(No Model.) 2 Sheets—Sheet 1.

F. STUTZMAN

CUTTER HEAD.

No. 553,366. Patented Jan. 21, 1896.

Fig. 1.

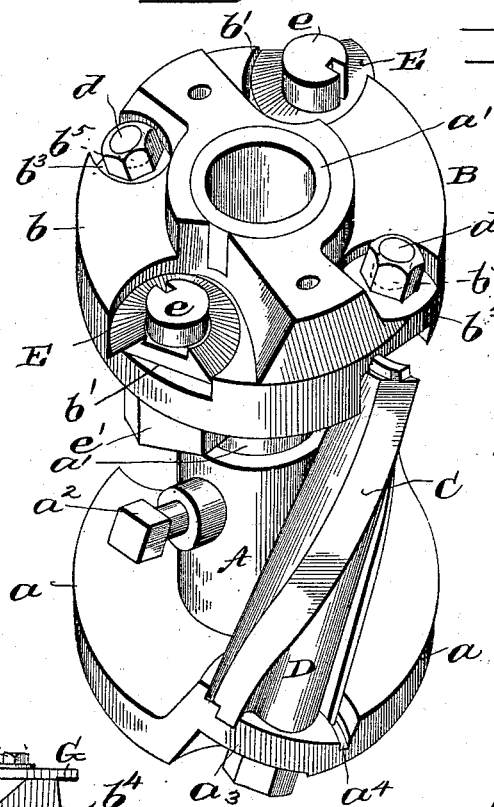


Fig. 7.

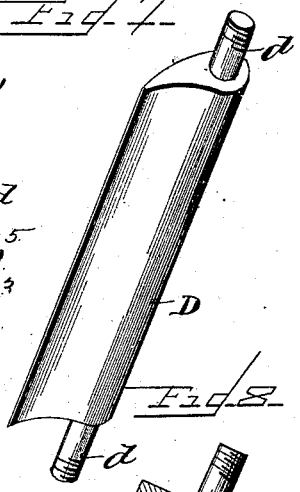


Fig. 8.

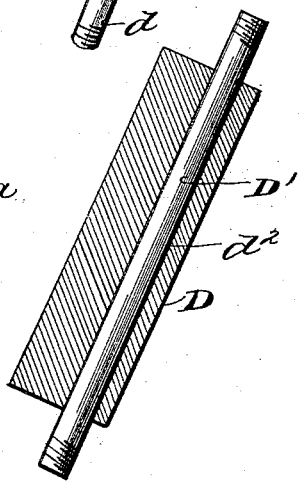


Fig. 6.

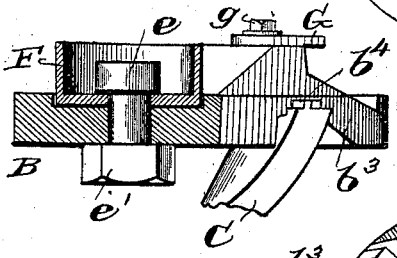
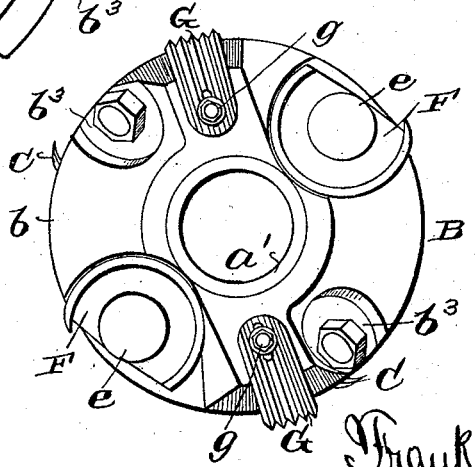


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

F. STUTZMAN.

CUTTER HEAD.

No. 553,366. Patented Jan. 21, 1896.

Fig. 3.

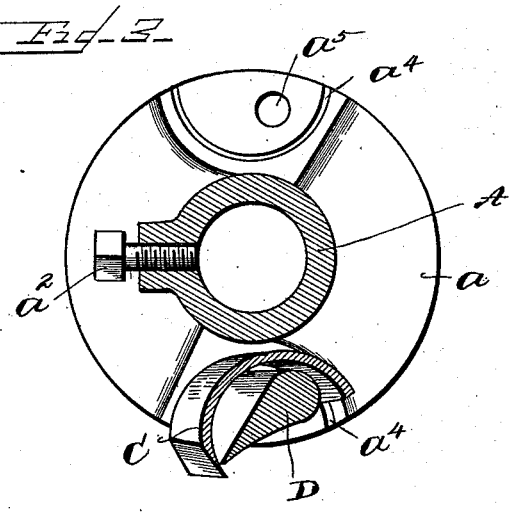


Fig. 4.

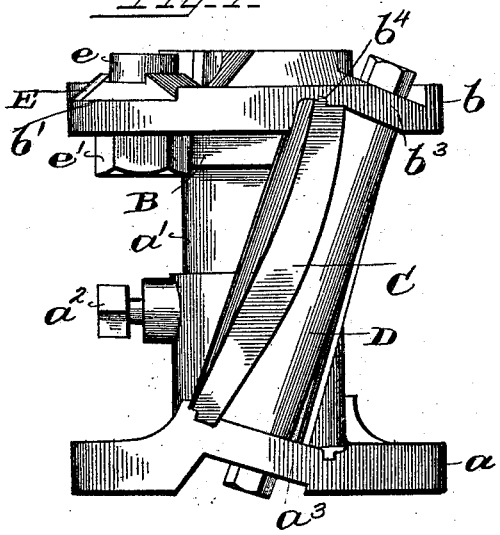
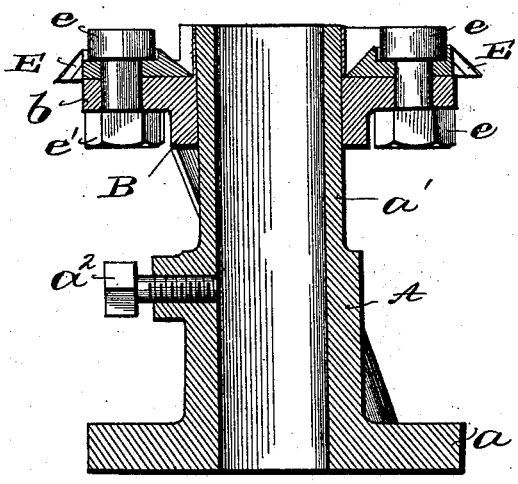


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRANK STUTZMAN, OF WILLIAMSPORT, PENNSYLVANIA.

CUTTER-HEAD.

SPECIFICATION forming part of Letters Patent No. 553,366, dated January 21, 1896.

Application filed June 12, 1895. Serial No. 552,524. (No model.)

To all whom it may concern:

Be it known that I, FRANK STUTZMAN, a citizen of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, 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 consists in the novel features hereinafter described, reference being had to the accompanying drawings, which illustrate one form in which I have contemplated embodying my invention, and said invention is fully disclosed in the following description and claims.

Referring to the said drawings, Figure 1 represents a perspective view of my improved cutter-head. Fig. 2 is a top plan view of the same, showing a different arrangement of cutters. Fig. 3 is a central horizontal section of the head. Fig. 4 is a front elevation of my improved cutter-head arranged as in Fig. 1. Fig. 5 is a vertical central section of the same. Fig. 6 is a sectional view of a portion of the cutter-head, showing the arrangement of knives illustrated in Fig. 2. Fig. 7 is a perspective view of my improved chip-breaker. Fig. 8 is a view of a modified form of chip-breaker.

The main body of my improved cutter-head consists of the sleeve A having an annular flange a formed integrally therewith, and a collar B, also provided with an annular flange b. The sleeve A is provided with a central aperture to engage a spindle of a wood-working machine, and the upper end of said sleeve is turned to form a cylindrical portion a', which fits snugly within the collar B, but allows the said collar to move longitudinally upon the sleeve. The said sleeve A is also provided with a set-screw a^2 by means of which it can be clamped to the spindle.

The flange a is provided at two points diametrically opposite each other with a clamping portion a^3 inclined to the axis of rotation of the head and having upon its inner face a semicircular groove a^4 within which is an aperture a^5. (See Figs. 3 and 4.) The flange b is similarly provided with inclined portions b^3 diametrically opposite each other, the inner faces of such inclined portions being provided with similar annular grooves b^4 within which are apertures b^5.

The collar B is placed upon the sleeve A in such a position that a line connecting the aperture a^5 of the flange a with an aperture b^5 of flange b would be perpendicular with the inclined faces a^3 b^3, as seen best in Fig. 4.

C represents one of the planing-knives, which is of semicircular shape, sharpened on one longitudinal edge, and is of such size that its ends will fit into the semicircular grooves of the inclined portions a^3 and b^3, (see Figs. 3 and 4,) and the knife can be retained therein in an inclined position by means of a bolt passing through the apertures a^5 b^5 of said inclined portions, which would clamp the two flanges upon the ends of the knife. Instead of a bolt I prefer to employ a combined bolt and chip-breaker D for this purpose. This device, which is illustrated in detail in Fig. 7, consists of a casting in the form of a blade having its edge engaging the knife at a very slight distance from the edge of the latter, the said blade having a screw-threaded projection d at each end which passes through one of the holes a^5 b^5 and is provided with a nut, thus serving the purpose of a tightening or clamping bolt. The length of the chip-breaker blade is such that when the nuts are drawn up the knife C will be held by frictional contact between the inclined clamping-faces a^3 and b^3, and the chip-breaker will also be held in position by being clamped between other portions of said inclined clamping-faces. It will thus be seen that by loosening these nuts both the knife C and the chip-breaker D may be adjusted. It will be understood that there will be two of the knives C and chip-breakers D held between the flanges a and b in an inclined position, their ends engaging the inclined portions a^3 b^3, as before described.

The semicylindrical knife C will be sharpened by filing one edge of the same, as shown in Figs. 3 and 4, and it will thus be easy to sharpen the knife and keep it true, since all the points in the cutting-edge are located at the same distance from the axial center of the knife. The knife being held, as shown and

described, in an inclined position it will have a draw-cut, thus producing smooth and even work.

A cutter-head constructed as just described is adapted for various purposes in wood-working machines and will produce a very high class of work, at the same time securing ease of adjustment and making it easy to keep the knives sharp and true. The chip-breaker will also be found of great practical advantage in producing clean work and preventing clogging of the head. By providing the head with additional cutters the head may be very readily and advantageously adapted for use in tenoning-machines, panel-raising machines, and other forms of wood-working machinery.

In Figs. 1, 4 and 5 I have shown my improved cutter-head provided with auxiliary cutters forming a cutter-head particularly adapted for panel-raising machines. In the top or movable flange *b* of the cutter-head are formed diametrically-opposite circular recesses *b'* having their bottom portions in line with the highest edge of the inclined semicircular cutter. (See Fig. 4.) In each of these recesses is placed a circular cutter E having the form in cross-section which it is desired to impart to the beveled portion of the panel. These cutters E are secured in place by bolts *e* passing through apertures in the cutters and in the flange *b* and nuts *e'* on said bolts. These circular cutters E are filed or sharpened so as to present an inclined edge to the wood, thus securing a draw cut and producing a much neater panel than could be produced by a cutter having a straight edge.

When it is desired to employ my improved cutter for tenoning-machines, the cutter E is removed and a straight-edge circular cutter F is put in its place and secured by the bolt *e* and nut *e'*, and I also employ spur-cutters G G, which are secured to the flange *b* by screws *g g*, as indicated in Figs. 2 and 6, or otherwise, as preferred. It will thus be seen that by changing the form of the auxiliary cutters the head may be readily adapted for different classes of work, in all of which the semicircular planing-cutters C C will operate in the same manner.

Instead of forming the securing projections of the chip-breaker integral therewith, I may provide the chip-breaker with a central longitudinal aperture d^2, through which is passed a clamping-bolt D', if preferred, as shown in Fig. 8.

What I claim, and desire to secure by Letters Patent, is—

1. A cutter head including among its members a pair of disks or flanges disposed perpendicularly to the axis of rotation of the head, each disk having a cutter seat at an angle to the plane of the disk, provided with a semi-circular groove, a semi-cylindrical cutter having its ends engaging said grooves, perpendicularly to said seats, and a clamping bolt disposed at an angle to the planes of said disks passing through said seats and longitudinally through said cutter for clamping the cutter between the two disks, substantially as described.

2. A cutter head including among its members, a fixed disk or flange provided on opposite sides of its center with cutter seats inclined oppositely to the plane of the disk, a movable disk or flange provided on opposite sides of its center with opposing cutter seats parallel respectively to the cutter seats on the fixed flange, hollow cylindrical cutters each having its ends engaged by one of the cutter seats of each plate, perpendicularly thereto, and clamping bolts disposed at an angle to the planes of said disks, passing through said seats and longitudinally through said cutters to clamp the cutters between the cutter seats, whereby said cutters will be held in oppositely inclined positions with respect to the planes of said disks or flanges, substantially as described.

3. In a cutter head the combination with opposing clamping faces, disposed at an angle to the axis of rotation of the head, of a semi circular cutter engaging said faces, a chip breaker held between said faces, and having a part engaging said cutter adjacent to its cutting edge, and clamping devices for clamping the said faces upon said cutter and chip breaker, substantially as described.

4. In a cutter head the combination with opposing clamping faces, of a semi cylindrical cutter engaging said faces, a chip breaker having portions for engaging the cutter adjacent to its cutting edge and projections for engaging apertures in said faces and clamping devices engaging said projections, substantially as described.

5. In a cutter head the combination with clamping faces disposed at an angle to the axis of rotation of said head, of a semi cylindrical cutter engaging said faces, a chip breaker having end portions engaging said faces and projections passing through apertures in said faces, and clamping devices engaging said projections for clamping said cutter and chip breaker adjustably between said faces, substantially as described.

6. A cutter head including among its members, a pair of disks or flanges disposed perpendicularly to the axis of rotation of the head, each disk having a main cutter seat at an angle to the plane of its disk, one of said disks having an auxiliary cutter seat parallel with the plane of said disk, a main semi-circular cutter having its ends engaging said main cutter seats perpendicularly thereto, clamping devices for drawing said disks together to clamp said cutter between said cutter seats and auxiliary cutter engaging said auxiliary cutter seat, having a part in line with one end of the main cutter and securing devices for securing said auxiliary cutter to its seat, substantially as described.

7. A cutter head including among its members a pair of disks or flanges, disposed per-

pendicularly to the axis of rotation of said head, each disk having a main cutter seat at an angle to the plane of said disk, one of said disks having auxiliary cutter seats in different planes transverse to the axis of the head, a main semi-cylindrical cutter having its ends engaging said main cutter seats perpendicularly thereto, clamping devices for drawing said disks together to clamp the main cutter between said cutter seats, auxiliary cutters engaging said auxiliary seats and secured thereto by independent devices, separate from said clamping devices, one of said auxiliary cutters having a part in line with one end of the main cutter and the other auxiliary cutter having a part in line with a part of the first named auxiliary cutter, substantially as described.

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

FRANK STUTZMAN.

Witnesses:
A. P. JACKSON,
CHAS. F. DAHLEN.