

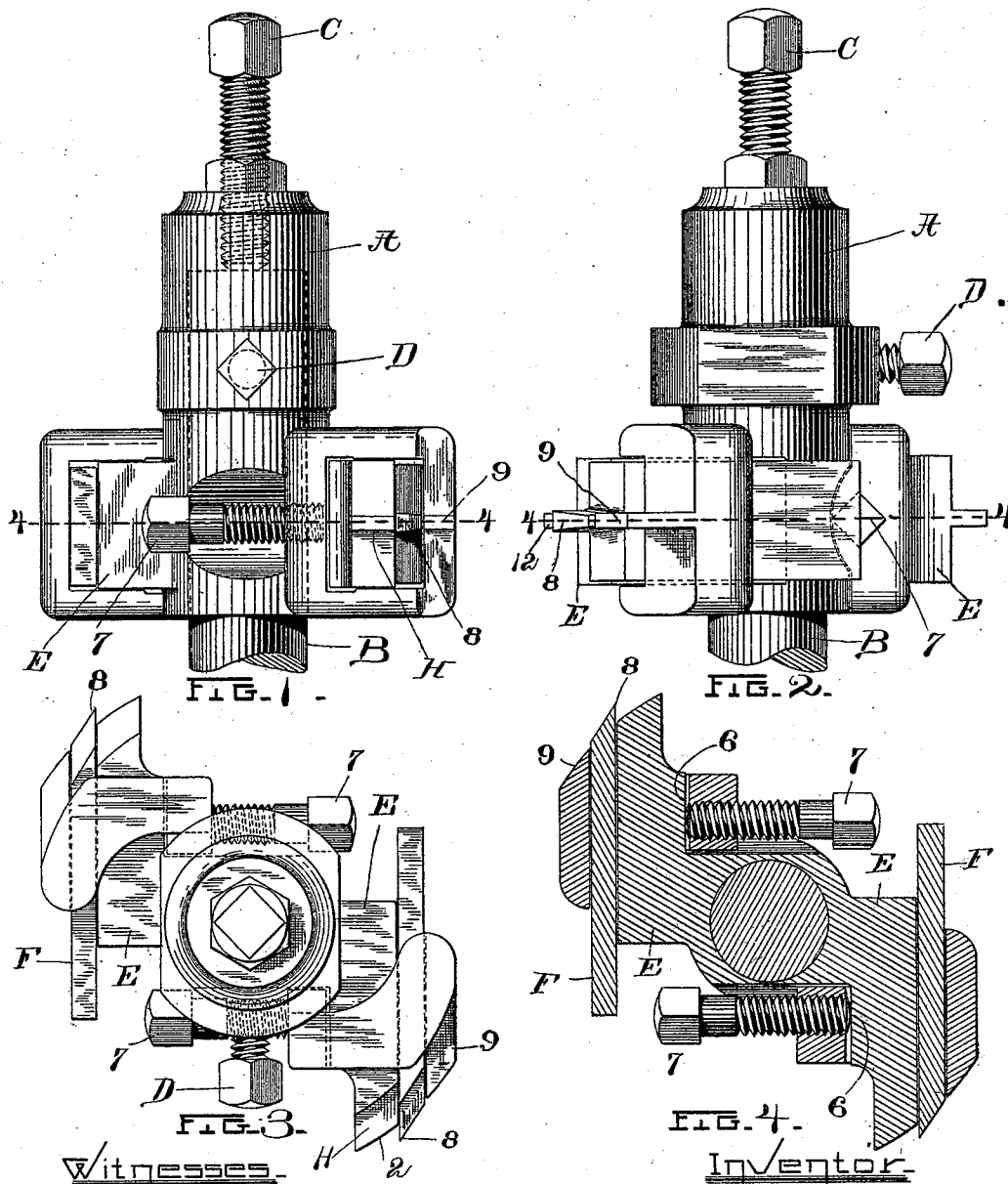
(No Model.)

3 Sheets—Sheet 1.

E. G. BLANEY, Jr.
CUTTER HEAD FOR WOODWORKING MACHINES.

No. 527,583.

Patented Oct. 16, 1894.



Arthur F. Randall.
Robert Wallace

Elbridge G. Blaney Jr.
by MacLeod, Calver & Randall,
his Attorneys.

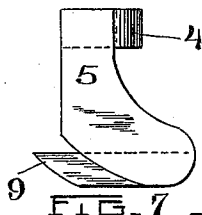
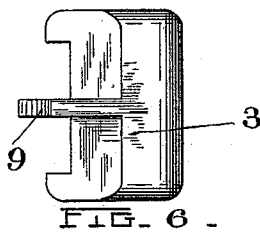
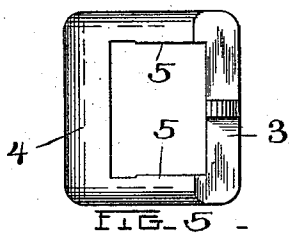
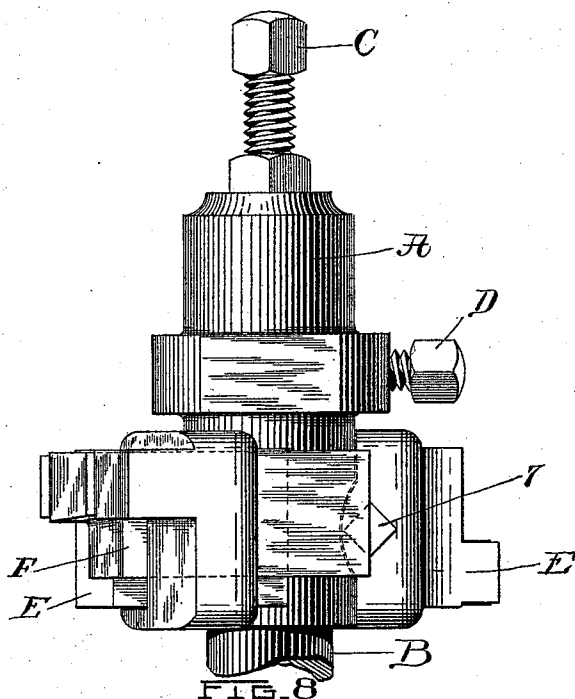
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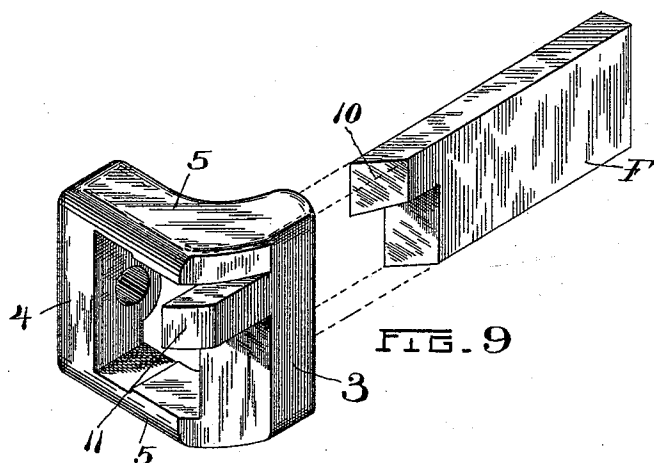
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3 Sheets—Sheet 3.

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Robert Wallace.

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his Attorneys.

UNITED STATES PATENT OFFICE.

ELBRIDGE G. BLANEY, JR., OF SWAMPSCOTT, ASSIGNOR TO ALBERT H. BREED, OF LYNN, MASSACHUSETTS.

CUTTER-HEAD FOR WOODWORKING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 527,583, dated October 16, 1894.

Application filed December 9, 1893. Serial No. 493,224. (No model.)

To all whom it may concern:

Be it known that I, ELBRIDGE G. BLANEY, Jr., a citizen of the United States, residing at Swampscott, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Cutter-Heads for Woodworking-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object to provide an improved cutter-head for wood working machines, and it relates more particularly to rotary cutter-heads, and to means for securing the cutters to the heads, as also to the form and construction of the cutter-support, all as hereinafter more fully set forth.

The novel features of my device are pointed out in the claim which is appended hereto.

In the accompanying drawings, which form a part hereof, and to which reference is made in the following description, I have shown my device in the best form now known to me.

In said drawings, Figures 1 and 2 are elevations of a cutter-head having my invention applied thereto, the device being shown in one of said figures from a point of view ninety degrees removed from the point of view of the other figure. Fig. 3 is a plan view thereof. Fig. 4 is a section on line 4—4 of Figs. 1 and 2. Figs. 5, 6 and 7 are detail views of the yoke-shaped clamp hereinafter referred to. Fig. 8 is a view in side elevation of a cutter-head having my invention applied thereto, but with cutters different from those of the preceding figures. Fig. 9 is a view in perspective of one of the cutters of Fig. 8 and its clamp.

Hitherto, so far as known to me, rotary cutter-heads such as are employed in machines for tonguing and grooving the edges of boards, and for performing similar work, usually have been provided with cutters which are secured in place upon the cutter-block or support which forms a part of the head by means of screw-bolts, that pass through slots formed lengthwise of the cutters. This method of securing the cutter to its block or support is objectionable in that the lengthwise slot in the knife, which is necessary to permit of adjustment, diminishes the available length of the knife and causes a considerable wastage

in the material of which the knife is composed. When the knife has been ground to a point near the slot it cannot be further sharpened and used. The means above indicated for securing the knife is also objectionable because it has been found to be practically impossible to secure the knife with perfect rigidity by means of a screw passing through a slot since the cutting edge of the knife, or rather that end of the knife at which the cutting edge is formed, will spring off from the block or support after a period of use, especially upon hard wood. The present form of head or cutter-block is not, so far as known to me, adapted to serve as a chip-breaker to prevent a chip which is started by the blade of the knife from splitting into the wood farther than is desirable. These objections I have obviated by means of the device herein set forth, and which I will now proceed to describe.

Referring to the accompanying drawings A shows a central sleeve of metal set and secured on a spindle B, which is caused to revolve rapidly by mechanism of common form and construction. The sleeve A is provided with an adjusting screw C by means of which it may be raised or lowered on the vertical spindle B. A check-nut for securing the sleeve A on the spindle B is shown at D. The sleeve A and method of mounting the same are well-known.

From opposite sides of the sleeve A project supports or blocks E which may be integral with the sleeve A as shown. These blocks are each designed to form a support for a cutting blade or knife F so that at each revolution of the spindle B two knives will operate upon the stock. The knives F are placed on the outer faces of the blocks, said faces being finished to receive the same, while a portion of the block E extends toward and lies in front of the cutting edge of the knife, said portion being shown at H, it being curved at the edge as shown at 2, the line of curve of the edge meeting the face of the knife at a point just rearwardly of the cutting edge of the knife. By this arrangement of the part H, which I have termed a "breaker," when a chip is started by the knife it is prevented from splitting into the wood, since as soon as

the chip strikes the breaker, it is at once broken off from the wood by the forward movement of the knife. By setting the knife so that it will project very slightly beyond the breaker a very fine shaving or chip may be cut from the wood. In this way by adjusting the knife relatively to the breaker, a chip or shaving of any size may be formed without danger of splitting the wood. The breaker is shaped to correspond with the shape of the knife; that is to say, if the knife has a projecting portion such as is shown at 8, the edge of the block E which forms the breaker in the device shown in the drawings is correspondingly shaped, it being formed with a similar projecting part.

For the purpose of securing the knife in place, I provide a clamp shown detached in Figs. 5, 6 and 7 which consists of a yoke-shaped piece having a face 3, a rear portion 4 and two side pieces 5, 5, which connect the face and rear portions and are preferably formed integral therewith. The space between the side portions 5, 5 of the clamp is sufficient to permit the clamp to be passed over the block or knife-support E as shown in Fig. 1, while the space between the face 3 and rear portion 4 of the clamp is sufficient to accommodate the block E and knife F.

The block E is preferably somewhat wider on the face than the knife F, thus permitting the knife to be adjusted in the direction of its width should that be desired. This adjustment of the knife cannot be obtained so far as known to me, in cutter-heads as at present constructed in which the knife is secured by means of the slot and screw as previously described. The face 3 of the clamp is made of sufficient size to extend to or nearly to the beveled edge of the knife so that the knife is securely backed and supported throughout all that portion thereof which is subjected to strain in cutting, and by this arrangement the knife is held rigidly in place and prevented from springing off or away from the block E when in use. Since the shank of the knife is not cut or mutilated in any way a very much larger portion of the entire knife may be used before a new knife is required than is possible with knives as at present constructed as far as known to me. The knife being placed in position on the face of the block E, the clamp is slipped over the block until the rear portion 4 of the clamp is opposite the rear face 6 of the block. A set screw 7 which is adapted to be screwed into a socket is then screwed into place and

brought to bear on the rear face of the block E. By setting up the screw 7 firmly the cutter is rigidly secured in place. To adjust or remove the knife it is only necessary to loosen the screw 7.

As will be obvious the shape of the cutting edge of the knife may be varied as desired. The knives shown applied to the cutter head in Figs. 1, 2, 3 and 4 are designed for grooving the edges of boards, and each of them is, therefore, provided with a groove-cutting projection 8 at an intermediate portion of the width thereof, which is adapted to lie behind the projection 9 of the corresponding knife and serves to support the same and prevent it from springing.

It will be seen that the backing may be formed to suit a knife of any desired shape.

In Figs. 8 and 9 is shown a cutter-head having applied thereto knives with cutting edges of different shape from those shown in the other figures. The knives shown in Figs. 8 and 9 are designed for use in forming a tongue on the edge of a board and form a pair the projecting portion 10 of one of such knives being located at one edge thereof whereas the corresponding portion of the other of such knives is located at the opposite side of the tongue, an arrangement which will be clear to those skilled in the art. The clamp shown in Fig. 9 is designed to be used with a knife of the form shown in Fig. 9 and to this end is formed with a projection shown at 11, which serves to support and back up the projection 10 of the knife.

What I claim is—

A rotary cutter-head comprising a block having its outer face finished to receive a knife, and of greater width than the knife whereby to provide for adjustment of the knife in the direction of the width of the latter, the block extending outward in front of the cutting edge of the knife and having a curved end constituting a chip-breaker, a knife applied to the said outer face of the block, a yoke-shaped clamp extending around the block and knife and having a face which supports the knife close to the beveled end thereof, and a screw passing through the yoke and serving to clamp the knife in place, substantially as described.

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

ELBRIDGE G. BLANEY, JR.

Witnesses:

ARTHUR E. PINKHAM,
GERTRUDE M. GOODRIDGE.