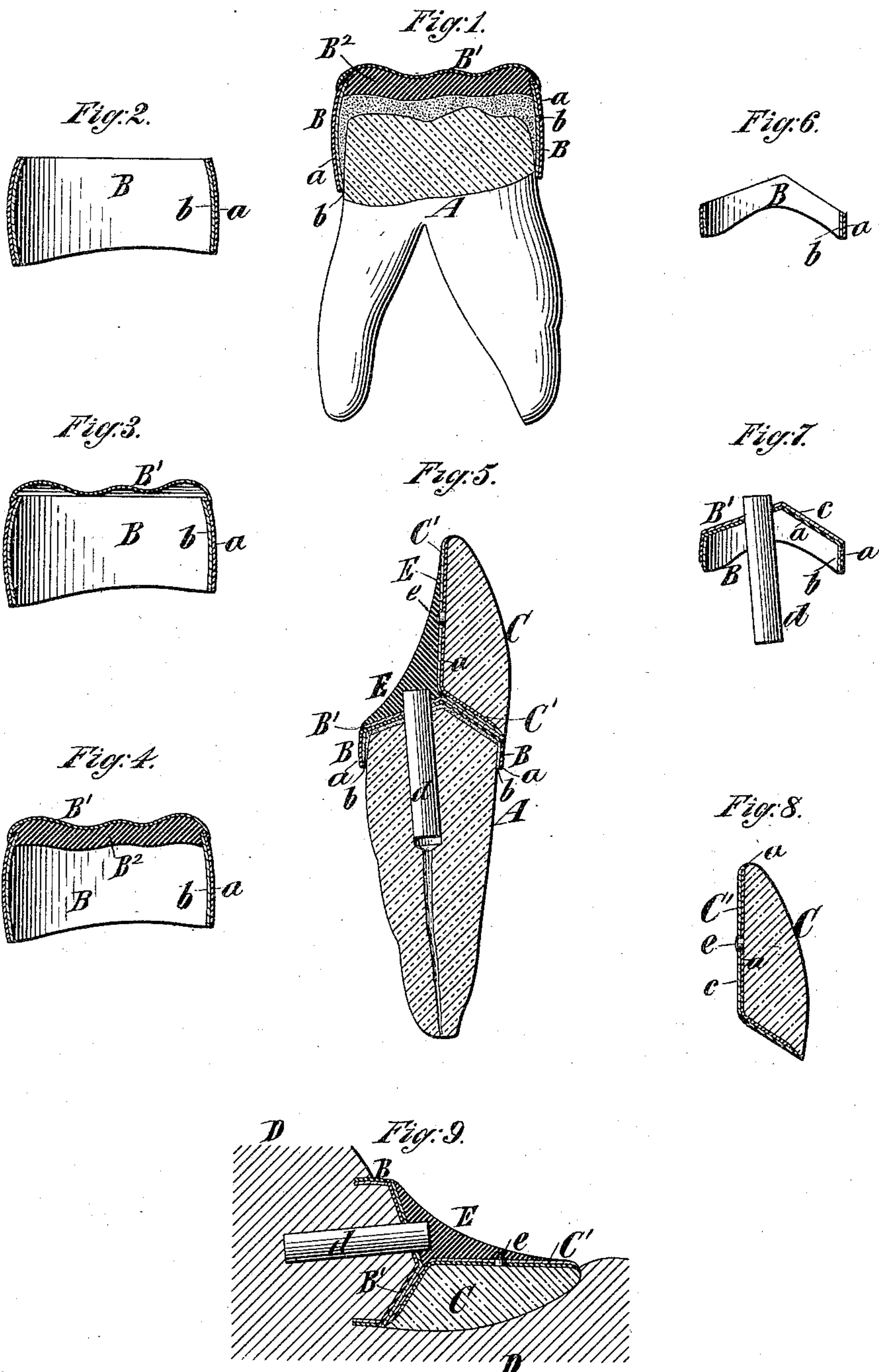


(No Model.)

C. P. GROUT.
TOOTH CROWN.

No. 319,236.

Patented June 2, 1885.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

CHARLES P. GROUT, OF NEW YORK, N. Y.

TOOTH-CROWN.

SPECIFICATION forming part of Letters Patent No. 319,236, dated June 2, 1885.

Application filed November 3, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. GROUT, of the city and county of New York, and State of New York, have invented a new and useful Improvement in Tooth-Crowns, of which the following is a specification.

My invention relates to artificial tooth-crowns which are now applied to the roots or stumps of teeth to form thereon new crowns or wearing-surfaces, which are rigidly secured to such roots or stumps.

These artificial crowns have most commonly been made of coin-gold or gold of about twenty or twenty-two carats fine; but I am aware that it has also been proposed to make such crowns of a compound plate of platina and gold. Pure platina is fusible at a much higher temperature than pure gold; and hence the making of a crown of such compound plate permits the use of pure or fine gold to solder the parts of the shell or crown together without danger of fusing the shell or crown. The use of pure gold or a compound plate of pure gold and pure platina for making the shell or crown is, however, open to the very serious objection that the band portion of the shell or crown, after being fitted to the root or stump, is very liable to become distorted or out of shape during the subsequent operations of completing the crown; and no method has yet been proposed to overcome this difficulty. It is well known that pure gold is very soft and pliable, and also that pure platina is almost or quite as soft and easily bent as pure gold, although its melting-point is very high.

I have discovered that by the use of a compound plate of gold and iridium-platina—that is to say, pure platina alloyed with that extremely hard metal iridium—may be made metallic tooth-crowns which will have all the advantages of gold and pure platina in resisting heat, and which will have the great additional advantage that when their band portions are once fitted to the roots or stumps they will retain their shape, and not become distorted by any of the subsequent operations of completing the crowns.

My invention therefore consists in an artificial tooth-crown, or portion thereof, composed of a compound plate of gold and iridi-

um-platina, as more fully hereinafter described.

In the accompanying drawings, Figure 1 represents a tooth having a gold crown applied to it, the crown being shown in section. Fig. 2 represents the band after it has been fitted upon and removed from the root or stump. Fig. 3 represents the band with the top fitted thereto to form a closed cap. Fig. 4 represents the cap after it has been filled in with solder or coin-gold to give it the necessary body for wear and to solder the top to the band. Fig. 5 represents in section a tooth and a porcelain crown and cap secured thereon. Fig. 6 represents the band after being fitted to and removed from the root or stump. Fig. 7 represents the band after its top has been secured and the fastening-pin inserted. Fig. 8 represents the porcelain crown and metal backing therefor; and Fig. 9 represents the closed cap and the metal-backed crown secured thereon and surrounded by investing material in proper position for soldering them together. All the figures represent sectional views several times the natural size, and in all, similar letters of reference designate corresponding parts.

Referring first to Figs. 1, 2, 3, and 4, A designates the stump of a tooth, which has been properly cut down to receive a band.

B designates the band, which is shown separately in Fig. 2. In making the band B, I take a thin strip of iridium-platina having a roll-plating of substantially pure gold, bend it into circular form, and unite the ends by sweating. The band is then forced down over the stump A to the required distance, and is thereby fitted snugly thereto, after which it is removed and cut off to the required height. In the drawings, *a* designates the plating of gold, and *b* designates the iridium-platina.

The top B' is of substantially pure gold, or of iridium-platina, or silver-platina plated with gold. It is formed by taking a small piece of the metal of the proper size and bur- nishing the edge down on the band to make a neat finish. The top B' being thus fitted, the cap is filled in with gold solder or coin-gold B², to give the top sufficient body for wear, and the solder runs in between the lapping edges

of the top and band and secures the top to the band.

It is advantageous to make the band of iridium-platina plated with gold, because the band may be made of metal thinner than would be necessary if coin-gold or gold and pure platina were used, and hence will not prove an irritator to the gums. It is also advantageous, because the band, when thus made, will preserve its shape.

It is advantageous to make the top B' of substantially pure gold or a harder metal plated with pure gold, and to secure it by the gold solder or gold of about eighteen or twenty carats fineness, which forms the filling B², because the heat of the molten metal will not start the sweating of the band.

After the cap is completed, as shown in Fig. 4, it is partly filled with a cement, which will harden, and is forced down into place on the stump A.

Referring now to Figs. 5 to 9, inclusive, A designates the root or stump. In making the cap I first make a band, B, as before described, and force it down on the root or stump, after which it is removed therefrom and the upper edge cut off to bring it to the desired height. In the drawings, *a* designates the gold-plating of the band, and *b* designates the iridium-platina. Fig. 6 represents the band alone. I then put on the top B', which may be of iridium-platina or silver-platina plated with gold, but which I prefer to make of pure platina plated with gold, and this top is sweated to the band. In the drawings, *c* designates the pure platina, and *a* the gold-plating of the top B'. I then form a hole in the root or stump by enlarging the nerve-cavity, and insert in the top B' a pin, *d*, which projects above the same, and is tacked thereto with gold solder.

C designates the porcelain crown, which I prefer to back with pure platina plated with gold, as shown at C', Fig. 8. If it is desired to have the tooth show yellow, I place the gold next the tooth-crown; but if blue, I place the platina surface next the tooth-crown. In the drawings the gold *a* is represented as next the crown C, and the platina *c* is at the back.

The porcelain crown C is provided on the back with pins *e*, whereby the metal backing C' is secured thereto, and afterward the edges of the metal are trimmed off and burnished down around the crown, as shown in Fig. 8.

Both the closed cap and the metal-backed crown being prepared, the cap is placed on the root or stump and the crown properly adjusted thereon and secured temporarily by hard wax, after which the cap and crown thus connected are placed in suitable "investing" material, D, as shown in Fig. 9, and gold solder or gold of eighteen or twenty carats fineness is run in behind the metal-backed crown and between it and the top B' of the cap, as shown at E, thereby forming one rigid and integral structure of the closed cap B B', the metal-backed porcelain crown C C', and the solder E, the upper end of the pin *d* being firmly secured by the solder E.

The solder or coin-gold E may be fused and run in without danger of the heat melting down the top B' of the cap, or starting the sweating of the band B or the union of the top and band.

After completion the cap B B' is filled with cement and pressed tightly into place on the root or stump A.

I do not claim as included in this invention a tooth-crown made wholly or in part of a compound plate of gold and pure platina, nor do I consider such parts of the crown herein described as are made of such compound plate as covered by my invention. In all cases I intend to make the band portion of the crown of a plate of gold and iridium-platina, and the other parts of the crown may be made of the same material or of pure gold or pure platina and gold.

What I claim as my invention, and desire to secure by Letters Patent, is—

An artificial tooth-crown or portion thereof composed of a compound plate of gold and iridium-platina, substantially as and for the purpose herein described.

CHAS. P. GROUT.

Witnesses:

C. HALL,
FREDK. HAYNES.