

No. 873,789.

PATENTED DEC. 17, 1907.

J. B. RIGHTER.
ARTIFICIAL TOOTH CROWN AND BRIDGEWORK.
APPLICATION FILED AUG. 9, 1906.

Fig. 1.

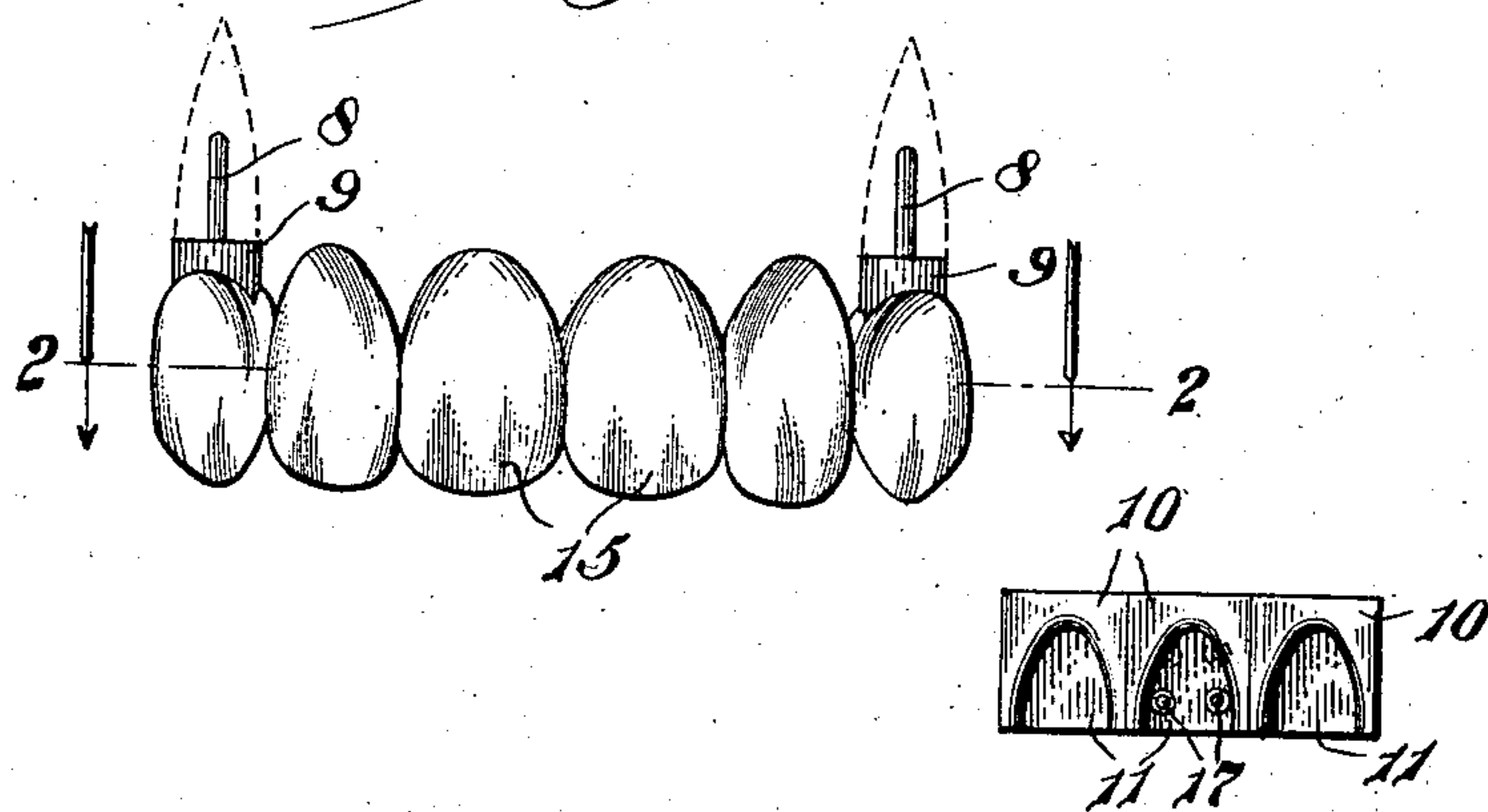


Fig. 2. Fig. 4.

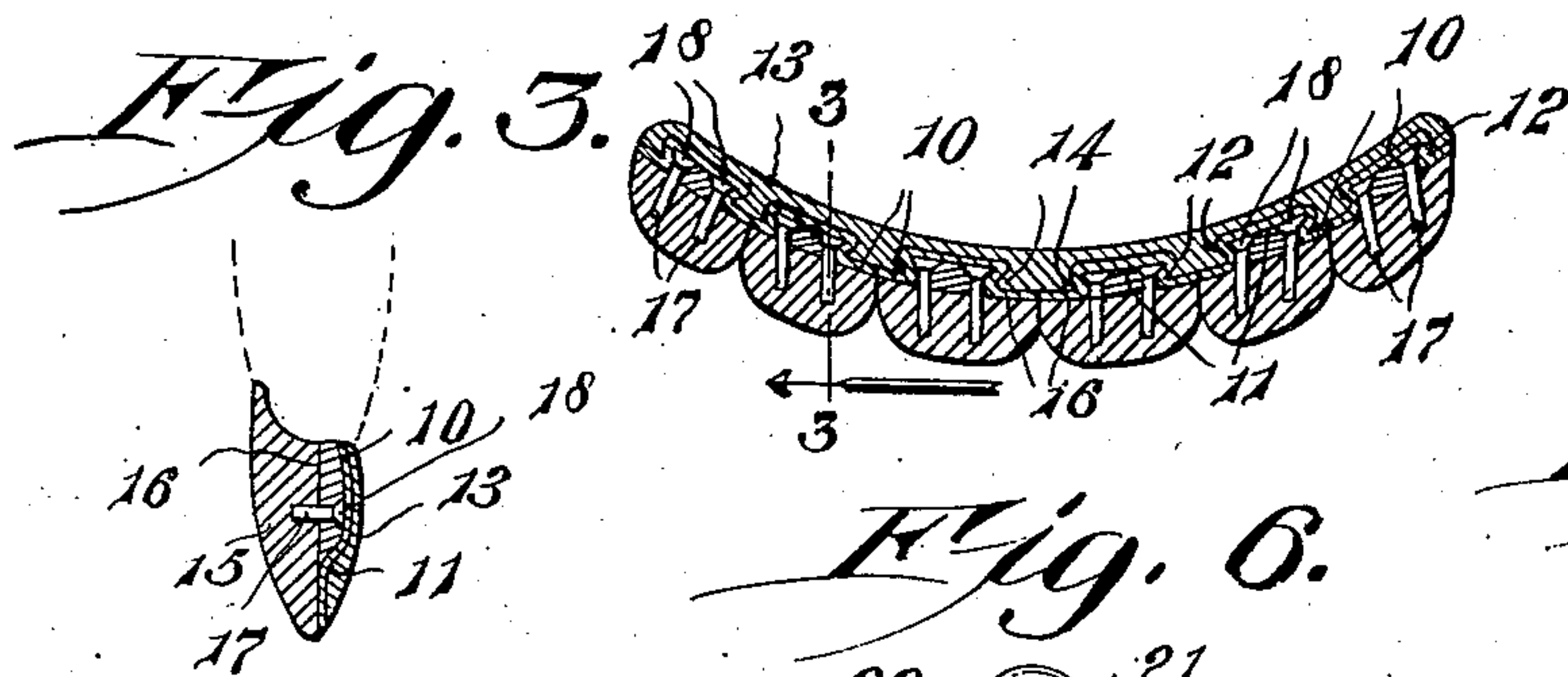


Fig. 6.

Fig. 5.

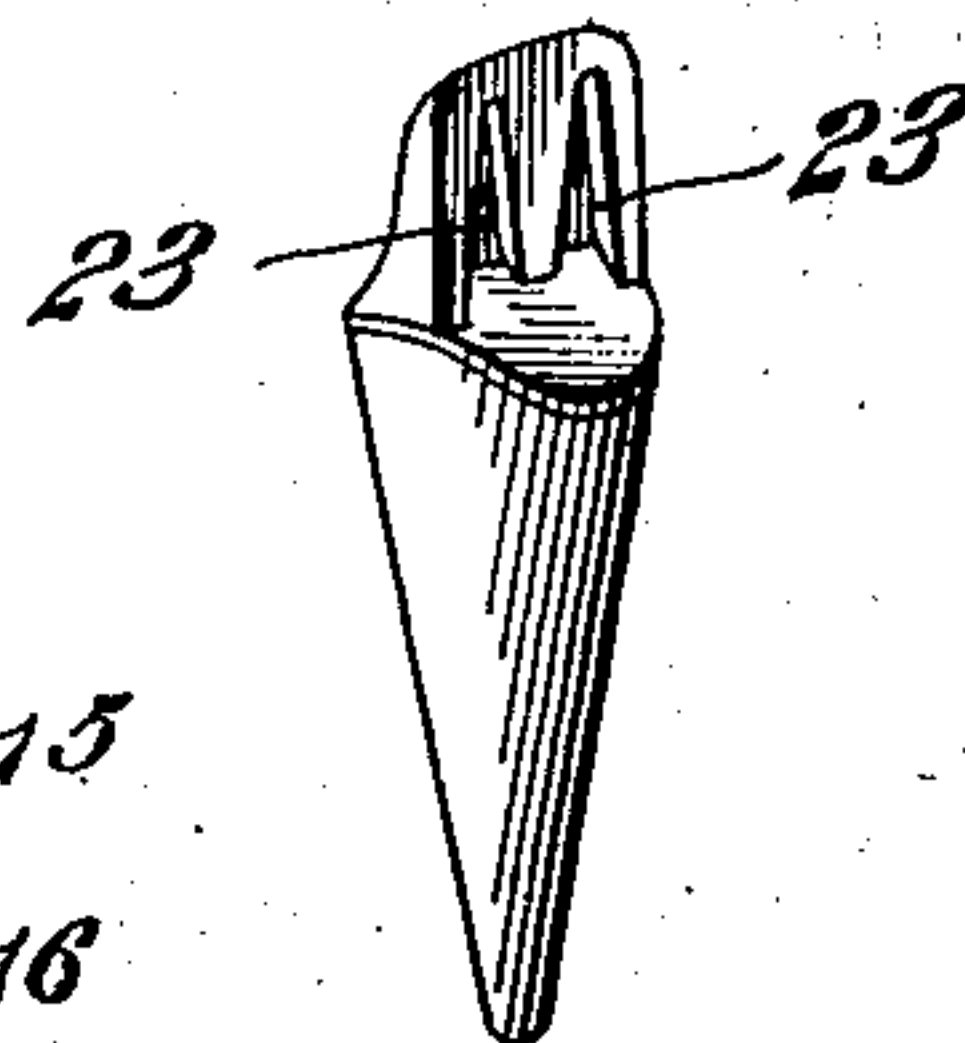
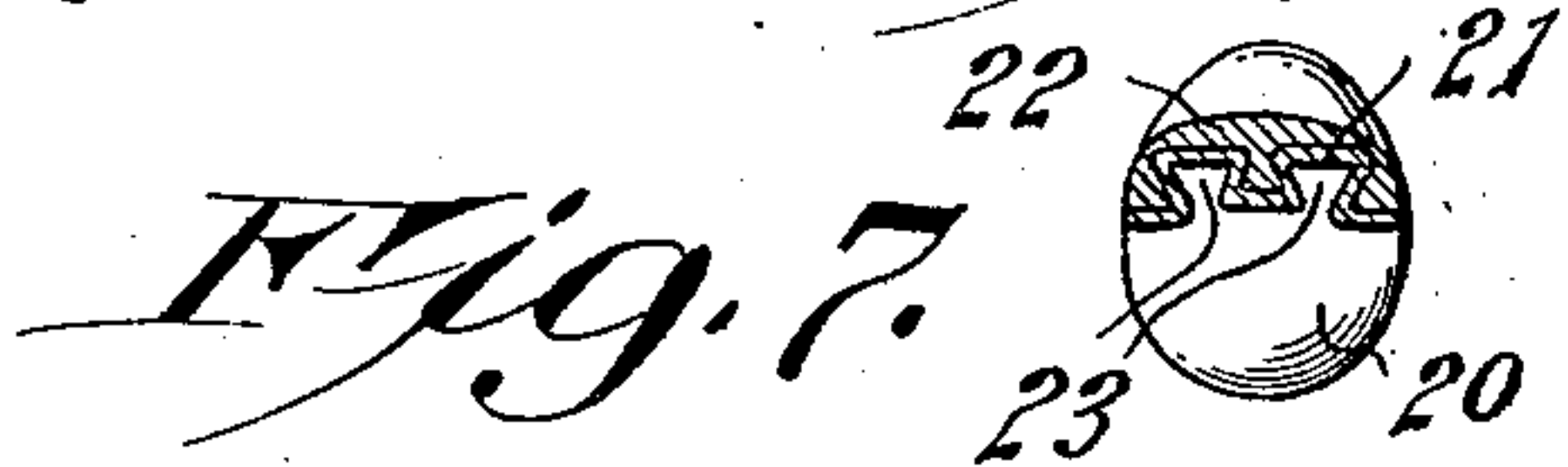


Fig. 8.

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UNITED STATES PATENT OFFICE.

JAMES B. RIGHTER, OF RIVER FALLS, WISCONSIN.

ARTIFICIAL-TOOTH CROWN AND BRIDGEWORK.

No. 873,789.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed August 9, 1906. Serial No. 329,932.

To all whom it may concern:

Be it known that I, JAMES B. RIGHTER, a citizen of the United States, residing at River Falls, in the county of Pierce and State of Wisconsin, have invented a new and useful Artificial-Tooth Crown and Bridgework, of which the following is a specification.

This invention relates to means for securing artificial teeth in place, and is clearly applicable either to single crowns or bridge work.

The principal object is to provide novel means of a simple nature, whereby artificial teeth can be effectively secured in place, will be completely reinforced to prevent damage thereto, and yet if injured, are so arranged that they may be easily, quickly and cheaply repaired, the structure moreover being such that the crown or bridge can be constructed without the necessity of submitting the porcelain or tooth elements to heat, and thus eliminating to a very material degree, the danger of cracking, fracturing or discoloring the porcelains during the manufacture of the crown or bridge.

In the drawings:—Figure 1 is a front elevation of a bridge, constructed in accordance with the present invention. Fig. 2 is a horizontal sectional view on the line 2—2 of Fig. 1. Fig. 3 is a vertical sectional view on the line 3—3 of Fig. 2. Fig. 4 is a front elevation of a portion of the backing strip, illustrating the manner in which the tooth elements are positioned. Fig. 5 is a detail perspective view of a crown structure. Fig. 6 is a horizontal sectional view therethrough. Fig. 7 is a vertical sectional view through the embodiment illustrated in Fig. 5. Fig. 8 is a detail perspective view of one of the tooth dummies.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

Referring first to the embodiment illustrated in Figs. 1—4 inclusive, spaced root-engaging pins 8 of any well known construction are provided and are carried by copings 9. These copings are connected by a backing strip composed of a series of sections or plates 10 arranged edge to edge, each plate being provided with a socket 11 extending from the inner edge and terminating short of the outer edge. The sockets are dovetailed or undercut, as shown at 12, and preferably, though not necessarily taper toward their outer ends. The various plates are entirely

separate and independent elements, but in the manufacture of the bridge, as hereinafter described, they are soldered or fastened together by a metallic or other investment 13 that is flowed against the rear faces thereof, said investment entering the dovetailed or undercut recesses 14, formed between the adjacent walls of the sockets 11, as shown in Fig. 2. Tooth dummies or porcelain facings are designated by the reference numeral 15, and are of porcelain or other suitable material. These tooth dummies have flat rear faces 16 that abut against the front faces of the plates or sections 10. The tooth dummies carry pairs of rearwardly extending pins 17, preferably embedded in the thickest portions of the elements, though they may be placed at any distance from the ends of the teeth as desired. These pins are provided at their outer or projecting ends with heads 18, which interlock in the undercut portions of the sockets 11, the heads being adapted to be passed laterally into the sockets at their inner ends and moved outwardly into interlocking engagement, as clearly illustrated in Fig. 4, being finally cemented in place in a manner well understood.

In the manufacture of a bridge, the desired tooth dummies and metal backings are placed together with the pins of the former engaged in the sockets of the latter, and the parts are ground to suit the bridge. These parts are then waxed into position, the tooth dummies are removed, and any form of suitable investment used in making this character of work is run in carefully, the copings and root-engaging pins being also secured in position. The porcelain facing or tooth dummies 15 are then replaced, and cemented, thus completing the structure. There are many advantages for the arrangement disclosed. In the first place, the bridge can be constructed without submitting the porcelain elements to heat, thereby avoiding the danger of discoloration and fracture. The tooth dummies or porcelain facings are furthermore thoroughly reinforced by the metal backing so that the stress from biting is effectively withstood without damage. The projecting pins, being formed in the thickest portion of the tooth dummies, do not weaken the same as in the structures now in common use, wherein sockets are formed in said dummies. Moreover, by having the pins in the thicker portions, they can be set more deeply in the porcelain, and thus have greater an-

chorage. The cement moreover serves to unite these elements with the backing. In this connection, it will be observed that the said cement engages between and around the pins, effectively securing them in place. In case of injury, repairs may be more readily made to the particular part affected without the necessity of altering or deranging the other elements or parts.

10 That the invention is as fully applicable to crowns, will be evident by reference to Figs. 5, 6 and 7, of the drawings, wherein a slightly modified form of construction is illustrated. The root-engaging pin is shown at 19, and is
15 connected to a coping or cap 20, the cap carrying an outstanding backing plate 21 reinforced by investment 22. While a single socket may be provided in the backing plate as in the first described construction, a double
20 socket may be employed if desired, and as shown at 23, the sections of the socket are in the form of outwardly tapered dovetails, said dovetails extending from the inner end of the backing plate and terminating short of the
25 outer end thereof. It will be evident that this structure, including the method of manufacture, and the advantages arising therefrom, is substantially the same as that first set forth, so that a further description is be-
30 lieved to be unnecessary.

From the foregoing, it is thought that the construction, operation, and many advantages of the herein described invention will be apparent to those skilled in the art, with-
35 out further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the ad-
40 vantages of the invention.

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

45 1. In tooth crown and bridge work of the character described, the combination with a coping, of a backing plate located upon the

coping and having an undercut socket in its front face, investment located in rear of the plate and upon the coping and securing the two together, and a tooth dummy having a
50 rearwardly projecting headed stud secured in the socket and interlocked with the undercut walls thereof.

2. In tooth crown and bridge work of the character described, the combination with
55 spaced root-engaging devices, of a backing strip comprising a plurality of separate sections having sockets in their front faces, investment securing the sections of the strip together and securing said strip to the root-
60 engaging devices, and tooth dummies located against the front side of the strip and having projections on their rear sides that are interlocked in the said sockets of the sections.

3. In tooth crown and bridge work of the
65 character described, the combination with spaced root-engaging pins, of copings mounted thereon, a backing strip connecting the copings and comprising a series of sections, each section having an undercut socket ex-
70 tending from its inner end and terminating short of its outer end, investment connecting the sections on their rear sides, and tooth dummies located against the front side of the
75 strip and having rearwardly projecting headed pins that interlock in the undercut sockets.

4. In tooth crown and bridge work of the character described, the combination with a
80 backing strip comprising a plurality of separate sections, of investment securing the sections together edge to edge, tooth dummies interlocked with the front sides of the sections, and tooth engaging devices for secur-
85 ing the strip in place.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES B. RIGHTER.

Witnesses:

W. P. KNOWLES,
L. H. ASHLEY.