

G. S. WHITTAKER.
METHOD OF MAKING DENTAL PLATES.
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994,895.

Patented June 13, 1911.

Fig. 1.

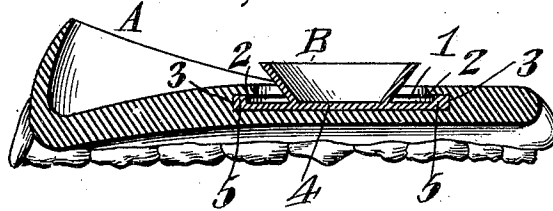


Fig. 2.

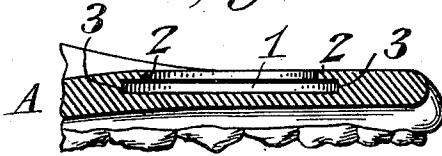


Fig. 3.

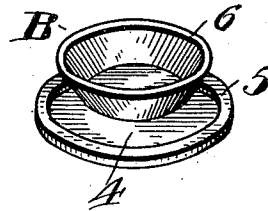


Fig. 4.

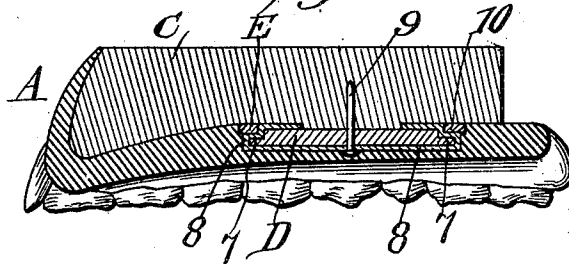


Fig. 5.

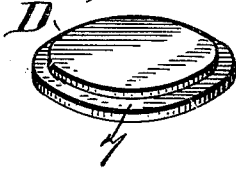


Fig. 6.

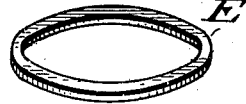
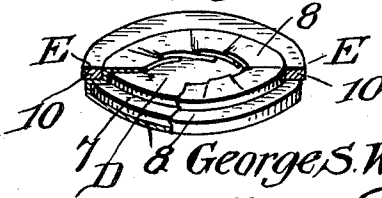


Fig. 7.



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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING DENTAL PLATES.

994,895.

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To all whom it may concern:

Be it known that I, GEORGE S. WHITTAKER, a citizen of the United States, residing at Gloversville, in the county of Fulton and State of New York, have invented a new and useful Method of Making Dental Plates, of which the following is a specification.

This invention relates to the method of making dental plates of that class in which a socket is formed in the upper or roof-engaging surface of the plate to form a suction cavity, and to receive a flexible suction device such as a cup disk. Hitherto, in making dental plates of this character, it has been difficult to form the overhanging peripheral flange in the socket that holds the cup disk or suction device in place for the reason that this flange could not be made to conform accurately to the undulations and angles of the roof of the mouth, whereby the suction necessary to hold the set of teeth in place could not be obtained.

The object of the present invention is to provide an extremely simple, efficient and practical method whereby the socket with its overhanging marginal flange can be formed with the plate in one operation, and, at the same time accurately conform to the roof of the mouth so that the maximum suction effect can be obtained.

The various steps by which the invention is carried out will be hereinafter more fully set forth in connection with the accompanying drawing, in which,

Figure 1 is a vertical longitudinal section of a set of upper teeth in which the plate is constructed in accordance with the present method, the cup disk or suction device being shown in position on the plate. Fig. 2 is a similar view of a portion of the plate with the cup disk removed. Fig. 3 is a perspective view of the cup disk or suction device. Fig. 4 is a longitudinal section of the plate in position on the roof cast and showing the manner of forming the annular flange or lip around the socket. Fig. 5 is a perspective view of the core piece for forming the socket. Fig. 6 is a perspective view of the soft rubber ring which is vulcanized to the plate to form the flange or lip in the socket thereof. Fig. 7 is a perspective view of the core piece with the soft rubber ring in position thereon before being applied to the cast.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawing, and more particularly to Figs. 1 to 3, inclusive, A designates the vulcanized plate of the finished set of teeth, and B, the soft rubber suction device or cup disk. The plate A is molded on a cast formed in the usual manner, and during the molding operation, a socket 1 is formed in the top surface of the plate, according to the process hereinafter to be described. This socket is preferably circular and the peripheral wall of the socket has an inwardly extending annular continuous lip or flange 2 whereby an annular pocket or seat 3 is formed to receive the marginal portion of the bottom disk 4 of the device B, the said marginal portion being formed with a circular upstanding bead 5 so as to snugly fit under the lip or flange 2. The bottom plate or disk 4 is flat on its under side to fit the flat bottom of the socket. Rising from the disk 4 is a centrally-disposed flaring flange 6 that constitutes a cup projecting above the roof-engaging surface of the plate so as to adhere to the hard tissues of the roof of the mouth in a well known manner. The lip or flange 2 is an integral part of the plate A and is formed so as to accurately fit the roof of the mouth, so that the space between the cup 6 and wall of the socket constitutes a vacuum or suction chamber, in addition to the suction chamber formed by the cup. A double suction is thus produced on the roof of the mouth on both the hard and soft tissues, with the result that the plate is firmly held in position.

In carrying out the process, a cast C is made of the roof of the mouth in the usual manner, and attached to the bottom of this cast is a core D whereby the socket 1 is formed in the plate. This core constitutes a seat or support for a ring E, Fig. 6, of soft rubber which forms the lip or flange 2 of the socket. The core is preferably a flat disk or other body, so that it can be pressed in intimate contact with the cast, a partially vulcanized rubber being especially suitable for this purpose. As shown in Fig. 5, the core has a peripheral flange 7 that forms a seat for the ring E. Since the core is made of rubber, it is necessary to provide a non-adhesive covering for preventing the core from becoming a part of the plate during vulcanizing of the latter, and for this purpose, a coating 8 of tin-foil or equivalent means is applied to the bottom side of the core and the marginal portion of the tin-

foil plate is lapped over the flange 7 and partially over the top surface of the core, as clearly shown in Fig. 7. The ring E is seated on the foil-coated flange 7 of the
 5 core and then the latter is secured to the under surface of the cast in any desired position, as for instance, by a tack 9 passing through the center of the core and piercing the cast, it being necessary to apply the
 10 core to the cast with the ring uppermost so as to bear against the impression-carrying surface of the cast. After the ring-carrying core is thus placed on the cast, the entire exposed area of the core will be coated
 15 with tin-foil so that when the plate is molded and vulcanized, the core can be readily taken out, since the foil covering prevents the union of the two. The ring E extends slightly beyond the periphery of the flange
 20 7 of the core, as indicated at 10, Fig. 7, so that a considerable area of the ring is exposed for welding to the rubber of which the plate is formed. During the vulcanizing process, the ring will become an integral
 25 part of the plate and form a hard overhanging lip or flange extending continuously around the socket of the plate. After the finished plate is removed from the cast, the core D, together with the tin-foil, is taken
 30 out of the socket. Since the ring is initially soft, it will sink into the depressions or undulations in the impression surface of the cast and consequently will fit the roof of the mouth at every point, and by reason of this,
 35 a maximum suction can be obtained so that the set of teeth will be firmly held in place in the mouth.

While the dental plate shown and described results from the practice of the
 40 method described, it is not to be understood that the method of the present invention cannot be practiced in a manner to produce a dental plate differing from that shown, and, therefore, the invention is not limited
 45 to such exact conformity in practice to the description as would preclude the manufacture of a dental plate in which practice of the method the salient features of the invention are retained, although there be im-
 50 material departures from the exact order of steps in the method, or the exact procedure set forth.

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

1. The herein described process of making dental plates which consists in forming a cast, applying a core to the impression face of the cast, holding a ring in contact with the impression face of the cast in proximity
 60 to the core, molding a plate on the cast over the core and ring and vulcanizing the ring to connect it to the plate.

2. The herein described process of making dental plates which consists in forming a
 65 cast, securing a socket-forming core to the impression face of the cast, applying a non-adhesive coating to the exposed surfaces of the core, supporting a soft rubber member against the impression face of the cast by
 70 the coated portion of the core, forming a plate on the cast and core, and vulcanizing the rubber member to the plate.

3. The herein described process of making dental plates which consists in forming a
 75 cast, applying to the impression face thereof a yielding core having a peripheral seat, placing and supporting a soft rubber ring on the seat in engagement with the impression face of the cast, and vulcanizing the
 80 plate to the periphery of the ring.

4. The process of making dental plates which consists in preparing a flexible cavity-producing form, protecting such form against the action of vulcanization by a
 85 coating of non-vulcanizable material and securing the form in proper relation to the cast from which the dental plate is to be made, then molding the body of the plate against the cast and the cavity-producing
 90 form with a ledge member of vulcanizable and impressionable material in contact with the cast and the body portion of the plate, and then vulcanizing the body of the plate and the ledge member together while in
 95 position against the cast.

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

GEORGE S. WHITTAKER.

Witnesses:

JAMES H. DRURY,
 BERTHA A. MAY.