No. 817,568. PATENTED APR. 10, 1906.

W. B. HUTHER.

CUTTING HEAD.

APPLICATION FILED JAN. 3, 1905.

Fig. 1.

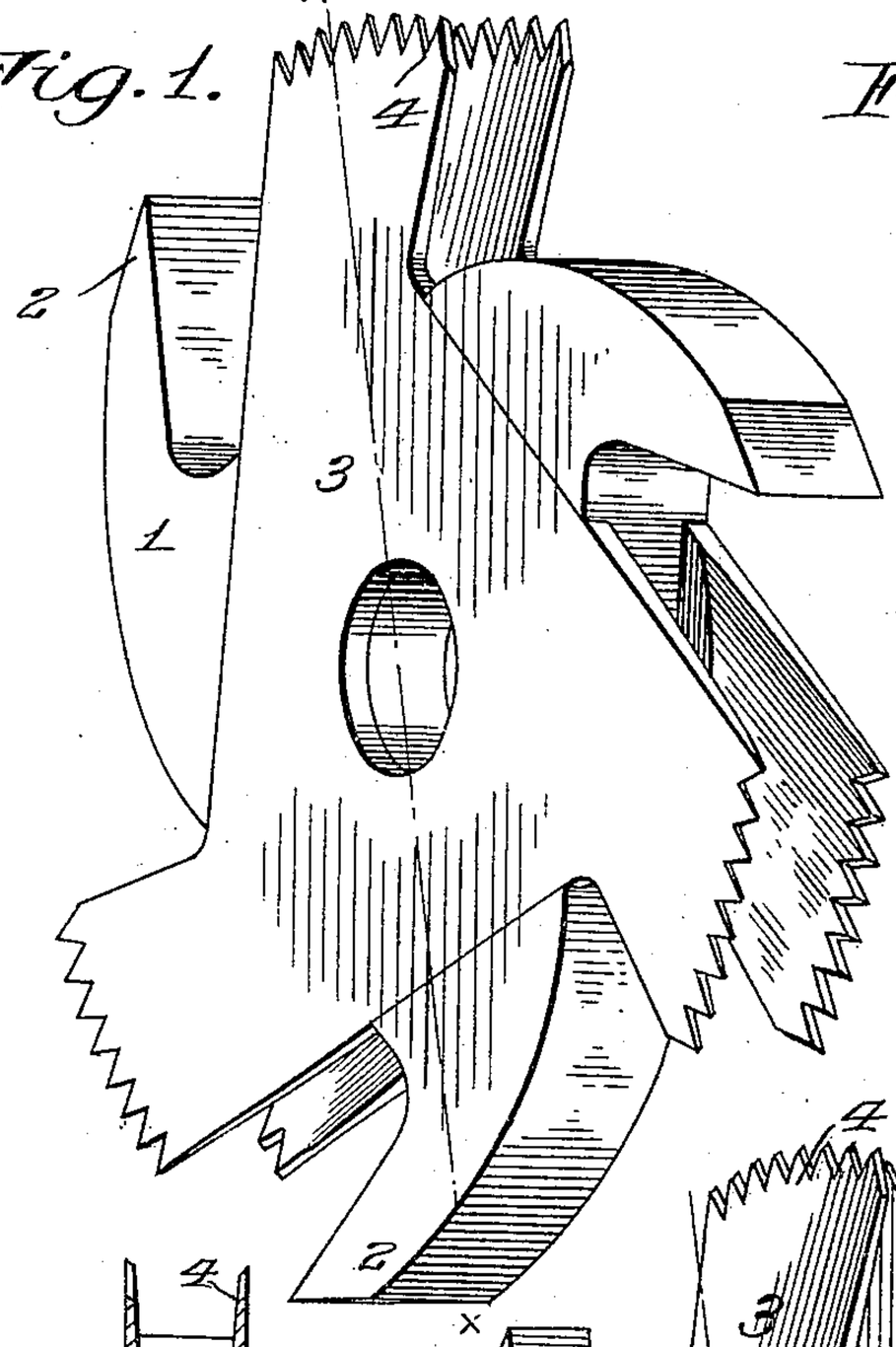


Fig. 4.

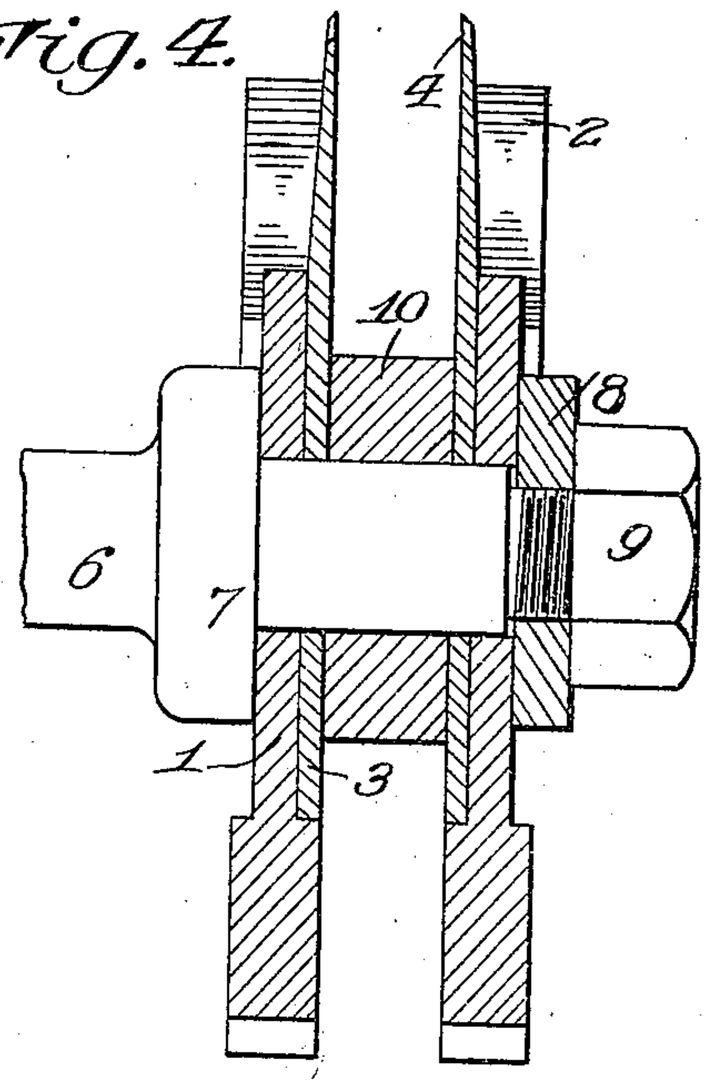


Fig. 2.

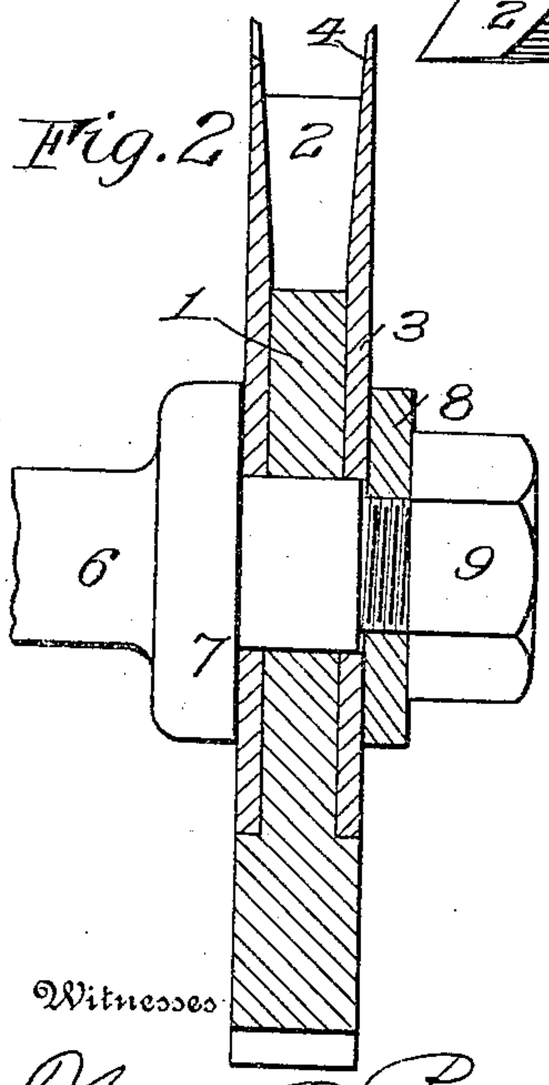
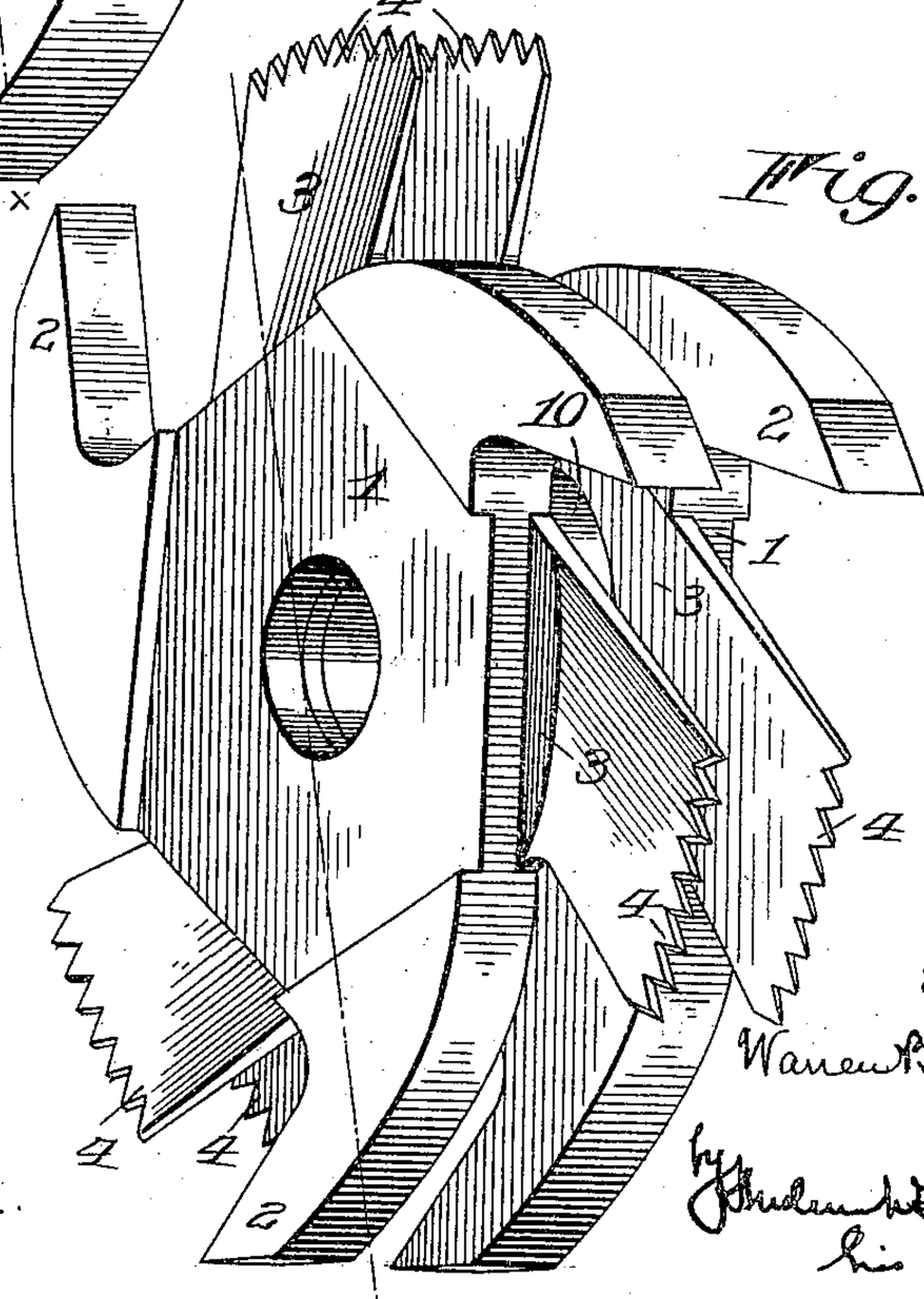


Fig. 3.



Witnesses

Walter B. Payne.

H. Willard Peck.

Inventor

Warren B. Huther

by Frederick P. Church

his Attorney

UNITED STATES PATENT OFFICE.

WARREN B. HUTHER, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF TO ANGUS E. HUTHER, OF ROCHESTER, NEW YORK.

CUTTING-HEAD.

No. 817,568. Specification of Letters Patent. Patented April 10, 1906.

Application filed January 3, 1905. Serial No. 239,360.

To all whom it may concern:

Be it known that I, WARREN B. HUTHER, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Cutting-Heads; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of the specification, and to the reference-numerals marked thereon.

My present invention relates to cutting-heads for woodworking or other machines adapted to the manufacture of matched planking and to general tonguing and grooving work, slotting, rabbeting, &c., and is of a character wherein a combination of differently-formed cutters are so disposed as to produce an operation wherein the chipping edge on the major or principal cutter which removes the bulk of the waste material is applied in a path between two kerfs left by parallel saw edges immediately preceding; and it has for its object to produce an article of this nature in which the several members are removably fitted and yet positively locked to one another, so that when assembled the simultaneous rotation of all is assured and any displacement from their relative position is prevented. It may be safely used in forming channels across as well as with the grain and will cut easily and thoroughly through knots and other hard or tough portions of the material without danger of tearing or splitting the same or of choking the tool.

A further feature of my invention lies in a construction whereby the several parts being different in form, and hence demanding distinct processes of manufacture, may be made separately and after assemblage removed for such grinding or sharpening as each may individually require.

To these and other ends the invention consists in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings, Figure 1 is a side perspective of a cutting-head for grooving purposes embodying my improvements, and Fig. 2 is a diametric section on the line x x thereof. Figs. 3 and 4 are similar views of a head for cutting corresponding tongues.

Similar reference-numerals in the several figures indicate similar parts.

Referring to the first-mentioned form of the device embodied in Figs. 1 and 2, 1 indicates a rotary major cutter of a width which varies with the size of the groove desired and provided with well-inclined transversely-extending gullet-teeth 2, three being employed in this instance to give them ample size, though arrangements might be made for a greater or lesser number, if desired. At the center of the major cutter in the spindle-aperture and in each face thereof is provided a cut-away portion forming abutments at the bases of each of the teeth 2, between which are fitted the saw-blades 3. The latter are each provided with a central aperture coincident with that in the major cutter, whereby the blades will be centered relatively thereto by the spindle. When in the normal position, the blades 3 lie in the recesses in the faces of the major cutter with their outer surfaces coincident with said face, the projections or arms thereon each provided with a series of marking-teeth 4, corresponding to the teeth 2 and extending into the intervals between the latter. This is my preferred construction, though it will be understood that my aim is to center the blades and lock them together for rotation in such a manner that the paths of their extreme lateral edges and the points of their respective teeth shall be identical, and this might be accomplished by means of lugs or other coöperating projections suitably disposed or in other ways. The blades 3 are made of plates of a thickness to give the required stiffness, and the arms are swaged to reduce their thickness at the outer ends, permitting the teeth to be more easily formed and sharpened. It will also be seen that by tapering the arms a thin edge is provided, causing the marking-teeth to cut a small channel.

For the purposes of illustration I have shown my device mounted upon an ordinary rotary spindle 6, having a shoulder 7, between which and a collar 8 the cutter is clamped by means of a nut 9 traveling on a left-hand thread. Any or all of the parts may be keyed to the shaft, as occasion may require; but such matters form no part of my invention and are of no consequence.

The advantages in operation of a device of this construction will be readily seen. The rapidly-revolving saw-blades produce well-

defined corners and smooth straight surfaces to the lateral faces of the cut, while the interposed teeth of the major cutter easily remove the intervening material to the required depth. By providing the major cutter in different widths, but with similar provisions for the attachment of the other blades, any width of cut desired may be obtained.

In the form illustrated in Figs. 3 and 4, which is designed to cut a corresponding tongue or tenon, the saw-blades 3 are fitted in the same way to the adjacent inner faces of a pair of major cutters separated to the desired extent by an intermediate collar 10, with the exception that the flat or finishing faces thereof are on the inside for purposes that will be understood. The operation is substantially the same, and it will be noticed that were the collar removed and the remaining portions transposed a cutter of the type first mentioned would be the result, with the exception that the major member would be in sections.

In manufacturing the devices described above the outer faces may be slightly dished to give clearance to the cutting edge and a different arrangement of the parts may also be employed to lock one blade on the other, so that the points of their respective cutting-teeth lie in the same plane, all of which will be included within the spirit of my invention.

I claim as my invention—

1. A rotary cutting-head comprising a major member having a recessed side face and provided with a plurality of teeth, integral and a coöperating cutting member fitting the recesss and having its face lying in the plane of the lateral edges of the teeth, and provided with integral arms located between the teeth of the major member and alternating therewith each being provided with a plurality of teeth having their points lying in the plane of the outer edge of the arms.

2. In a rotary cutting-head, the combination with a major member having recessed side faces and a plurality of integral teeth thereon having transversely-extending cutting edges, of coöperating members secured in the recesses at opposite sides of the major member, integral arms thereon projecting between the teeth on the major member and alternating therewith and cutting-teeth on said coöperating members, said teeth on the respective members being arranged with their points located in the planes of the edges of the teeth on the major member.

3. In a cutting-head, the combination with a major member having a series of integral teeth having transversely-exending edges and provided with a recess in its side face opening between the teeth, of a coöperating member fitting said recess, a series of integral arms projecting therefrom between the teeth of the major member and alternating therewith and teeth on said arms having their cutting-points located at the outer faces of the arms in alinement with the lateral edges of the teeth on the major member.

WARREN B. HUTHER.

Witnesses:

A. G. HUTHER,

HARRY G. ALDRIDGE.

Corrections in Letters Patent No. 817,568.

It is hereby certified that in Letters Patent No. 817,568, granted April 10, 1906, upon the application of Warren B. Huther, of Rochester, New York, for an improvement in "Cutting-Heads," errors appear in the printed specification requiring correction, as follows: In line 66, page 1, the word "in" should read *is;* the word "integral" should be stricken out and inserted before the word "teeth," same line; line 37, same page, the word "recesss" should read *recess*, and line 59, the word "exending" should read *extending;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 26th day of June, A. D., 1906.

[SEAL.]

E. B. MOORE,

Acting Commissioner of Patents.