E. S. SHIMER.

CUTTER HEAD.

APPLICATION FILED DEC. 1, 1910.

1,025,838. **Patented May 7, 1912.**

Fig. 1

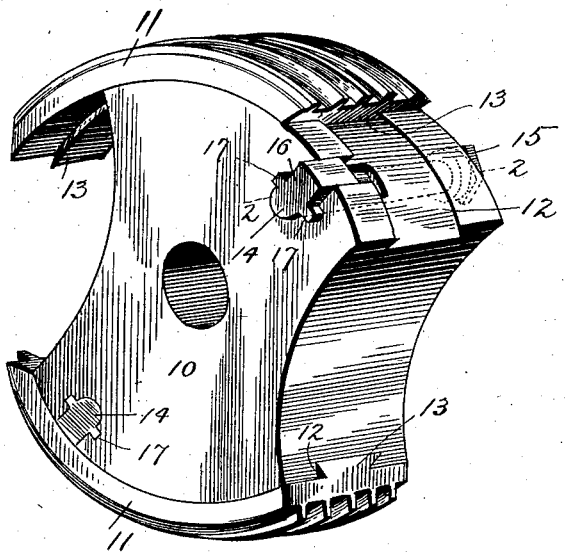


Fig. 2.

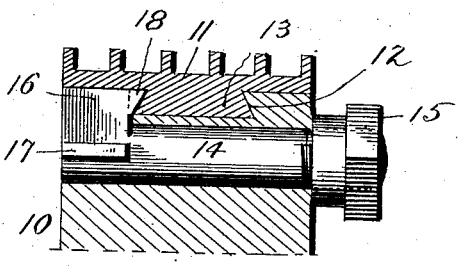
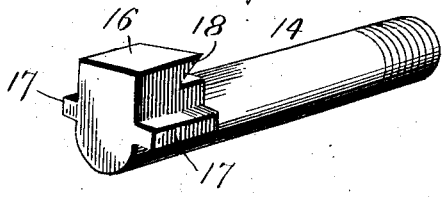


Fig. 3.



Witnesses
Agnes I. Hayes.
F. Wm. Ernst

Inventor
Elmer S. Shimer
by Chas. J. Williamson
Attorney

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ELMER S. SHIMER, OF MILTON, PENNSYLVANIA, ASSIGNOR TO SAMUEL J. SHIMER & SONS, OF MILTON, PENNSYLVANIA.

CUTTER-HEAD.

1,025,838. Specification of Letters Patent. **Patented May 7, 1912.**

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To all whom it may concern:

Be it known that I, ELMER S. SHIMER, of Milton, in the county of Northumberland and in the State of Pennsylvania, have invented a certain new and useful Improvement in Cutter-Heads, and do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to cutter heads, but more particularly to cutter heads of wood working machines.

Cutters of the class to which my invention relates are run at high speed and operate on all kinds of lumber, which, by reason of hardness, cross-grain and knots, subject the cutters to extraordinary strains among which are those imposed by reason of sudden jars to the cutters. The bits, of course, are separable from the head which requires a detachable connection for them to permit their ready application to and removal from the head.

The object of my invention is to provide a connection between the bit and head which will be able to successfully cope with the special strains or stresses due to the conditions of the material being operated on, and to this end my invention consists in the cutter head having the construction for the attachment of the bit thereto substantially as hereinafter specified and claimed.

In the accompanying drawings—Figure 1 is a perspective view of a cutter head for a shaping machine embodying my invention, one of the two bits thereof and its attaching screw jack being shown in a partially separated condition; Fig. 2 is a cross section on the line 2—2 of Fig. 1, the parts being in their assembled and secured position; and Fig. 3 a detail view in perspective of one of the screw jacks.

I have selected to illustrate an embodiment of my invention, a cutter head designed for a shaping machine. It is to be understood, however, that my invention is not limited to any particular design of cutter head, so that my selection of one for illustration is not taken as limiting me to any one kind of design. The head 10 shown is of ordinary form for the cutter head of a shaping machine, it having diametrically opposite convexly curved side portions each for the support of the curved bit 11. In the periphery of each side of the head is a circumferentially extending curvilinear depression or groove 12, and on the inner side of the bit is a correspondingly shaped rib or projection 13 with the difference that in cross section the bit rib or projection is dovetail in form, whereas, one side of the groove or depression is not undercut while the other side is. If desired the groove or depression could be of complete dovetail form in cross section, but it is not necessary that it should be so. For each bit there is a transversely extending screw jack 14 in the form of a bolt having at one end a thread for engagement by a nut 15 and at the other end having a head in the form of a radially extending lug 16, having opposite flat sides which preferably extend in planes tangential of the bolt and, on diametrically opposite sides, at the place of junction of the block sides with the bolt, having two longitudinally extending ribs 17 that are parallel with the bolt axis. On the inner side of the lug 16 it is undercut or beveled to form an overhanging lip 18 to engage the bevel side of the dovetail rib or projection on the bit opposite that side of said bit which is overhung and engaged by the undercut side of the head depression or groove 12.

Of course, for the reception of the screw jack the head contiguous to the periphery of the depression or groove 12 has a transversely extending passage that is cylindrical in form excepting at one end a trackway or chamber is provided for the accommodation of the screw jack head including the lug 16 and the oppositely disposed ribs 17, the lug 16 being accommodated by an outwardly extending recess whose opposite sides are straight to fit them for engagement with the opposite flat sides of the lug, and for each of the ribs 17 a correspondingly formed groove or slot is provided. The threaded end of the bolt or shank of the screw jack protrudes beyond the opposite side of the head where it is engaged by the nut 15.

It will be evident that with the connection that I have provided between the bit and the cutter head, the bit will be rigidly and securely held to the cutter head without any liability of the sudden jars or extraordinary stresses to which the cutter is subjected loosening it. Any strains acting to move the bits centrifugally are resisted at one side of the bit by the overhang of the

undercut side of the groove in the head and by the overhang of the beveled lip on the screw jack head and the similar strains that are thus thrown on the head are resisted by the engagement of the screw jack ribs 17 with the outer sides of their respective grooves said ribs, as will be noted, being situated contiguous to the overhanging lip 18 of the head so that the engagement of the shank of the screw jack or bolt with the outer wall of the receiving opening need not be depended upon for this purpose and not being adequate in view of the limited extent of such engagement in a longitudinal direction. And withal, the bit attaching device is simple and the work of assembling and separating the parts may be easily and quickly done.

Having thus described my invention what I claim is—

1. The combination of a head, a bit, said parts having one a groove or depression and the other a rib or projection within the groove or depression, and means for securing the bit to the head comprising a transversely extending bolt in one of said parts having a radially extending head with a lip overhanging said rib or projection, and said head fitting an outwardly extending recess in the bit head and having surfaces that overlap surfaces on the part in which said bolt is mounted, situated to resist movement of the head in a direction in which it might tend to move from stresses on its rib-engaging portion.

2. The combination of a cutter head, a bit, one of said parts having a circumferentially extending rib or projection, and the other having a circumferentially extending groove or depression to receive said rib, a bolt extending transversely of the cutter head having at one side of the latter a nut, and at the other side of the cutter head a radially extending flat-sided head having on its inner side an overhanging lip that engages said rib, and the bolt having on opposite sides radially projecting lugs, the bolt head and lugs being contained within and fitting a recess in the cutter head.

In testimony that I claim the foregoing I have hereunto set my hand.

ELMER S. SHIMER.

Witnesses:
W. H. BECK,
H. A. KERR.