(No Model.)

B. F. BARNES.

CUTTER HEAD.

No. 470,462. Patented Mar. 8, 1892.

Fig. 1.

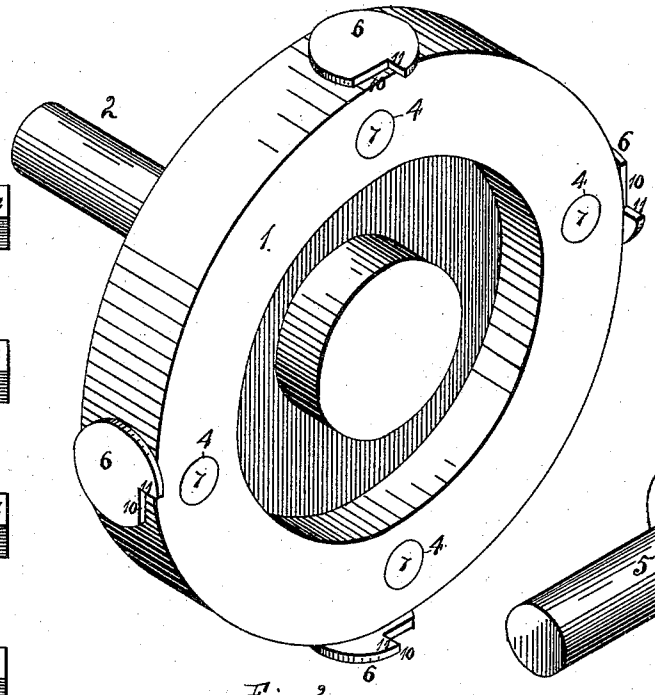

Fig. 6.

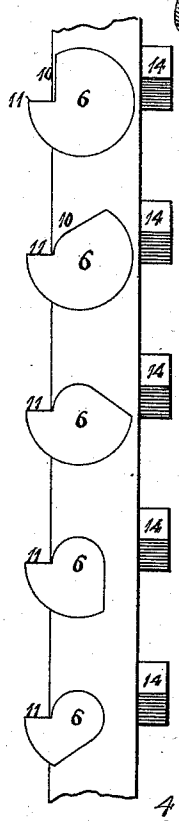

Fig. 4

Fig. 2.

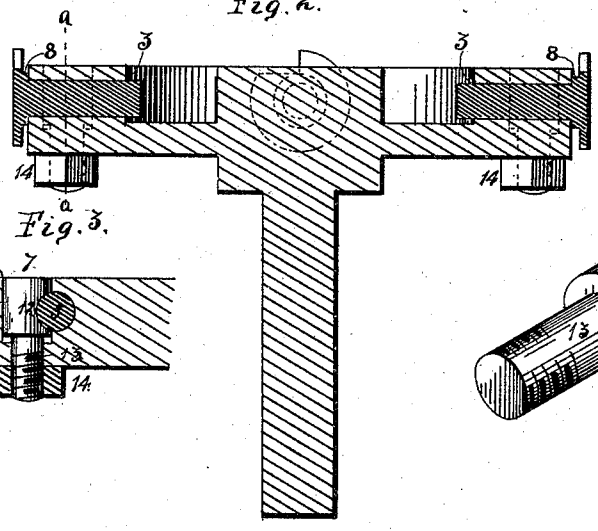

Fig. 5.

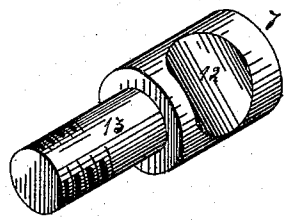

Fig. 3.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. BARNES, OF ROCKFORD, ILLINOIS, ASSIGNOR TO THE W. F. & JOHN BARNES COMPANY, OF SAME PLACE.

CUTTER-HEAD.

SPECIFICATION forming part of Letters Patent No. 470,462, dated March 8, 1892.

Application filed July 13, 1891. Serial No. 399,430. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. BARNES, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Cutter-Heads, of which the following is a specification.

The object of my invention is to produce a rotary cutter-head to be used in any suitable machine—as, for instance, a milling-machine—and adapted to plane flat surfaces of metallic pieces; also, to construct a head carrying cutter-edges, which when set at right angles to the face of the head will all be set to cut chips of equal depth from the work.

In the accompanying drawings, Figure 1 is an isometrical representation of my cutter-head. Fig. 2 is a horizontal section of the same, showing the manner of setting the individual cutters in the head. Fig. 3 is a vertical section on dotted line *a*, Fig. 2, showing the manner of securing the cutters in their sockets in the head to prevent their turning or slipping out. Fig. 4 is an isometrical representation of one of the cutters removed from its socket in the head. Fig. 5 is an isometrical representation of the clamping-block for holding the cutter rigidly in position in its socket in the cutter-head. Fig. 6 is an outstretched view of the periphery of the cutter-head, showing the cutters after having been ground away more or less in sharpening their cutting-edges.

In the construction of my cutter-head I make a disk-shaped metal head 1, from the rear side of which projects a shank 2, by means of which the head is mounted in a milling or other suitable machine. I drill through the periphery of the head a number of radial holes 3, situated at proper intervals in its circumference. At right angles to these radial holes and cutting through nearly one-half of their diameters I drill holes 4 through the disk, the former being sockets to receive the shanks 5 of the cutters 6 and the latter for the clamps 7, which lock the cutters rigidly to the cutter-head. These cutters 6 are made in the form of a disk having a shoulder 8 on one side of a straight shank 5, extending from its center on the same side as the shoulder is located. This shoulder, striking against the periphery of the cutter-head, which I have turned off true, insures a proper radial adjustment of the cutter.

From the disk of the cutter is cut a notch 10, which produces a cutting-edge 11 at the circumference of the disk, and when this becomes blunt it may be sharpened by grinding away that side of the notch, which operation is repeated as often as it is necessary until the disk is completely ground away, the cutting-point always remaining the same distance from the center and always having the same set or depth of cut in all the disks. As the disks are ground away and the cutting-point moved farther around on their circumference it will be necessary to turn the cutter in its socket to bring the cutting-edge beyond the face of the cutter-head, and to provide for this I supply the clamping-block 7, into the side of which I have cut a semicircular groove 12 of a diameter equal to that of the shank of the cutter and at right angles to its length such a distance from its end that when the clamp is in its place and the cutter in its socket the shank of the cutter lies in the groove of the clamp and the latter will be flush with the face of the cutter-head. The rear end of the clamp terminates in a small shank 13, which I thread, and, turning a nut 14 on this thread, draw the clamp against the shank of the cutter, binding it rigidly to the cutter-head.

When it is desirable to remove the cutter for sharpening or to turn it in its socket, this nut is loosened slightly and the cutter-shank is then loose in its socket.

My cutter-head is mounted in any suitable machine where the head will be rotated and the work fed transversely across its face, the work being so set and secured in relation to the head that as it is fed against the cutting points each of them will remove a chip across the surface to be planed.

In the drawings I have shown four cutting-disks, though it is evident that a greater or less number may be used on the cutter-head.

I claim as my invention—

1. A cutter-head provided with an opening

extending in a radial direction, and a cutter of disk form provided with a shank removably secured in said opening and having a portion cut away, presenting a cutting-edge.

2. A cutter-head provided with a series of radial openings, and a series of disks, each disk having a shank and a shoulder, the shanks fitted in the radial openings and a portion of each disk cut away, presenting a cutting-edge.

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