

(No Model.)

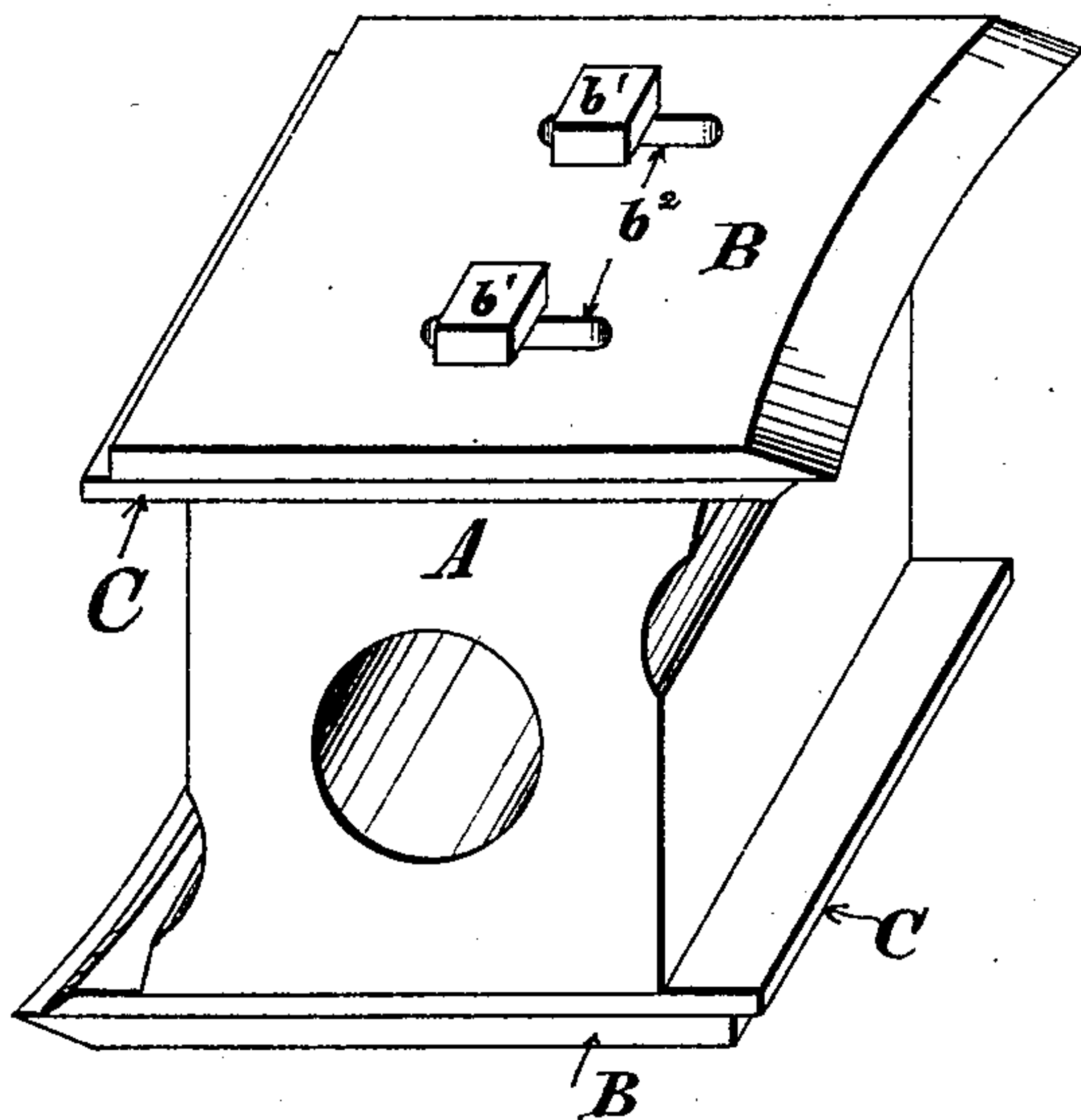
M. S. O'NEIL.

CUTTER HEAD.

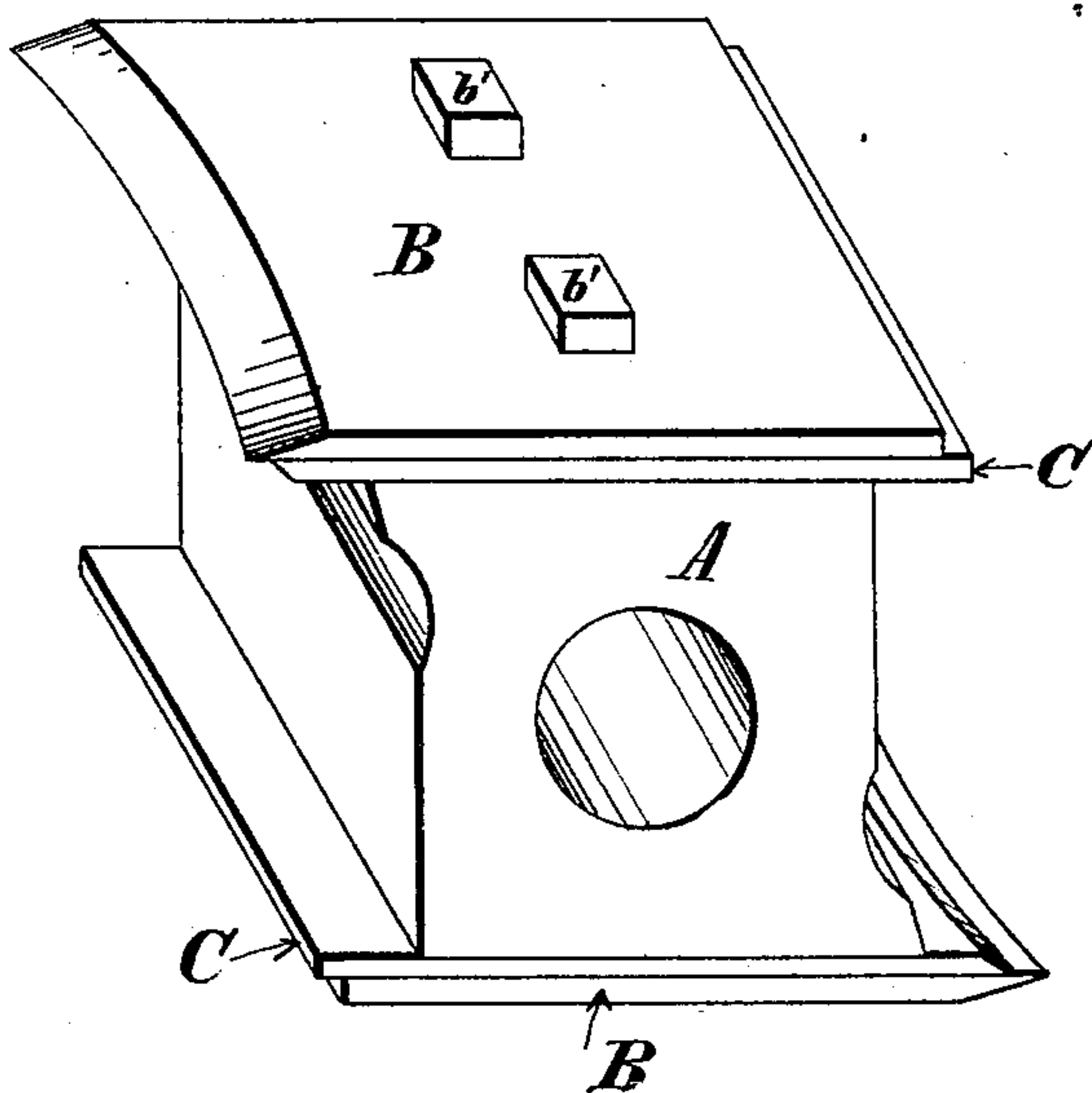
No. 297,534.

Patented Apr. 22, 1884.

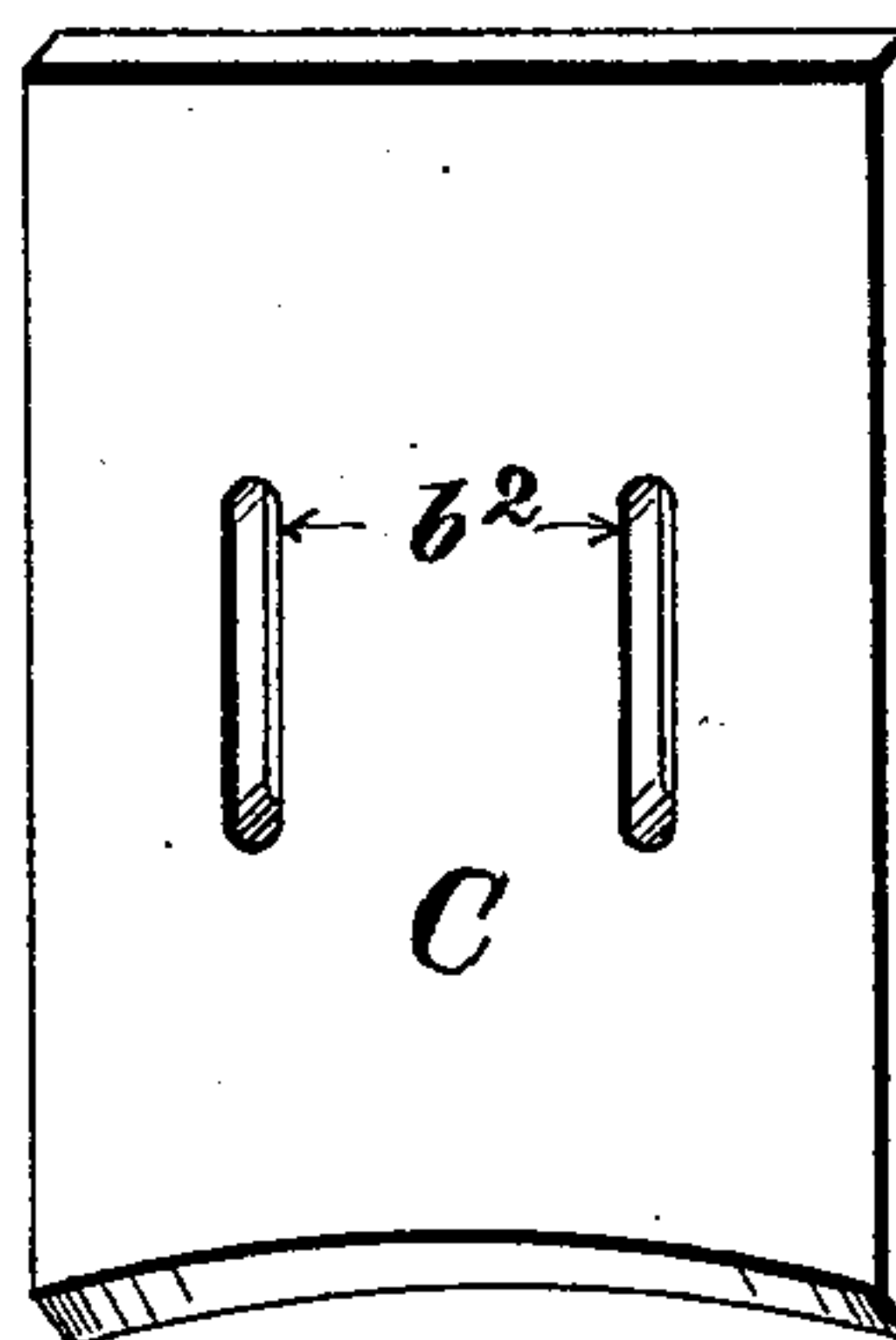
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

MICHAEL S. O'NEIL, OF ROCK ISLAND, ILLINOIS.

## CUTTER-HEAD.

SPECIFICATION forming part of Letters Patent No. 297,534, dated April 22, 1884.

Application filed November 23, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, MICHAEL S. O'NEIL, of Rock Island, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Cutter-Heads, of which the following is a specification.

In cutter-heads heretofore used on wood-shapers and other like wood-working machinery the knives have been adjusted directly to such heads without any intervening or other means to regulate the depth of the cut, and the consequent tendency of such knives has been to cut deep or shallow, as the wood be soft and light-grained or firm and hard, to sliver or mangle the work to a considerable extent with certain kinds of wood, and to draw into contact with the cutters the fingers or hand of the operator.

My invention relates to improvements in such cutter-heads; and it consists in the application of caps or plates next to the cutting-faces of the cutter-knives, by means of which the depth of the cut made by the knives may be regulated and varied, as the character of the wood being cut or the character of work desired may require, thus not only turning out uniform and smoother work, requiring no sand-belt, and therefore cheaper, but avoiding the possibility of mangling or slivering the wood, and lessening the liability of injuring the operator's fingers or hand by drawing them into the cutters.

My invention will operate more or less successfully with many shapes and styles of cutters, reciprocating as well as rotary; but I have found it of very great benefit when applied to the well-known rectangular cutter-head with two or more knives, used in shaping wooden poles and other like work, and will describe the same with this style of cutter-head having two such knives.

In the drawings, Figure 1 is a view from the top of a cutter-head with adjustable cutters and caps. Fig. 2 is a like view of same with non-adjustable cutters and caps, and Fig. 3 is a plan view of an adjustable cap.

Upon the cutter-head A, to which knives B B on either end are secured by bolts  $b'$   $b'$  passing through slots  $b^2$   $b^2$  in the knives and nuts, and adjustable thereon by means of said bolts and slots, I apply between the cutter-

head and knives thin beveled or ovaled caps or plates C C, of steel, iron, or other suitable material, the pointed portions of the bevel on the knives and caps together also secured and adjustable with reference to the knives by the bolts  $b'$   $b'$  and slots  $b^2$   $b^2$ .

In operation these heads make from two thousand to three thousand revolutions a minute, and heretofore, no means being employed to regulate the depth of the cut, the cutters have run unevenly, and, especially with knotted or gnarled wood, slivered the material, thus rendering the work dangerous to the operator, and in no case has the work been sufficiently smooth to permit its being taken to the paint-shop directly from the shaper, but it has first to be run on a sand-belt, or otherwise smoothed and finished.

By the use of my device, when the knife, cutting into the wood, reaches the cap, the latter serves as an obstacle to prevent its further progress into and sheds it from the wood, making an incision the depth of the distance between the cutting-edge of the knife and the point of the bevel on the cap. The proximity with which the top of the cap is adjusted to the cutting-edge of the knife determines the depth of the cutting action of the knife, the size of the chips or shavings, and consequently the character of the work. Thus when the top of the cap is brought up even with the cutting-edge of the knife, the cut will be very slight, the chips very fine, almost like sawdust, and the work very smooth and nice. When it is placed a distance from the cutting-edge, the cut will be deeper, the chips not so fine, and consequently the work not so smoothly done. When removed a considerable distance, it will have no beneficial effect. The adjustment may also be made to suit different qualities of wood. Thus with hard and firm wood I make the distance between the top of the cap and the cutting-edge of the knife comparatively slight, and in gnarled or knotted wood I make it very slight. In either case, with a proper adjustment of the cap, the work is good and smooth, and is without further sand-belt, or other means ready for the paint-shop—a result not attainable with the machines heretofore used—and the disadvantage of mangling and slivering the wood, and



consequent danger to the operator, greatly lessened, if not entirely avoided.

Where for any reason preferred, a cap or plate without slots, as shown in Fig. 2, may be used; but in such case the regulation in the depth of the cut can only be accomplished by removing such cap and inserting one of a different size at each desired change in the depth of the cut, and for this reason I prefer a slotted or adjustable cap.

I claim as my invention—

1. A beveled or ovaled cap of steel, iron, or other suitable material applied between the knife and cutter-head of a rotating or revolving cutter, with the pointed portions of each together, as and for the purpose described.

2. The combination of the cutter-head, the cutter-knives with slots and bolts, and beveled or ovaled caps having slots corresponding to the slots in the knives, substantially as described, and for the purpose specified.

3. The combination of the cutter-head, the cutter-knives, and bolts by which they are secured with beveled or ovaled caps or plates, substantially as described, and for the purpose specified.

MICHAEL S. O'NEIL.

Witnesses:

HERBERT D. BLAKEMORE,  
J. E. BLAKEMORE.