H. H. PLUMMER.

CUTTER HEAD.

APPLICATION FILED MAR. 30, 1915.

1,191,728.

Patented July 18, 1916.

2 SHEETS—SHEET 1.

Fig. 1

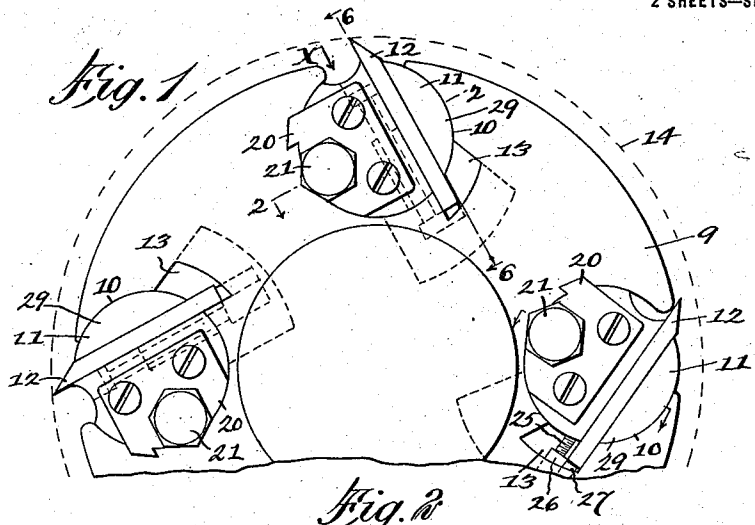


Fig. 2

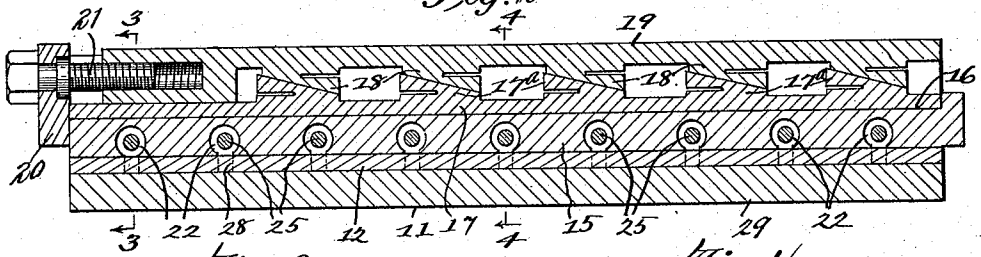
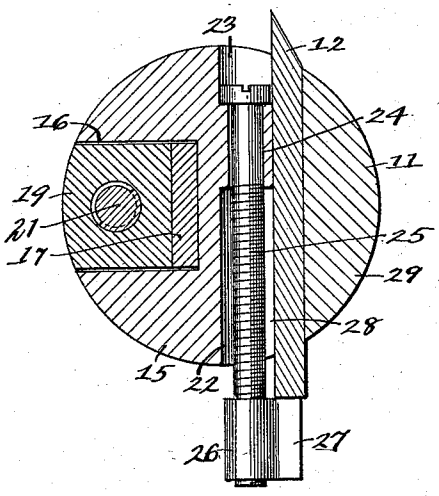
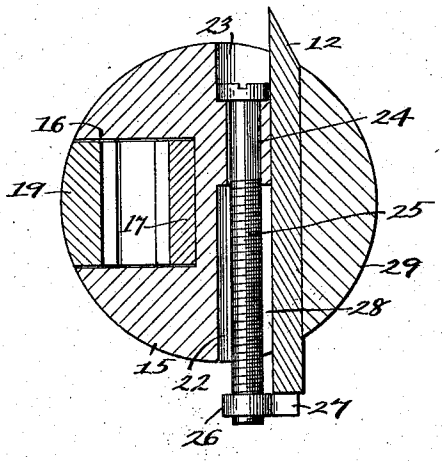


Fig. 3

Fig. 4





WITNESSES

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2 SHEETS—SHEET 2.

Fig. 5

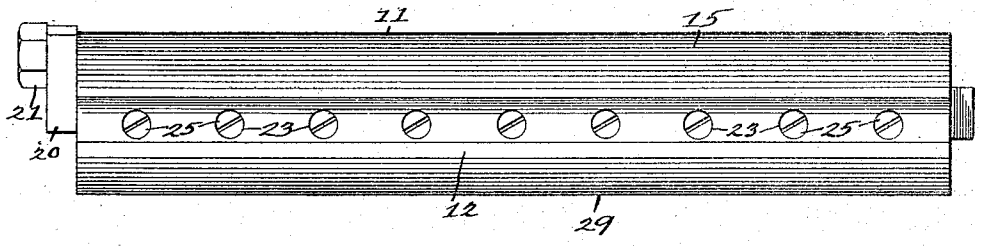


Fig. 6

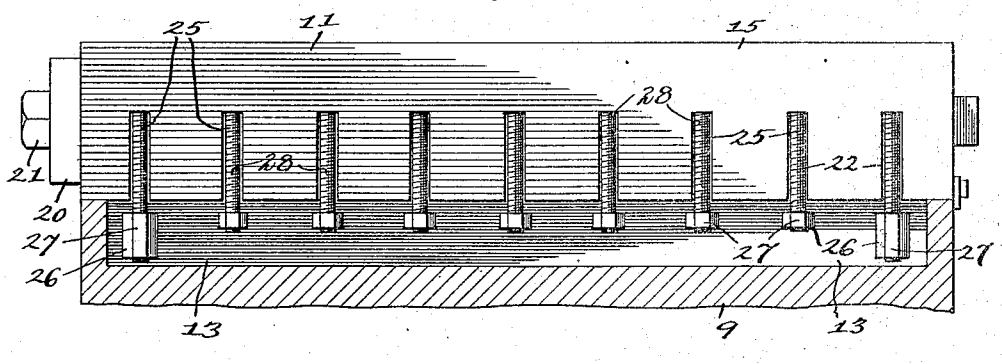


Fig. 7

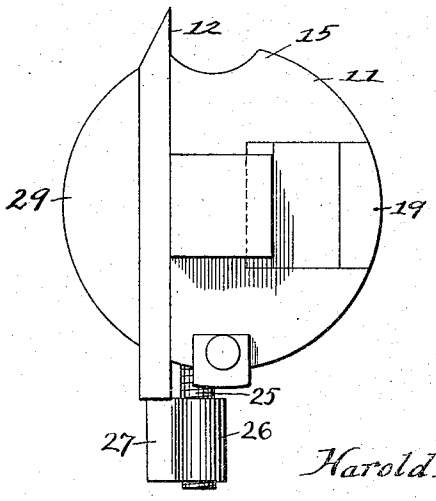
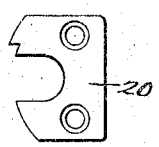


Fig. 8



WITNESSES

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UNITED STATES PATENT OFFICE.

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CUTTER-HEAD.

1,191,728. Specification of Letters Patent. Patented July 18, 1916.

Application filed March 30, 1915. Serial No. 17,973.

To all whom it may concern:

Be it known that I, HAROLD H. PLUMMER, a citizen of the United States, and residing at Berkeley, in the county of Alameda and State of California, have invented certain new and useful Improvements in Cutter-Heads, of which the following is a specification.

My invention relates to wood working machinery, particularly to the cutter heads thereof which carry the thin sheet steel blades or bits now employed, and one of the main objects thereof is to provide means for varying the pitch or inclination of the bits or cutter blades at will. This I accomplish by making the bit carrier rotatable in the cutter head, and I also provide means for locking said bit carriers in said cutter head, means for securing said locking means in place, and means for feeding the blades or bits radially of the cutter head in the wear of said bits, as well as certain other details of construction as hereinafter specifically pointed out.

My invention is fully described in the following specification, of which the accompanying drawings form a part, in which like reference characters are used to designate like parts in each of the views, and in which:—

Figure 1 is a fragmentary end view of a cutter head provided with my invention; Fig. 2 is a section taken on the line 2—2 of Fig. 1; Fig. 3 is an enlarged section taken on the line 3—3 of Fig. 2; Fig. 4 is a similar section taken on the line 4—4 of Fig. 2; Fig. 5 is an elevation of the bit carrier in the direction of the arrow X, Fig. 1; Fig. 6 is a section taken on the line 6—6 of Fig. 1; Fig. 7 is an end view of the bit carrier; and Fig. 8 is a detached, plan, view of a locking plate which I employ.

In the drawings forming a part of this application I have shown a cutter head 9 having a plurality of circular, longitudinally arranged, recesses 10 intercepting the periphery of the cutter head at intervals, and within each of which is mounted a cylindrical bit carrier 11 for a bit 12, said cutter head being further recessed at 13 on one side of each of the recesses 10 for a reason later explained. The bit carriers all being alike, the description thereof will be limited to one, and attention is directed to the cutting circle 14 of the bits 12.

Each carrier comprises a segmental casting 15 having a transversely angular, longitudinally arranged, guide recess 16 in one side thereof and in which recess, as shown in Fig. 2, is a plate carrying a plurality of projections 17^a provided with inclined outer faces upon which slide the similarly inclined faces of similar projections 18 on a bar 19 movable longitudinally of the guide recess 16; the outer surface of said bar is convex and serves as a continuation of the periphery of the bit carrier in relaxed position; rotatable in a removable plate 20 on one end of the bit carrier is a threaded and flanged bolt 21 which is engaged in one end of the bar 19, and it will be seen that rotation of the bolt 21 in either direction moves the bar 19 correspondingly, longitudinally of the bit carrier, and laterally thereof because of the inclined projections or wedges 17 and 18, thus locking the bit carrier in its recess in the cutter head or releasing it therefrom.

The bit 12 bears against the planetary side of the bit carrier, and inwardly of said bit the carrier is provided with a plurality of bores 22 from one side of said carrier, parallel with each other and with said bit, and extending about one-half the distance through the carrier; a plurality of similar bores 23, but of less depth, are provided from the opposite side of the carrier, one in the axis of each of the bores 22, and joining the respective bores 22 and 23 are bores 24 of less diameter; seated in each of the bores 24 and rotatable therein is a threaded bolt 25, the head of which is of greater diameter than the corresponding bore 24 and approximating that of the bore 23, and each of said bolts 25 is engaged in a nut 26 which is slidable in the respective bore 22 and provided with a lateral projection 27 guided in a slot 28 in the plane face of the carrier, in line with each bore 22 and formed thereby; these slots, while not shown in detail, serve to prevent the rotation of the nuts in the rotation of their respective bolts, and the projections 27 bear against the inner edge of the bit 12, as is clearly shown in Figs. 3 and 4. By means of these bolts 25 the bit 12 may be adjusted radially of the carrier to have the cutting edge thereof meet the cutting circle. To complete the cylindrical periphery of the carrier, I provide a segmental member 29 which has an inner plane face bearing on the outer surface of the bit 12, and serves to force the same against the casting 15,

when the carrier is in locked position, and it will be seen that, if the bolt 21 be loosened, the bar 19 moves inwardly of the carrier and thus permits the free rotation of the carrier in its recess in the cutter head into a desired position, after which the carrier may again be locked in the head.

When it is desired to accomplish the operation of jointing or grinding, although all need of the latter will probably be avoided, the carriers are all rotated so as to bring the bits into greater angularity with respect to the cutting circle 14, thus bringing the edge thereof which is to be sharpened or ground into approximate concentricity with the cutting circle, and in which position said bits are jointed or ground; after this operation, the bits may be restored to normal positions, and the honed or ground surface is then at a considerable angle to the cutting circle whereby only the cutting edge of the bit will come into contact with the material being worked. It will also be seen that I may lock and unlock the carriers in adjusted positions by tightening or loosening but one screw or bolt for each carrier, and I may adjust the bit outwardly of the carrier, after wear, by means carried by the carrier and forming a component part thereof. It will also be seen that no holes, slots, projections, or equivalents need be provided for the bits, they being merely strips of sheet steel, and, when the carrier is removed from the cutter head for any reason, immediate access is possible to the bit therein, in view of the separate, segmental, member 29.

While I have shown a present preferred form of embodiment of my invention, it will be obvious that I am not limited to the details shown and described, but may make changes thereof, within the scope of the following claims, without departing from the spirit of my invention, or sacrificing its advantages.

Having fully described my invention, what I claim is new, and desire to secure by Letters Patent, is:—

1. A cutter head provided with a cylindrical recess, a bit carrier rotatable therein, means for locking said carrier in desired position with respect to its recess, and means for radially adjusting said bit with respect to its carrier.

2. A cutter head provided with a cylindrical recess, a bit carrier therein, a bit in said carrier, screw-threaded means for feeding said bit outwardly of said carrier, and means for locking said carrier in desired position with respect to its recess and said head.

3. A cutter head provided with a cylindrical recess, a cylindrical bit carrier therein and comprising a main portion having inclined projections thereon, a bar similarly provided and bearing on said projections, means for adjusting said bar, a bit, and a segmental member holding said bit to said main portion.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HAROLD HATHAWAY PLUMMER.

Witnesses:

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STANLEY J. SMITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."