the distance between the face of the blank on which the head of the attaching-screw bears and the opposite face, which bears upon the seat b^2 of the shaft b, the cutter being formed by grinding away portions of the metal of the disk, as indicated by dotted lines in Fig. 4, until the cutter has the form indicated by Fig. 5.

It will be seen by a comparison between Figs. 3 and 4 that my improved cutter involves the employment of much less metal, time, and labor than heretofore, the thick-

ness of the blank of which the cutter is made being in practice less than one-half the thickness of the blank heretofore used. At the same time my improved cutter is given sufficient strength and durability by the dished form of its center or hub portion. I have discovered that I can obtain a much better quality of steel in a sheet of the thickness required for the construction of my improved cutter than can be obtained in a sheet of the thickness required for the construction of the cutter heretofore used. My improved cutter is for this reason rendered more durable and serviceable than a cutter made as heretofore.

I claim—

1. As an article of manufacture a circular cutter composed of a disk of sheet metal, having a dished central or hub portion which is raised at one side and recessed at the opposite side, and a marginal portion which is inclined upwardly and outwardly from the base of the hub portion, said marginal portion being reduced to a circular cutting edge.

2. As an article of manufacture, a circular cutter composed of a disk of sheet metal having a dished central or hub portion and a marginal portion which is inclined upwardly and outwardly from the base of the hub portion, said marginal portion being reduced to a circular cutting edge, and the under side of the cutter being provided with a flat annular face at the point of junction of the hub portion with the marginal portion.

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

JOHN BROOKS.

Witnesses:

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