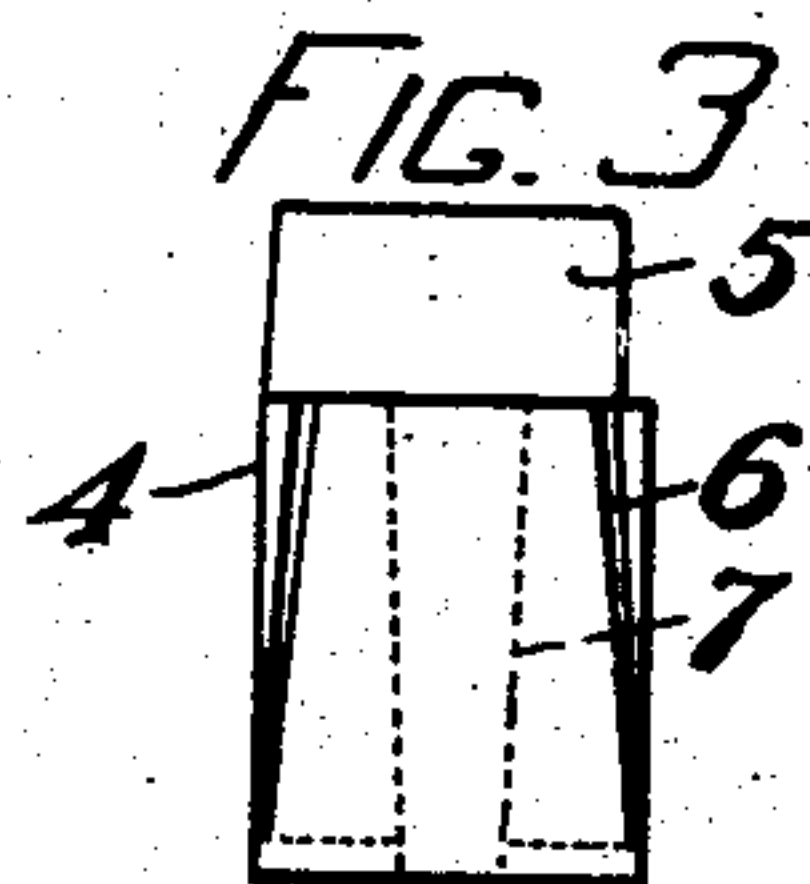
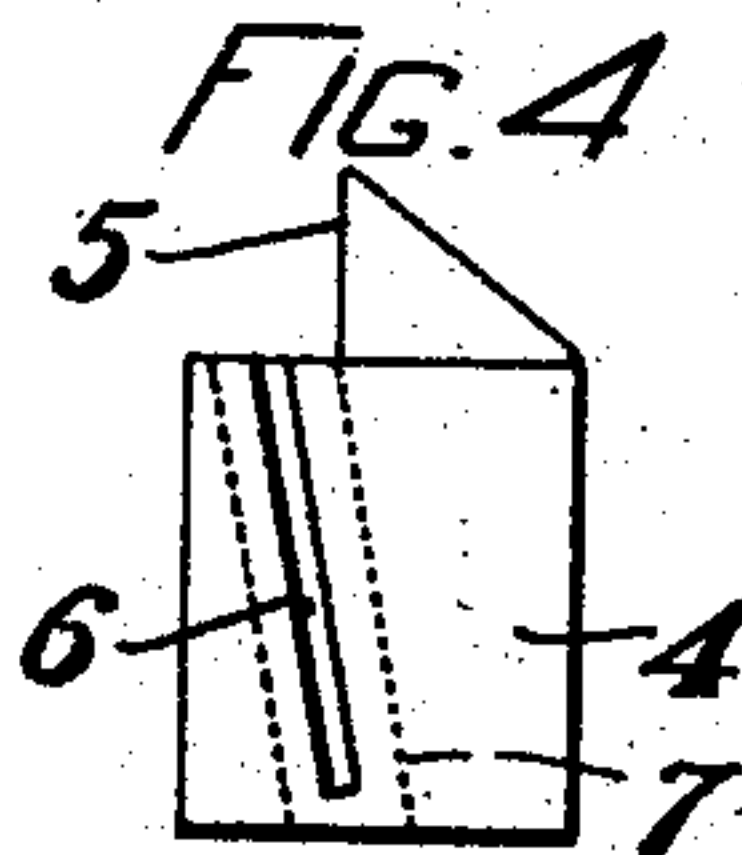
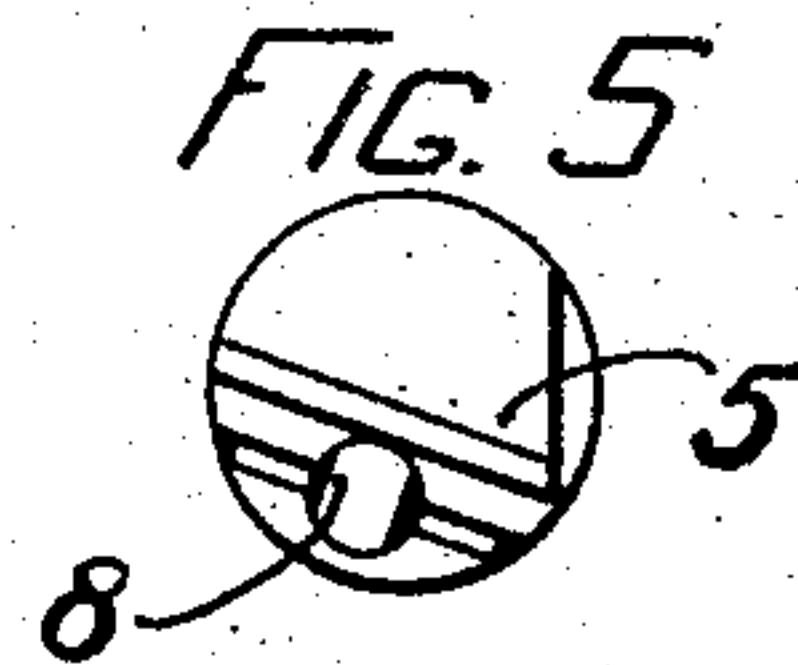
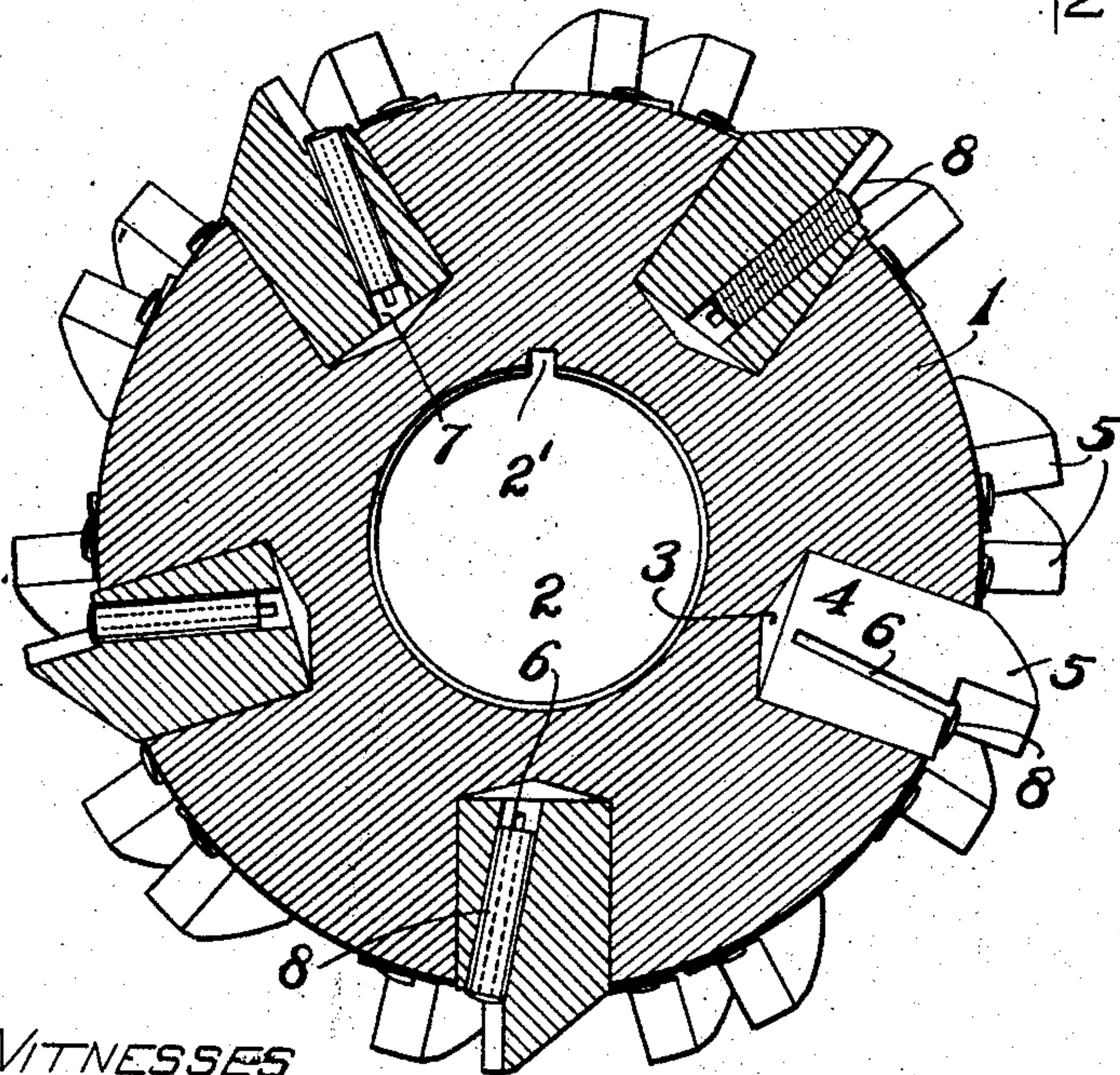
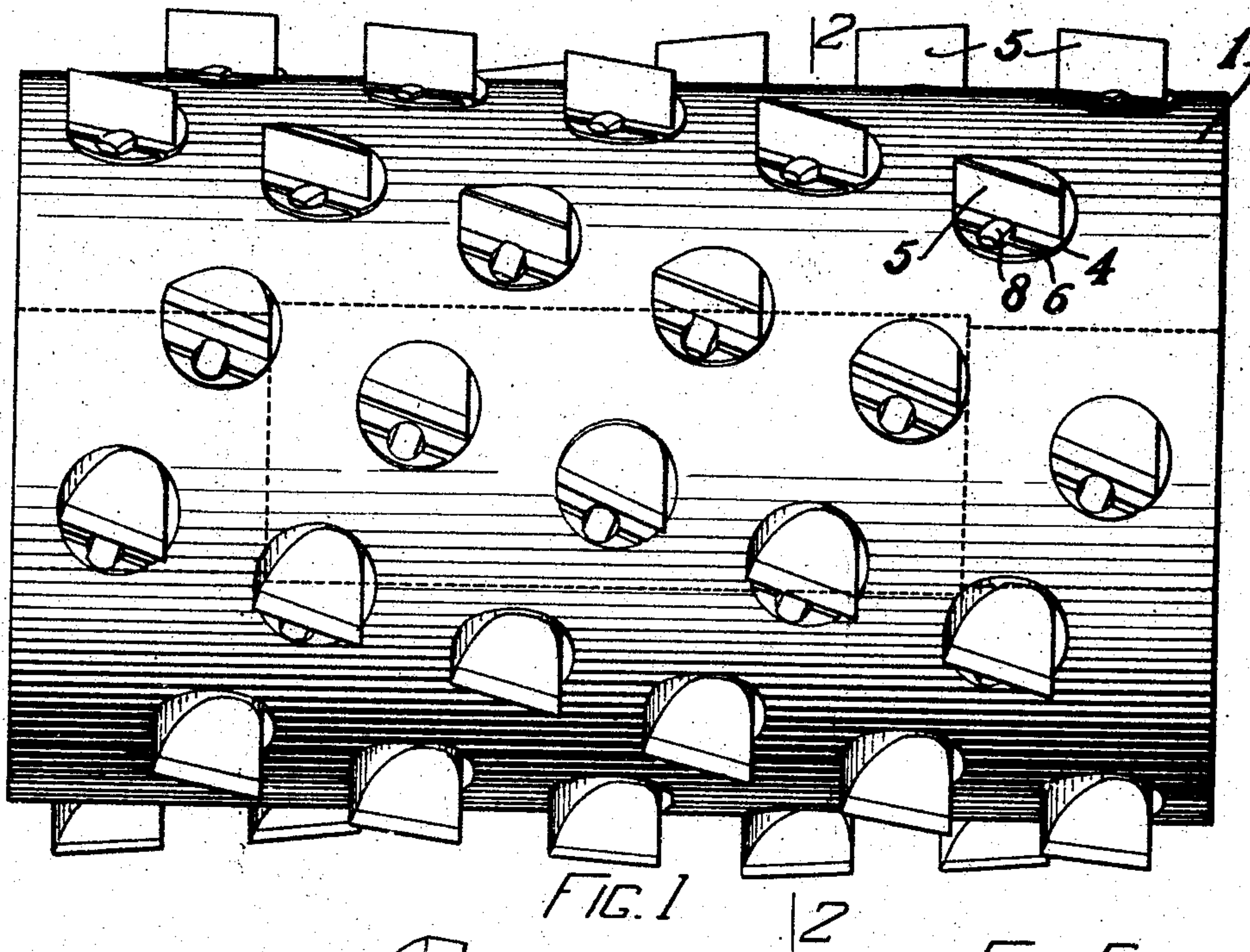


S. MacKAY.
SLAB MILLING CUTTER.
APPLICATION FILED JULY 28, 1910.

994,264.

Patented June 6, 1911.



WITNESSES
L. D. Goodwin.
R. B. Elms.

INVENTOR
SIMON MacKAY
BY *Edw. Sprague*
ATTY.

UNITED STATES PATENT OFFICE.

SIMON MACKAY, OF ATHOL, MASSACHUSETTS, ASSIGNOR TO UNION TWIST DRILL CO.
OF ATHOL, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

SLAB-MILLING CUTTER.

994,264.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed July 28, 1910. Serial No. 574,344.

To all whom it may concern:

Be it known that I, SIMON MACKAY, a citizen of the United States, residing at Athol, county of Worcester, Commonwealth of Massachusetts, have invented certain new and useful Improvements in Slab-Milling Cutters, of which the following is a specification.

This invention relates to cutters, and particularly to a removable tooth slabbing cutter.

In cutters of this type, as well as in various other forms of toothed cutters, it is desirable that the teeth be removable so that they may be replaced in case of breaking or damage to a part of the teeth of the tool. The provision of a readily removable tooth, however, involves difficulties both as to the strength of the teeth thus inserted and also as to the facility with which such teeth may be removed or replaced without affecting the efficiency of the tooth structure.

It is the object of my present invention to provide a cutter with teeth which may be easily inserted or removed and at the same time to have such teeth of a construction which will afford a maximum effectiveness.

In the accompanying specification I have set forth a construction which is well adapted to this end and which I have found effective in practical use. The illustrative embodiment thus described I have illustrated in the drawings which form a part of the specification, reference to the various parts being had through the medium of numerals similarly employed throughout.

In the drawings:—Figure 1 is a view of my cutter, Fig. 2 is a sectional view of the cutter with teeth in place, Fig. 3 is a front view of a tooth, Fig. 4 is a side view of a tooth looking from the right of Fig. 3, and Fig. 5 is a plan view of a tooth.

The body 1 consists of a cylinder having a suitable bore 2 adapted to receive a spindle or shaft upon which it may be keyed through the slot 2'. About the surface of the body 1 are drilled a plurality of radial sockets 3 set in spiral rows, which are preferably on about an angle of twenty degrees of spiral. The successive rows of sockets are preferably arranged so as to be uncovered by the arrangement of the row in front of them. In each of the sockets 3 is set a tooth which consists of a cylindrical tooth

butt 4 upon the upper end of which is formed a cutting blade 5 by grinding away the stock to leave a portion which is pointed substantially by the vertical plane on the lines of an inscribed angle. This affords a blade with a broad forward face which preferably lies on the line of the diameter of the tooth and a lateral face ground back on the line of a shorter intersecting chord, thus forming an acute angle which gives a suitable lateral relief. The blade is also ground back, as shown in Fig. 4, to give a rearward relief. The butt 4 is sawed nearly through, as indicated at 6, and is also drilled, to form a cylindric enlargement, as indicated at 7, through the plane of the kerf with a tapered bore, within which a tapered pin oblonged in cross section, as indicated at 8, may be driven to expand the butt 4 when locked within the socket 3. The kerf 6 and the pin hole 7 are inclined to the vertical axis of the tooth so that, although the upper end of the hole 7 and the kerf 6 are off center, they approach substantially to the center of the butt near its bottom. In this way the expansion caused by the driving of the taper pin is delivered more completely within the socket, distributing the excess of expansion which would otherwise occur near the top of the tooth more evenly along the length of the turn embedded in the socket. As the taper pin 8 is oblong in cross section it may be readily removed by boring it centrally with a drill of substantially its lesser diameter which will permit the remaining portions of the wedge to collapse and allow the wedge and tooth to be readily withdrawn when it is desired to replace the same. This construction of taper pin or wedge is very convenient as it does not bring the drill into contact with the harder metal of the tooth which is usually of high speed steel.

In arranging the teeth on the cutter, I find it desirable to have their forward faces disposed along the line of the spiral of the sockets and for this reason prefer to make the angle between the front face and the side face of the cutting blade about sixty-seven degrees when the teeth are disposed at a twenty degree angle of spiral as this affords a proper amount of clearance.

A cutter constructed as above specified would not only be a highly efficient tool in

operation but is one in which the teeth may be readily removed and replaced without delay and without damage to the rest of the cutter.

- 5 Various modifications may, of course, be made in the construction of the cutter teeth and in the manner of fastening them in, all without departing from the spirit of my invention if within the limits of the ap-
10 pended claims.

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

1. A removable tooth for a cutter comprising, a butt and a blade at one side of its
15 upper end, said butt being split longitudinally outside said blade and having an enlargement adapted to receive a tapered wedge.

2. A removable tooth for a cutter comprising, a butt and a blade at one side of its
20 upper end, said butt being split longitudinally outside said blade and having an enlargement adapted to receive a tapered wedge, said recess being inclined to bring

its lower end toward the middle of the butt. 25

3. A blade for a cutter of the class described comprising, a cylindric tooth-butt having its upper end ground back on two sides to form a cutting blade, said butt hav- 30
ing a longitudinal bore communicating with lateral kerfs to receive a taper pin to expand the butt.

4. In a cutter of the class described, a body having a radial socket therein, a cut- 35
ter comprising a butt and a blade at one side of its upper end, said body being located in said socket and being split longitudinally outside of said blade and having a cylin- 40
dric enlargement and a wedge in said enlargement and flattened upon two opposite sides to facilitate boring for removal.

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

SIMON MacKAY.

Witnesses:

JOHN W. BOYNTON,
C. STANLEY NEWTON.