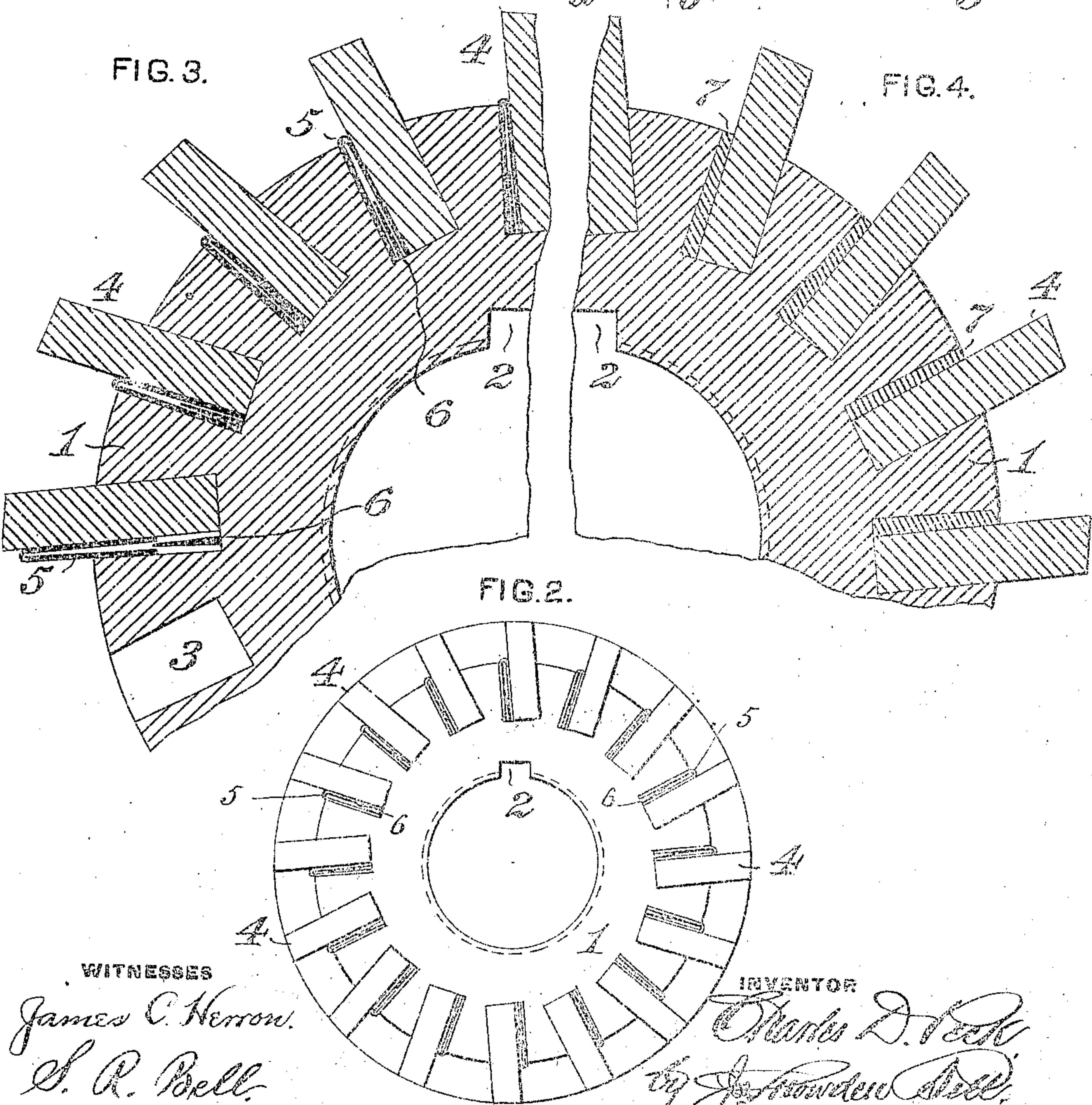
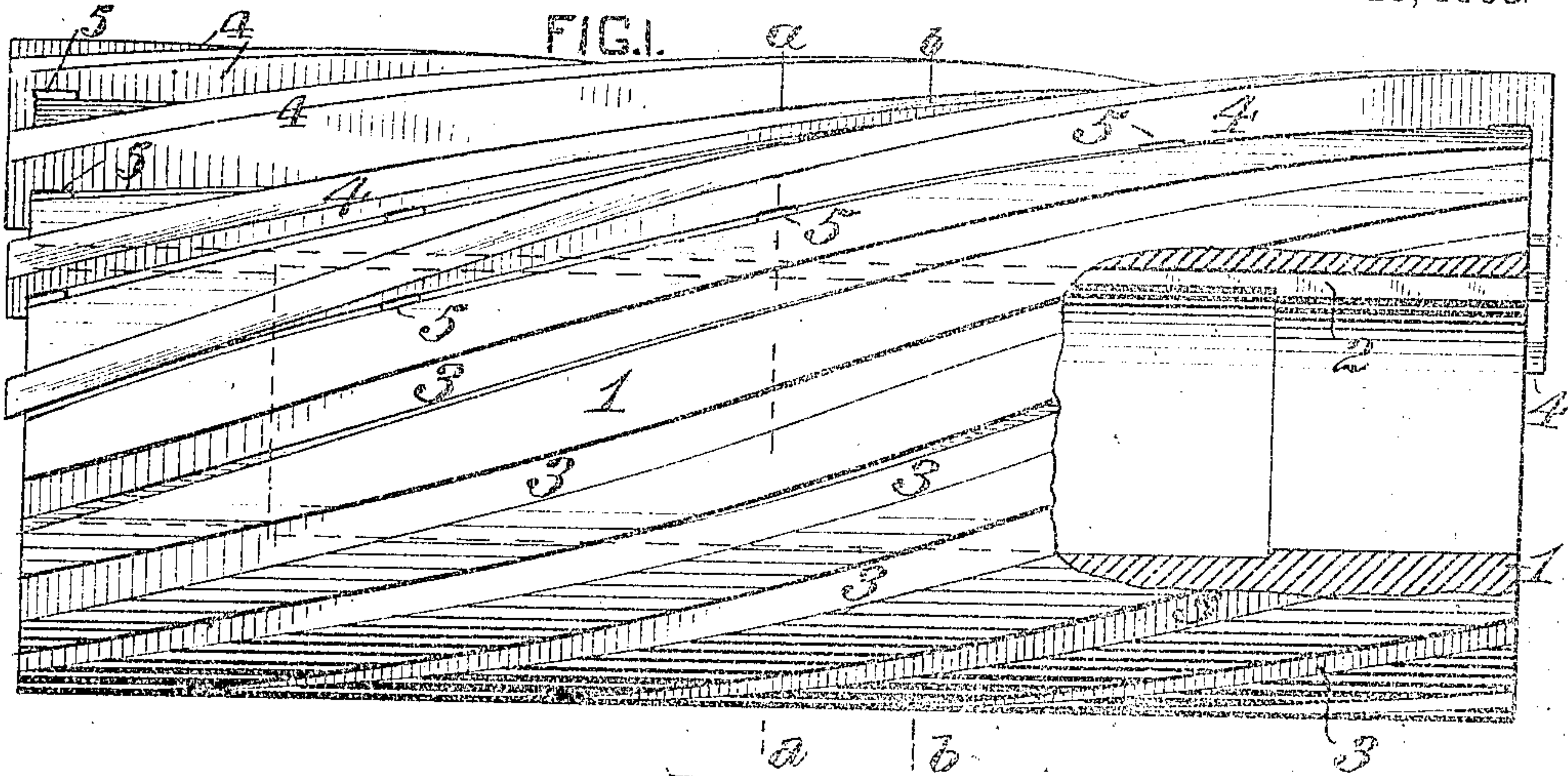


C. D. PECK.
MILLING CUTTER.

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903,496.

Patented Nov. 10, 1908.



WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES D. PECK, OF BELLEVUE, PENNSYLVANIA.

MILLING-CUTTER.

No. 903,496.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed April 8, 1907. Serial No. 367,930.

To all whom it may concern:

Be it known that I, CHARLES D. PECK, of Bellevue, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Milling-Cutters, of which improvement the following is a specification.

My invention relates to milling cutters of the inserted tooth type, and its object is to provide an appliance of such type which will enable the full power of the heaviest cut to be applied directly to the removal of material, and in which the cutters shall be of simple and inexpensive construction, and be connected to the head in such manner as to be readily insertible and removable, and to be firmly held in position during operation without liability to breakage or to vibration or chattering.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawing: Figure 1 is a view, partly in side elevation and partly in longitudinal central section, of a milling cutter embodying my invention, some of the cutters being removed, to show the grooves more clearly; Fig. 2, an end view, in elevation, of the same; and, Figs. 3 and 4, partial transverse sections, on an enlarged scale, at the lines *a a* and *b b*, respectively, of Fig. 1.

In the practice of my invention, I provide a cutter head, 1, which is formed of suitable metal, as soft steel, and is turned to cylindrical form and bored out to fit upon a shaft, a longitudinal key way, 2, being cut in its bore to receive a key by which it is secured to the shaft. The cutter head is then mounted upon a mandrel, and a plurality of helical grooves, 3, cut in its periphery, in which correspondingly forced cutters, 4, are inserted and secured, as presently to be described. The front or leading sides of the cutter grooves are substantially radial, and the rear sides thereof are slightly undercut, or inclined forwardly from radial lines, so that the bottoms of the grooves are slightly wider than their tops, and the bottoms of the grooves are also normal, or at right angles, to their rear sides, so that, when the cutters are inserted and secured in position, they will have a forward rake or shear.

A cutter, 4, is inserted in each of the grooves, 3, the cutters being made of bars of steel, of substantially rectangular section, and of greater length than the grooves, so

as to project at their ends therefrom, which bars are bent to helical form, in correspondence with the grooves, before insertion therein, thus eliminating machine work on the cutters. Each of the cutters is fitted in its groove with its rear side abutting against the rear side of the groove, and is secured removably therein by suitable fastening devices, consisting, in the instance herein shown, of clamps or insets, 5, and expanding wedges, 6, which are located at intervals in the spaces between the leading sides of the cutters and the adjacent sides of the grooves, the insets, 5, being rectangular pieces of sheet steel, bent or doubled into U section, and the wedges, 6, fitting in the open ends of the insets. A wedge is inserted in each inset, and the two members are then inserted in the space between the leading side of a cutter and the adjacent side of a groove and driven down therein, thereby forcing the wedge into, and expanding, the inset, and holding the cutter firmly against the back of the groove. The four upper insets and wedges of Fig. 3, are shown in the positions which they occupy when driven home and holding the cutter in position, and the lowest cutter and wedge of the same figure are shown as in their positions when first inserted in the groove, and before being driven down therein.

After the cutters, 4, have been inserted in the grooves, 3, and the fastening insets, 5, driven home upon the wedge, 6, the longitudinal spaces in the grooves between the insets are filled with a suitable soft metal alloy, 7, and the filling and insets calked up solid. The purpose of the soft metal alloy filling is to fix the cutters firmly and solidly in their grooves, and thereby to effectually prevent vibration and chattering, and not to hold the cutters in place, this latter function being performed by the fastening insets and wedges. The cutters may be readily removed when desired by knocking them out through the application of force to one of their overhanging or projecting ends.

All the cutters having been fixed in place in the grooves, and the filling and insets calked up solid, as above described, the cutter head is mounted on an arbor, and the cutting edges of the cutters, 4, are ground in an ordinary lathe, so that the cutting edges and cutters may be all in perfectly true alinement, all points in the cutting edges

being at the same distance radially from the axial line of the cutter head, so that, in removing material, the strain of the work is uniformly distributed throughout the entire extent of the cutting edges and cutters.

I claim as my invention and desire to secure by Letters Patent:

1. The combination, in a milling cutter, of a helically undercut grooved cutter head, a helical cutter extending longitudinally in said groove of the cutter head and abutting against one side of the groove, and a plurality of expansible fastening devices interposed between the cutter and the other side of the groove.

2. The combination, in a milling cutter, of a helically grooved cutter head, a helical cutter extending longitudinally in a groove of the cutter head, a plurality of fastening devices interposed between the cutter and one side of the groove, and a metal filling in the groove spaces between the fastening devices.

3. The combination, in a milling cutter, of a grooved cutter head, a cutter extending longitudinally in an undercut groove of the

cutter head, fastening insets interposed between the cutter and one side of the groove, and expanding wedges fitting in the fastening insets.

4. The combination, in a milling cutter, of a helically grooved cutter head, a helical cutter extending longitudinally in an undercut groove of the cutter head, fastening insets interposed between the cutter and one side of the groove, expanding wedges fitting in the fastening insets, and a metal filling in the groove spaces between the fastening insets.

5. The combination, in a milling cutter, of a cutter head having a peripheral groove of greater width at its bottom than at its top, a helical cutter extending longitudinally in said groove and abutting against one side thereof, and a plurality of expansible fastening devices interposed between the cutter and the opposite side of the groove.

CHARLES D. PECK.

Witnesses:

JAMES PARTINGTON,
JESSE R. ROBINSON.