H. J. HENDERSON.

APPARATUS AND PROCESS FOR PRODUCING DENTAL IMPRESSIONS.

APPLICATION FILED JUNE 13, 1921.

1,437,844. Patented Dec. 5, 1922.

FIG. 1

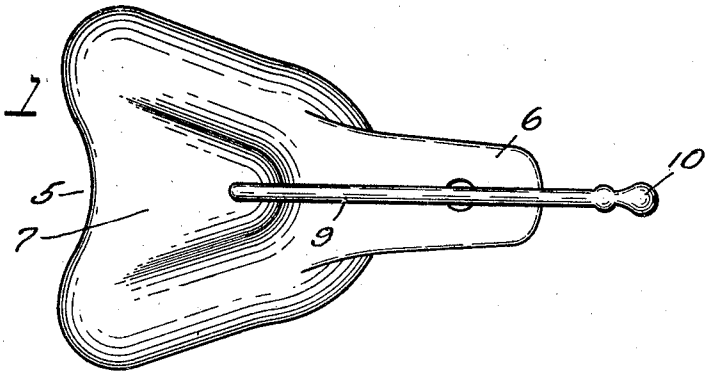


FIG. 2

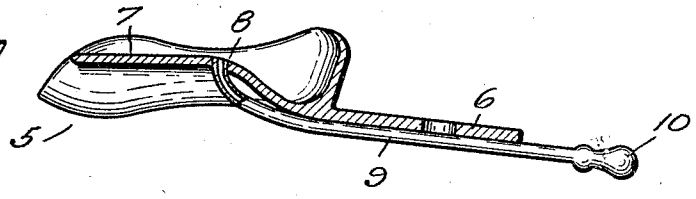


FIG. 3

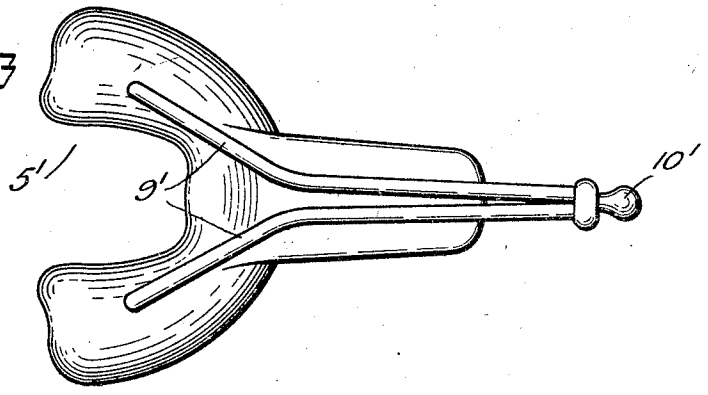
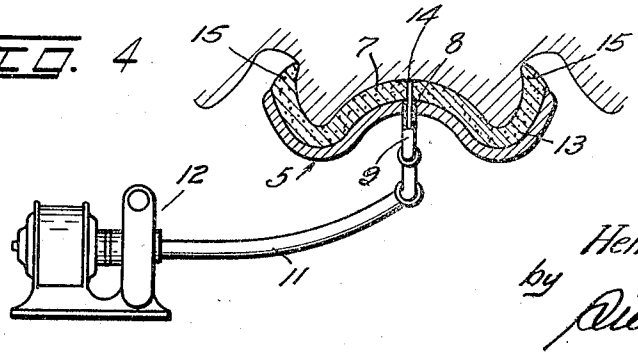


FIG. 4



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UNITED STATES PATENT OFFICE.

HENRY J. HENDERSON, OF VICTORIA, BRITISH COLUMBIA, CANADA.

APPARATUS AND PROCESS FOR PRODUCING DENTAL IMPRESSIONS.

Application filed June 13, 1921. Serial No. 477,217.

To all whom it may concern:

Be it known that I, HENRY J. HENDERSON, a subject of the King of England, residing at Victoria, in the Province of British Columbia, Canada, have invented certain new and useful Improvements in Apparatus and Processes for Producing Dental Impressions, of which the following is a specification.

The principal object of my invention is the provision of simple and efficient means to obviate the difficulty and much of the labor and time hitherto consumed in making impressions to produce dental plates which will fit the gum tissues of a person's mouth.

Another object of the invention resides in impression making apparatus having few parts and of a nature not readily deranged and which may conveniently be retained in a clean and sanitary condition.

Further objects and advantages will appear from the following specification.

The invention consists, generally, in certain improvements in apparatus for taking dental impressions and, more particularly, to a novel means for partially retreating such impressions in order to dispense with the necessity of "trimming" or regulating the work to ensure an accurate peripheral fit.

In order that my invention may be fully understood, I will describe an embodiment thereof with reference to the accompanying drawings, in which,—

Figure 1 is an underside plan view of an upper-jaw impression tray. Fig. 2 is a longitudinal vertical section thereof. Fig. 3 is an upper side plan view of a lower jaw impression tray. Fig. 4 is a view partly in transverse vertical section and partly in end elevation of apparatus including the tray illustrated in Figs. 1 and 2, shown applied.

Reference being had to Figs. 1 and 2, the numeral 5 represents a tray adapted for holding a substance or composition for taking the impression of an upper palate and jaw and is provided with a forwardly extending stem or handle 6.

At approximately the center of its floor portion 7, said tray is provided with an aperture 8 within which is secured the end of a rigid tube 9. Said tube extends, preferably, along the underside of the handle 6 and to which it is secured by solder or otherwise. The forward extremity of the tube 9 is formed to afford a nipple 10, or an equivalent, which is engageable with the end of a flexible tube 11 (Fig. 4) extending to a suction pump 12 which may be operated by any suitable power or manually actuated means.

To accommodate the patient's tongue, however, the tray 5^1 for a lower-jaw impression is made substantially of a U-shape as shown in Fig. 3.

With such a construction, I employ two branch tubes 9^1 extending from the nipple end 10^1 to the respective bifurcations of the tray.

For use, a quantity of modelling material or composition which is adapted to set or solidify at or above a temperature of about 130° F. is placed in the cavity of a tray 5, for example and while at a substantially uniform temperature and in conformable state is placed in a patient's mouth. The operator thereupon presses the tray upwardly to cause said material to be forcibly brought against the roof of the mouth to receive a primary impression thereof. The tray is thus held until the material sets or becomes firm by cooling.

The tray, bearing the material, as 13 Fig. 4, having the primary impression therein is now removed from the mouth and the material is then pierced by a suitable instrument to provide a hole 14 which will communicate with the air duct afforded by the tube 9.

The portion of the material, as at 15, at and in proximity to the periphery of the mold is then softened by reheating the same and which may conveniently be accomplished by a torch or Bunsen flame.

In order to moderate when necessary the temperature of the material to be bearable to the patient's mouth, the tray and the partially completed impression material is then cooled, preferably by submerging the same in warm water. The tray-tube 9 is then coupled with the flexible tube 11 and, with the material portion 15 still plastic, the tray is returned to the mouth and pressed into position. Thus arranged, the pump 12 is actuated to exhaust air through the tube 9 from the interstice between the palate and the material thereby creating a suction which cooperates with the external atmospheric pressure to cause the plastic edges 15 of the

material to be forced or brought into juxtaposition with the adjacent gum tissues in the mouth.

The suction or partial vacuum is maintained for several minutes or until the reheated portion of the mold or impression becomes set by cooling. The tray and mold are then removed and furnishes a matrice from which a practically perfectly fitting plate, bridge or the like may be produced.

It is to be understood that the construction and manner of using the appliances above described may be varied more or less to satisfy the convenience of the manipulator, the character of the impression material, or the requirement of a special piece of work, within the scope of the appended claims and without departing from the spirit of the invention or sacrificing its advantages.

What I claim is,—

1. The herein described process which consists in taking a dental impression in conformable material to form a mold having temporarily pliable edges, and then withdrawing air from the space between the mold and the gum tissues of which the impression has been made to cause the pliable edges of the mold to be forced against the adjacent portions of said gum tissues.

2. The herein described process which consists in taking the dental impression in conformable material to form a mold which is allowed to set and harden, then rendering the edges of the mold temporarily pliable, and then withdrawing the air from between the mold and the gum tissues of which the impression has been made to cause the pliant edges of the mold to be forced against the adjacent portions of the gum tissues.

3. An impression tray for dentistry including a tray member having a handle and adapted to hold impression material, a tube extending through the bottom of said tray member and adapted to communicate with a hole to be provided through said material, and suction producing means adapted to be connected to said tube for withdrawing air through said hole and said tube from above said material.

4. An impression tray for dentistry including a rigid tray member having a handle and adapted to hold impression material, a suction tube extending through the bottom of said tray member and adapted to communicate with a hole to be provided through said material, and means upon the outer end of said tube to facilitate connection of the latter with a suction producing means, said tube being rigid and extending outwardly beneath and longitudinally of said handle, said tube being fastened to the under-surface of the handle and extending outwardly beyond the outer end of the latter.

5. An impression tray for dentistry having a handle and provided with means to facilitate the exhaustion of air from the interstice between impression material carried by the tray and the gum tissues of which an impression has been made in said material.

6. As a means for taking dental impressions without trimming, or retreating such impressions to obtain accurate peripheral fit, an impression tray having a handle and adapted to hold material in which an impression has been made and which has its edges temporarily pliable, and means associated with the tray to facilitate exhaustion of air from between the impression material and the gum tissues of which the impression has been made, whereby the pliable edges of the impression material are forced into snug contact with the adjacent portions of said tissues.

Signed at Victoria, B. C., Canada, this 27th day of May 1921.

HENRY J. HENDERSON.

Witnesses:
B. J. SINNOTT,
D. A. MCINNES.