No. 634,210. Patented Oct. 3, 1899.

G. D. GILLETTE.

ROTARY CUTTER.

(Application filed June 20, 1896.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

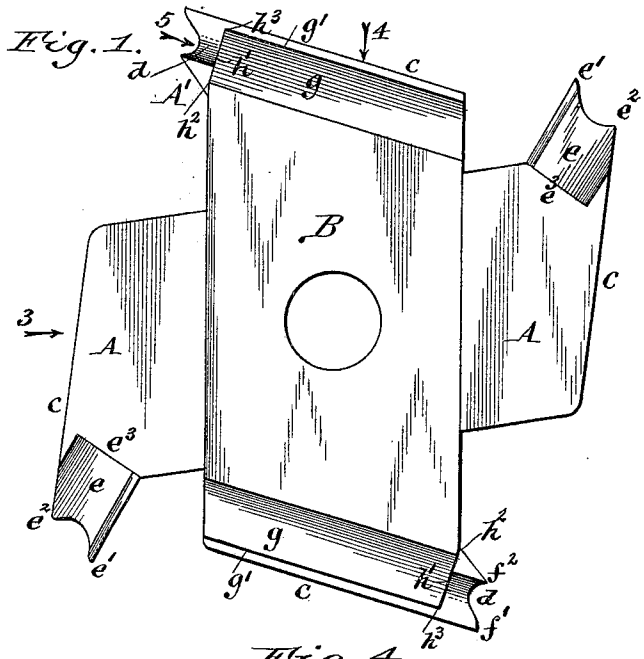


Fig. 3.

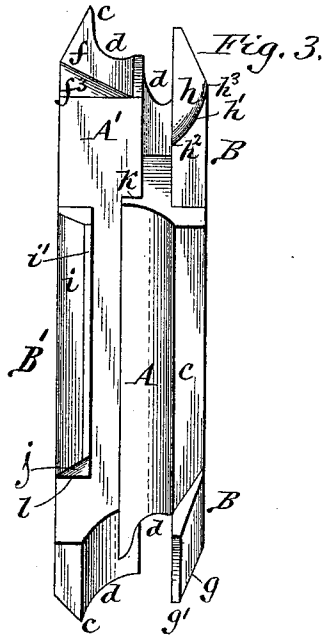


Fig. 4.

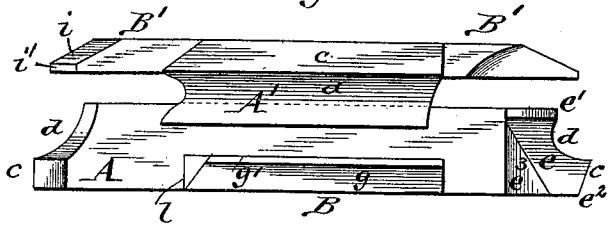


Fig. 2.

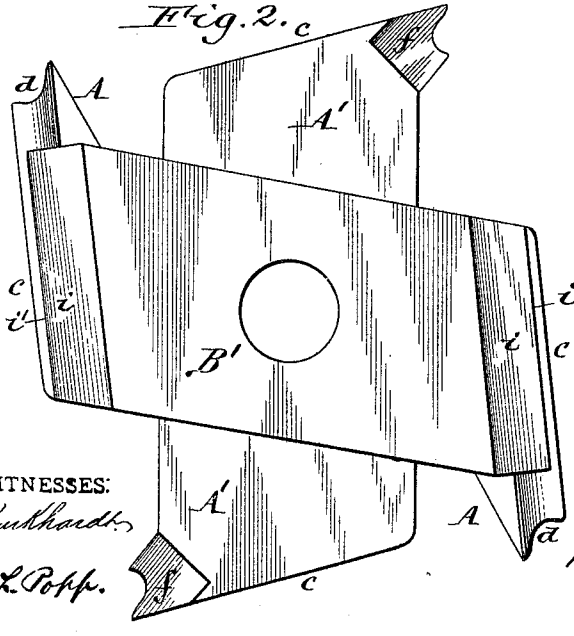
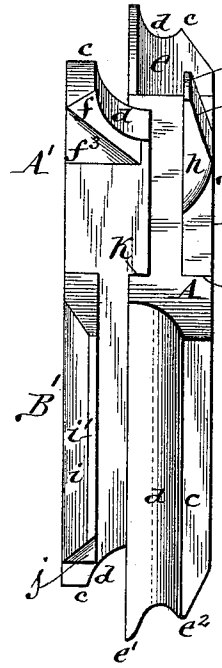


Fig. 5.



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Fig. 6.

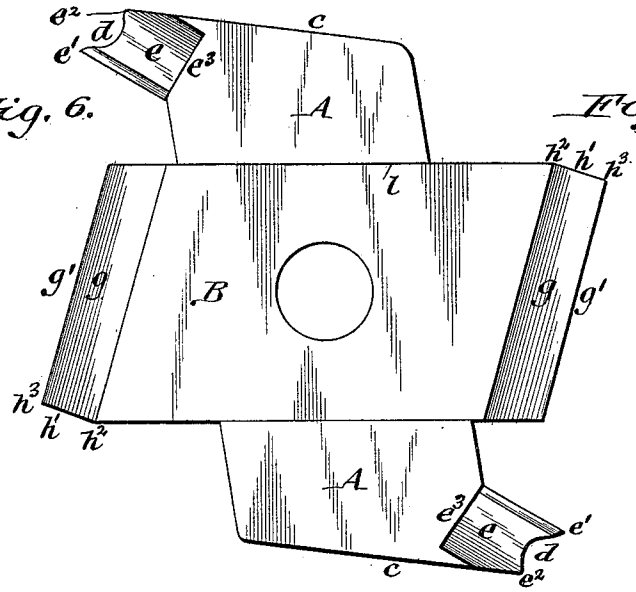


Fig. 7.

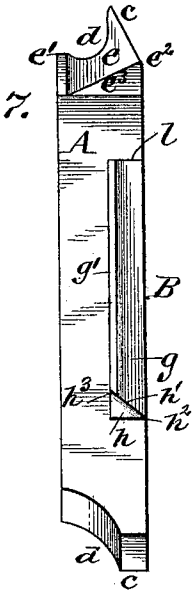


Fig. 9.

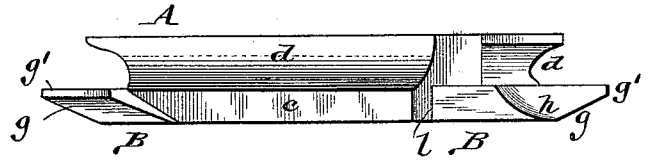
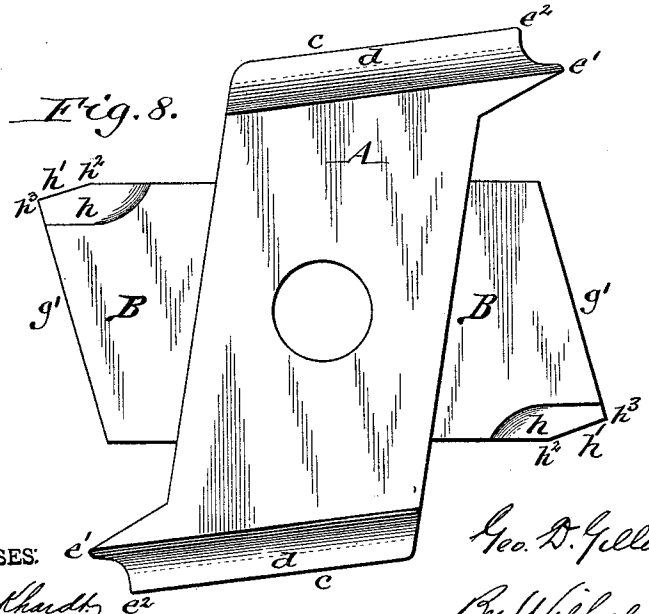


Fig. 8.



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Fig. 10.

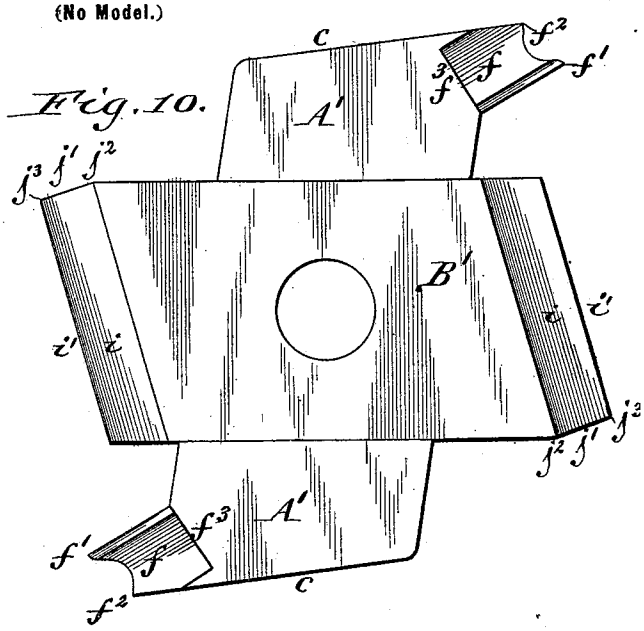


Fig. 11.

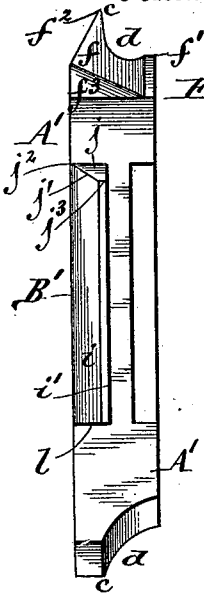


Fig. 13.

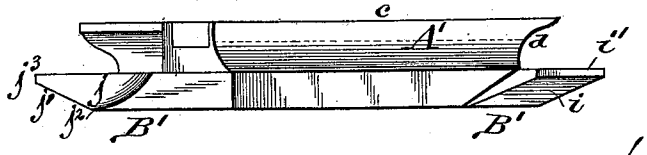


Fig. 14.

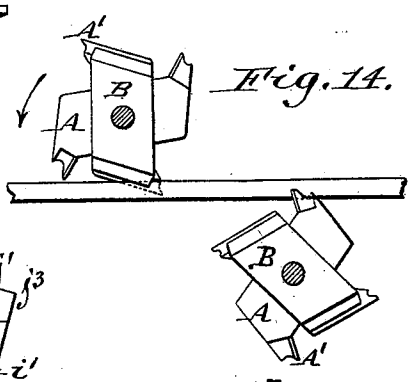


Fig. 12.

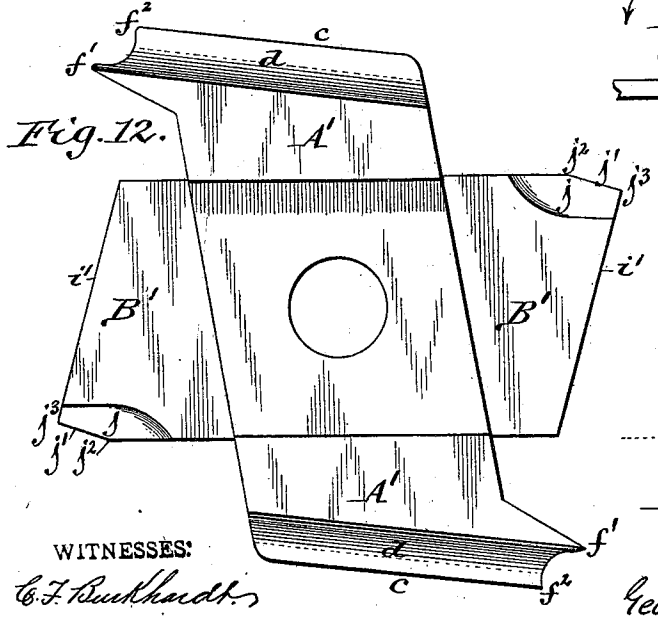
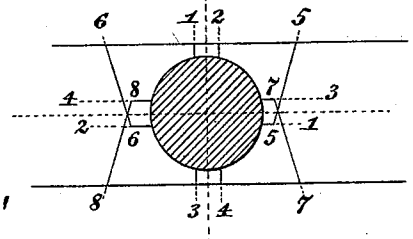


Fig. 15.



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UNITED STATES PATENT OFFICE.

GEORGE D. GILLETTE, OF OSWEGO, NEW YORK, ASSIGNOR TO D. H. BURRELL & CO., OF LITTLE FALLS, NEW YORK.

ROTARY CUTTER.

SPECIFICATION forming part of Letters Patent No. 634,210, dated October 3, 1899.

Application filed June 20, 1896. Serial No. 596,233. (No model.)

To all whom it may concern:

Be it known that I, GEORGE D. GILLETTE, a citizen of the United States, residing at Oswego, in the county of Oswego and State of New York, have invented a new and useful Improvement in Rotary Cutters for Woodworking, of which the following is a specification.

This invention relates to that class of cutters which are employed for cutting round bars or rods—for instance, curtain-rollers—from boards or planks.

The object of my invention is to produce an efficient cutting-tool for this purpose.

In the accompanying drawings, consisting of three sheets, Figures 1 and 2 are side elevations of my improved cutter viewed from opposite sides. Fig. 3 is a front elevation of the cutter viewed in the direction of the horizontal arrow 3, Fig. 1. Fig. 4 is a top plan view of the cutter viewed in the direction of the vertical arrow 4, Fig. 1. Fig. 5 is a front elevation of the cutter viewed in the direction of the oblique arrow 5, Fig. 1. Fig. 6 is an outside elevation of the right-hand main cutter and clearing-cutter. Fig. 7 is a front elevation, Fig. 8 an inside elevation, and Fig. 9 a top plan view, of the same cutter. Fig. 10 is an outside elevation of the left-hand main cutter and clearing-cutter. Fig. 11 is a front elevation, Fig. 12 an inside elevation, and Fig. 13 a top plan view, of the same cutters. Fig. 14 is a side elevation, on a reduced scale, showing two of my improved cutters operating upon the upper and lower sides of a board. Fig. 15 is a diagram showing a cross-section of the round bar which is produced by the cutters, and also showing the cut produced by each cutter.

Like letters of reference refer to like parts in the several figures.

My improved cutter-head consists of two main cutters A A′, which are arranged side by side and nearly at right angles to each other and which cut each one-quarter of the circle bounding the round bar or roller which is to be produced, and two outside clearing-cutters B B′, which cut away the wood on the outer sides of the cutting edges of the main cutters and provide ample clearance for the latter. For cutting a complete round bar or roller from a board or plank two of my improved cutter-heads are employed, one operating against the upper side and one against the lower side of the board or plank, as indicated in Fig. 14, one cutter-head cutting the upper half and the other the lower half of the round bar. The main cutter A is the one which is on the right-hand side of the observer when viewing the cutter-head from the front, with the upper portion of the cutter-head rotating toward the observer, and the main cutter A′ is on the left-hand side. The right-hand clearing-cutter B is arranged on the outer side of the right-hand main cutter A and the left-hand clearing-cutter B′ on the outer side of the left-hand main cutter A′. Each of the cutters is provided on diametrically opposite sides with two wings, in which the cutting edges are formed and which may have the same width as the body or hub portion of the cutter.

Each of the main cutters has its peripheral or outer face *c* provided along its inner corner with a concave *d*, extending from the front to the rear end of the outer face of the cutter. The cross-section of this concave is such as to produce one-fourth of the round bar or roller which is to be produced and to extend slightly beyond the quarter-circle at each edge, so that the cut produced by each main cutter slightly overlaps the cuts produced by the adjacent main cutter. This is illustrated by the diagram Fig. 15, in which the cut produced by the right-hand main cutter of the upper cutter-head extends from 1 to 1, the cut produced by the left-hand cutter of the same cutter-head from 2 to 2, the cut produced by the right-hand cutter of the lower cutter-head from 3 to 3, and the cut produced by the left-hand cutter of the lower cutter from 4 to 4.

Each wing of the right-hand cutter A is provided with a front face *e*, Figs. 1, 4, 6, and 7, which is inclined laterally, rearwardly, and outwardly, so that each wing has at its front corner a cutting edge extending from the inner front corner e' in the lower edge of the concave to the outer rear corner e^2 in the peripheral face *c* of the cutter. The inclined front face *e* is cut obliquely into the outer front portion of the cutter and may be connected with the hub portion of the cutter by a forwardly-inclined portion e^3 or in any other

suitable manner. Each wing of the left-hand cutter A′ is provided with a similar front face *f*, Figs. 2, 3, 10, and 11, which is inclined laterally, rearwardly, and outwardly, so that the inclined front faces of the two main cutters incline rearwardly and outwardly, but in opposite directions, the front faces on the right-hand cutter to the right and those on the left-hand cutter to the left. The cutting edge of each front face *f* on the left-hand cutter extends from the inner front corner *f′* in the lower edge of the concave to the outer rear corner f^2 in the peripheral face *c* of the cutter. The inclined front faces *f* are connected with the hub portion by forwardly-inclined portions f^3 or in any other suitable manner.

Each of the main cutters has two cutting edges, and therefore makes two cuts at each revolution.

The clearing-cutters B and B′ produce plane oblique cuts at a short distance outside of the circular cuts produced by the main cutters, as indicated in Fig. 15, where the cut produced by the right-hand clearing-cutter B of the upper cutter-head is indicated by the dotted line 5 5, the cut produced by the left-hand clearing-cutter B′ of the same cutter-head is indicated by the line 6 6, the cut produced by the right-hand clearing-cutter of the lower cutter-head by the line 7 7, and the cut produced by the left-hand clearing-cutter of the same cutter-head by the line 8 8.

The right-hand clearing-cutter B stands nearly at right angles to the right-hand main cutter A, as shown in Fig. 6, and has two cutting-wings, which may be of the same width as the body or hub portion of the cutter. Each wing has its outer portion formed on its outer side with a plane bevel *g*, which slopes outwardly or to the peripheral face *g′* of the wing and toward the main cutter and extends from the front end to the rear end of the wing. The latter is provided at its front corner with an oblique front face *h*, which is inclined laterally, rearwardly, and inwardly or toward the adjacent main cutter A and which has its cutting edge *h′* extending from the front corner h^2 at the base of the plane bevel *g* to the outer rear corner h^3 on the peripheral face *g′* of the wing, Figs. 6 and 7. The left-hand clearing-cutter B′ is similarly constructed—that is to say, it has along the outer portion of each wing a plane bevel *i*, sloping to the peripheral face *i′* of the cutter and toward the adjacent main cutter, and it has two oblique front faces *j*, which are inclined laterally, rearwardly, and inwardly or toward the adjacent main cutter A′ and each of which has its cutting edge *j′* extending from the front corner j^2 at the base of the plane bevel to the outer rear corner j^3 in the peripheral face of the wing, Figs. 10, 11, 12, and 13. The inclined front faces of the clearing-cutters are inclined in opposite directions, those of the right-hand cutter B being inclined toward the left and those of the left-hand cutter B′ toward the right. As each clearing-cutter has two of these inclined front cutting edges, it makes two cuts at each revolution.

As shown in the drawings, the right-hand main cutter A is seated in a recess *k*, Figs. 3 and 5, in the side of the left-hand cutter A′, and each of the clearing-cutters B B′ is seated in a recess *l* in the side of the adjacent main cutter, Figs. 7 and 11.

I claim as my invention—

1. A rotary cutting-tool for woodworking consisting of two cutters arranged side by side and circumferentially out of line with each other, each cutter being provided with a concave along the inner side of its wings and at the front corner of said concave with a laterally-inclined front face which contains the cutting edges, substantially as set forth.

2. A rotary cutting-tool for woodworking consisting of two cutters arranged side by side, each provided with a concave along the inner side of its wings and at the front corner of said concave with an oblique front face containing the cutting edges, the said front faces being inclined in opposite directions in the two cutters, substantially as set forth.

3. In a cutter-head for woodworking, the combination of two main cutters arranged side by side, each provided with a concave along the inner side of its wings and at the front corner of said concave with an oblique front face containing the cutting edges, of two clearing-cutters arranged outside of said main cutters, substantially as set forth.

4. In a cutter-head for woodworking, the combination of two main cutters arranged side by side, each provided with a concave along the inner side of its wings and at the front corner of said concave with an oblique front face containing the cutting edges, of two clearing-cutters arranged outside of said main cutters and provided on their outer sides with plain bevels sloping toward the peripheral edges of said clearing-cutters and at the front ends of said bevels with laterally-inclined front faces containing the cutting edges, substantially as set forth.

5. A rotary cutter for woodworking provided with two cutters arranged circumferentially one behind the other, each cutter being provided along the inner side of its outermost or peripheral portion with a concave which slopes transversely from the outermost portion of the cutter toward the axis and toward the opposite side, and at the front corner of said concave with a laterally-inclined front face which contains the cutting edges, said front faces being inclined in opposite directions in the two cutters, substantially as set forth.

Witness my hand this 12th day of May, 1896.

GEORGE D. GILLETTE.

Witnesses:
NATHANIEL STONE,
WILFORD LA SAZE.