

Nov. 8, 1955

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2,722,744

DENTAL IMPRESSION TRAY

Filed May 19, 1954

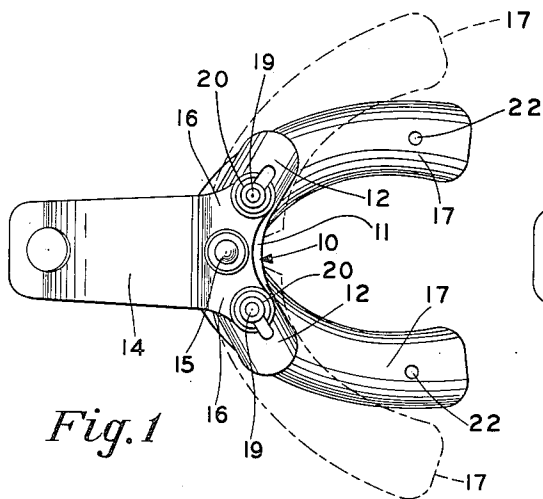


Fig. 1

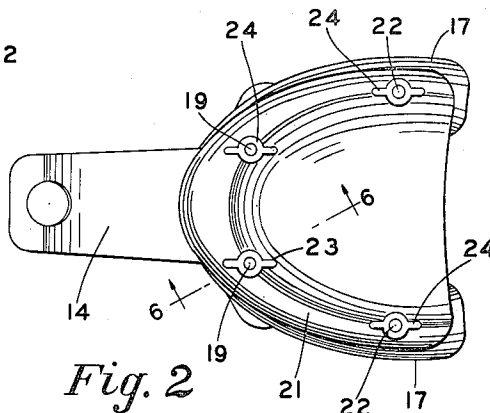


Fig. 2

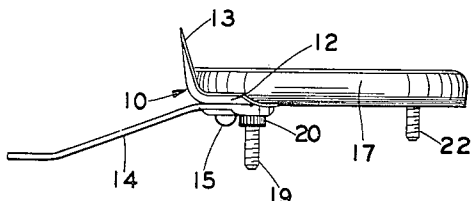


Fig. 3

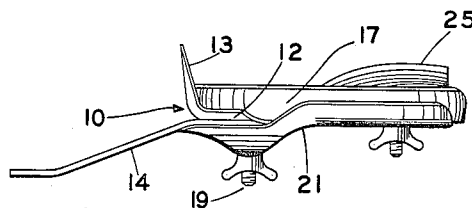


Fig. 4

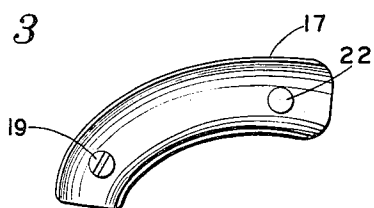


Fig. 5

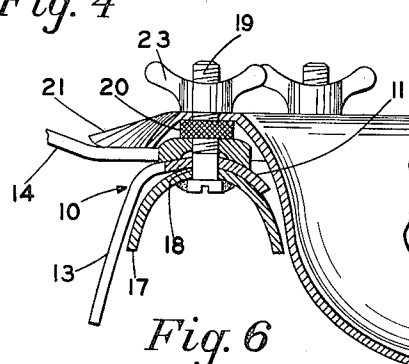


Fig. 6

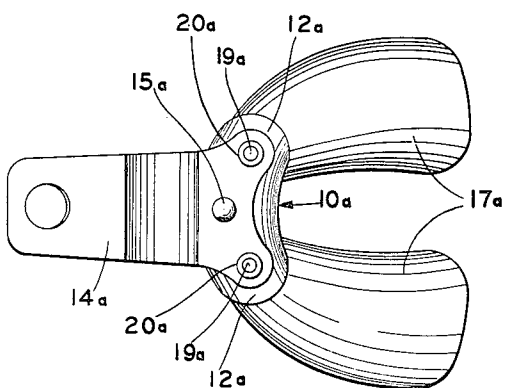


Fig. 7

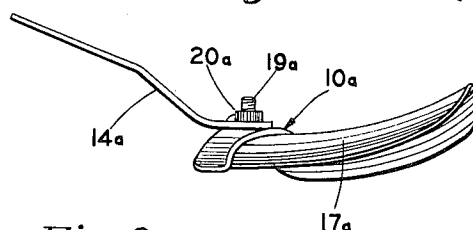


Fig. 8

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DENTAL IMPRESSION TRAY

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Application May 19, 1954, Serial No. 430,755

8 Claims. (Cl. 32-17)

The invention relates to trays for obtaining dental impressions for use in the construction of dentures, and more particularly to an anatomical tray of this character, which is adjustable and which is formed of flexible metal, so as to accommodate jaw structures of different sizes and shapes.

Dental impression trays such as are now in general use are formed in one piece, and are of substantially rigid construction. Such dental trays must therefore be supplied in a wide range of sizes in order that the dentist may be able to make impressions of all sizes of jaw structures.

These conventional or standard trays cannot be manufactured so as to be relative to all of the human variables in the mouth, and it is evident that only a personally made, or adjustable tray can accomplish an equitable, anatomical, relative impression of the various angles of the human mouth.

Even with a complete set of all sizes of these trays, it frequently happens that, owing to the many differences in shapes of various jaw structures, none of these trays is of the proper size and shape for a particular individual. Consequently it is often necessary that such trays be bent or distorted in an effort to make them more nearly conform to the desired shape. But at best, such practice is far from satisfactory.

It is therefore an object of the invention to provide a dental impression tray which overcomes the above-mentioned disadvantages and objections, and which may be adjusted to the various angles of the human mouth.

Another object is to provide a dental impression tray which is readily adjustable to fit jaws of different sizes.

A further object is to provide such a tray formed of a material which is sufficiently flexible that it may be easily shaped to conform to the shape of the patient's jaws.

A still further object is to provide a dental impression tray of the character referred to which comprises a frame member having a handle attached thereto, and a pair of curved members of arcuate cross section, radially and longitudinally adjustably mounted upon the frame member.

Another object is to provide such a tray in which the adjustable members are formed of sheet metal having sufficient flexibility to permit bending to conform to the contour of the jaw.

A further object is to provide a dental impression tray of this character adapted for taking an impression of an upper jaw, and including a palatal portion comprising a flexible sheet of metal adapted to be shaped to conform to the palate or roof of the patient's mouth.

A still further object is to provide means for attaching such palatal portion to the frame member and the adjustable members of the tray.

The above objects together with others which will be apparent from the drawing and following description, or which may be later referred to, may be attained by constructing the improved dental impression tray in the manner hereinafter described in detail and illustrated in the accompanying drawing in which:

Fig. 1 is a bottom plan view of a dental tray for upper jaws, embodying the invention, showing the manner in which the same may be adjusted to accommodate jaws of different sizes;

Fig. 2 a bottom plan view of a tray adapted for making an impression of an upper jaw, showing the flex-

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ible palatal member for conforming to the contour of the palate or roof of the mouth;

Fig. 3 a side elevation of the device as shown in Fig. 1;

Fig. 4 a side elevation of the device as shown in Fig. 2;

Fig. 5 a detached, top plan view of one of the curved adjustable members;

Fig. 6 an enlarged, fragmentary sectional view, taken as on the line 6-6, Fig. 2;

Fig. 7 a top plan view of a dental impression tray adapted for lower jaws; and,

Fig. 8 a side elevation of the device shown in Fig. 7.

Stated in general terms, the invention may be defined as comprising a substantially rigid frame member having a handle fixed thereto, and a pair of curved, pliable sheet metal members of arcuate cross section radially and longitudinally adjustably mounted upon the frame member, so as to conform to the contours of different jaws of a wide variety of sizes and shapes.

The improved tray, as adapted for making impressions for upper jaws, comprises further a palatal portion comprising flexible sheet of metal adapted to be shaped to conform to the palate or roof the patient's mouth, so that a suitable impression may be obtained for making an upper plate.

Referring now more particularly to the embodiment of the invention illustrated in Figs. 1 to 6 inclusive, in which similar numerals refer to similar parts throughout, the invention is illustrated as applied to a dental impression tray for making impressions of the upper jaw.

The tray includes a substantially rigid frame member, formed of suitable material such as metal, indicated generally at 10, comprising the substantially flat portion 11 having the forwardly disposed arms 12, and the central, angular, upwardly disposed flange 13.

A rearwardly disposed, and preferably downwardly inclined, handle 14 is attached to the under side of the frame member 10, by riveting or the like, as indicated at 15. This handle may be formed of a flat strip of sheet metal or other suitable material, and the attached end portion thereof is preferably provided with the diverging ears 16, for a purpose to be later explained.

The tray also comprises a pair of oppositely disposed, curved members 17 of arcuate or channel cross section, adjustably mounted upon the frame member 10. These adjustable members may be formed of sheet copper or other sheet material having sufficient flexibility to permit it being bent or shaped to conform to the anatomical contour of human jaws, but having sufficient rigidity to hold any shape to which they may be bent or formed.

These adjustable members are mounted for radial or pivotal adjustment toward and from each other, as well as a slight longitudinal adjustment relative to the frame member 10, so as to readily accommodate them to jaws of various sizes.

For this purpose each arm 12 of the frame is provided with an elongated opening 18 which receives the adjacent clamping screw 19 located through the corresponding adjustable member 17, to which the head of the screw may be soldered or otherwise attached if desired.

A clamping nut 20, which may be knurled as shown in Fig. 6 in order to permit easy manipulation thereof, is provided upon each screw 19 for clamping the adjustable, curved arms 17 in desired adjusted position upon the frame 10. As shown in Fig. 1, these adjustable arms 17 may be radially or pivotally adjusted upon the frame member within a wide range, as indicated by the full line and broken line positions, so as to conform to the size and general curvature of many different sizes of jaws. By adjusting the arms 17 longitudinally, by means of the

elongated slots 18 the lengths of these arms may be increased or decreased relative to the frame, as occasion may require.

In using the adjustable tray to make an impression of an upper jaw, in order to make a complete upper denture or upper plate, after the adjustable arms 17 have been adjusted to conform to the general curvature of the jaw, and have been clamped in position as shown in Fig. 1, these adjustable members 17 may be bent or shaped, if necessary, to conform to the contour of the jaw.

In order to form the palatal portion of the tray, a flexible sheet of aluminum, or other suitable flexible material, as indicated at 21, may then be cut to desired shape and apertures formed in the heel and buccal portions thereof to receive the depending end portions of the anterior screws 19 and the threaded studs 22 which are attached to the under sides of the members 17 near the outer ends thereof.

This flexible palatal sheet is then attached to the tray by means of wing nuts 23 and 24 or the like, located upon the screws 19 and 22 respectively, and the palatal sheet 21 may be burnished or formed by the fingers to conform to the contour of the palatal or roof of the patient's mouth as indicated at 25.

The usual wax or other suitable material for making impressions is then placed within the hollow upper surface of the arms 17 and upon the top of the domed portion 25 of the palatal sheet 21, and the impression of the upper jaw and palate may be made in usual manner.

The improved adjustable tray as adapted for making impressions of the lower jaws, comprises a frame member, a handle attached thereto, and a pair of adjustable curved arms. As shown in these figures the frame member 10a may be of the general form of that shown in Figs. 1 to 6, with a handle 14a of similar construction attached thereto as by the rivet 15a or the like.

The curved, transversely arcuate, adjustable arms 17a may be pivotally or radially and longitudinally adjustably mounted upon the arms 12a of the frame member, as by clamping screws 19a and nuts 20, and the device may be adjusted and operated as described in detail above with relation to the form of the invention shown in Figs. 1 to 6.

With this construction it will be seen that the trays as illustrated and described for use in making either upper or lower dental impressions may be quickly and easily adjusted to conform to the anatomical shape and contour of jaws of many different sizes.

It will be seen that with such an adjustable tray an equitable, anatomical impression of the various angles of the human mouth may be accurately made, as these angular surfaces in the mouth structure lie in the radian.

In the foregoing description, certain terms have been used for brevity, clearness and understanding, but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such words are used for descriptive purposes herein and are intended to be broadly construed.

Moreover, the embodiments of the improved construction illustrated and described herein are by way of example, and the scope of the present invention is not limited to the exact details of construction.

Having now described the invention or discovery, the construction, the operation, and use of preferred embodiments thereof, and the advantageous new and useful results obtained thereby; the new and useful construction, and reasonable mechanical equivalents thereof obvious to those skilled in the art, are set forth in the appended claims.

I claim:

1. A dental impression tray comprising a frame member, a pair of similar curved arms of substantially channel cross section, and means adjustably mounting said arms upon the frame for pivotal adjustment thereon, whereby the arms may be adjusted to conform to the curvature of human jaws of various sizes, a palatal mem-

ber of flexible sheet material adapted to be shaped to conform to the contour of the roof of a human mouth, and means for attaching said palatal member to said arms.

2. A dental impression tray comprising a frame having a handle attached thereto, a pair of similar curved trough-like arms, threaded studs upon the outer end portions of said arms, and clamping screws adjustably mounting said arms upon the frame for pivotal adjustment thereon, whereby the arms may be adjusted to conform to the curvature of human jaws of various sizes, a palatal member of flexible sheet material adapted to be shaped to conform to the contour of the roof of a human mouth and, having apertures therein receiving said threaded studs and clamping screws, and nuts upon said threaded studs and clamping screws for attaching the palatal member to said arms.

3. A dental impression tray comprising a frame member, a pair of similar curved flexible sheet material arms of substantially channel cross section, and means adjustably mounting said arms upon the frame for pivotal adjustment thereon, whereby the arms may be adjusted and shaped to conform to the curvature of human jaws of various sizes, a palatal member of flexible sheet material, and means for attaching said palatal member to said arms.

4. A dental impression tray comprising a substantially flat frame member of generally arcuate shape having an upturned angular flange at its rear edge, a pair of forwardly disposed, curved trough-like arms, means pivotally attaching the rear ends of said arms to the frame at points near each side of the center of the frame, whereby the entire lengths of said arms may be swung radially upon their pivot points so as to be adjusted to conform to the curvature of human jaws of various sizes, and means for clamping said arms in adjusted position.

5. A dental impression tray comprising a substantially flat frame member of generally arcuate shape having an upturned angular flange at its rear edge, a rearwardly disposed handle attached to the frame, a pair of forwardly disposed, curved trough-like arms, means pivotally attaching the rear ends of said arms to the frame at points near each side of the center of the frame, whereby the entire lengths of said arms may be swung radially upon their pivot points so as to be adjusted to conform to the curvature of human jaws of various sizes, and means for clamping said arms in adjusted position.

6. A dental impression tray comprising a substantially flat frame member of generally arcuate shape having an upturned angular flange at its rear edge, a pair of forwardly disposed, curved trough-like arms, means pivotally attaching the rear ends of said arms to the frame at points on each side of the center thereof, and means for clamping said arms in adjusted position, a palatal member of flexible sheet material adapted to be shaped to conform to the contour of the roof of a human mouth, and means for attaching the edge portions of the palatal member to said arms.

7. A dental impression tray as set forth in claim 4, in which the curved trough-like arms are formed of sheet material having sufficient flexibility whereby they may be bent and shaped to conform to the anatomical contour of human jaws and being sufficiently rigid to hold any shape to which they are bent.

8. A dental impression tray as set forth in claim 5, in which the curved trough-like arms are formed of sheet material having sufficient flexibility whereby they may be bent and shaped to conform to the anatomical contour of human jaws and being sufficiently rigid to hold any shape to which they are bent.

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