

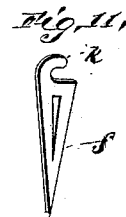
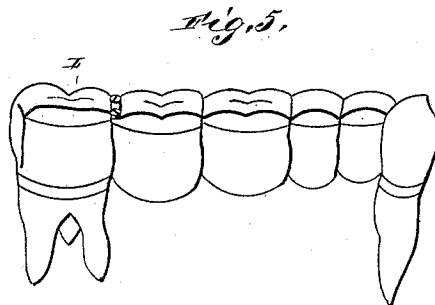
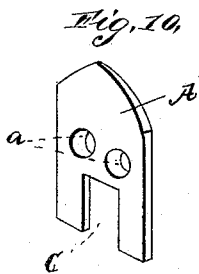
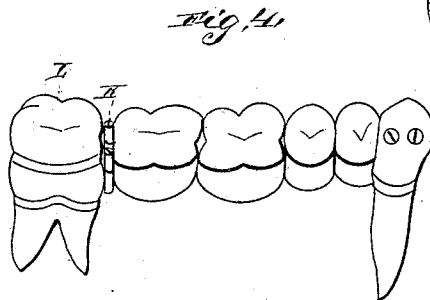
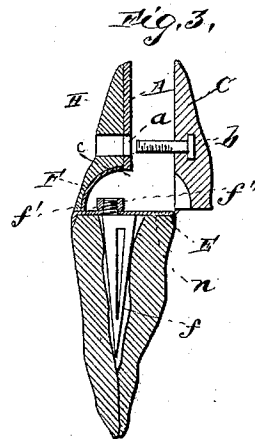
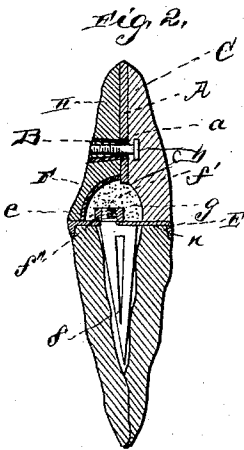
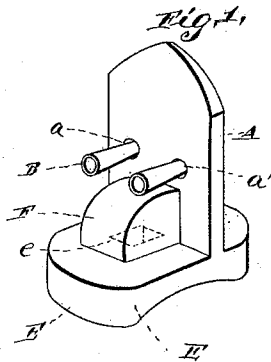
(No Model.)

2 Sheets—Sheet 1.

E. A. BRYANT.
ARTIFICIAL DENTURE.

No. 468,761.

Patented Feb. 9, 1892.



WITNESSES:

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INVENTOR

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(No Model.)

2 Sheets—Sheet 2.

E. A. BRYANT.
ARTIFICIAL DENTURE.

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Fig. 6.

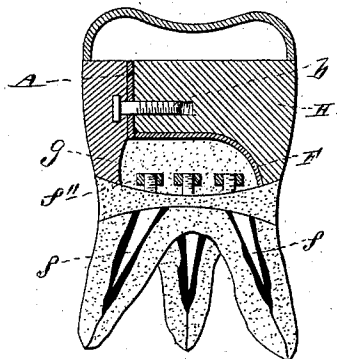


Fig. 7.

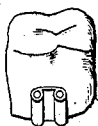


Fig. 8.



Fig. 13.



Fig. 9.

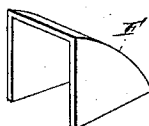


Fig. 12.



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UNITED STATES PATENT OFFICE.

EMORY ADDISON BRYANT, OF ASPEN, COLORADO, ASSIGNOR OF ONE-HALF
TO EDWARD P. ROSE, OF SAME PLACE.

ARTIFICIAL DENTURE.

SPECIFICATION forming part of Letters Patent No. 468,761, dated February 9, 1892.

Application filed December 12, 1890. Serial No. 374,517. (No model.)

To all whom it may concern:

Be it known that I, EMORY ADDISON BRYANT, a citizen of the United States, residing in Aspen, in the county of Pitkin, State of Colorado, have invented a new and useful Improvement in Artificial Dentures and Teeth, of which the following is a clear, full, and exact description.

This invention relates to the manufacture of an artificial denture and tooth-crown which can be used on all roots of teeth sound and suitable to support such work as anterior and posterior abutments for the artificial denture in bridge-work where the crown or top of the teeth to be used have been decayed or cut away, also applicable for pivot-crowns for all the teeth.

My invention has for its object the formation of an artificial denture and its abutment crowns and the manufactured parts, which, when put together and soldered in their respective positions, forms a tooth crown or abutment that allows easy access to the anchorage-pin which holds the crown or abutment firmly to its proper place on the root, and at the same time, if occasion requires, allowing the removal of the crown or abutment in case of a bridge with perfect ease both to patient and the operator and without destroying the crown or anchorage-pin; also, to make an attachment between the bridge proper and the abutments or crowns which will allow the bridge to be removed or placed in position with little labor, so that any dentist may reach the root-canals to treat them should they at any time become diseased or repair the bridge, if it be necessary.

With these objects in view the invention consists in the novel features and construction of parts, as hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a perspective view showing the cap and backing-plates with attachments. Fig. 2 is a section through a complete tooth. Fig. 3 is a section of a tooth, showing the parts slightly apart. Fig. 4 is a perspective view showing the manner of attaching the bridge to the abutments. Fig. 5 is a view of the same from the front. Fig. 6 is a section showing the construction and at-

tachment of a crown. Fig. 7 is a detail of a gold crown. Fig. 8 is a perspective of a gold dummy with the attachment-ferrules. Fig. 9 is a detail of the box or cover. Fig. 10 is a detail of the metal backing. Fig. 11 is a detail showing a modified form of anchorage-pin. Fig. 12 is a perspective of the crown with attachments. Fig. 13 is a detail of the attachments. Fig. 14 is a detail view of the gutta-percha cone *m*. Fig. 15 is a detail of one of the internally-threaded facing-pin nuts *m'*.

The letter A designates the metallic backing, having therein the apertures *a a*, in which are secured the slightly-tapering tubes or ferrules B B, which receive the screw-cut pins *b* of the porcelain facing C. A recess *c* is cut in the lower central portion of the backing-plate to receive the head of the anchorage-pin *f*, which extends through an opening *e* in the cap E.

F is the metal box or cover over the head of the anchorage-pin and the filling *g*, abutting against the backing and around the recess or aperture *c*. The anchorage-pins have the threaded heads *f'*, which receive a nut *f''*, holding the cap firmly in place. Said pins may also have a shoulder fitting against the under side of the said cap; or the pin may have a hooked head, as shown in Fig. 11, when cement, amalgam, or gutta-percha is used as the retaining agent instead of the screw-pin and nut.

C is the porcelain facing, held to the backing-plate by the threaded pins *b*, which engage the cylinders or tubes B. The cylinders or tubes are soldered to the backing with pure gold, or may have a screw-threaded connection therewith. The recess *c* in the backing-plate, which receives the head of the anchorage-pin above the cap, is a trifle smaller than the platinum box F, which covers it.

m is a cone of rubber or gutta-percha fitting into the cylinders or ferrules B B around the pins *b*.

m' is the facing-pin nut, which is slightly tapering or conical, as shown, to correspond to the shape of said ferrules and provided with an internal thread. These nuts *m'* engage the thread on the pins *b* and are placed

inside the rubber cone *m*, as shown and hereinafter described.

H is the gold backing.

For the anterior crowns the root is ground 5 in the usual manner, the cap prepared, and the anchorage-pin placed in the nerve-canal. The hole *e* is punched in the cap for the head *f* of the anchorage-pin, which is secured by the nut *f'*; or the head may have a hook *k*, 10 as shown in Fig. 11, where amalgam, cement, or gutta-percha is employed to fasten the crown to the anchorage-pin, as hereinbefore stated. The porcelain facing and backing are then prepared and the facing-pin cylinders 15 secured to the backing by soldering or screw-thread connection. If the posterior abutment is to be on a molar root or roots from which the nerves have been extracted, the same steps are taken as above described. 20 If the abutment is to be on a sound molar tooth, the tooth is ground down, a gold crown fitted, and at its anterior edge is soldered the lower half of the abutment-cylinders, as shown at K. Proceeding with the anterior crown the platinum box is placed in position, its edges fitting 25 closely to the top of the cap and the back of the backing under the cylinders. Hot wax is poured over the box, backing, and the cylinders in the shape and to the amount the gold is desired on the back. The facing is 30 then carefully removed and the filling placed on the inside of the platinum box. The crown is now invested in plaster and pumice to the thickness of about half an inch, leaving the part over the wax open. The parts for the 35 posterior crown are then fitted together and placed in position on the cap, together with the platinum box and hot wax poured over. The cusps *L* are then placed in position and 40 more wax applied. If the cylinders set too close to allow the box to be placed below them, the top of the box may be placed over the cylinders, allowing them to come inside thereof instead of above it. The facing is 45 then withdrawn and the same steps taken as for the anterior crown, except that before investing the attachment cylinders or tubes are placed in the position they are to occupy, as shown at K in Fig. 7. The two investments 50 are then heated to melt out the wax and the space occupied thereby filled with gold solder to give the crown the desired shape when finished. They are then removed from the investments and polished. The 55 crowns are then placed in position and the impressions taken.

To make the bridge entirely removable from the abutments, the attachment is made between the anterior crown and the bridge by 60 soldering in the single attachment-cylinder, as shown at L in Fig. 12. These attachments can be used on all the different forms or crowns, both anterior and posterior, and the bridge made from any of the various forms 65 of dummies used, there being no danger of breaking the porcelain fronts.

The bridge may be soldered to both the anterior and posterior crowns, as the abutment-crowns are both removable; but I use the attachments, so as not to be compelled to 70 remove the posterior abutment-crown except when absolutely necessary to treat the roots or to repair a broken part. If the posterior abutment is a sound tooth, the attachment between it and my bridge may be made by 75 soldering a metal bar to the posterior dummy, drilling a place in the tooth to receive the bar, and securing it there by an amalgam, gold, or other filling.

In applying the bridge to the abutments, 80 first set all the facings of the dummy with cement or other suitable material, place in the cap of the posterior crown a thin band of gutta-percha, heat till soft, and properly place on the root. The anchorage-pin nuts are then 85 placed on the pins and the space *n* under the box is filled with gutta-percha. A solution of chlora-percha is then applied to the pins and back of facing and the facing pushed to place. The bridge is held to the posterior 90 crown by threaded pins, which engage the internally-threaded cylinders on the crown and on the dummies. The anterior crown is then taken and properly placed on its root, being careful that the ferrules or cylinders 95 meet in their proper place against the posterior crown and its ferrules. The facing-pins are then screwed to place and the anchorage-pin nuts screwed on the heads of the pins. The space *n* is then filled, as described, for 100 the other crown. The facing is then placed in position, the facing-pins extending into the cylinder or ferrules provided for them, and a gutta-percha cone *m* placed on the cylinder around and over the facing-pins. The 105 facing-pin nuts *m'* are heated sufficiently to soften the cone and then screwed to place around said pins and inside of said gutta-percha cone. The bridge is now ready for use and can at any time be taken off, should 110 it be necessary for repair or treating a diseased root or tooth, by applying a heated screw-driver to these nuts till the gutta-percha is softened, and the nuts may be unscrewed and the facing and filling removed. The anchorage-pin nuts are also unscrewed, and with a 115 very little movement the bridge may be removed. The posterior crown may also be removed in a similar manner. The anchorage-pins may be removed with pliers to get at the 120 nerve-canal without suffering to the patient.

The details of the various steps employed will be readily understood by any one acquainted with the art.

Having described this invention, what I 125 claim, and desire to secure by Letters Patent, is—

1. In a bridge-work of artificial teeth, the combination, with the bridge-dummies soldered together, of independent internally- 130 threaded cylinders or ferrules soldered to said dummies, corresponding opposing internally-

threaded cylinders soldered to the crown and serving as an abutment, and screw-cut pins engaging said cylinders on both bridge-dummies and crown, substantially as specified.

5 2. In a bridge-work of artificial teeth, the backing for pivot-teeth or crowns, cylinders or ferrules projecting backward from an aperture cut in said backing and secured thereto, and a platinum box fitting up against said
10 backing over said aperture and over an aperture in the cap, said box extending backwardly from said backing underneath said cylinders or ferrules, substantially as specified.

3. The combination, with the cap having
15 the aperture therein for the anchorage-pin, of the backing-plate having an aperture *c* cut therein, and a platinum box over said aperture in the cap and abutting against the backing-plate and around said opening *c*, substantially as specified.
20

4. The combination, with the backing having the cylinders or ferrules secured thereto, of the facing secured to said backing by threaded pins engaging said cylinders, the
25 internally-threaded nuts for said pins, and the gutta-percha cone placed between the interior surface of said cylinders or ferrules and said nuts, substantially as specified.

5. The combination, with a cap having an
30 aperture therein, of an anchorage-pin having a shoulder fitting up against the under side of said cap, its head projecting up through said

aperture and provided with a removable fastening thereat, substantially as specified.

6. In a bridge-work of artificial teeth, the
35 combination, with the posterior crown having the independent internally-threaded cylinders or ferrules soldered thereto and serving as abutments, of the bridge-dummies soldered together and to the anterior crown and hav-
40 ing opposite threaded cylinders secured thereto, and threaded pins engaging said cylinders on the posterior crown and on the dummies, both anterior and posterior crowns being removable and having removable fac-
45 ings, substantially as specified.

7. In a bridge-work of artificial teeth, the combination, with the metal cap having the aperture therein, the metal backing, the cylinders or ferrules secured thereto, the metal
50 box, the gold backing, and the porcelain facing having pins engaging said cylinders or ferrules, the gutta-percha cone, and the nuts *m'* inside of said gutta-percha cone for said pins, the anchorage-pin having the securing-
55 head and the gutta-percha filling, substantially as specified.

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

EMORY ADDISON BRYANT.

Witnesses:

WM. P. ROSE,

L. H. KEMBLE.