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METHOD FOR FORMING DENTURES

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Fig. 1.

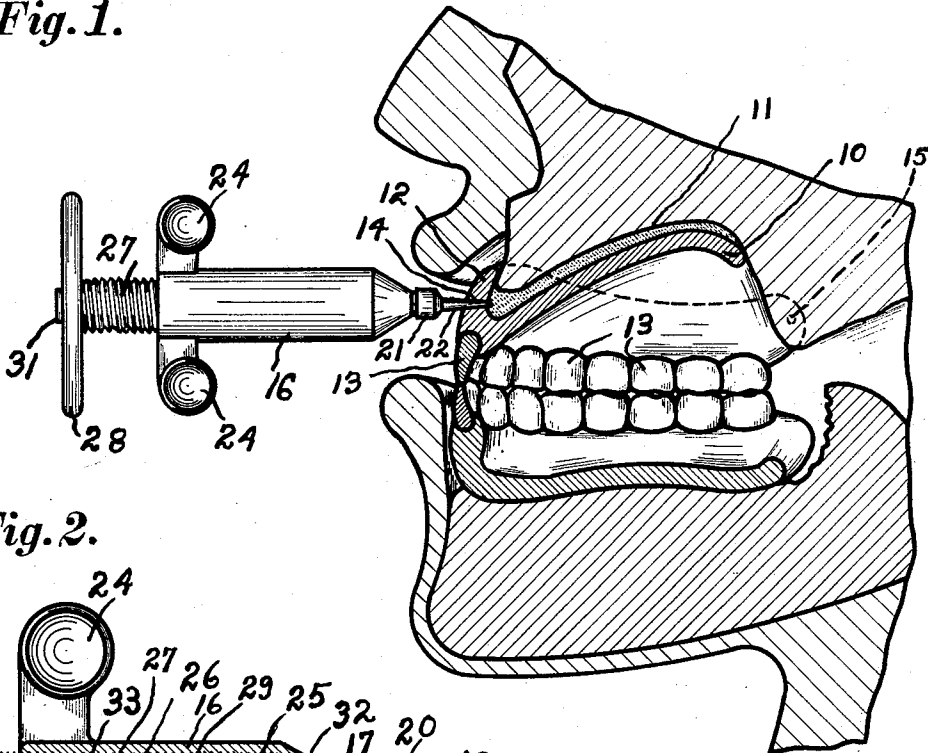


Fig. 2.

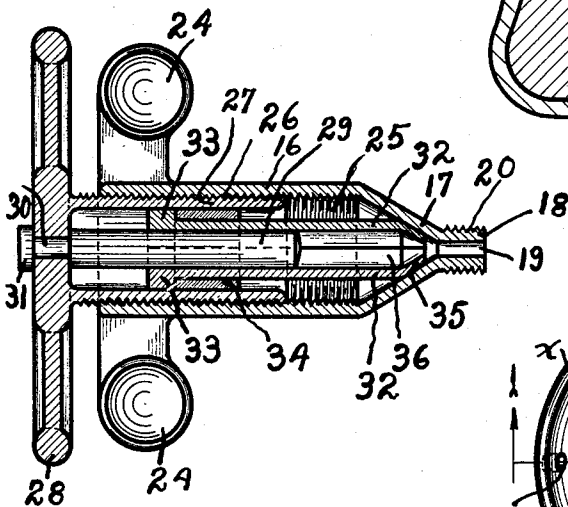
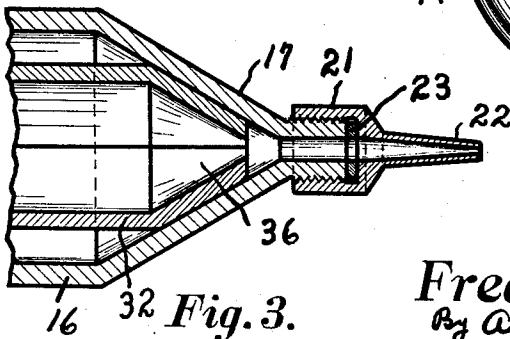


Fig. 3.

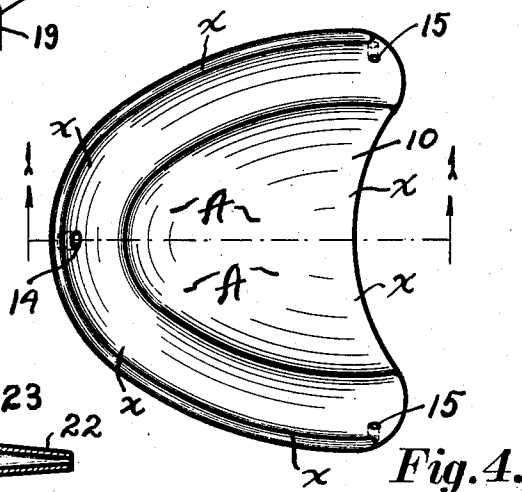


Fig. 4.

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METHOD FOR FORMING DENTURES

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3 Claims. (Cl. 32-2)

This invention relates to a method and means for forming dentures and more particularly to a lining or the relining thereof to provide a form fitting denture or plate which will not only feel comfortable in the mouth of a user but will also remain in place and cling to adjacent mouth surfaces during all conditions of use.

A further object of the invention is to provide a simple method, which through the practice thereof, the above stated objects may be consummated in a manner devoid of discomfort or unpleasantness to the wearer of the denture while the latter is being fitted or made to conform to the curvatures, interstices and individual shape of the mouth of the user of the plate.

A still further object of the invention is to provide a method and means whereby a suitable initially plastic composition may be applied under pressure to a denture while in the mouth of the user thereof for a shortly subsequent permanent union with the denture at the time said composition solidifies, whereby a perfect fit is obtained, the patient or user closing his jaws whereby the initially plastic relining composition is squeezed into the shape of and fills the interstices of the mouth adjacent the denture, thus insuring a snug fit for substantially immediate use during mastication of food.

Other objects and further advantages of the invention will be understood from the following detailed description thereof, reference being had to the accompanying drawing, wherein:

Figure 1 is a transverse section of a fragment of a human head having a denture embodying the present invention within the mouth thereof and illustrating a preferred pressure means or relining applicator which may be employed in the practice of the herein described method.

Figure 2 is a longitudinal section of said pressure applicator means.

Figure 3 is a transverse section on an enlarged scale of a fragment of the applicator shown in Figure 2 provided with an interchangeable and removable nozzle.

Figure 4 is a top plan view of a plate or denture embodying the present invention.

It is well known to the dental art that at the time a perfectly fitting denture or plate is made by a mechanical dentist that subsequently the gums and mouth tissues of the patient shrink or otherwise become altered from their original size, shape and position, in a manner whereby an initially fitted plate or denture is no longer of snug fit and therefore is not comfortable in the mouth of the patient or useable for food mastication purposes.

It is a desideratum to provide a perfectly fitting plate at the time of as well as after the initial manufacture thereof and in order to accomplish the same the plate may be relined by

the herein described method, thereby filling the otherwise void space or spaces between the plate and the gum, whereby the altered plate will be provided with a perfect bearing surface and contact with the adjacent mouth surfaces and tissues of the latter, thereby providing comfort to the user of the plate during mastication of food.

A material which is adapted for use in the formation, repair and relining of plates formed primarily of hecolite, agalyn and the like, more especially a material which will adhere to the foregoing substances and form a union therewith and will also adhere to denture metals such as gold, silver or analogous materials composed primarily of aluminum and amalgams such as are used in dentures and the dental art is described herein.

In practice the method of relining a denture is to first roughen the entire surface to be relined by using and applying thereto a fine abrasive substance, small emery wheel or dentist's burr drill, then thoroughly cleaning with pure acetone, using a brush of fine camel-hair or the like for carrying the acetone.

A composition of matter which may be employed for the said purposes may comprise acetone, pyroxyline and a flaked metal such as gold, silver or aluminum and flavoring matter. The pyroxyline consists of gun cotton dissolved in acetone. The metal is in powdered form and is readily obtainable upon the open market.

The flaked metal, if used, in the composition enhances the appearance of a denture and provides an ornate appearance to the parts thereof which are visible while the denture is in use within the mouth.

The pyroxyline provides body to the composition and the subsequently added additional acetone is a dissolvent thereof and thereby provides a means whereby the pyroxyline may be spread thinly and evenly over a denture for a subsequent union therewith.

Referring now to the drawing for a more particular description, 10 indicates a conventional plate which has initially been provided with a shape which closely conforms to the roof of the user's mouth, said plate having been formed by any of the conventional means and materials as heretofore practiced in the art, said plate having a flange 12 which in use is positioned behind a lip of the wearer and a plurality of artificial teeth or bridge work 13, said plate being removable from said mouth.

The plate 10 in the practice of the present invention is provided with a plurality of apertures through the flange 13 or other suitable portions thereof, the number and position of said apertures with respect to each other and said plate being optional and as may be required, preferably, however, a comparatively larger aperture 14 is

formed through the flange 12, for the reception of a later mentioned nozzle, and also two oppositely disposed smaller apertures 15 are provided adjacent each end and through said flange for the

primary purpose of providing air vents.
A composition of matter which is initially plastic such as or similar to that heretofore mentioned is forced through the aperture 14 for filling any void space between the denture and the roof 11 of the mouth and also the crevices of the plate, air exuding through the holes 15 as more particularly later described.

Said composition of matter has the characteristic of being adapted to adhere to the plate to which it is applied after solidification and the further characteristic of not adhering permanently to the mouth of a user of said plate.

The means for forcing said initially plastic composition between said plate and said mouth may be any suitable means and preferably the specific means shown in the drawing is employed, said forcing means or pressure applicator includes a tubular housing 16 having an end portion 17 of conical shape, the apex thereof terminating in a neck 18 provided with a bore 19 and exterior threads 20, the latter being adapted to receive a nozzle such as or similar to the nozzle 21 shown in Figure 3, said nozzle having a discharge end 22, the walls of which are tapered, preferably, for purposes later mentioned. Preferably a gasket 23 is positioned between the nozzle and the end of the neck 18. The housing 16 is preferably provided with a plurality of outstanding finger-holds 24 which facilitate preventing movement of the housing during later described operations. A portion of the housing is provided with interior annularly disposed screw threads 25.

The threads 25 cooperate with the threads 26 on the exterior surface of a tubular pressure screw 27 which is preferably formed integral with a rotatable finger wheel 28.

A plunger or piston 29 is carried by and medially disposed of the wheel 28 having a shaft 30 which extends through and is journaled on said wheel. Said shaft being preferably provided with a detent 31 which may consist of a removable nut or the like for securing the shaft to the wheel 28 in a removable manner whereby the parts may be readily disassembled for cleaning purposes and whereby at times when rotary movement is applied to the wheel by the operator the plunger or piston 29 preferably does not rotate, the plunger being axially disposed with respect to said wheel.

The elongated piston 29 is snugly received and perfectly fitted in and with respect to a bifurcated cylinder 32 which is preferably formed of two piece construction whereby it may be readily disassembled for facilitating cleaning any residue of the unused composition of matter which may remain in the cylinder after the relining or initial fitting of a denture.

The two half and like portions of the cylinder are each provided with a flange 33, said flanges providing an annularly disposed bifurcated guide member which is of the same diameter as the interior of the pressure screw 27 and adapted to have sliding movements therein, said half portions of the cylinder are maintained in a locked normal position with respect to each other, when in use, preferably by means of an annularly disposed sleeve 34 which encircles the two half portions of the cylinder, the end of the latter opposite to the flange 33 is preferably conical in shape as indicated at 35 and is adapted to abut the

similarly shaped interior wall of the end 17 of the tubular housing 16 whereby the ends 35 of the cylinder half portions are compressed together during use for preventing passage of the composition then within the bore 36 of the cylinder to and in contact with the threads 25 of the housing, it being understood that an accurate ground fit may be provided between the conical members 35 and 17 for said purposes, the arrangement of parts being such that said composition can only exude outwardly through the bore 19 of the neck 18 and through the nozzle for application as later described.

Preferably the end 22 of the nozzle is tapered as shown in Figure 3 and the aperture 14 provided initially through the denture 10 is also of a corresponding conical shape, whereby the initially plastic composition when forced under pressure and into the shape indicated at 11 is prevented from exuding through the aperture 14 and into contact with the lip of the patient or user of the plate while the latter is being fitted.

The steps of the new method, some of which are essential and others thereof preferable, consist of providing the plate or denture 10 with the heretofore mentioned apertures 14 and 15, providing a supply of the initially plastic composition of matter within the bore 36 of the cylinder 32 at which time the wheel 28 is in an outward position with respect to the tubular housing 16 as shown in Figure 1.

The surface portion of the plate 10 to which the composition of matter will finally adhere is cleaned and sterilized and ground or sanded with a dentist's emery, sand paper, burr drill or the like and in addition thereto said surface is ground away so that there are but a plurality or three points of contact between the plate 10 and the gums of the mouth of the patient at the time when the denture is placed within his mouth and whereby a very thin void space or concaved portion is provided, preferably at the points indicated at A, the thickness of said space being comparatively thin, a thickness substantially equal to a piece of tissue paper is preferred.

It will be understood that in Figure 1 there is indicated at 11 a comparatively thick layer of said composition which is there shown thick solely for convenience of illustration and also that a plate or denture may be fitted to a lower jaw with equal facility and by the same method and means as that herein described for the upper jaw.

A portion of the composition, while in a plastic condition, is placed upon the plate 10 on the inner side of the flange 12 thereof and all about the inner side and upper edge of said flange and also upon and adjacent to the rear edge of the plate or at the points or adjacent thereto indicated at X in Figure 4, the purpose thereof being to provide a seal for the void space or concaved portion A of the plate at the time the latter is placed in the mouth. The means of applying said composition to the plate where indicated at X may be any suitable means such as a camel-hair brush or the like and immediately or prior to the hardening of said composition the plate is placed within the mouth of the patient, the pressure applicator means shown in Figures 2 and 3 at this time being immediately applied to the plate; whereupon the patient firmly closes his jaws together whereby the teeth 13 of the plate are in a normal position of use with respect to the teeth of the lower jaw of the patient or a lower plate on said lower jaw as the case may be. The housing 16 of the pressure means being held

within one hand of the operator and prevented from turning as heretofore described, the operator rapidly rotates the finger wheel 28 with his other hand, causing the plastic composition then within the bore 36 of the cylinder 32 to be forced outwardly of the latter and injected upon the said concaved portion of the plate or into said void sealed space between the roof of the mouth of the patient and the then positioned plate, thereby filling said void space and also causing the skin and gums together with the flesh of the roof of the mouth of the patient to become compressed, the then plastic composition filling the crevices and interstices of the upper surface of the plate and the adjacent mouth portions of the patient, said composition being under pressure and being forced as above described, a perfect fit is assured, the pressure and operation being continued until the plastic fluid exudes and fills the said void space or spaces. At this time the patient continues to hold his jaws together until the plastic composition becomes solidified which requires a short interval of time, during which time the composition unites with the plate. After the composition has solidified the plate is removed from the mouth of the patient together with a removal of the forcing or pressure tool from the plate; whereupon any excessive amount of the then solidified composition which adheres to the plate and on any undesired portions thereof, such as may cling to the exterior wall of the flange 12 is removed by grinding, polishing or the like. At this time the exterior wall of the flange is made smooth by any suitable means such as polishing or the like.

The method and means has been above described in connection with plates or dentures formed of various substances and it will be understood that the herein described inventions are equally useful in connection with dentures of a partially resilient character such as rubber plates and the like and also that a rubber plate may be relined and made form fitting as well as plates formed of said various substances which are substantially like Celluloid.

To reline a rubber plate the apertures 14 and 15 are provided therein and an air-seal also provided as heretofore described; whereupon a rubber denture is relined as heretofore described and the owner thereof may immediately use the same with comfort, also if said owner so desires the relined plate may be used as a matrix from which to cast a new form fitting plate composed entirely of rubber with the exception of the artificial teeth thereof and the same may be consummated for plates or dentures formed of other substances, the composition of matter adhering to said various substances with equal facility.

To clean the pressure tool the device is taken apart preferably before the composition solidifies whereupon any of said composition which clings to the interior wall of the cylinder may be removed therefrom with acetone without damage to said wall and if necessary a drill may be inserted through the bore 18 of the neck 16 for reaming and cleaning said bore.

By the foregoing means and method it will be understood that as thus described an absolutely form fitting denture is provided which is not only comfortable to wear in the mouth of the individual user thereof but also sanitary in that the space between the roof of the mouth of the patient and the upper surface of the plate is filled solid for preventing food particles or the

like from lodging therein and also the primary advantage is that the plate will when in use cling to the roof of the mouth during heavy duty use such as the mastication of comparatively solid foods such as steaks or the like, it being only necessary that the user position his plate and press it into place with his thumb for squeezing the air from between the plate and mouth walls for the plate to cling by suction to said mouth.

What is claimed is:

1. The method of relining an imperfectly fitting dental plate made for an individual user thereof which consists in removing a portion of the prior imperfect bearing surface of said plate, providing a plurality of apertures through said plate adjacent the set of teeth thereof, placing an initially plastic composition of matter having a dental plate adhering characteristic on the perimeter of said plate for providing a subsequent seal for said perimeter, placing the treated plate in the mouth and on the jaw of said user in an oppositely disposed relation with respect to a set of teeth carried on an opposite jaw of said user, closing said jaws for causing a proper positioning of said sets of teeth with respect to each other and for sealing said perimeter, injecting a quantity of said composition through one of said apertures into void spaces between the treated bearing surface of said plate and adjacent mouth surfaces, applying pressure to said quantity for filling said spaces and compressing said sets into proper cooperative relation with respect to each other for food mastication purposes, and maintaining the said position of said sets until all portions of said composition in contact with adjacent mouth surfaces solidify for providing said portions with a contour corresponding with the shape of said contacting mouth surfaces and the plate with a bearing surface of form fitting character with respect to the mouth of said user.

2. In the method of fitting a permanent denture plate which includes the initial formation of the plate in a manner whereby the plate will loosely fit the confronting portions of the mouth, providing an aperture through said plate, inserting an initially plastic composition capable of amalgamation with the initial plate formation between the plate and the confronting portions of the mouth, injecting a quantity of said composition through said aperture into the space between the loosely fitting plate and the confronting portions of the mouth, and firmly holding the plate in applied position until the plastic composition has set.

3. The method of fitting a permanent denture plate which includes the initial formation of the plate in a manner whereby appreciable hollows or spaces will be disposed between certain portions of the plate and confronting portions of the mouth, providing a plurality of apertures through said plate, inserting an initially plastic denture composition capable of permanent adherence to the initial plate formation between the plate and the confronting portions of the mouth in a quantity sufficient to fill up said hollows or spaces while said plate is in applied position, and injecting a quantity of said composition through one of said apertures into hollows between the plate and the confronting portions of the mouth.

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