Nov. 20, 1951 M. J. THOMPSON 2,575,432

DENTAL TRAY

Filed May 17, 1948

Fig 1

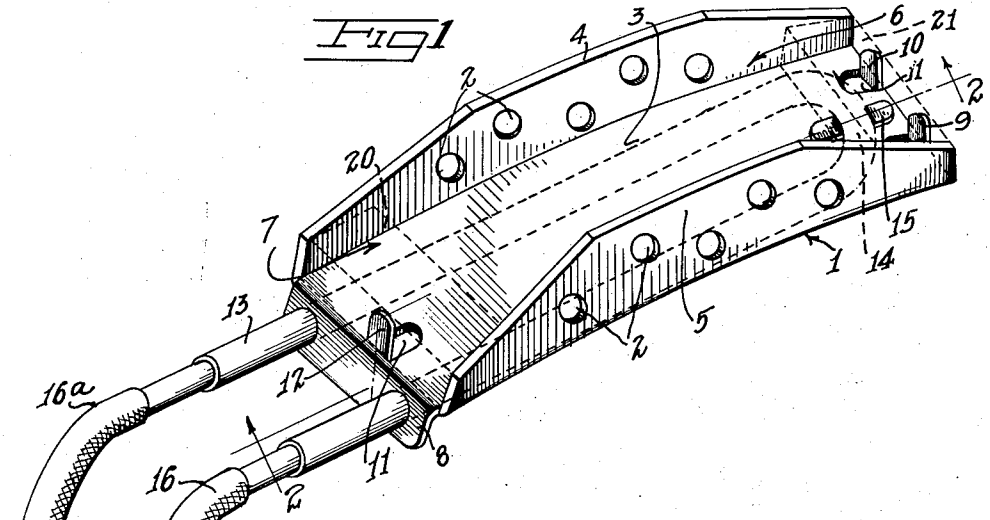


Fig 2

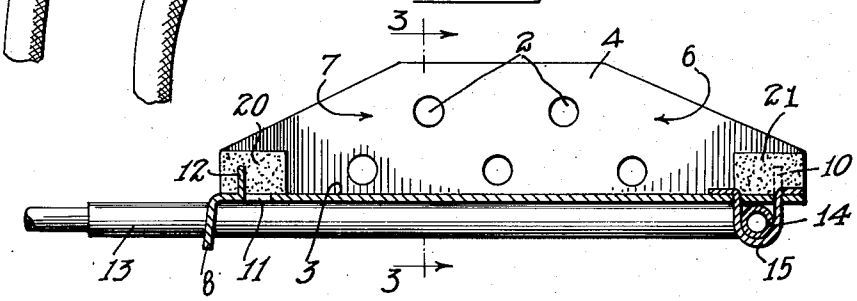


Fig 3

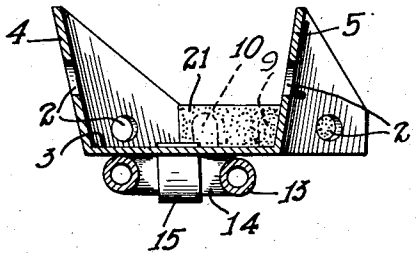
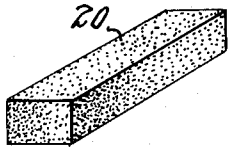


Fig 4



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DENTAL TRAY

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2 Claims. (Cl. 32—17)

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This invention relates to trays of the type used for holding impression materials as used in the taking of impressions of teeth or cavities within the teeth and to the provision in such a tray of means for retaining the impression material within the tray.

It is an object of this invention to provide a tray for holding dental impression material so as to stabilize the material, retain the material in position in the tray, and to provide means for holding stops or dams in position in the tray to stabilize the tray and impression material during the making of the impression of the tooth or teeth and where the stops or dams act not only to retain the impression material but also provide spacers to limit the penetration of the tooth or teeth through the impression material so that the tooth does not penetrate the impression material to the base of the tray.

Other objects and advantages of this invention it is believed will be apparent from the following detailed description of a preferred embodiment thereof as illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a perspective view of a tray embodying my invention illustrating the stop and dam in position at the ends of the tray in dotted lines.

Figure 2 is a sectional view taken substantially on the line 2—2 of Figure 1.

Figure 3 is a sectional view taken substantially on the line 3—3 of Figure 2.

Figure 4 is a perspective view of a section of dental wax or similar material used to form the stop or dam.

In the preferred embodiment of my invention as illustrated in the accompanying drawings I have shown a tray of the type commonly used for the purpose of holding dental impression materials such as dental hydrocolloids and the like, the tray being adapted to hold the dental impression material so that the same may be properly positioned over the tooth or teeth of which the impression is desired so that an impression may be made of the tooth or teeth or of a previously prepared cavity in one or more of the teeth.

The hydrocolloids or impression materials used are of varying degrees of fluidity. In accordance with my invention the tray is provided with a means for holding stops and dams at the opposed ends of the channel formed by such tray so that the impression material is retained within the channel, the stops or dams provide limit means beyond which the tooth or teeth can not

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pass toward the base of the tray to prevent the tooth or teeth or the cavity of the tooth from going through the impression material to contact the base of the channel.

As the impression material is quite fluid and there are no end dams provided in such tray, the impression material has a free exit at the end of the tray during the process of taking the impressions.

The type of tray illustrated is usually employed with dental impression material which is thermal setting, that is, of such temperature when applied to the tooth or to the cavity as to enable the same to flow freely over the surface thereof or into the interstices of the cavity and the permanent impression of the tooth and such cavities is then attained by cooling or sealing the impression material to the point where the same sets before the impression material is removed from the tooth or tooth cavity.

The tray 1 is usually formed of a material such as aluminum or copper having a high degree of thermal conductivity to enable heat to be withdrawn not only from the tray, but from the impression material contained therein. The tray is provided with a plurality of perforations 2 to allow the impression material to escape equally from the teeth and also to lock the impression material to the tray.

The tray 1 is formed of easily bent sheet material providing a base 3 upon which the impression material is seated while in semi-fluid condition and the side-retaining flanges 4 and 5 in which the perforations 2 are formed. As the dental impression material is in a semi-fluid condition as so supported by such tray, it has freedom of movement from the ends 6 and 7 thereof.

In order to confine the dental impression materials at the ends 6 and 7 of the tray and to form a seat for the tray against the surfaces of the teeth of which the impressions are to be made and to confine the dental impression material during the process of making the impression, I utilize end stops 20 and 21 which I position and retain at the open ends of the tray as will hereinafter be specifically set forth.

The end stops 20 and 21 are formed preferably of dental wax or similar material and their thickness, as well as their other dimensions, are variable in accordance with the particular requirements of the impression which it is desired to make of the tooth cavities or surfaces. As such stops 20 and 21 have thickness, they determine between them a portion of dental hydrocolloid,

preventing the base 3 of the tray from being forced against the surface of the teeth, thus insuring the retention of the volume of dental impression material between the surface of the tooth and the base of the tray for the formation of the impression of the tooth surface as well as insuring that sufficient impression material is present to enable the impression of the inner prepared cavity of the tooth to be withdrawn with the remainder of the impression. At the same time the stops 20 and 21 form an additional important function in the forming of such impressions through the use of the tray 1 in that they act as end dams both during the time that the fluid or semi-fluid impression material is injected into the tray holding the impression material against free-flowing from the ends 6 and 7 of the tray during such pouring or injection, and also perform the same function, that is, of confining the impression material, as the hydrocolloid is forced over the teeth during the making of the impression.

In order to provide for the retention of the end stops and dams 20 and 21 at the ends of the tray, I form the ends of the tray with retaining ears 9, 10 and 12 at the opposed ends of the tray. The ears 9, 10 and 12 may be slanted toward the center of the tray to more effectively lock the stops and dams 20 and 21 in position. These ears 9 and 10 are punched out of the base 3, leaving apertures 11 therein which likewise act as retaining means for holding the dental impression material in position as said material flows into the said apertures.

In such trays it is common to provide means to expedite the cooling of the impression material while it is positioned over the teeth or within the prepared cavity. In the tray illustrated I have provided a means for circulating cooling water so that it will extract heat from the tray and from the impression material in the tray; thus I have formed at one end of the tray a flange 8 which extends in a direction opposite to the direction of the flanges 4 and 5 and which is provided for suitable holes for the reception of the water circulation tube 13. The water circulation tube 13 is of U-shape and is retained in position at its return bend 14 by means of a clip 15 which is pressed through a pair of holes formed in the base 3 and soldered to the base 3. As the impression material is in a semi-fluid condition, it flows into the perforations formed in the tray forming a mass of such material both on the interior and exterior of the tray so that extracting heat from the material within the tray is expedited by the circulation of water through the tube 13. The water is circulated

through the tube 13 from a suitable source such as a conduit 16 which in turn is connected with a suitable source of cold water returned through the discharge conduit 16a.

Having fully described my invention, it is to be understood that I do not wish to be limited to the details herein set forth, but my invention is of the full scope of the appended claims.

I claim:

1. A tray for holding and positioning dental impression material for making an impression of teeth including a base having side flanges extending therefrom to provide a channel for the reception of the impression material, the base having formed therealong a plurality of impression material retaining ears extending into the channel, and a wax stop and dam member removably positioned at each end of the tray and normally extending across the channel held in position by the ears, and each of said wax stop members acting to maintain the tray spaced from the teeth and acting to dam the impression material.

2. A tray for holding and positioning a dental impression material for making an impression of teeth, including a base having side flanges extending therefrom to provide a channel for the reception of the impression material, the channel being open at its opposed ends, the base having formed at its ends a plurality of retaining ears extending into the channel to retain a dental wax stop and dam member positioned at each end of the channel over the ears, and the dental wax stop and dam members normally extending across the channel and acting to dam the channel at each end thereof and each dental wax stop and dam member acting to maintain the base spaced from the teeth, and a cooling means consisting of a return flow tube secured to the base of the tray at the side opposite the ears.

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