July 20, 1965 C. W. RECTOR 3,195,215

NATURAL EXPRESSION FORMER WITH BITE INDENTATION

Filed Nov. 13, 1962

Fig. 1.

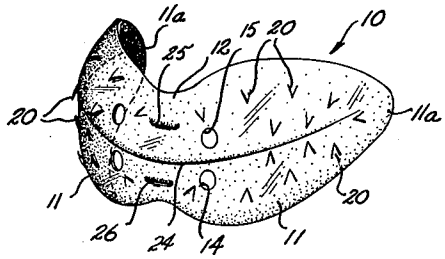


Fig. 2.

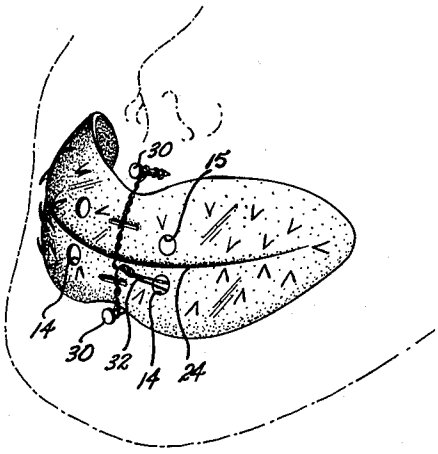


Fig. 3.

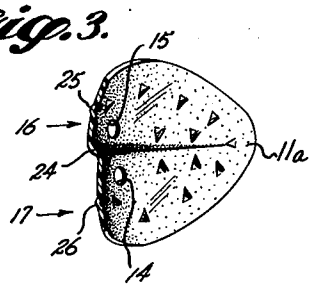


Fig. 4.

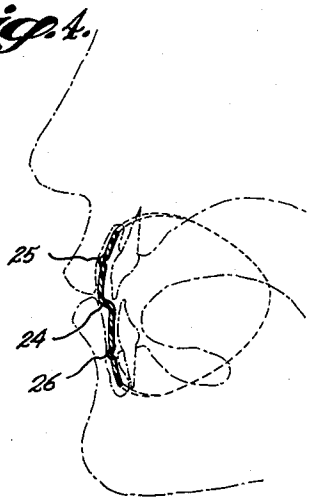
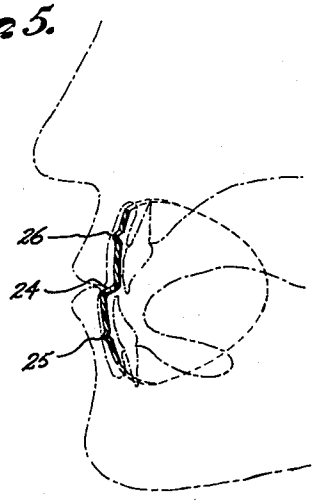


Fig. 5.



INVENTOR.
CHARLES W. RECTOR

BY Reynolds & Christensen

ATTORNEYS

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NATURAL EXPRESSION FORMER WITH BITE INDENTATION

Charles W. Rector, 6112 17th Ave., NW., Seattle, Wash.

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This invention relates to natural expression formers for use by morticians, and more particularly it relates to improvements in preshaped, form-sustaining expression formers, the improvements including a preformed bite indentation for accommodation of underbite and overbite and for other purposes. Certain features of the preferred form of expression former disclosed herein for purposes of illustrating this invention are disclosed and claimed in my copending application Serial No. 55,633, filed September 13, 1960, now Patent No. 3,103,052. While the invention is herein illustratively described in terms of the presently preferred form thereof, it will be recognized that certain changes and modifications may be made therein without departing from the essential features involved.

The natural expression former disclosed in my previous application mentioned above solved many of the prior art problems as mentioned therein, and the present invention relates to further improvements therein to meet still more fully certain needs existing in the art. An expression former is needed which is adapted to fit the shape of the mouth still more naturally, which is of such slight bulk that it has no tendency to distort the features, yet is strong to adequately support the muscles of the mouth and is flexible and adaptable to fit different curvatures, and one which is otherwise improved for ease and efficiency of installation. Such a former must also be adapted to accommodate injector needles and wires normally used for jaw closure, while reducing probability of visibility of such devices to an observer.

More particularly, an expression former is needed which is shaped to accommodate nonocclusion of the teeth and will adapt to either underbite or overbite without necessity for reshaping of the former before application. In addition, an expression former is needed which will simulate the existence of a natural underbite or overbite no longer present in an edentulous mouth. Thus a former is needed which is better adapted to give the mouth a more natural appearance without betraying the absence of teeth.

Accordingly, it is the overall object of this invention to meet the above needs by providing an improved expression former which fits the mouth more naturally, taking up less room between the lips and the gums and teeth, one which is stronger, thus better able to support the muscles in positions desired, yet is flexible to fit different shaped mouths.

A related object hereof is to provide such a former which is stronger and more shape-sustaining and thereby better adapted to give a natural appearance to an edentulous mouth.

More specifically, it is an object hereof to provide an expression former having a precontoured shape which is adapted to fit a mouth the teeth of which do not directly occlude, that is one which has either an overbite or an underbite. A related object is to provide a former which will simulate a natural overbite or underbite in an edentulous mouth.

It is also an object hereof to provide in such a natural expression former special guides or guide lines to aid in positioning of upper and lower incisors with respect to each other for optimum amount of jaw closure, particularly when teeth or dentures are absent.

Another object hereof is to provide an expression former which itself serves as a convenient positioner for the upper and lower incisors and as a stabilizer for the lower jaw, while holding itself securely in position as the muscles about the mouth are engaged with spurs thereon during forming of the desired expression.

An additional object hereof is to provide an expression former which achieves the above objects and at the same time is designed for use with injection needles and wires and is adapted to aid in concealing the use of such devices from an observer.

In my copending application is disclosed and claimed an expression former for insertion between the lips and the gums and teeth of a corpse, comprising a plate having a marginal shape defining a pair of end portions, or wing-like sections extending from a medial connecting section, the plate being of a size and shape overall to extend along the gums and beyond the teeth at all points. The wings and medial or frontal connection have a curvature both transversely and at right angles to the transverse curvature, thus a double curvature which imparts to the former an inherent, form-sustaining shape, yet it is of a flexible material to permit fitting the same to mouths of different curvatures. The present invention relates generally to that type of expression former, but it is not to be strictly limited to all the features of the one therein disclosed.

This invention provides certain improvements in expression formers generally, including a preformed bite indentation consisting of a ridge extending transversely of the former, i.e., from side to side, generally along the line of occlusion, or nonocclusion, of the forward teeth. The ridge is formed by offset of either the upper portion or the lower portion of the plate of the expression former forwardly of the other, at least in the medial section thereof. The bite indentation is preferably a smooth ridge extending at least across the medial or frontal section and preferably beyond it and into the wing sections, decreasing in size toward the sides to blend into the curvature of the wing sections.

The expression former of this invention is preferably of transparent plastic and is also provided with jaw closure guide lines spaced above and below the bite indentation ridge in the frontal region, at least, for indicating extent of optimum closure of the jaws, in cooperation with injector needles and wires.

These and other features, objects and advantages of the invention will become more apparent from the following more detailed description thereof, taken in connection with the accompanying drawings which illustrate the preferred form thereof.

FIGURE 1 in the drawings is a perspective view of a natural expression former embodying the improvement of this invention.

FIGURE 2 is a perspective view of the improved expression former shown in relation to the features of a corpse and showing its relationship to injector needles and wires normally used therewith.

FIGURE 3 is a transverse sectional view taken through the midline of the expression former, which for clarity of illustration is shown with somewhat exaggerated thickness.

FIGURE 4 is a sectional view of the frontal portion only of the expression former, with the outline of the whole former shown by dotted lines, as inserted in the mouth of a corpse having a natural overbite; and

FIGURE 5 is a similar view of the former inserted in a mouth having a characteristic underbite, in both cases the thickness of the former being exaggerated.

In basic design the illustrated expression former embodying the instant improvements is patterned after that disclosed in my copending application already mentioned, and comprises a precontoured plate 10 having a pair of spaced end or wing portions 11 and a medial connecting

portion 12. The plate 10 is preferably of transparent vinyl plastic and is thin, being as little as .009 of an inch in thickness, or even thinner. Although termed a plate, it is not flat, but is generally curved transversely to fit the dental arch, and is also curved at right angles to the transverse curvature substantially throughout, thereby having an inherent double curvature which renders it form-sustaining. The material of the plate 10 is normally substantially inelastic and is characteristically resilient so that it retains its inherent double curvature and tends always to return to its precontoured shape, yet the material of the plate is flexible to permit fitting the former to almost any mouth without necessity for alterations. A series of sharp spurs 20 are raised from the plate 10 in strategic positions to engage and hold the musculature around the mouth, as more fully described in my copending application.

In this case the wing portions 11 are of generally no greater curvature than the medial connection 12 and in fact curve less transversely, particularly toward the more-or-less tapered ends 11*a*. The bite indentation comprises a transverse ridge 24 formed in congruity with the double curvature of the plate 10 by the forward offset of the upper portion 16 of the plate from the lower portion 17. Since the upper portion may at times be used as the lower portion, as will shortly be explained, it will be convenient to refer to the portion 16 as the upper portion, whichever way the former is employed. Both upper and lower portions still possess double curvature, the curvature of one portion merely continuing that of the other after the offset, as appears in the sectional view of FIGURE 3. The ridge formed by such offset is smooth vertically, blending into the upper and lower portions naturally. It extends transversely at least across the medial connecting section and preferably, as in the illustrated case, extends well around the sides of the former into the wing portions 11, gradually decreasing in size, always blending into the double curvature, and finally fading into the reduced inherent curvature near the ends of the wing portions.

This precontoured transverse ridge 24 serves many purposes and constitutes a marked improvement in expression formers. First it serves as a bite indentation for accommodation of overbite or underbite, as illustrated in FIGURES 4 and 5 respectively. Actually, very few persons have incisors which occlude perfectly when the lower jaw is in a relaxed position, and usually there is some degree of overbite as in FIGURE 4. Nonocclusion in the reverse direction (underbite) is more rare, yet not infrequent. The transverse ridge or bite indentation preformed into the instant natural expression former is designed to fit either type of mouth more closely and naturally. Since overbite is much more common, the former will normally be used in the manner shown in FIGURE 4, where the lower jaw is slightly offset to the rear of the upper. While the expression former of this invention is thus normally constructed with only a moderate amount of offset, forming a ridge which is not large in proportion to the overall size of the former, it will be recognized that formers may be manufactured with larger amounts of bite indentation to accommodate extreme cases of overbite or underbite more accurately. However, the flexibility of the illustrated expression former permits adapting the same to most mouths.

A related purpose of the preformed bite indentation is to provide a guide for normal relative positioning of the incisors, and thus, the jaws, giving a more relaxed appearance to the face. Because of its improved form and inherent strength, the expression former is capable of serving, in conjunction with the injection needles and accompanying wire, as a stabilizer for the lower jaw. While the wire serves to support the lower jaw, the expression former itself is needed to aid in the normally slightly rearward positioning thereof with respect to the upper jaw. When fitted into position as shown in FIGURE 4 the bite

indentation holds the incisors and therefore the jaws in optimum relative position for a normal facial expression. In the case of underbite the former serves the same purpose when inverted, as illustrated in FIGURE 5.

When installed with injector needles 30 and the accompanying twisted wire 32, as illustrated in FIGURE 2 and more fully described in my copending application above mentioned, the end of wire 32 is twisted and its looped end is inserted into one of the laterally spaced apertures 14 provided for this purpose in the rearwardly offset portion 17. Apertures 15 are also provided in the upper portion 16 to increase ventilation, and these may be used in the same manner as apertures 14 if convenient in the case of extra full lip tissue when any bulging caused thereby will not be apparent to the observer.

While the bite indentation serves as a positioner and stabilizer for the lower jaw, the incisors positioned therein tend to stabilize the expression former itself by engagement with the ridge 24. This accomplishes another purpose of the bite indentation, which is to render the expression former more stable in the mouth during the trial and error positioning of the musculature to form a natural expression. It operates in this manner, of course, whether the former is being used in a mouth having a characteristic overbite as in FIGURE 4 or a characteristic underbite as in FIGURE 5.

A further advantage of the bite indentation is the fact that it imparts greater strength to the expression former, thereby permitting the use of thinner material than heretofore possible. It will be observed that the ridge 24 extends substantially forwardly and generally in the plane of transverse curvature of the expression former. The ridge is largest in the medial section 12 of the former and decreases in size toward the ends, as previously described, blending into the vertical curvature of the plate and thereby imparting a degree of double curvature of its own to the plate, supplementing the coexisting double curvature of the plate itself. Also, it can be seen, particularly in FIGURE 3, that the curvature vertically of the upper portion is offset not only forwardly of the lower portion because of the ridge, but also at a slight angle thereto. The collective effect of the rounded edge of the ridge and the displaced and angularly offset curvatures of the upper and lower portions is to impart a greater degree of strength to the former than would be the case if the ridge were not present. The same effect could be achieved without a ridge by an increased double curvature in the medial connection, but a natural appearance of the mouth could not then be obtained. The result is a stronger, yet flexible and more adaptable expression former which provides a closer fit with the teeth and thus becomes even less likely to be noticed by an observer. The increased strength of the plate also provides a more firm base for support of the musculature around the mouth as it is engaged with the spurs 20.

A still further advantage produced by the bite indentation is that, since the material used may now be thinner, the spurs 20 raised from the plate 10 are also thinner and therefore sharper. The spurs may therefore be made smaller than heretofore possible to avoid excessive mutilation of the tissues during adjustment of the facial expression.

Another very important advantage of the preformed bite indentation is its usability in an edentulous mouth, i.e. as a "denture replacer." In the absence of teeth or dentures the preformed offset of upper and lower portions simulate the natural offset more closely than would a smoothly curved expression former not having such an offset. To enhance its use as a denture replacer, another feature is included in the former, namely the closure guide lines 25 and 26. In the illustrated case these are horizontal raised lines impressed in the upper and lower portions, respectively, of the plate 10 during manufacture. Since the plate is preferably transparent, such markings,

which may be formed in or marked on the plate by means other than impression, provide approximate guides for closure of the jaws during installation. For this purpose the guide lines are normally spaced about three-fourths of an inch apart and about equally above and below the bite indentation ridge 24 as guides for positioning the gums with respect to the ridge. Such guide lines assist the operator when teeth or dentures are present, as well as in their absence.

These and other advantages of the invention will be apparent to those skilled in the art.

I claim as my invention:

1. An expression former for insertion between the lips and the teeth and gums of a corpse, comprising a thin plate of resilient, limitedly flexible, yet substantially inelastic material, having an inherent form-sustaining double curvature overall to fit the curvature of the dental arch, said plate further having a marginal shape defining a pair of wing-like portions and a medial connecting section, and a size and shape to extend along the gums beyond the lips at all points, spurs on said plate for engagement with the mouth musculature, an upper portion offset forwardly of a lower portion thereof at least in the medial section, and a substantially continuous wall connecting said offset portions thereof at least in the medial section, to define a transverse bite-indentation ridge therebetween extending along the line of nonocclusion of the forward teeth.

2. The expression former defined in claim 1 wherein the plate is of transparent plastic material and further includes jaw closure guide markings on the medial section of said plate spaced above and below said ridge at distances indicating optimum jaw closure.

3. An expression former for insertion in the mouth of a corpse, comprising a thin, flexible plate having spurs thereon for engagement with the mouth musculature, and further having transversely spaced end portions to extend beyond the corners of the mouth and a frontal section connecting said end portions, said plate being of substantially form-retentive material and having an inherent curvature at least transversely of the mouth to fit the curvature of the dental arch, said plate further having upper and lower portions of shape and size to extend beyond the teeth between the gums and lips, the upper portion being offset forwardly of the lower portion, and a connecting ridge between said upper and lower portions and extending transversely of the plate at least across said frontal section, said offset and ridge forming a bite indentation to accommodate nonocclusion of at least the forward teeth.

4. The expression former defined in claim 3 wherein said plate is substantially symmetrical in over-all shape, otherwise than said offset and ridge, rendering the same invertible to accommodate nonocclusion of the teeth both in cases of underbite and overbite.

5. The expression former defined in claim 3, said plate further having an inherent curvature also in the direction at right angles to such transverse curvature, imparting to said plate substantially form-sustaining double curvature in the upper and lower portions and in the end portions, said offset and connecting ridge extending along said transverse curvature beyond said frontal section and terminating in said end portions, thereby further rendering said plate form sustaining.

6. The expression former defined in claim 5 wherein said plate is of substantially transparent, plastic material, said plate further having closure guide lines located on said upper and lower portions at least in the frontal section and spaced above and below said ridge at preselected distances, respectively, to indicate optimum jaw closure upon installation, particularly in an edentulous mouth.

7. In an expression former for insertion in the mouth of a corpse; said former having a marginal shape and size to fit between the lips and the teeth and gums and having an inherent form-sustaining double curvature generally overall, yet being flexible for fitting dental arches of differing curvatures, and further having spurs for engaging and holding the mouth tissues; the improvement which consists of a bite indentation simulator in said former, comprising upper and lower portions of said former, one of said portions protruding forwardly of the other at least in the region of the forward teeth of said corpse to form an offset along a line extending transversely of the mouth simulating nonocclusion of the teeth, and a ridge integrally connecting said upper and lower portions along said offset line.

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