

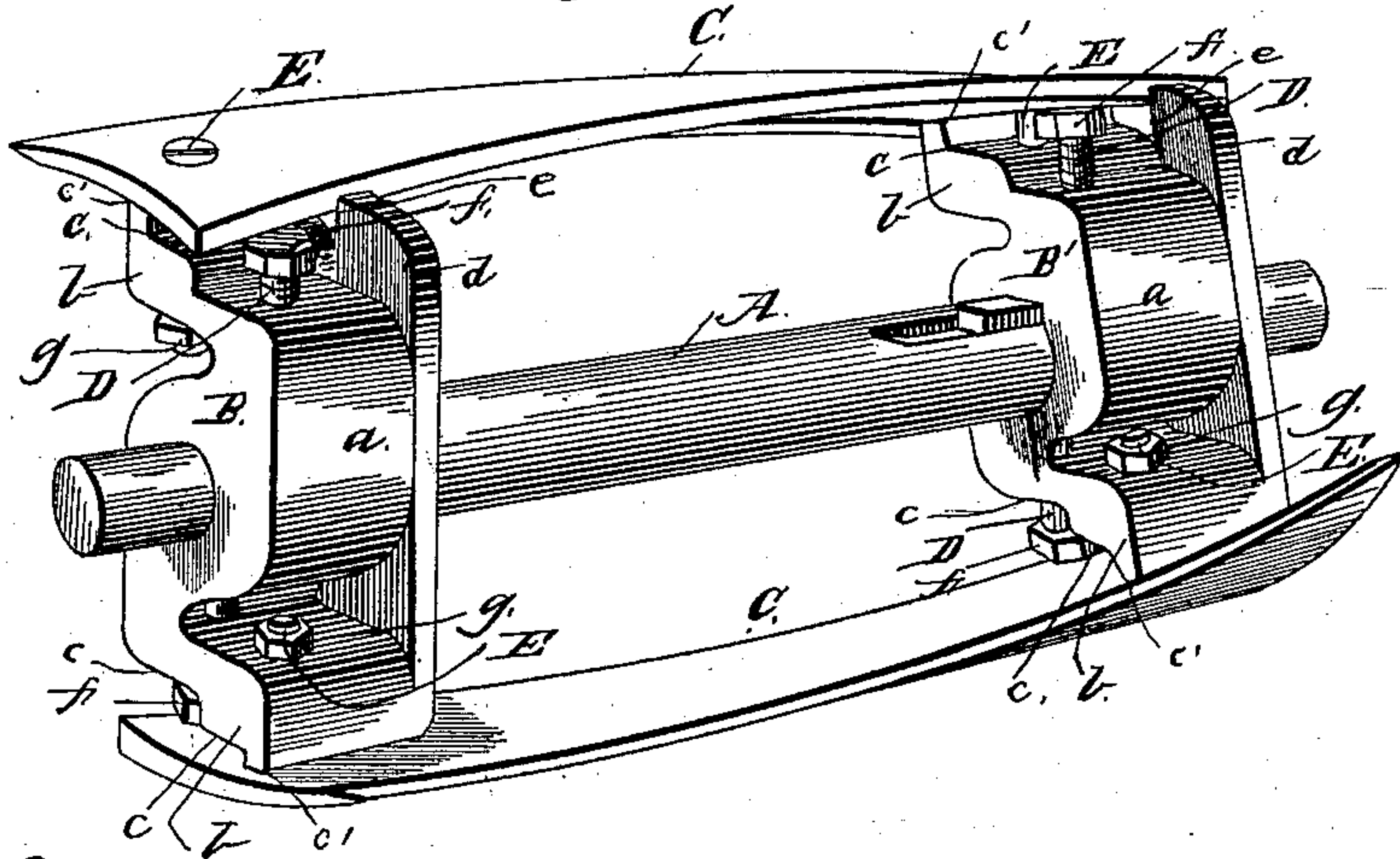
(No Model.)

E. BEECHER.  
ROTARY CUTTER.

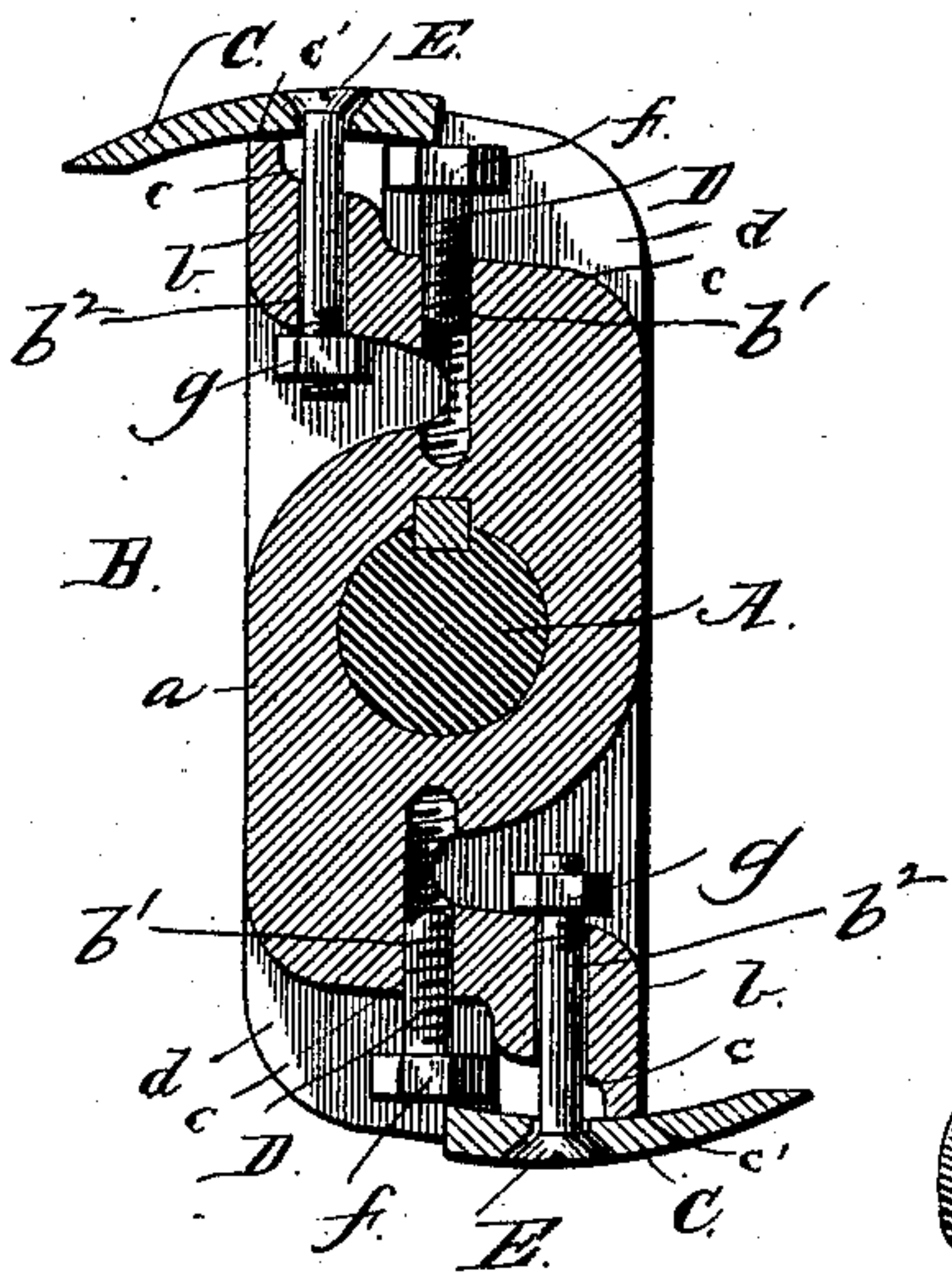
No. 364,792.

Patented June 14, 1887.

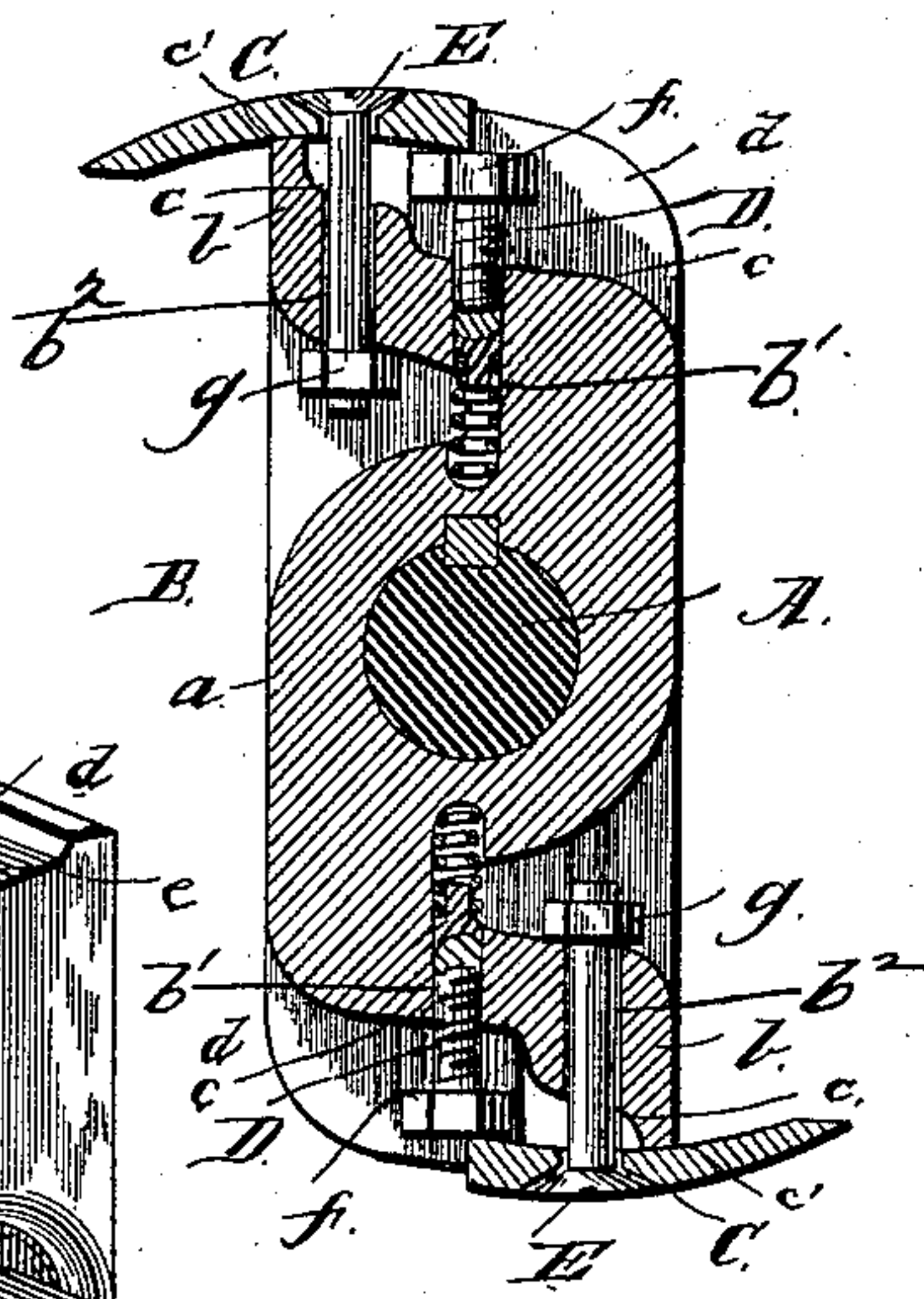
*Fig 1*



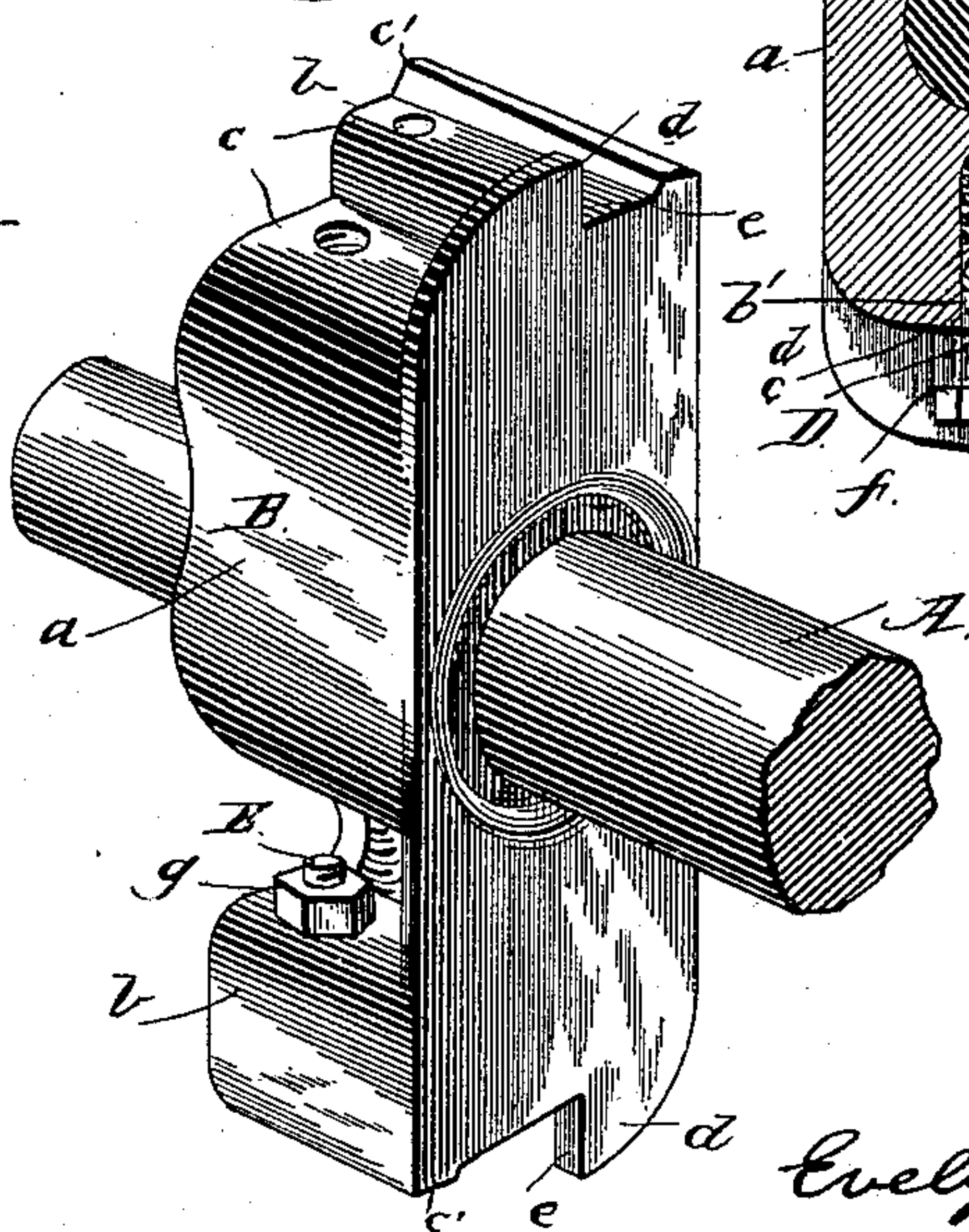
*Fig 2*



*Fig 3*



*Fig 4*



Witnesses  
*Geo. Thorpe.*  
*C. E. Doyle*

Inventor  
*Evelyn Beecher*  
By his Attorneys  
*C. A. Snow & Co*



# UNITED STATES PATENT OFFICE.

EVELYN BEECHER, OF NEW HAVEN, CONNECTICUT.

## ROTARY CUTTER.

SPECIFICATION forming part of Letters Patent No. 364,792, dated June 14, 1887.

Application filed February 2, 1887. Serial No. 226,305. (No model.)

*To all whom it may concern:*

Be it known that I, EVELYN BEECHER, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Rotary Cutters, of which the following is a specification.

My invention has reference to rotary cutters; and it consists in the improved construction hereinafter explained and described, whereby efficient provision is made for taking up the wear in the cutting portion of the blade.

Other features of advantage are incident to the said invention, and will be specified more in detail hereinafter.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of my improved cutter detached from the bearings. Fig. 2 is a transverse section of Fig. 1, showing one of the heads in section and illustrating the arrangement of securing and adjusting bolts. Fig. 3 is a like view showing a modification, wherein I use a detaining-spring to prevent the adjusting-bolt from coming out of place during the operation of the cutter. Fig. 4 is a detail view of one of the heads.

Referring to the drawings, in which similar letters denote corresponding parts in all the figures, A designates an arbor or shaft, upon which are keyed two cutter-heads, B B', which are of cast metal, and consist of a central hub, *a*, having two tangential wings, *b*, extending outwardly therefrom from points diametrically opposite each other, each of which wings is bent at right angles at its extremity to form the shoulder or seat *c*. The upper face of said shoulder or seat is beveled or inclined, as seen clearly in Fig. 4, and is provided on its front edge with a ridge or ledge, *c'*, for a purpose hereinafter explained. Each head is also provided with an extension on one side to form a web, *d*, which terminates in an abrupt shoulder, *e*, at the inner edge of the seat *c*.

Each head B B' is provided with two openings, *b'* *b''*, which extend therethrough in different parallel planes, one of said openings, *b'*, extending through one of the shoulders *c* and in one side of the recess formed between the shoulder and the hub of the head, while the other opening, *b''*, extends through the shoulder near the end of the same, as shown more

clearly in Figs. 2 and 3. This latter opening, *b''*, is made smooth or plain, while the other opening, *b'*, is interiorly screw-threaded to receive the threaded shanks of an adjusting-bolt, D, which is provided at its outer extremity with an enlarged head, *f*, for a purpose presently described.

The heads B B' occupy different relative positions upon the arbor, or are set at an angle with each other, in order that they may register with the cutter-blade C, which is spirally bent, as usual, this construction being clearly shown in the drawings.

The cutter-blade is secured in position by means of bolts E, which pass through the openings in the shoulders and project beyond the other side thereof, and are provided with jam-nuts *g*, which are adapted to be screwed up tightly against the rear side of the said shoulder to maintain the bolt E in place. The opening in the cutter-blade for the said bolt is sufficiently large to allow of a limited play or oscillation of said blade on the bolt E.

The above-mentioned bolt D, which is secured in a threaded recess in the head in such a position as to be directly under the rear edge of the cutter-blade, is adapted to be screwed up until its head bears tightly against the underside of the said blade, so as to firmly brace the blade upon the bolt E and prevent all oscillation or play.

The abrupt shoulder of the web presents a bearing-stop for the rear edge of the cutter-blade, and is designed to receive and resist the thrust sustained by the blade during the cutting operation.

To adjust the blade so as to cut closer to the ledger-blade, (not shown in the drawings,) the jam-nut *g* on the end of the securing-bolt is loosened, the bolts D are rotated or screwed down or in, and the cutter-blade is tilted on the ridge or ledge *c'*, the looseness of the blade on the bolt E allowing such tilting, and the cutting-edge of the blade is thus thrown closer to the ledger-plate of the machine, it being evident that if the rear edge of the blade is drawn down or in the front edge will be thrown up or out, and thus accomplish the desired result. After the cutter-blade has been adjusted sufficiently the jam-nut is tightened on the bolt E and the bolts D are screwed up



until their upper ends bear firmly against the under side of the blade, thus securely locking said blades in position.

It will be understood that by lifting strongly upon the rear edge of the blade the front edge of said blade will be drawn down firmly upon the ridge or ledge  $c'$ , and therefore when the said bolt D is raised, as described, until the head thereof bears upon the under side of the blade said blade will be firmly and securely clamped in position on the cutter-heads.

By this device just described of adjusting the knives of the cutter any wear upon the said knives or upon the ledger-blade may be effectively taken up, and if the said knives or ledger-blades should become rounding, owing to wear, and it is inconvenient at the time to sharpen the said knives, they may be tilted up, as described, so as to cause the edge thereof to come very close to the edge of the ledger-blade and do satisfactory service for a considerable length of time.

In my device it will be seen that all adjustment to take up wear is done by moving the blades of the machine, the cutter-head remaining stationary; thus enabling the said cutter-head to be more firmly secured to the arbor or shaft; also, I do not move the ledger-blade in the adjustment mentioned, it being far better to have said ledger-blade remain stationary and allow all adjustment to be done by moving the cutter-blades.

It will be seen from the above description that the cutter-heads used in my machine are interchangeable, both being made exactly alike. This is designed to make the construction simpler, and therefore to reduce the cost of manufacture of the said heads, and also to enable the heads to be sold separately and not in pairs, necessarily, as would be the case if they were made as usual. Thus if one of the heads should break or be damaged in any way a new one could be substituted much more easily than if the said heads were made in pairs and could not be interchanged.

For some purposes I may find it convenient to employ a coiled spring, as shown in Fig. 3, in connection with each bolt D, to counteract any tendency of the said bolt to become loos-

ened and fail to press up tightly against the under side of the blade.

From the foregoing it will be apparent that the device herein described is of simple, efficient, and durable construction, and is a great improvement upon the class of machines of which it is a member, and therefore greatly enhances the value and importance of the said machines.

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

1. A cutter-head having a bearing surface or ridge,  $c'$ , and a threaded opening at one side of the said ridge, in combination with a blade connected to the head and resting at or near its cutting-edge on the bearing ridge or surface, and an adjusting-bolt working in the threaded opening and impinging against the heel of the blade, to force the opposite edge thereof firmly against the bearing ridge or surface, as and for the purpose described.

2. A cutter-head having a projecting shoulder,  $c$ , provided with an extended bearing-ridge,  $c'$ , and the smooth and threaded openings  $b^2$   $b'$  in rear of the ridge and one another, in combination with a blade, the bolts E, passing through the blade and the smooth opening  $b^2$ , to thereby connect the blade to the cutter-head, and the adjusting-bolt D, working in the threaded opening  $b'$  and impinging against the heel of the blade, to thereby force the opposite edge of the blade firmly against the bearing-ridge, substantially as described.

3. The combination of the cutter-heads, each having the projecting shoulders  $c$ , provided with the bearing-ridges, the blade, the bolts E, connecting the blade to the shoulders, and the independent adjusting-bolts working in threaded openings in the heads and impinging against the heel of the blade, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

EVELYN BEECHER.

Witnesses:

GEORGE L. DICKERMAN,  
RUFUS S. PICKETT.