

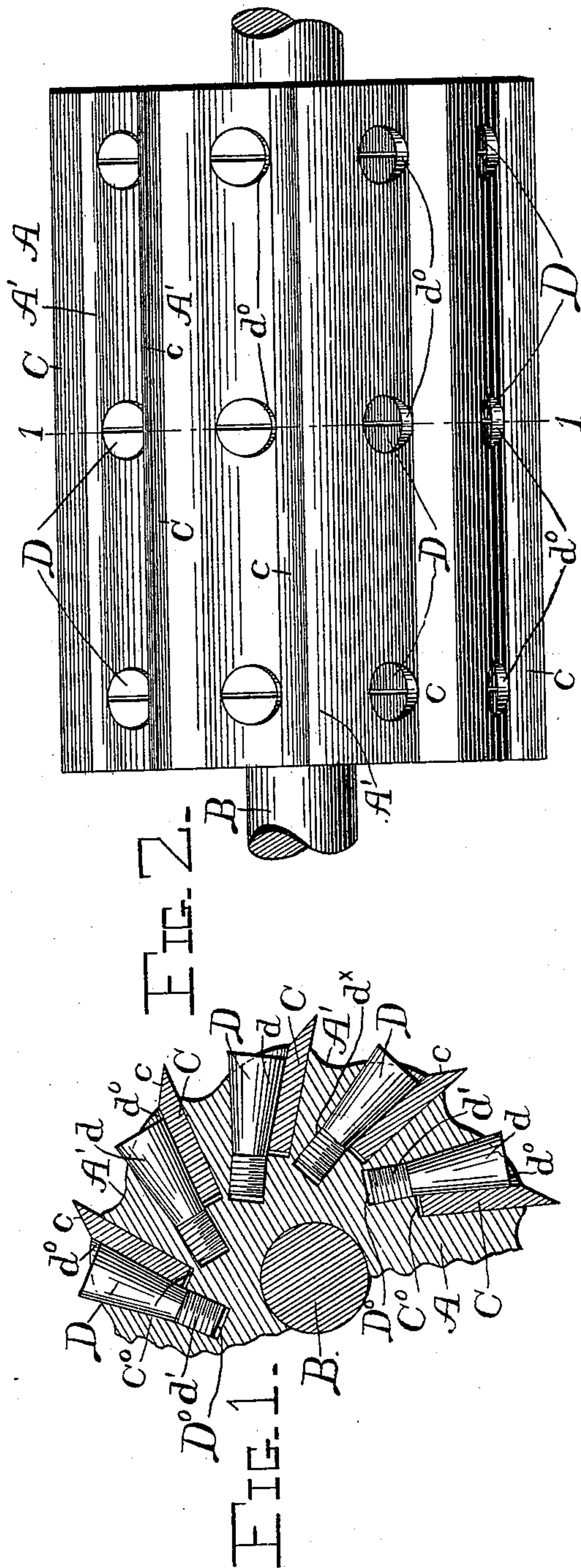
(No Model.)

2 Sheets—Sheet 1.

G. H. RICE.
CUTTER HEAD.

No. 567,046.

Patented Sept. 1, 1896.



Witnesses
D. H. Blakelock,
J. Stephen Ginst

Inventor
Geo. H. Rice,
by Whitman & Wilkinson,
Attorneys

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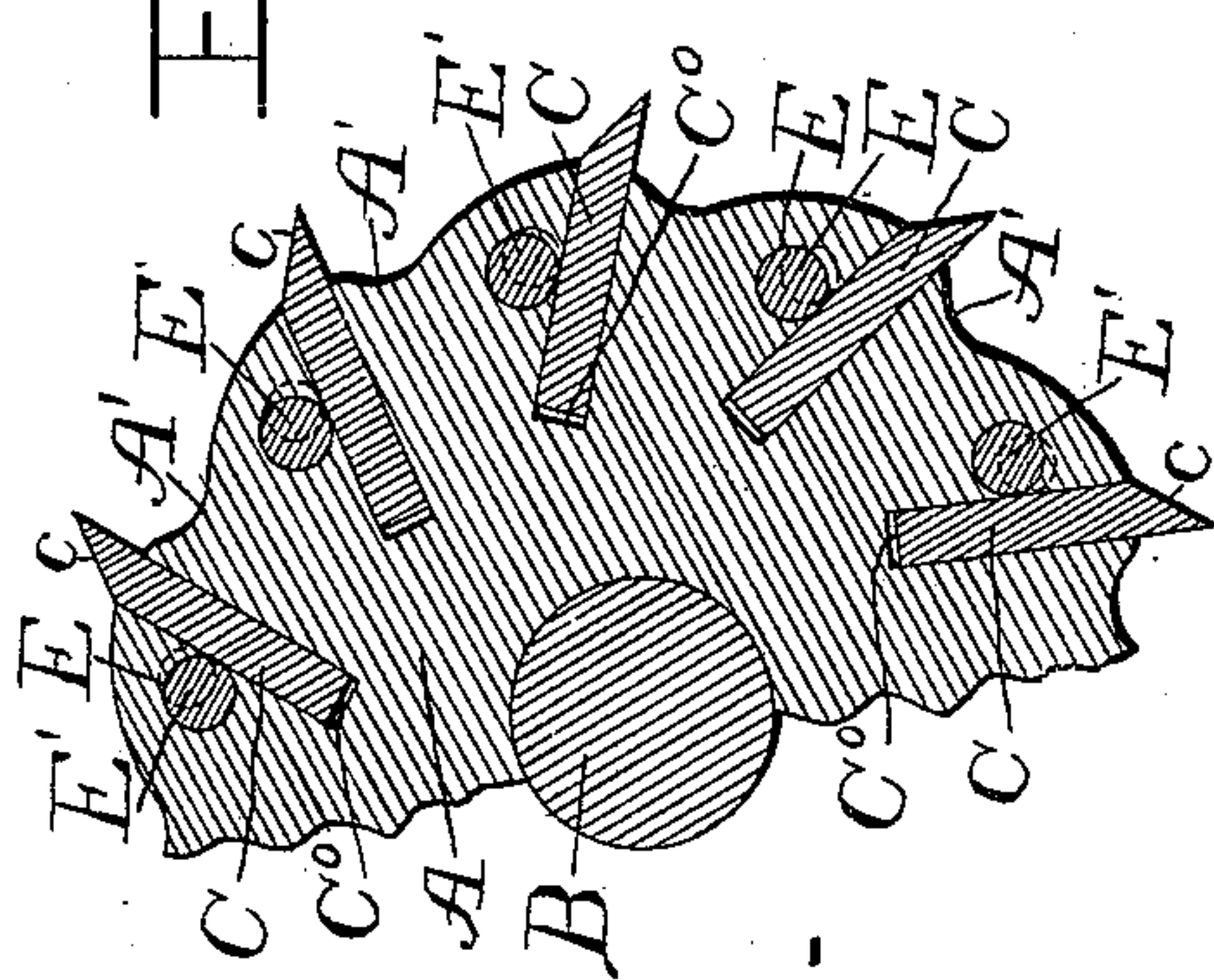
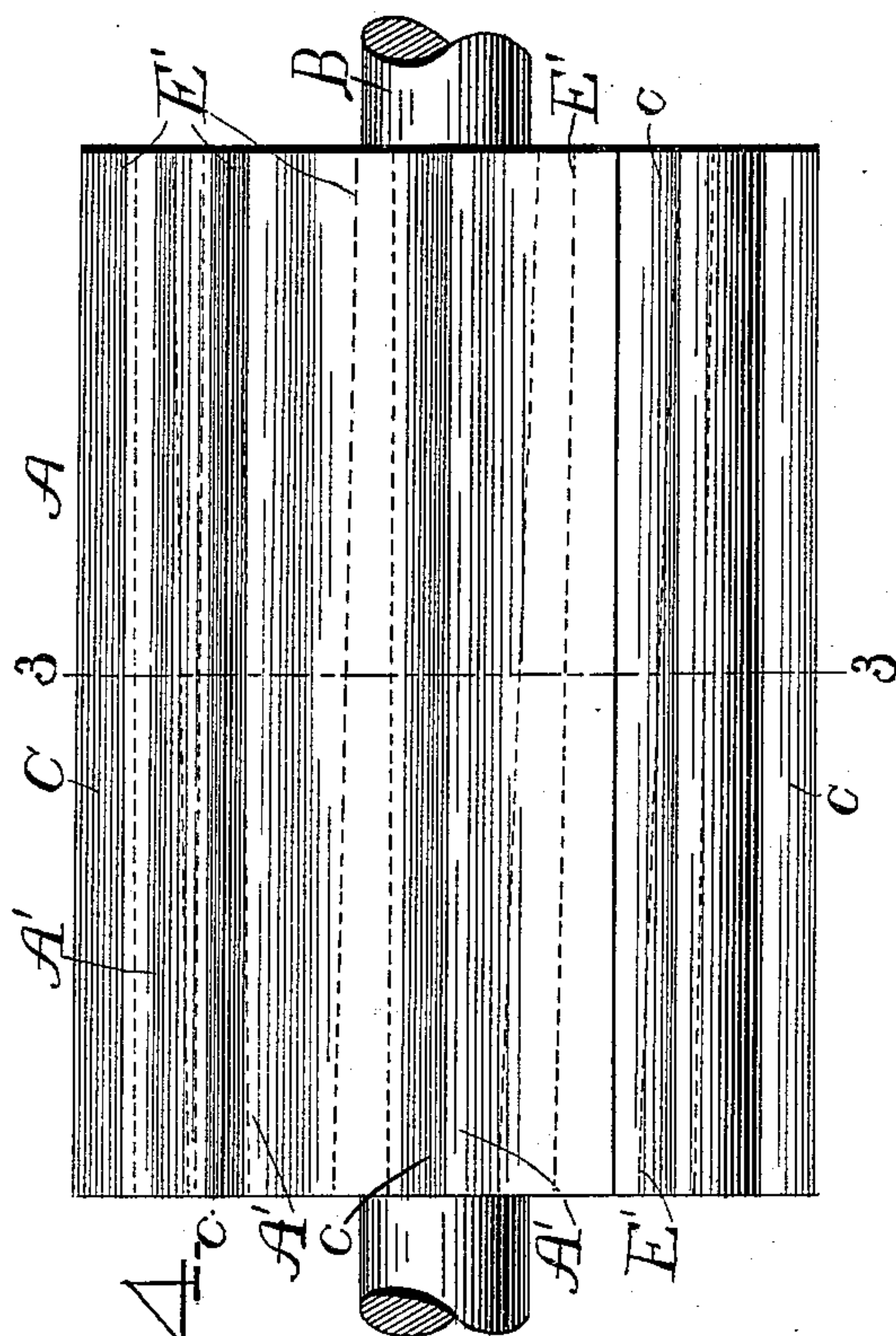


FIG. 3.

Witnesses
D. H. Blakelock.
J. Stephen Ginst.

Inventor
Geo. H. Rice
by Whitman & Wilkinson
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE H. RICE, OF WAUSAU, WISCONSIN.

CUTTER-HEAD.

SPECIFICATION forming part of Letters Patent No. 567,046, dated September 1, 1896.

Application filed May 4, 1896. Serial No. 590,166. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. RICE, a citizen of the United States, residing at Wausau, in the county of Marathon and State of Wisconsin, have invented certain new and useful Improvements in Cutter-Heads; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in cutter-heads for use in planing-machines and other similar rotary cutters; and it consists in providing improved means for securing the cutting-knives to the cutter-head.

My invention will be understood by reference to the accompanying drawings, wherein the same parts are indicated by the same letters throughout the several views.

Figure 1 is a partial sectional view through the cutter-head, taken on the line 1 1 of Fig. 2; and Fig. 2 is a side elevation of the cutter-head as seen from the right in Fig. 1. Fig. 3 is a view similar to Fig. 1, showing a slightly-modified manner of securing the knives in the cutter-head and taken on the line 3 3 of Fig. 4; and Fig. 4 is a side elevation of the cutter-head as seen from the right in Fig. 3.

In all the figures, A represents the cutter-head, and B the shaft thereof. This cutter-head is made in a generally cylindrical form and provided with a number of longitudinal grooves C° for the reception of the cutters. These grooves are made in the cutter-head in lines tangent to a small circle concentric with the axis thereof, and in this manner a much greater number of cutters can be used on a single cutter-head than has heretofore been ordinarily possible, thus avoiding "pounding" of the cutters, and the cutters, by reason of being set at an angle as far as practicable from a line tangent to the periphery of the cutter-head, will not lift and tear the stock from the planed surface of the board, as would cutters so set.

C represents the cutters, which are adapted to fit into the grooves C° and are provided with beveled cutting edges c . The face of the cutter-head immediately in front of each cutter is hollowed out, forming longitudinal grooves A' , which allow a space for the shavings to curl up in front of the cutter.

The grooves for receiving the cutters in the cutter-head are made in the same manner in every form of my cutter-head, but the manner of clamping the said cutters in these grooves may be varied slightly, the same principle holding; however, in all of my various modifications. Thus, by referring more particularly to Figs. 1 and 2, it will be seen that a plurality of holes D° , having inwardly-tapering openings d° and screw-threaded inner portions d^{\times} , are provided in the cutter-head immediately behind each cutter-groove C° and intersecting said grooves, so that when the cutters are in position and the screws are inserted the tapering heads d of the latter will impinge upon the backs of the cutters and thus bind them securely in place.

In the modification shown in Figs. 3 and 4 a single longitudinal tapering hole E is made behind each cutter-groove and slightly intersecting said groove, and a tapering rod or pin E' is driven into each of these tapering holes from the larger end thereof, and when in position impinges upon the back of the cutter, as hereinbefore described with reference to Figs. 1 and 2.

The smaller ends of the holes E should be somewhat farther from the axis of rotation of the cutter than the larger ends, so that the tapering rods or pins E' will have a tendency to draw inward, due to the action of centrifugal force, when the cutter is rotated rapidly.

My cutter-head may be of any desired length and of any suitable diameter.

It will be seen that by the arrangement of the cutters herein described I am able to use a greater number of cutters than could be used if these cutters were clamped to peripheral seats on the cutter-head, as is now most commonly the practice.

The pitch of the cutters as arranged in the herein-described manner is found to enable them to do much better work in surfacing, and the increased number of cutters used allows of a faster feed, as the work of each cutter is greatly reduced.

The many advantages of the hereinbefore-described arrangement of the cutters will be apparent to any one skilled in the art.

I do not wish to limit myself to the precise details herein described and claimed, as many modifications might be made which could be

used without departing from the spirit of my invention.

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

1. The combination with a rotary cutter-head consisting of a solid and generally cylindrical body, having a number of straight axial grooves extending inwardly from the periphery thereof in lines tangent to a circle of much smaller radius than said cutter-head, and having circular openings with inwardly-tapering outer portions, and screw-threaded inner portions therein, the outer tapering portions of said openings intersecting said axial grooves, and extending as far inward as the bottoms thereof; of cutting-blades fitting longitudinally edgewise in said axial grooves; and screw-threaded keys provided with elongated tapering heads, engaging in said circular openings, and the said tapering heads bearing against said cutting-blades and binding the same in said grooves, substantially as described.

2. The combination with a rotary cutter-

head consisting of the solid cylindrical body A having a number of straight axial grooves C° extending inwardly from the periphery thereof in lines tangent to a circle of much smaller radius than said cutter-head; having curved shallow grooves A' in front of said grooves C° , and having openings D° with inwardly-tapering outer portions d° extending inward as far as the bottoms of said axial grooves C° and intersecting said grooves slightly, and screw-threaded inner portions d^x ; of the flat cutting-blades C fitting into said axial grooves C° ; and the holding-keys D having screw-threaded ends d' and elongated tapering heads d , engaging in said openings D° and the said tapering heads thereof bearing against the back of said cutting-blades, substantially as described.

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

GEORGE H. RICE.

Witnesses:

G. D. JONES,
FRED L. MEAD.