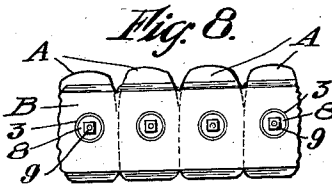
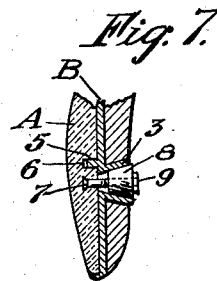
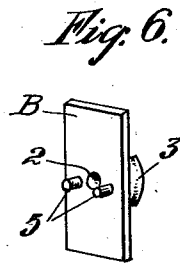
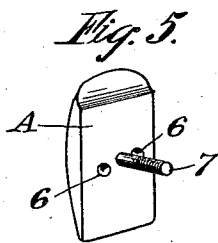
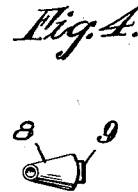
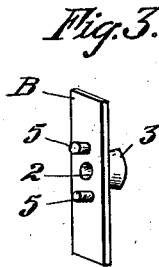
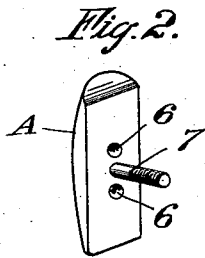
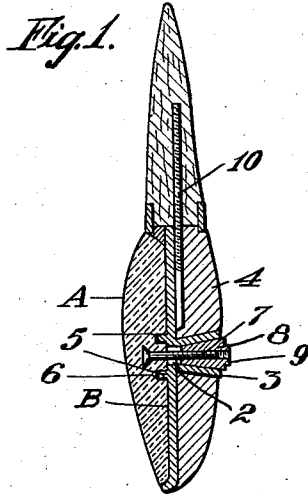


R. E. CAMPBELL.
DENTAL CROWN AND BACKING.
APPLICATION FILED JULY 20, 1911.

1,028,539.

Patented June 4, 1912.



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UNITED STATES PATENT OFFICE.

ROBERT E. CAMPBELL, OF BERKELEY, CALIFORNIA.

DENTAL CROWN AND BACKING.

1,028,539.

Specification of Letters Patent.

Patented June 4, 1912.

Application filed July 20, 1911. Serial No. 639,548.

To all whom it may concern:

Be it known that I, ROBERT E. CAMPBELL, citizen of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented new and useful Improvements in Dental Crowns and Backings, of which the following is a specification.

This invention relates to an artificial tooth, and particularly pertains to a dental crown and a backing therefor.

It is the object of this invention to provide a backing for a dental crown which is so designed and constructed as to form a substantial and rigid support for a porcelain crown, or the like, and which is so arranged that the crown may be easily and quickly mounted thereon.

Another object is to provide a porcelain crown and a backing therefor which are adapted to be securely connected together and readily assembled in the mouth, and which is so arranged as to facilitate the substitution of the crown in event the latter becomes broken without necessitating the removal of the backing.

Other objects will become apparent hereinafter.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is an enlarged vertical section of the invention as applied. Fig. 2 is a detail perspective of the crown. Fig. 3 is a detail perspective of the backing. Fig. 4 is a similar view of a conical nut employed in attaching the crown to the backing. Fig. 5 is a detail in perspective of a modified form of the crown. Fig. 6 is a detail in perspective of a modified form of the backing. Fig. 7 is a section of the crown and backing assembled and showing a further modification of the invention. Fig. 8 is a rear elevation of the backing, showing same as mounted in series.

In the drawings, A represents a dental crown, preferably made of porcelain or like material, in the form of the exposed portion of a tooth.

B is a thin metallic plate, on the face of which the crown A is to be mounted; the plate B forming a backing for the latter. The plate B is provided with a single perforation 2, and is formed with an outwardly

diverging flange 3 on its rear face, which flange surrounds the perforation 2 and projects from the surface of the plate B a distance slightly greater than the ordinarily required thickness of a solder filling 4 which is placed on the back of the plate B, as later described.

Mounted on the face of the plate B are one or more pins or studs 5, preferably two in number, which are disposed on the plate B at diametrically opposite sides of the perforation 2 in close proximity thereto, and project outwardly a short distance substantially at right angles to the face of the plate. These studs 5 may be arranged in vertical relation to the perforation 2, as shown in Fig. 3, or horizontally, as shown in Fig. 6, or in any other desired position, the essential feature being to provide a projection on the plate B, adjacent the perforation 2, which is adapted to enter a recess or depression 6 formed in the back of the crown A. The recess or recesses 6 in the crown A are arranged to correspond to and register with the pin or pins 5 on the plate B.

The back of the crown A is provided with a single threaded stem 7, which is rigidly secured to the crown, and is so disposed thereon as to extend through the perforation 2 in the plate B when the crown is placed on the latter with the pins 5 extending into the recesses 6; the stem 7 being of such length as to extend beyond the back of the plate B to a point substantially in alinement with the outer end of the divergent flange 3.

A conical shaped nut 8, the tapered portion of which corresponds to and is designed to fit the tapered inner wall of the flange 3, is provided, and is adapted to be screwed on the outer end of the stud 7 when the latter is inserted through the perforation 2, as shown in Fig. 1. The outer or large end of the nut 8 is provided with a square portion 9 which forms a gripping surface for tweezers or like instrument and facilitates the turning of the nut on or off the stem 7.

In the application of the invention, the crown A is placed on the backing plate B with the threaded stem 7 extending through the perforation 2 in the plate and the pins 5 on the plate projecting into the recesses 6 in the crown A, as shown in Fig. 1, the adjacent or contacting faces of the crown and plate being previously coated with a suitable cement. The conical nut 8 is then screwed on the stem 7 and acts to draw and

securely clamp the crown A against the face of the plate B. The perforation 2 is sufficiently larger than the stem 7 to admit of a portion of the cement passing there-through and spreading between the nut 8 and the flange 3, so as to form a tight and septic joint, and also rigidly retain the nut 8 in place and prevent its working loose.

The backing plate B is now attached to the tooth in any suitable manner, the method commonly employed being to solder it to a pin 10 previously mounted in the tooth, as shown in Fig. 1, the solder indicated at 4 being used for this purpose; this solder being placed on the back of the plate B to the desired thickness so as to surround and practically embed the tapered flange 3. After the solder 4 has been applied to the required depth and sufficiently hardened, it is dressed off on the back and the projecting end of the nut 8, and flange 3 is cut down so as to be flush therewith and thus form a smooth even surface.

The purpose of the pins 5 which engage the crown A is to prevent the crown A being rotated when the nut 8 is being secured in place, and also to add rigidity to the connected parts. It is obvious that the pins 5 could be formed on the crown and extend into perforations in the plate B, but such construction would be undesirable where porcelain crowns are used, for the reason that in baking porcelain crowns around metallic pins, the porcelain is weakened adjacent to the metal and is liable to crack, as has been determined by practice. In forming the perforations or recesses 6 in the porcelain, as herein shown and described, no such difficulty is encountered. Thus, by mounting a single pin 7 in the crown and forming recesses therein, as before mentioned, a strong construction is obtained which could not otherwise be accomplished. The recesses 6 are comparatively small and shallow; being only of such depth as to insure secure engagement with the pins 5, so that the porcelain crown A will be but slightly reduced at this point and is not weakened to any serious extent. It is apparent that in the event a crown A becomes cracked or broken and it is necessary to replace it with a new one, it may be readily removed without disturbing the backing plate B by removing the nut 9 from the stem 7; another crown being set in place on the backing plate A, as before described.

The nut 8 acting as it does to draw the porcelain crown A against the plate B, admits of the plate B being formed of thin sheet material, and insures a tight joint between the back of the crown and the face of the plate.

It is obvious that the plate B may be mounted in any desired manner, and that

a series of plates may be mounted side by side where it is necessary to mount a number of the dental crowns A adjacent to each other, as shown in Fig. 8.

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

1. A backing for a dental crown consisting of a metallic plate formed with a perforation therethrough, and having an annular flange surrounding the perforation on one side of the plate, and a projection formed on the other side of the plate.

2. A backing for a dental crown, comprising a metallic plate formed with a perforation therethrough, said plate having projections on both sides one of said projections being of tubular form and axially alined with said perforation, said tubular projection having outwardly diverging walls.

3. A backing for a dental crown, comprising a metallic plate formed with a perforation therethrough, said plate having a plurality of pins projecting from one side and having a projection of tubular form on the other side axially in line with said perforation, said pins adapted to enter recesses in the back of the crown.

4. In a dental crown and a backing therefor, the combination of a plate formed with a perforation therethrough, said plate having projections on both sides, one of said projections being of tubular form and axially alined with the perforation, a crown having a threaded stem formed thereon, said stem adapted to extend through the perforation in the plate and through the tubular projection, and a nut to be screwed on the portion of the stem within the tubular projection to thereby bind the plate and crown together.

5. In a dental crown, and backing therefor, the combination of a plate having a perforation therethrough, said plate having projections on both sides, one of said projections being of tubular form with outwardly diverging walls and arranged axially in line with the perforation, a crown having a threaded stem adapted to extend through the perforation in the plate and through said projection, and a conical nut to be screwed on that portion of the stem within the tubular projection, said nut adapted to bear against the divergent walls of said projection.

6. In a dental crown and a backing therefor, the combination of a plate having a perforation therein, an annular divergent flange surrounding the perforation, a crown having a threaded stem mounted thereon, said stem adapted to extend through the perforation in the plate, a conical nut to be screwed on the stem to bind the plate and crown together, said nut to bear against the

divergent walls of the flange on the plate,
and means for connecting the adjacent faces
of the plate and crown to prevent their
turning in relation to each other, said means
5 consisting of projections on the plate and
recesses on the crown into which the pro-
jections on the plate extend.

In testimony whereof I have hereunto
set my hand in the presence of two sub-
scribing witnesses.

ROBERT E. CAMPBELL.

Witnesses:

R. S. BERRY,

S. N. WYCKOFF.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
