

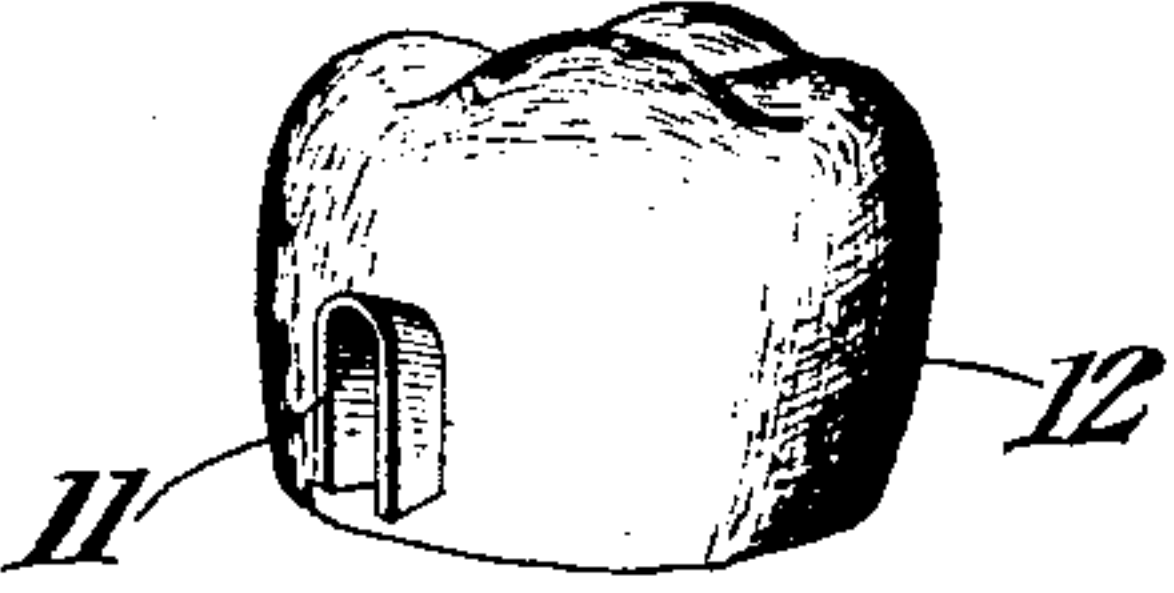
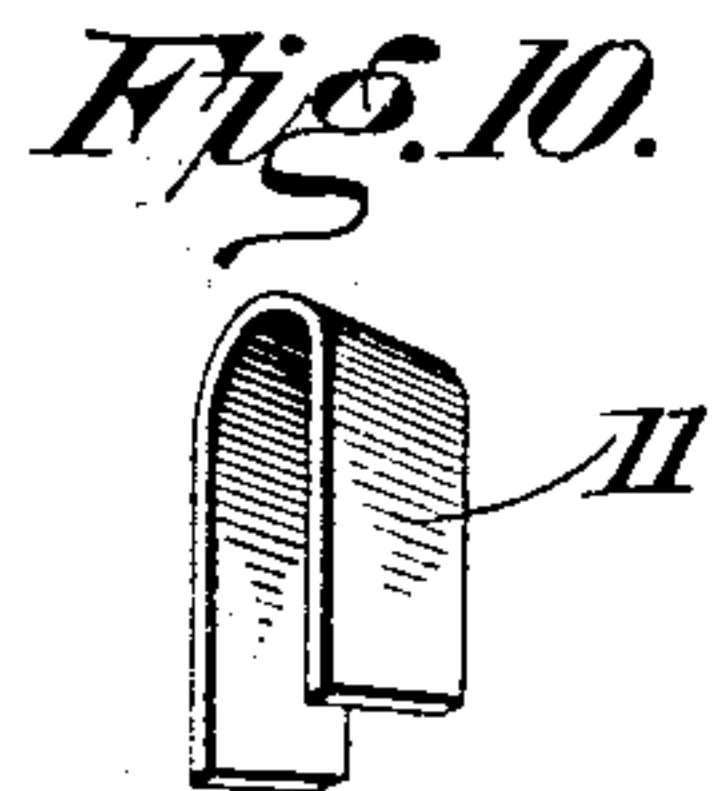
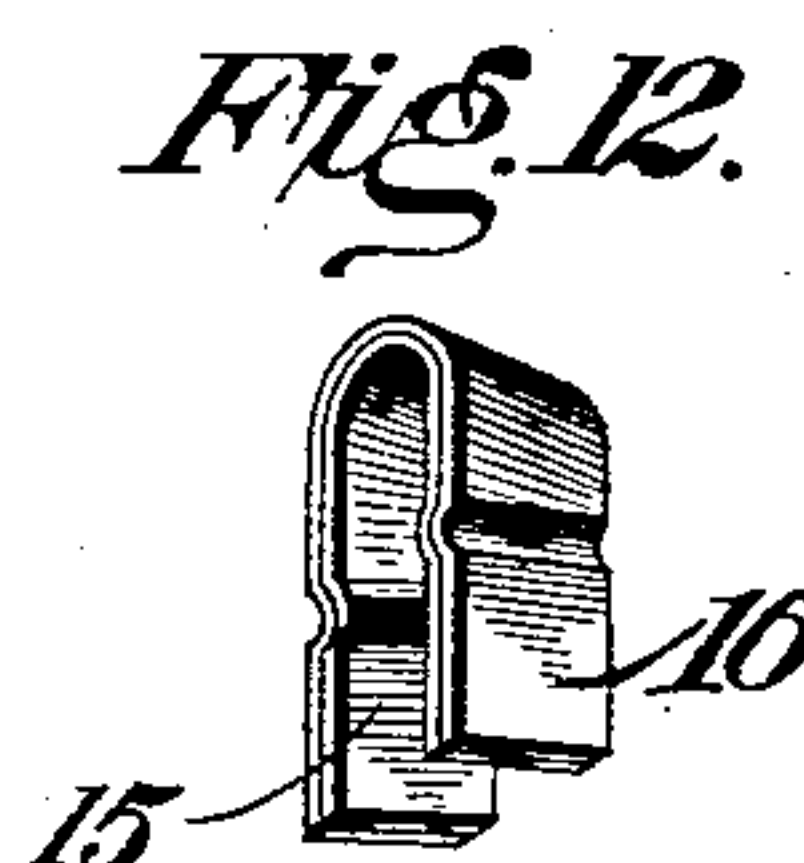
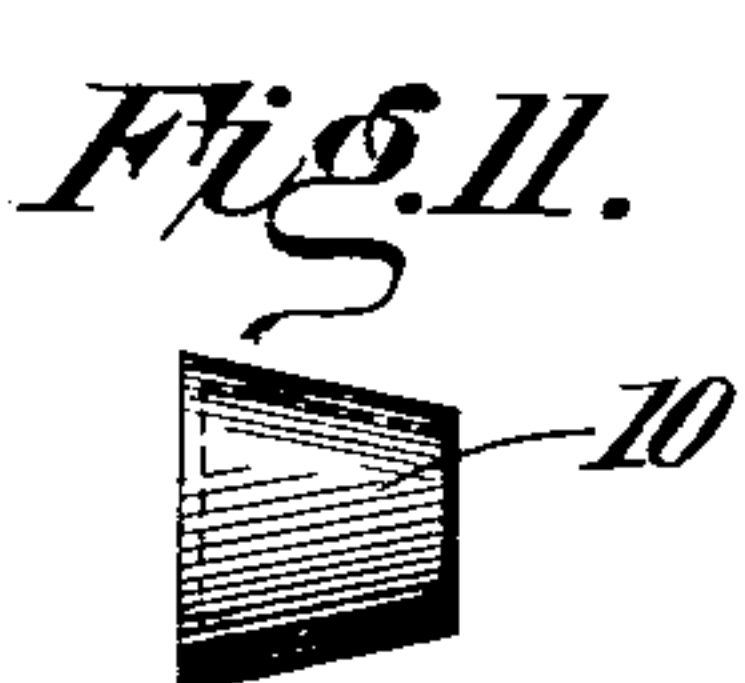
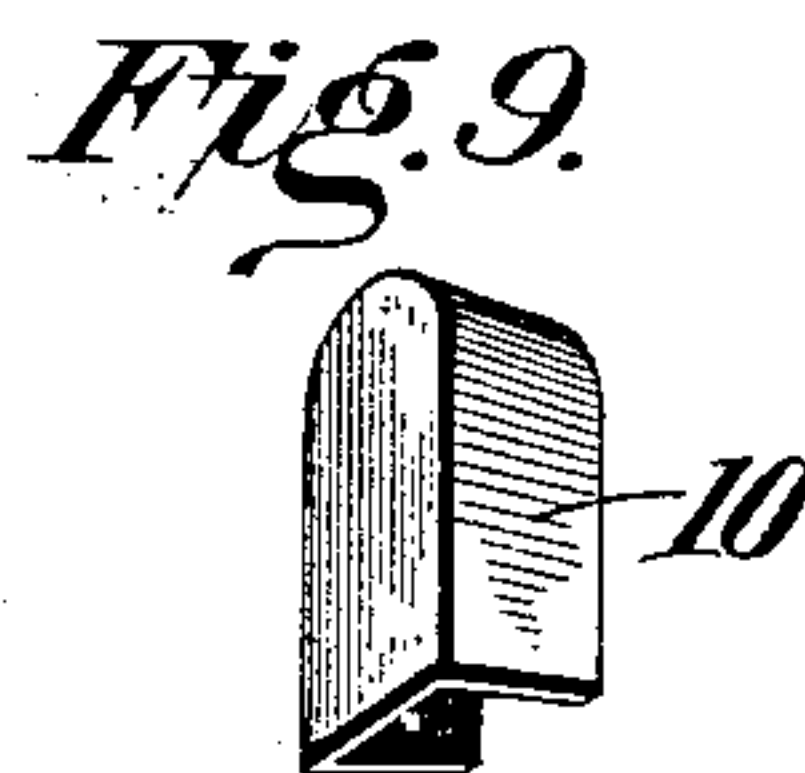
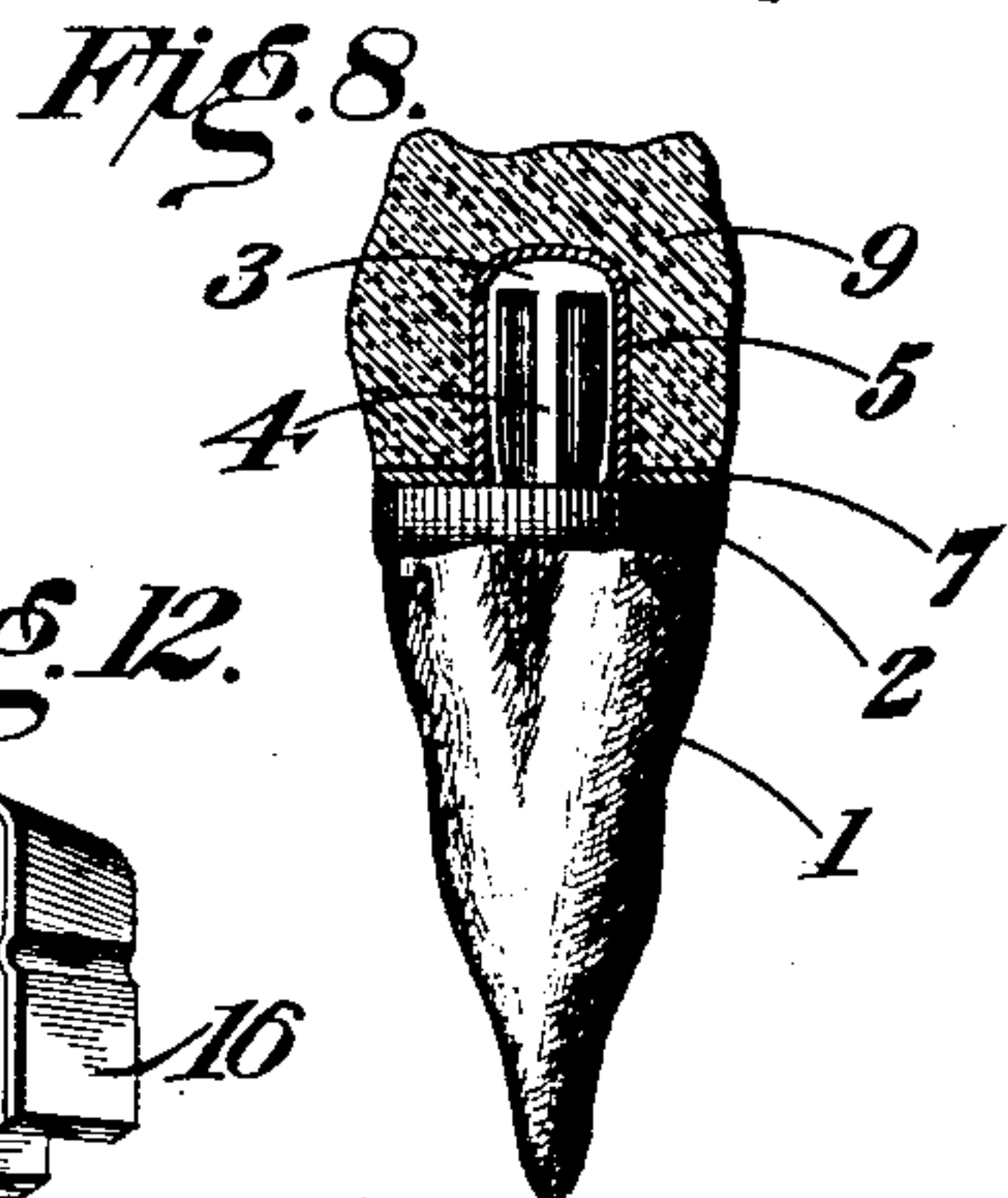
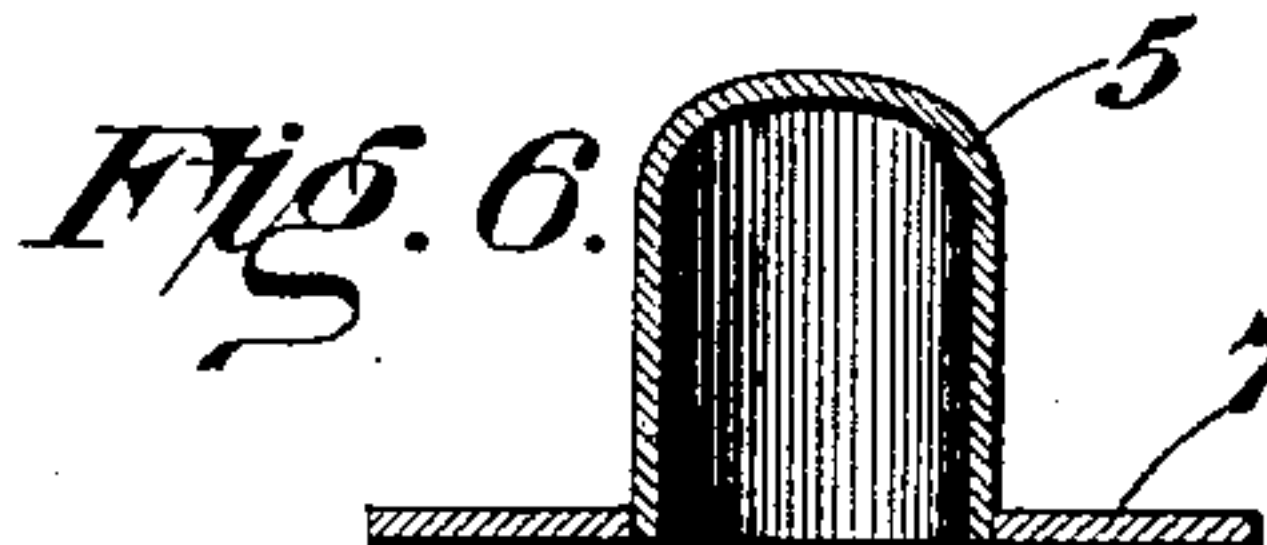
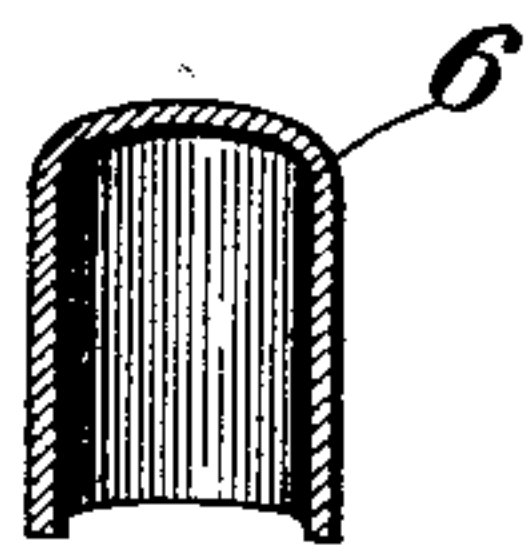
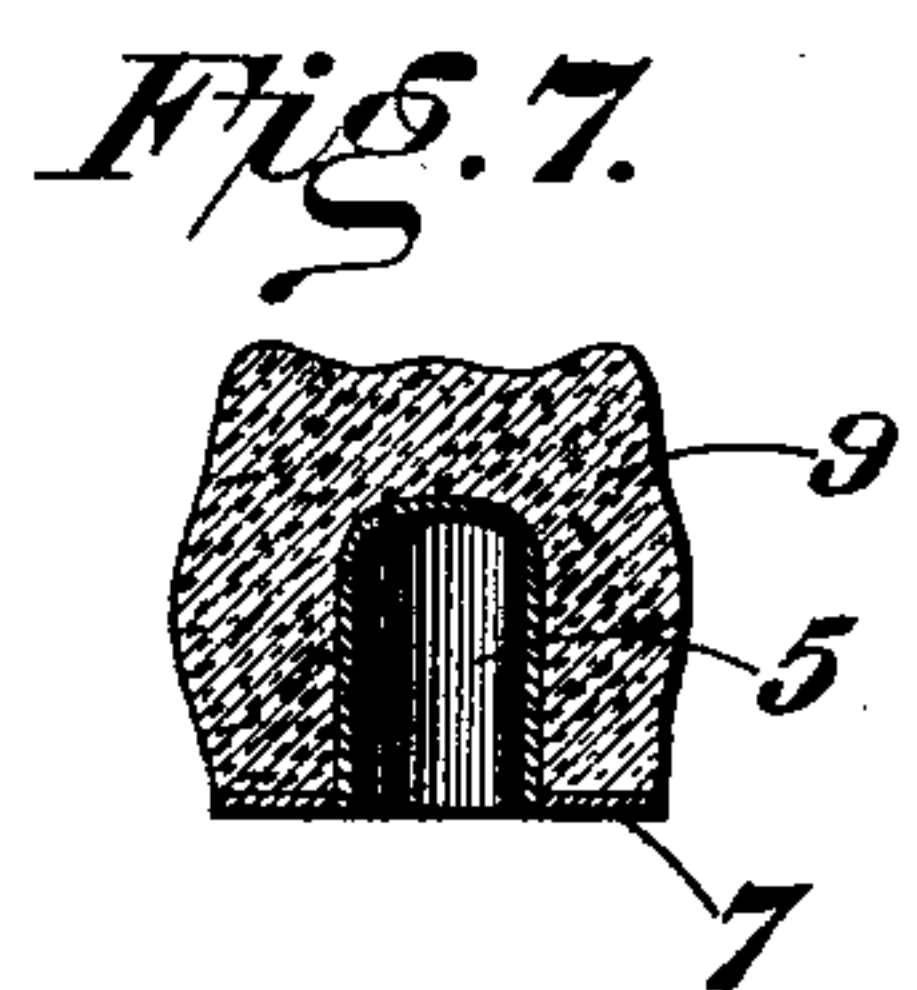
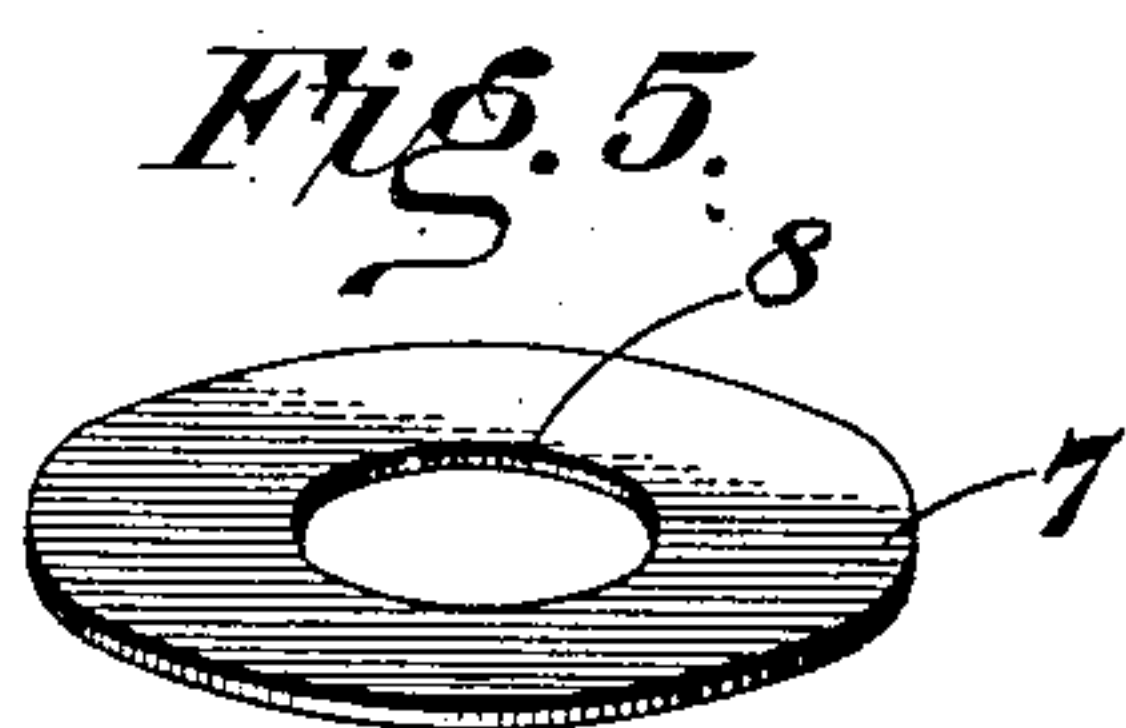
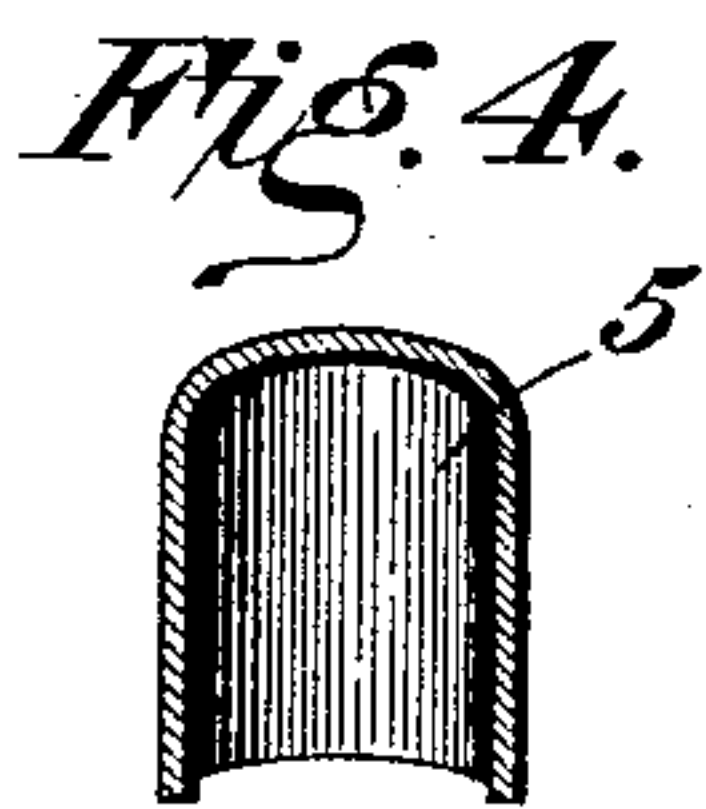
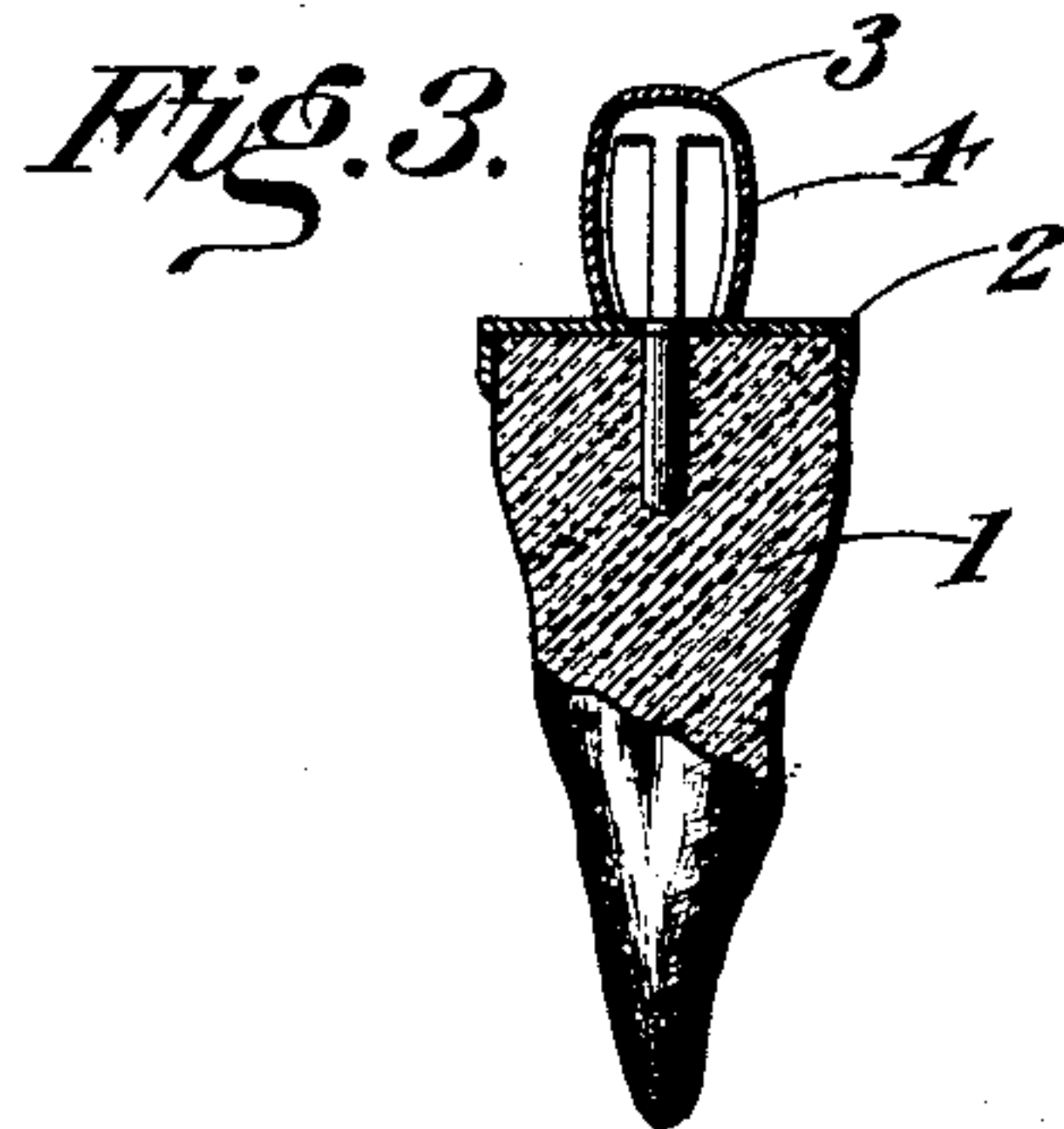
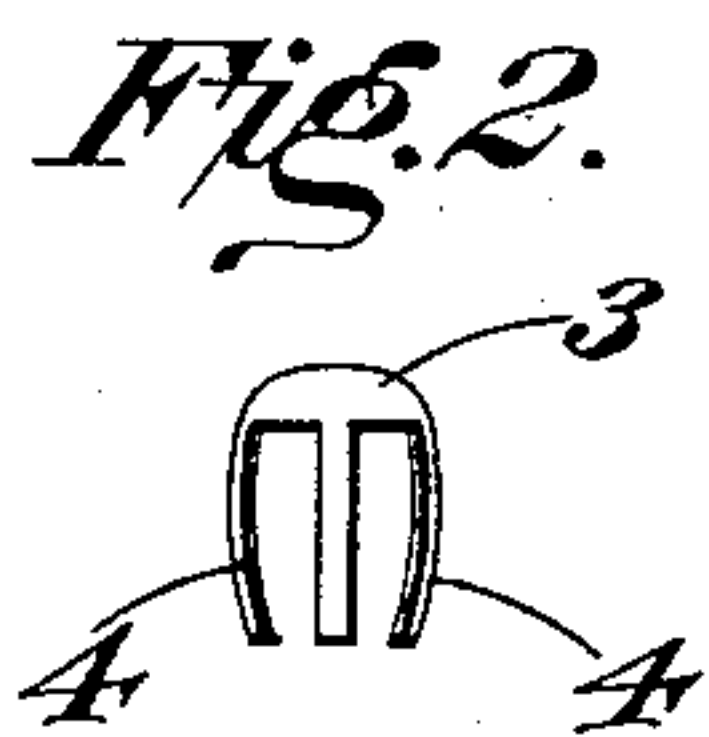
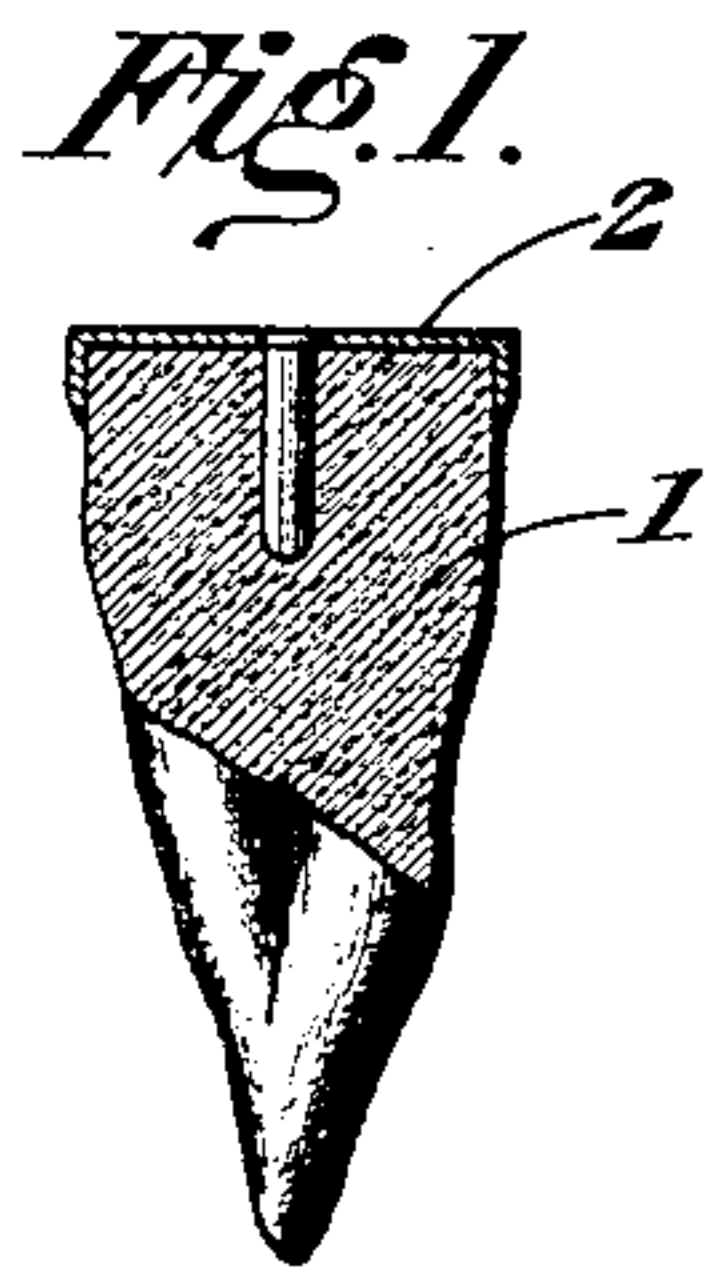
No. 702,857.

Patented June 17, 1902.

W. E. GRISWOLD.
DENTAL FASTENING AND BRIDGEWORK.

(Application filed Apr. 6, 1901.)

(No Model.)



WITNESSES
M. C. Fowler
G. A. Breton

INVENTOR:
W. E. Griswold
By *Walter S. Rogers*
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM E. GRISWOLD, OF DENVER, COLORADO, ASSIGNOR TO GRISWOLD DENTAL BRIDGE COMPANY, OF DENVER, COLORADO, A CORPORATION OF COLORADO.

DENTAL FASTENING AND BRIDGEWORK.

SPECIFICATION forming part of Letters Patent No. 702,857, dated June 17, 1902.

Application filed April 6, 1901. Serial No. 54,656. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. GRISWOLD, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Dental Fastenings and Bridgework; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to securing devices for removable bridgework and similar use in dentistry. Its object is to provide a strong and simple appliance which will firmly hold saddle-plates or other parts in place, and yet permit an easy removal and the tightening of the fastening should it become loose.

My invention especially comprises the use of spring-fastenings applied to roots or artificial crowns, to which a saddle carrying the teeth may be attached, one of the studs being also applicable in securing a single tooth.

In the accompanying drawings, the figures of which are generally enlarged views, Figure 1 is an elevation, partly in section, of the usual capped root. Fig. 2 is a detail in elevation of a spring-stud. Fig. 3 is an elevation, partly in section, of a spring-stud fixed to the cap of a root. Fig. 4 is a vertical section of a cap for the spring-stud, two sizes being illustrated. Fig. 5 is a plan view of a tooth base-ring. Fig. 6 is a vertical section of the cap of Fig. 4 and the base-ring of Fig. 5 joined together. Fig. 7 is a vertical section of the cap and plate of Fig. 6 in place in a crown. Fig. 8 is an elevation, partly in section, of a root and crown connected by the attaching devices of my invention. Fig. 9 is a view in perspective of a U-shaped or wedge-shaped box or cap. Fig. 10 is a view in perspective of a U-shaped or wedge-shaped spring-fastening. Fig. 11 is a top plan view of the wedge-spring box or cap. Fig. 12 is a perspective showing a modification and also showing the fastening and cap together. Fig. 13 is an elevation of a crown with the spring

of Fig. 9 attached. Fig. 14 is a view in perspective of a saddle adapted to be secured to or take over the spring-studs of Fig. 15. Fig. 15 is a view, slightly in perspective, showing the attaching devices in place for the bridgework; and Fig. 16 is a view illustrating the use of opposing U-shaped fastenings.

In the drawings, 1 represents (enlarged) a root, and 2 the usual band-cap.

3 is a hollow stud with separate arms 4—in brief, a spring-stud made preferably of a special metal which will stand a high heat and yet retain its elasticity and which will also resist the action of boiling acids.

5 is a cap of platinum or iridium or other suitable material, and 6 is a cap of smaller size.

7 is a circular base-ring of platinum or other suitable material, with an axial perforation 8 large enough to fit over the cap 5, for example, it being understood that there may be a corresponding size for the cap 6.

9 is an ordinary porcelain crown, in which is secured a base-ring and cap—that is, the complementary parts 7 and 5 joined together by the usual process of soldering or otherwise.

11 is a U-shaped or wedge-shaped spring-fastening—that is, a flat piece of spring metal bent into U form, with its edges bent in toward each other at the rear, so that it is wedge-shaped in plan, as illustrated, for example, for a similar part in Fig. 11, and so that the sides will have a yielding or spring effect.

10 is a piece of similar metal backed so as to form a complementary box or cap adapted to take over the securing-stud 11.

12 is a crown of gold or other material, to which is soldered or otherwise secured the spring-fastening 11.

The spring-studs 3 and 11 are shown as secured in place on Fig. 14, which is a portion of a jaw and teeth.

In practice the spring-stud 3 is to be secured to the cap 2. In actual application it will be found that the angle of inclination of a base will vary in different roots. It will or-

dinarily be necessary to file the separate ends of the spring-stud 3, so that the angle may be the same as that of the base to which it is to be attached.

5 In proceeding to assemble the parts the usual impression is taken in plaster of the capped roots and the parts to be supplied with teeth, the caps being arranged to easily slip off the roots. The inside and pins of the root-
10 caps are covered, preferably, with a solution of paraffin dissolved in ether, the impression is varnished, and a model is made in sump or some non-shrinking material. After the model is made it is slightly warmed, so that
15 the root-caps can easily be removed and accurately replaced. By observing the model I determine the proper size stud or spring-fastening to use, in what position it should be soldered, and the length it can be given,
20 so as not to interfere with the occluding teeth. I now place the chosen cap—say 5—in a pair of special pliers and fit it over the spring-stud to determine the precise angle to which it should be filed to fit the root-cap accurately
25 around the base of the spring. I then remove the cap and cut it as determined. Then with a special punch I cut a hole of the proper size in a platinum or gold plate. This piece or plate must be a little larger than the root-cap
30 to overlap it, especially on the mesial or distal sides or on the side where the saddle rests. I adapt this preferably to the surface of the root-cap with a pair of pliers and revolving movement, giving it a perfect adaptation at
35 the base of the capsule. The two are then waxed together and placed on a soldering-block, where they are strongly united, producing what I call my “crown-cap.” (Illustrated at Fig. 6.) These connected parts are
40 then replaced on the model, and each abutment is proceeded with in the same manner. When finished, the crown-cap is removed, and each cap carrying the spring-stud is placed on its root.

45 In Figs. 14, 15, and 16 I have illustrated the application of my securing devices in bridgework. The spring-stud 3 has been secured by the method described on an anterior crown or root. The posterior attachment comprises
50 the U-shaped spring-piece 11, soldered on the side of a gold crown or artificial tooth. At one end of the saddle is the crown-cap 7, which takes over the spring-stud 3. At the other end of the saddle is the spring-cap 10, soldered to the end of the saddle and inclosed
55 by the material by which the teeth are fastened to the saddle. The cap 10 takes over the spring-stud 11, closing it completely. This combined mode of attachment enables
60 me to place the spring-studs in precise accordance with the angle of inclination and the position of the crown and insures an accurate and close fit.

The securing devices may be modified or
65 reversed. For example, it is obvious that

the spring-stud may be placed in the crown and the cap in the root.

In Fig. 12 I have illustrated a modified U-shaped or wedge-shaped spring-fastening which has a lock formed in its side—that is, 7c a depression adapted to receive a corresponding rib on the cap and lock the two together. The figure shows the fastening 15 and its cap 16 together, and in Fig. 16 the fastening is shown in application to opposing crowns. 75 This is especially applicable in case it is preferred to put shell-crowns over teeth ground down instead of amputating crowns. It is obvious that when the cap is slipped over the wedge-shaped spring the locking-ribs spring 80 into place, and the whole is held securely throughout the width of fastening and is particularly held against an ordinary vertical displacement.

I desire to especially note that my devices 85 are readily repaired. While they are so placed that there is little likelihood of their breaking off, it will be obvious from a study of my system that such parts can be marked and withdrawn and a new fastening device substituted. So, also, both these spring-fastenings 90 can be adjusted should they wear loose, the spring-stud 3 by a slight tap on the end and the U-spring by springing it out a little on the side by a pair of pliers. 95

I have already indicated the special adaptation of my devices to bridgework. The spring-studs are so arranged and applied that the saddle may be forced directly up into place and removed by a direct downpull. 100 There is a certain freedom of yielding movement in securing exact location, while at the same time the tightest and cleanest possible joint is secured once the saddle or bridge is in place. 105

Having fully described my invention, what I claim is—

1. In dental bridgework, the combination of a spring-stud secured to or engaging the cap of a root, a spring-stud secured to the side 110 of a crown, and complementary attaching parts on opposite ends of the saddle.

2. The combination of a dental fastening substantially U-shaped in elevation and having converging sides or wedge-shaped in cross- 115 section, and a corresponding reverse cap or cover.

3. A spring-fastening device attached to the side of a crown and flaring outwardly, so that the complementary attaching parts may 120 be forced down over the fastening device and be locked from any but a vertical movement.

4. A dental spring-fastening substantially U-shaped in elevation and having converging sides in cross-section, and having a lock- 125 ing element formed in its sides.

5. The combination of a bent and flaring spring-fastening device, and a complementary cap or cover, both having interlocking ribs. 130

6. The combination of a bent and flaring
spring-fastening device, a complementary re-
verse cap or cover, the cap or cover having
an open bottom and all of its sides but one
5 closed.

7. The combination of a saddle, a spring-
fastening element soldered to the saddle and
embedded in the material by which the teeth
are fastened to the saddle, and a complemen-
10 tary part secured to the side of a crown or

artificial tooth, and adapted to enter the
spring-fastening element.

In testimony whereof I have signed this
specification in the presence of two subscrib-
ing witnesses.

WILLIAM E. GRISWOLD.

Witnesses:

S. H. SKINNER,

H. E. SWEET.