

No. 749,624.

PATENTED JAN. 12, 1904.

P. B. McCULLOUGH.

DENTAL BURR.

APPLICATION FILED DEC. 15, 1902.

NO MODEL.

Fig. 7.

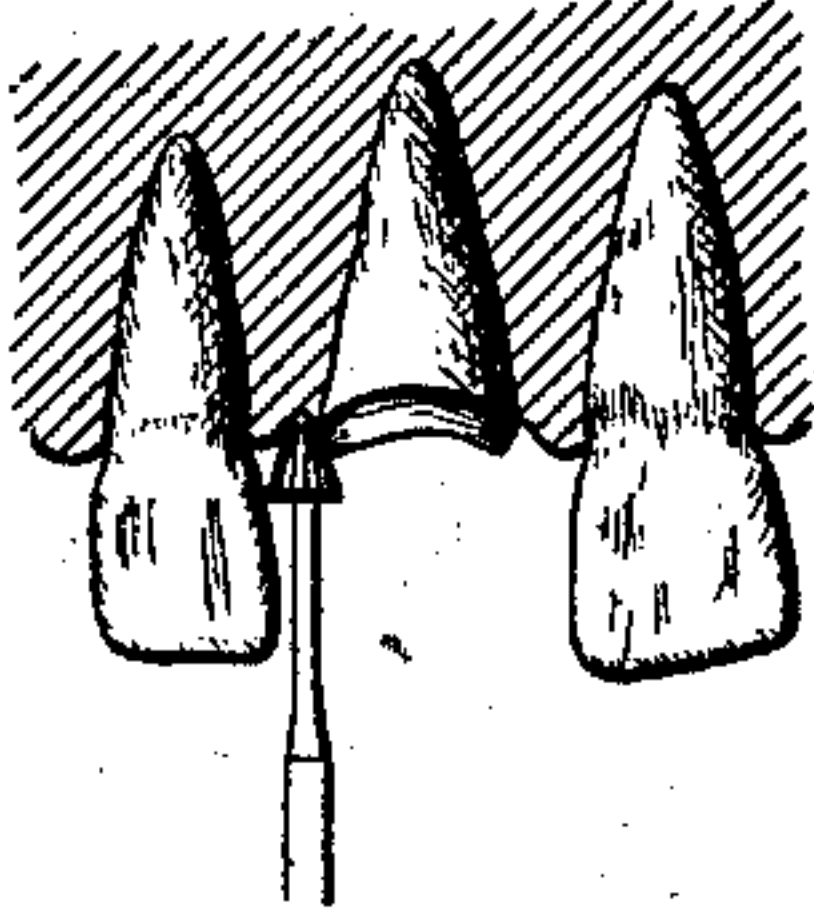


Fig. 1.

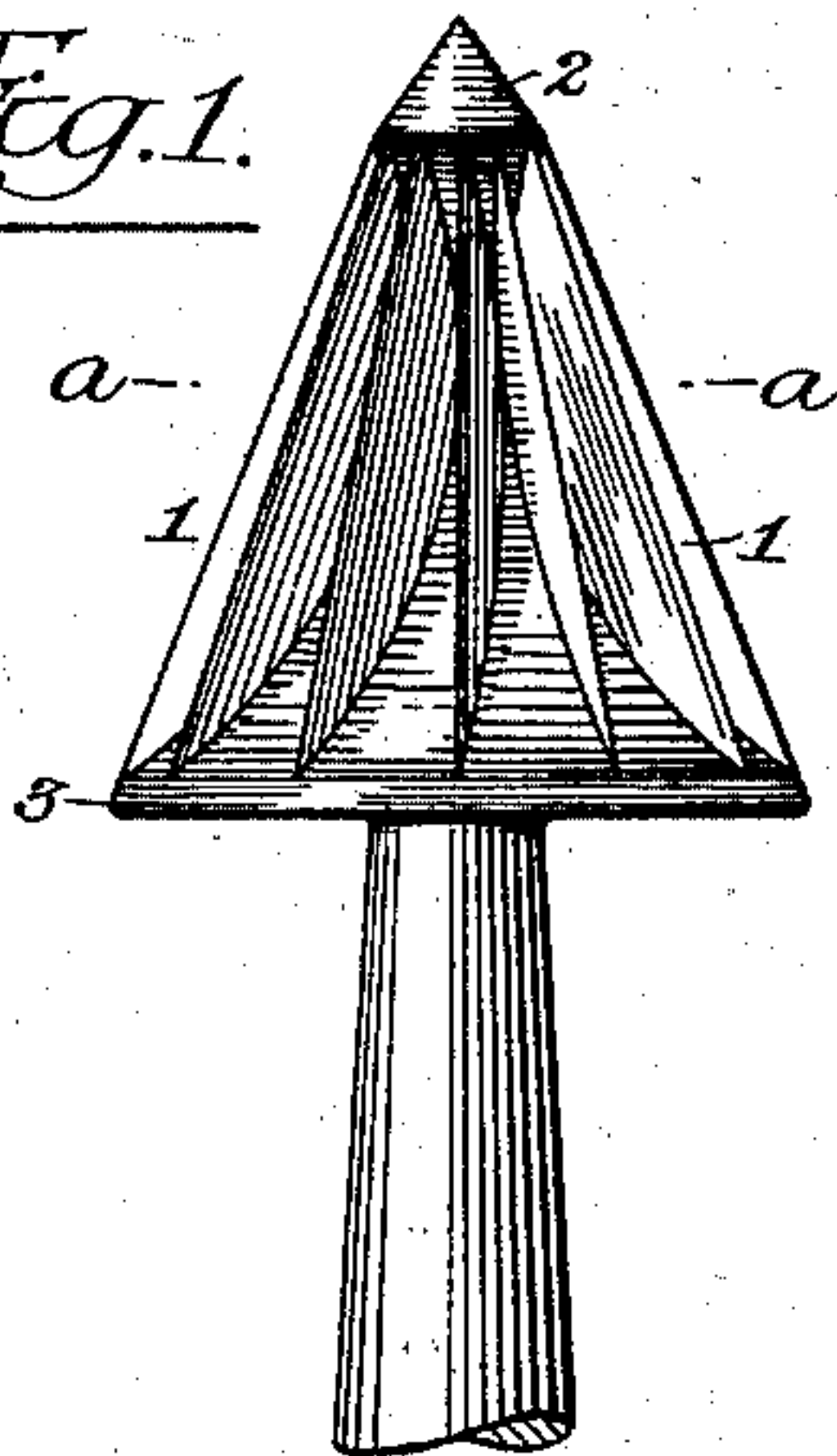


Fig. 2.

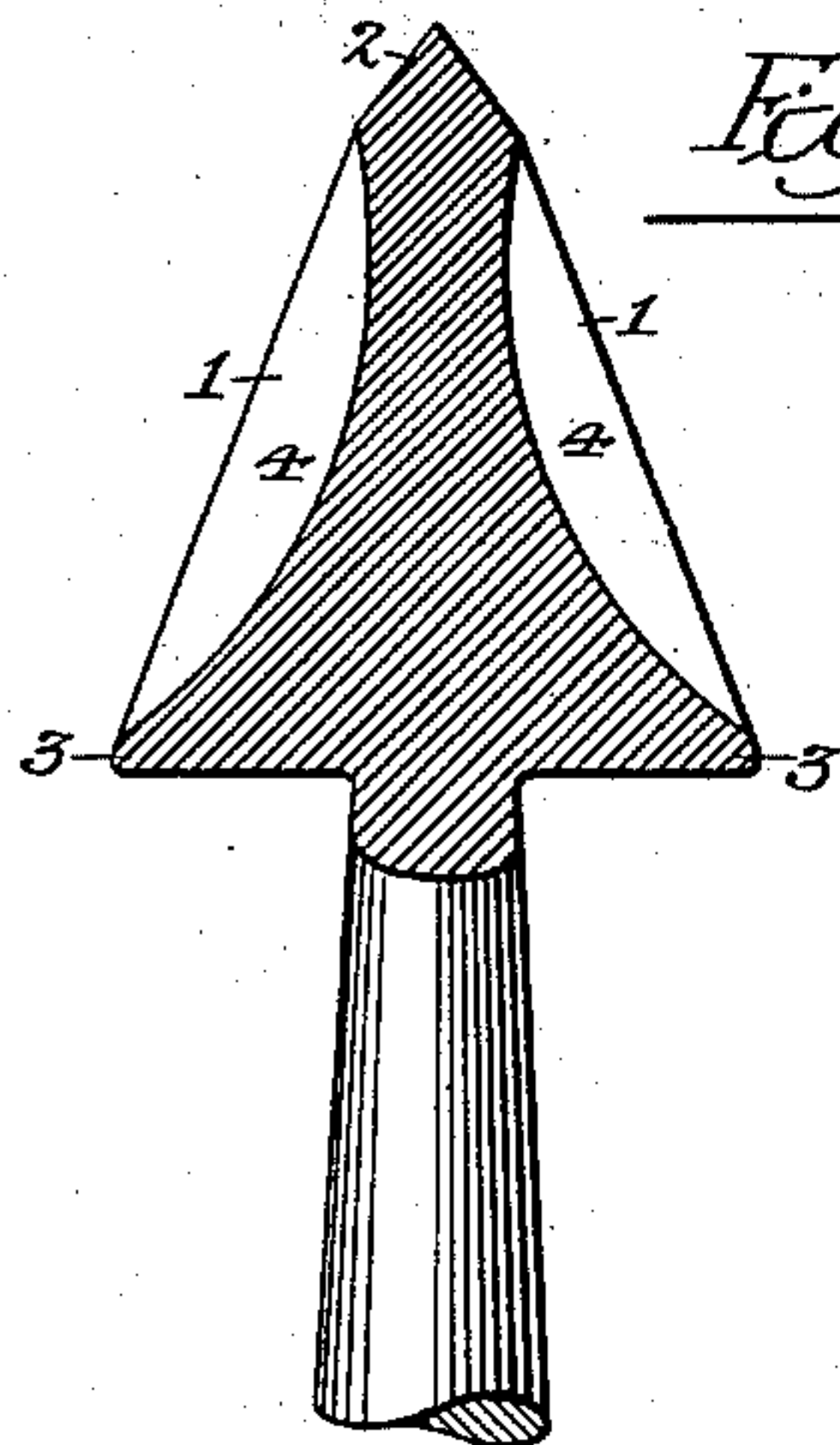


Fig. 3.

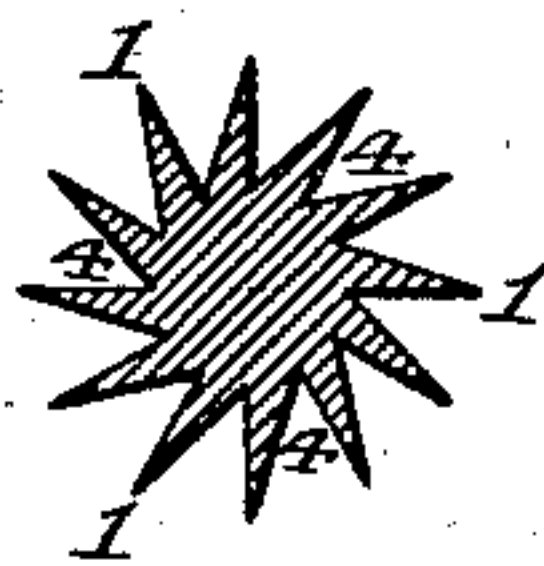


Fig. 4.

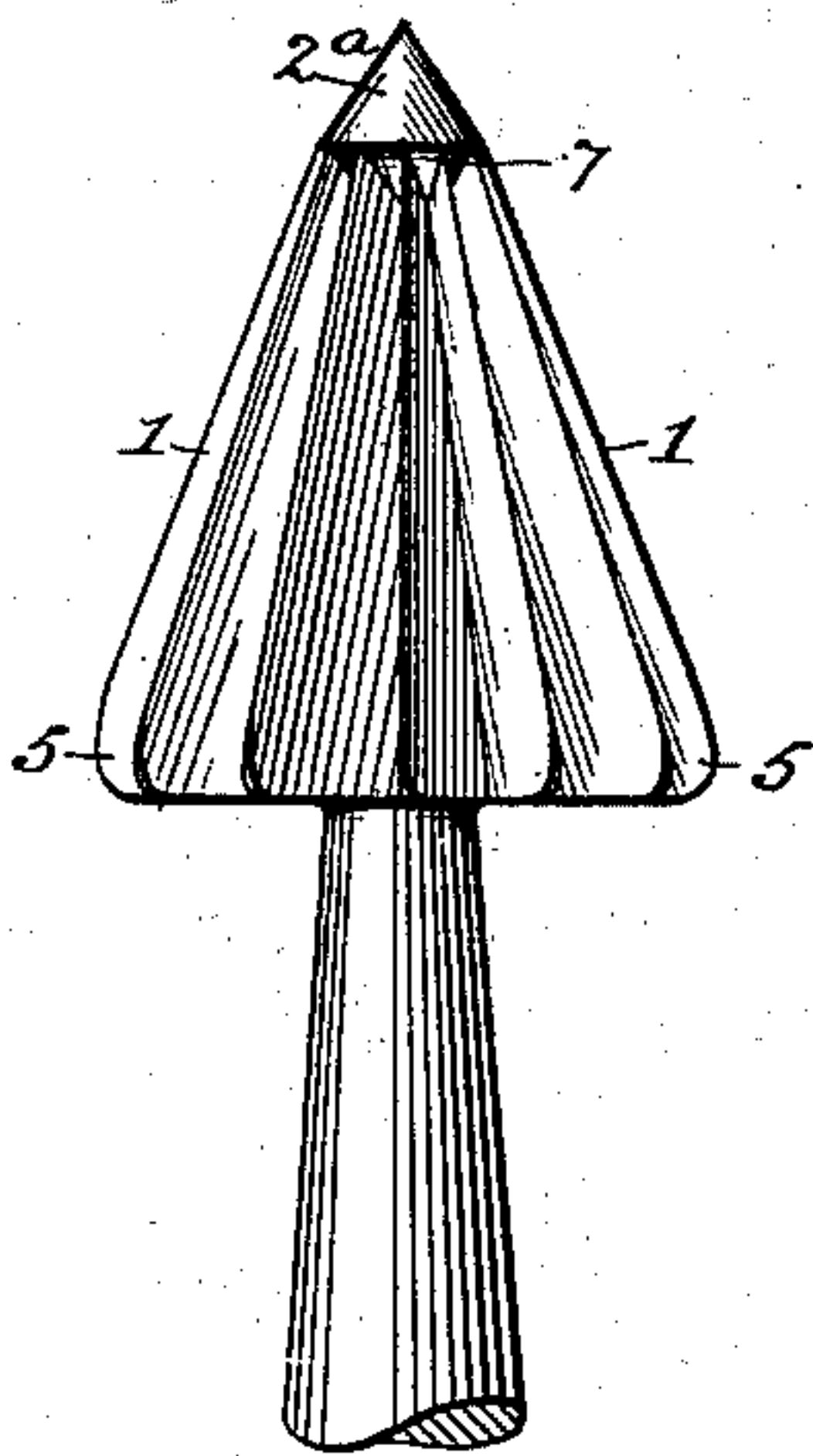


Fig. 5.

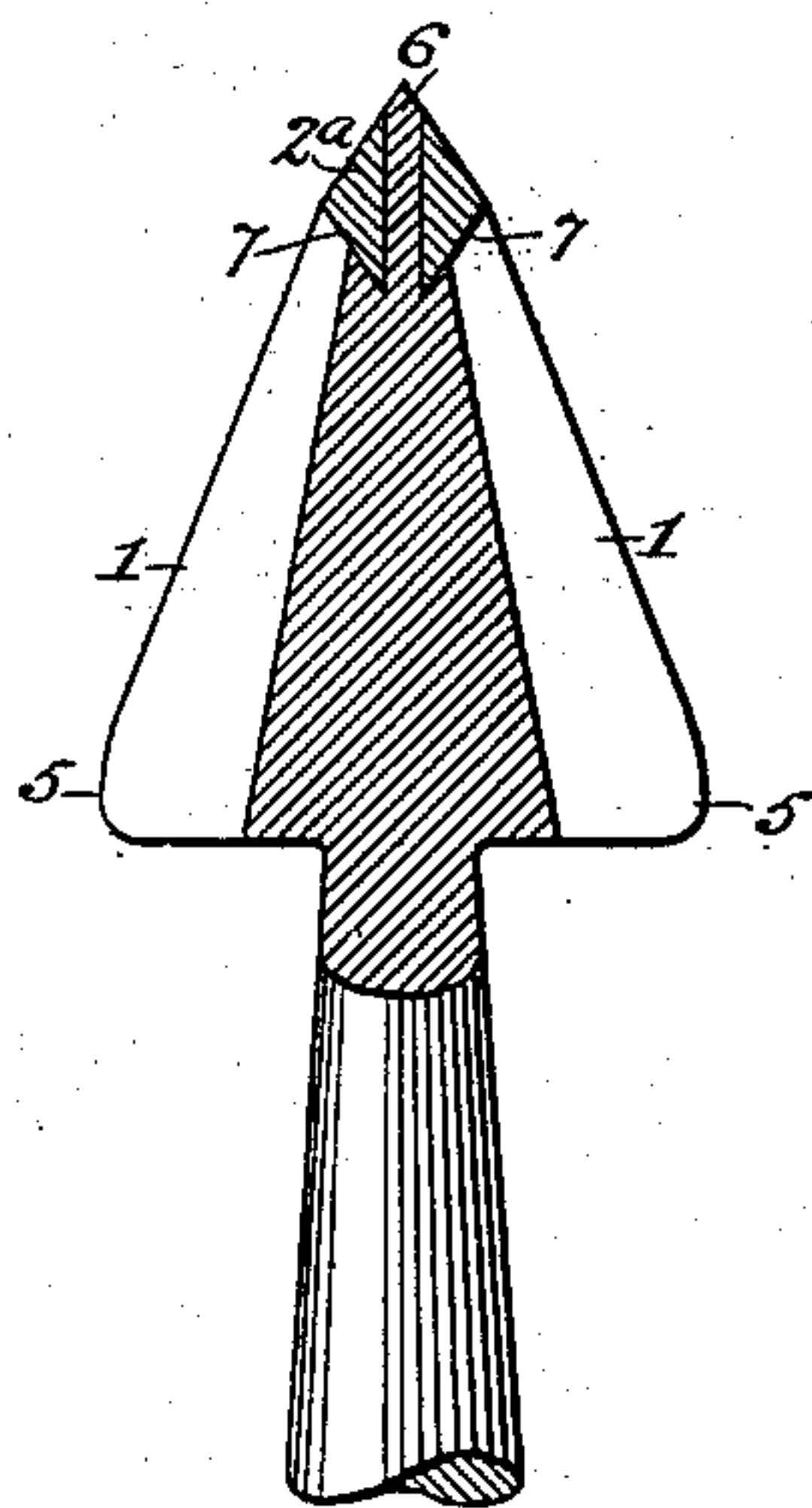
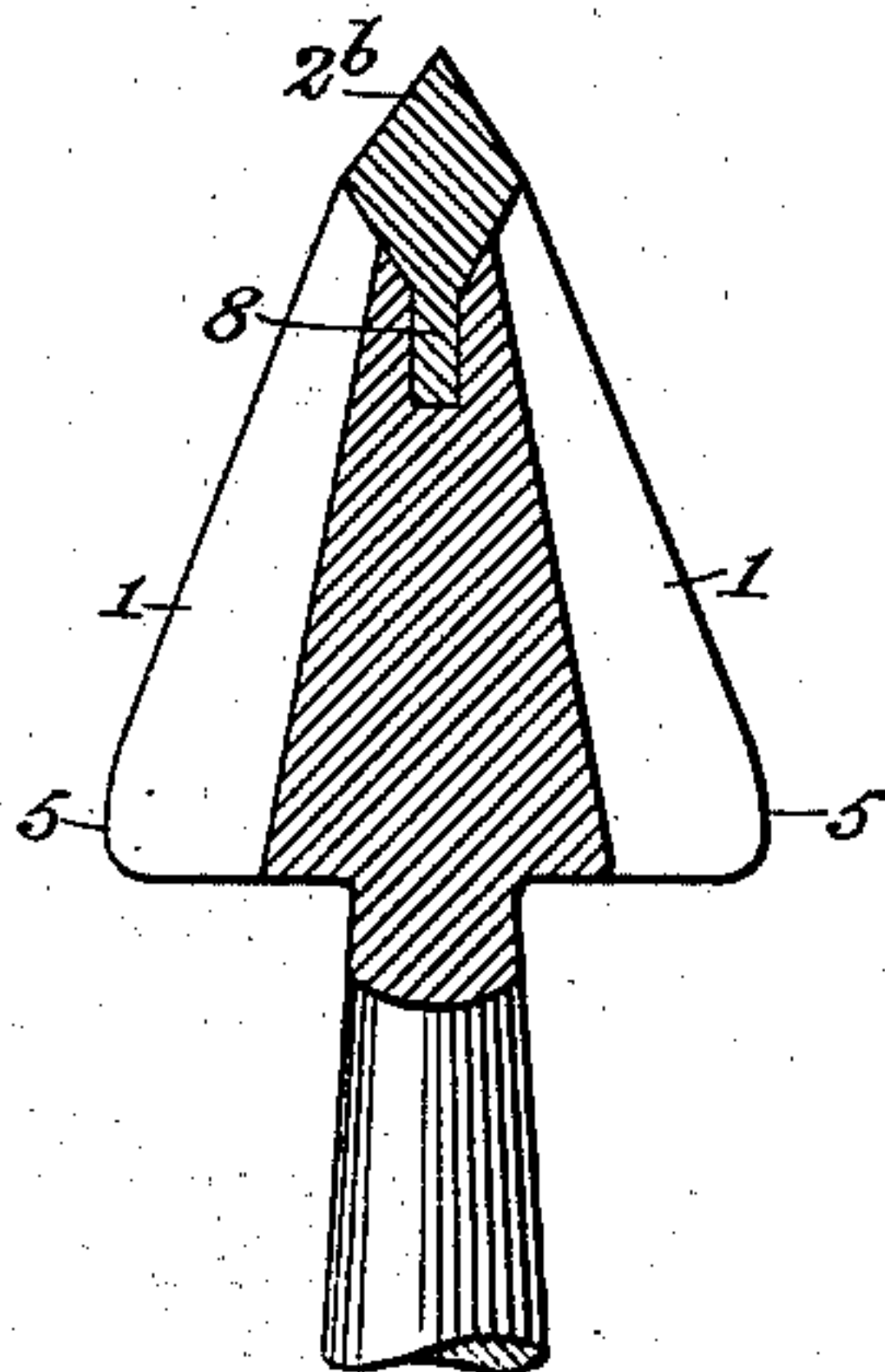


Fig. 6.



Witnesses:-

Herman E. Metrus.
Chas. W. Bon.

Inventor:-

Percy B. McCullough,
by his Attorneys;
Howard Howard.

UNITED STATES PATENT OFFICE.

PIERCY B. McCULLOUGH, OF PHILADELPHIA, PENNSYLVANIA.

DENTAL BUR.

SPECIFICATION forming part of Letters Patent No. 749,624, dated January 12, 1904.

Application filed December 15, 1902. Serial No. 135,266. (No model.)

To all whom it may concern:

Be it known that I, **PIERCY B. McCULLOUGH**, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
 5 Improvements in Dental Burs, of which the following is a specification.

The object of my invention is to provide a dentist with an instrument wherewith to cut
 10 a bevel upon a natural tooth-root in the mouth after the natural crown has been removed and the face of the root prepared preliminary to making an artificial crown. The instrument
 15 is similar to an ordinary dental cone-bur; but is specially constructed to limit the depth of cut and to prevent injury to the gums and to the teeth adjoining the root which is being
 operated upon.

In the accompanying drawings, Figure 1 is a side view of the conoidal dental bur constructed in accordance with my invention.
 20 Fig. 2 is a longitudinal section of the same. Fig. 3 is a sectional plan view on the line *a a*, Fig. 1. Fig. 4 is a side view of another form of bur embodying my invention. Fig. 5 is
 25 a vertical section of the bur shown in Fig. 4. Fig. 6 is a sectional view illustrating another construction of a bur of this class, and Fig. 7 is a view illustrating the use of the instrument.

In beveling the edges of crownless tooth-
 30 roots for the reception of artificial crowns both hand and power actuated instruments have been used; but those heretofore employed have been limited in their application, inaccurate in their operation, and liable to injure the
 35 gums and adjoining teeth. In carrying out my invention, therefore, with the view of overcoming these objections I form a conoidal bur with a cutting portion 1, a blank or non-cutting point 2, and a non-cutting portion 3 at
 40 the base of the bur, such non-cutting point consisting, by preference, of a smooth cone and the non-cutting base consisting of a disk, ring, or collar.

In use the bur fixed in the handpiece of a
 45 dental engine is held with the cutting-blades touching the edge of the otherwise prepared root, the non-cutting point extending between the root and the gum. The revolving bur is pressed laterally against the root until the
 50 edge of said non-cutting point touches the

root, the bur being then guided in the same relative position around the root. (See Fig. 7.)

By reason of the cone shape of the bur only the cutting-surface of the same is in contact
 55 with the edge of the root when the bur is first applied, and the cut is made under pressure until the smooth non-cutting edge of the point of the bur strikes the side of the root, such contact limiting the penetration or depth of
 60 cut of the bur.

The bur has a multiplicity of closely-disposed blades, which follow each other so quickly in their action upon the tooth that all jarring or chattering of the bur during its op-
 65 eration is prevented.

The outline of the cutting portion of the bur fixes the angle of the bevel on the root, and the smooth surface of the point 2 protects the gum from laceration, and in order to form
 70 a well-defined edge at the base of the non-cutting point which shall effectively act as a stop to limit the depth of cut the surface of said point has a sharper incline than the cutting-surface of the bur. The disk 3 at the base of
 75 the cone limits the vertical play of the bur, thus fixing the length of the bevel, and said disk 3 acts as a shield and protects from injury teeth adjacent to the root which is being
 80 operated upon. (See Fig. 7.)

In the bur shown in Figs. 1, 2, and 3 the grooves 4 between the cutting-blades have concave bottoms; but in the burs shown in Figs. 4, 5, and 6 V-shaped grooves between the cutting-blades are formed with their bot-
 85 toms on straight lines, and in these burs also the disk 3 at the base is dispensed with, the free terminal ends of the cutting-blades being rounded, as shown at 5, so as to prevent any cutting action when this portion of the bur
 90 comes in contact with the teeth adjoining the root which is being operated upon.

The non-cutting point of the bur shown in Figs. 1 and 2 is an integral part of the bur, and while this construction may also be adopt-
 95 ed in burs of the character shown in Figs. 4, 5, and 6 the point in such burs can be conveniently made separate from the cutting portion, as shown in said figures.

The bur shown in Figs. 4 and 5 has at the 100

forward end of the cutting portion a countersunk recess with central projecting stem 6, to which is fitted a double-cone point 2^a, the inner cone fitting the countersunk recess in the bur, so as to form beveled shoulders 7 where the point closes the grooves between the cutting-blades, said shoulders providing for the easy and rapid clearance of the debris.

In the construction shown in Fig. 6 the stem 6 is dispensed with, and the double-cone point 2^b has an inwardly-projecting stem 8, adapted to a central recess in the bur.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. The within-described instrument for beveling tooth-roots for the reception of artificial crowns, said instrument consisting of a conoidal bur having a multiplicity of closely-disposed blades, and a non-cutting point constituting a conical continuation of the cutting portion of the bur and whose edge determines the depth of cut of the bur, substantially as specified.

2. A conoidal dental bur having a non-cutting portion at the base of the cone, which non-cutting portion extends outwardly beyond the cutting portion of the bur, substantially as specified.

3. A conoidal dental bur having a non-cutting disk which extends outwardly beyond the cutting portion of the bur at the base of the cone, substantially as specified.

4. A conoidal dental bur having a non-cutting point and a non-cutting portion at the base of the cone, which non-cutting portion extends outwardly beyond the cutting portion of the bur, substantially as specified.

5. A conoidal dental bur having a non-cutting point and a non-cutting disk extending

outwardly beyond the cutting portion of the bur at the base of the cone, substantially as specified.

6. A conoidal dental bur having a non-cutting point forming the apex of the cone and presenting a sharper incline than the cutting-surface of the bur, substantially as specified.

7. A conoidal dental bur having a non-cutting point, and inclined shoulders where said point closes the grooves between the cutting-blades of the bur, substantially as specified.

8. A conoidal dental bur having a non-cutting point, separate from the bur, substantially as specified.

9. A conoidal dental bur having a non-cutting point separate from the bur and forming inclined shoulders where it closes the grooves between the cutting-blades of the bur, substantially as specified.

10. A conoidal dental bur having a countersunk recess in the forward end of its cutting portion, and a non-cutting double-cone point having one of its cones fitted to said recess, substantially as specified.

11. A conoidal dental bur having a non-cutting point separate from the bur, and fitted to a central projecting stem thereon, substantially as specified.

12. A conoidal dental bur having a countersunk recess and central projecting stem, and a non-cutting double-cone point fitted to said stem and recess, substantially as specified.

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

PIERCY B. McCULLOUGH.

Witnesses:

F. E. BECHTOLD,
JOS. H. KLEIN.