No. 697,983. Patented Apr. 22, 1902.

S. H. B. COCHRANE.

ARTIFICIAL DENTURE.

(Application filed Dec. 7, 1901.)

(No Model.)

Fig. 1.

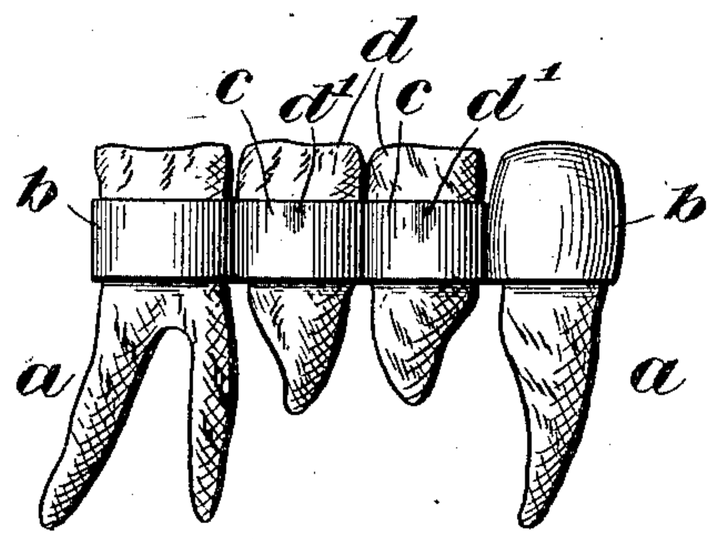


Fig. 2.

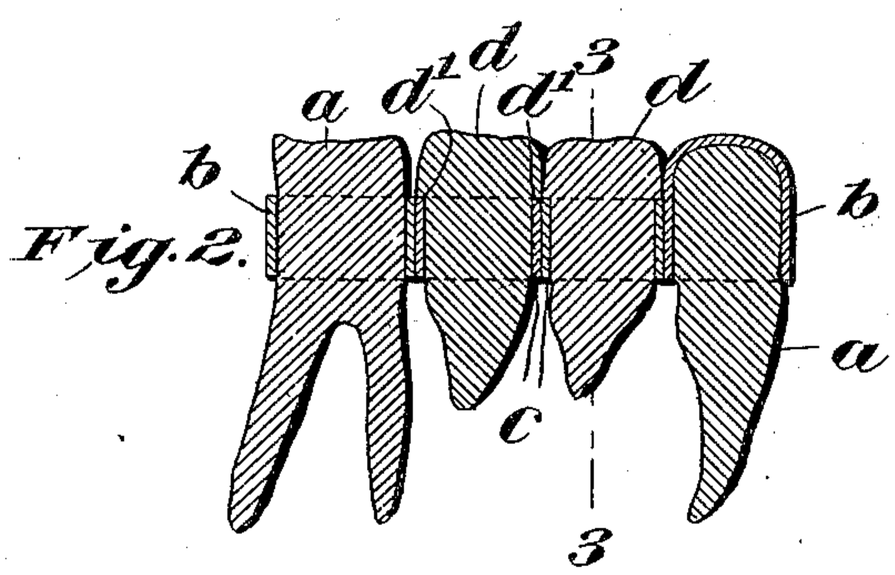


Fig. 3.

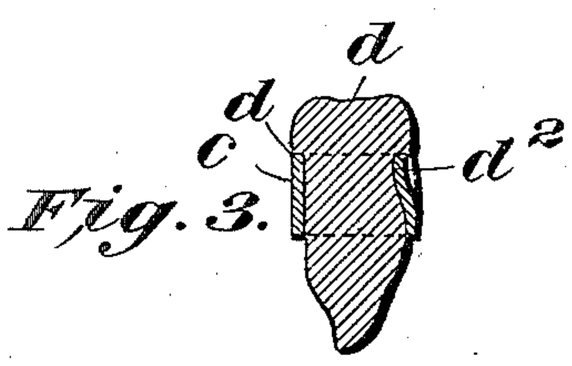
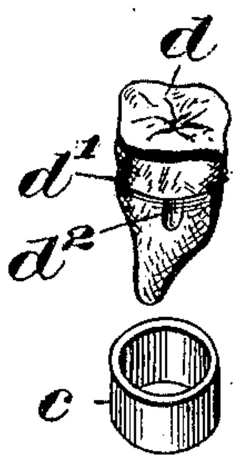


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

SEABIRD H. B. COCHRANE, OF CANAL WINCHESTER, OHIO.

ARTIFICIAL DENTURE.

SPECIFICATION forming part of Letters Patent No. 697,983, dated April 22, 1902.

Application filed December 7, 1901. Serial No. 85,064. (No model.)

To all whom it may concern:

Be it known that I, SEABIRD H. B. COCHRANE, a citizen of the United States of America, residing at Canal Winchester, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Artificial Dentures, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a dental bridge constructed according to my invention; Fig. 2, a vertical longitudinal sectional view through the same; Fig. 3, a vertical section taken through line 3 3 on Fig. 2; and Fig. 4, a perspective view in detail of one of the artificial teeth and its supporting-socket, the parts being shown separated for the purpose of better illustration.

This invention has relation to that class of artificial dentures known as "bridgework;" and it has for its object the production of a strong and simple bridge of improved construction which shall be inexpensive to make and eminently durable.

The invention has for its further object the production of an artificial tooth having a form especially adapting it for use in my improved bridge, as more fully hereinafter set forth.

The invention will be best understood by reference to the drawings, in which the reference-letters *a* designate the two natural or permanent teeth adjoining the cavity to be spanned; *b*, the crowns on the permanent teeth which support the bridge and which may be of any suitable construction; *c*, the metal bands or sockets constituting the bridge proper, there being as many of these bands as there are artificial teeth and the bands being soldered or otherwise fastened to the crowns or bands on the permanent teeth and to each other at their adjoining surfaces, and *d* the artificial teeth fitted and supported in these bands, each of these teeth having formed around its cervical border or neck an annular shoulder *d'*, which fits down closely against the upper edge of the band and is deep enough to bring the outer surface of the band flush with the crown portion of the tooth, as shown. As will be observed, shoulder *d'* faces toward the gum or root end of the tooth, so that the tooth will be supported squarely on the shoulder and also that the portion of the tooth from said shoulder to the root or gum end will be reduced in diameter, thereby enabling it to be removably inserted in the socket during the process of articulating the teeth on the model. The bands *c* have sufficient width to form firm sockets for the teeth, and they are constructed of suitable non-corrodible malleable metal, such as gold or platinum, and of a shape to fit the cross-sectional shape of the teeth to be supported.

The artificial teeth are constructed of porcelain, gold, or platinum or other suitable material and in shape closely approximating natural teeth, and in order to lock them in their sockets each tooth is provided with a longitudinal recess d^2, just below the shoulder d', into which a portion of the metal of the band is peened or forced by means of a suitable tool, the malleability of the metal permitting this to be readily done. If desired, the teeth may be more firmly set in the sockets by introducing between them and the bands a small quantity of oxyphosphate or other cement, and the use of this cement will result in the further advantage of making a liquid-tight joint, sealing it against the acids of the mouth, and thereby contributing to cleanliness and longevity of the appliance.

To construct and apply my bridge, the teeth should be first nicely fitted in the bands or sockets, but not permanently fastened therein. Then they are placed on the usual model to be bridged and properly arranged and articulated. Then the teeth are removed from the socket, and the sockets are soldered together and to the bands or crowns that are to be fastened to the permanent teeth. Then after the soldering is thus completed the teeth are replaced in the sockets and locked therein by peening or forcing small portions of the metal of the sockets into the recesses d^2, thereby completing the bridge and putting it in readiness for attachment to the permanent teeth. The teeth are of sufficient length to admit grinding them to accommodate deep or shallow bridges and are to be ground concave to fit the gum in the usual way.

It is the design of my invention to produce a bridge that shall possess the following important advantages:- First, there will be no checking or cracking of the teeth from soldering, as the soldering will be done with the

teeth out of their supporting-bands; secondly, the teeth will be of natural shape and have full crown; thirdly, the work will have the maximum of strength and durability.

I wish it understood that I may vary the detail construction of my bridge without in the least departing from my invention.

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

1. An artificial tooth, consisting of a body portion having substantially the shape of the natural tooth for which it is to be substituted and having that portion between the cervical border and the root or gum end of the tooth reduced in diameter, thereby forming at the cervical border an annular shoulder which faces toward the root or gum end of the tooth.

2. An artificial tooth, having substantially the shape of the tooth which it is to replace and provided at its cervical border with an annular shoulder extending entirely around the tooth and facing toward the root or gum end of the tooth, the portion of the tooth between this shoulder and the gum end being reduced in diameter and provided with a recess, as and for the purposes set forth.

3. In a dental bridge, in combination, a bridge consisting of an annular socket-band and means for attaching it to the permanent teeth, and an artificial tooth fitted in and supported by said socket-band, whereby the artificial tooth will be firmly supported all around and have a crown portion of substantially the shape and area of the natural tooth it is to replace.

4. In a dental bridge, the combination of a bridge consisting of an endless socket-band and means for attaching it to the permanent teeth, and an artificial tooth secured in and extending through said socket-band and shouldered at its cervical border to abut against the edge of said socket-band entirely around it for the purposes set forth.

5. In a dental bridge, the combination of a bridge consisting of an endless socket-band of malleable metal, means for attaching it to the permanent teeth, and an artificial tooth fitting in and extending through said socket-band and shouldered to fit against one of its edges, said artificial tooth being provided with a recess and a portion of the metal socket-band being forced into said recess to lock the tooth in the socket-band.

6. In a dental bridge, the combination of a bridge proper consisting of two or more annular socket-bands soldered together at their adjoining faces and provided with means for securing them to natural teeth in the mouth, and an artificial tooth fitted in and extending through each of said socket-bands, and means for supporting and locking said teeth in their respective socket-bands for the purposes set forth.

7. In a dental bridge, the combination of a bridge proper consisting of an endless socket-band, means for attaching said band to the adjacent natural teeth, and an artificial tooth having its root or gum end reduced in diameter and fitted in and extending through said band, the shoulder thus formed at the cervical border by reducing the diameter of the tooth fitting against the edge of the socket-band all around, and means for fastening the tooth in said socket-band, for the purposes set forth.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 5th day of December, 1901.

SEABIRD H. B. COCHRANE.

Witnesses:
WILLIAM H. LANE,
EDYTHE B. HANCOCK.