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ORTHODONTIA APPLIANCE AND METHOD OF MAKING SAME

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Fig. 1.

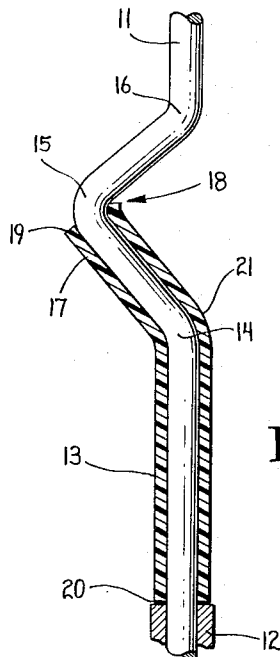
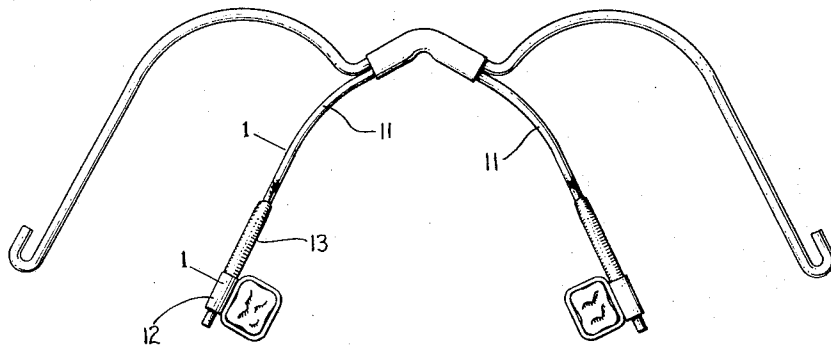


Fig. 2.

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3,303,566 ORTHODONTIA APPLIANCE AND METHOD OF MAKING SAME

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8 Claims. (Cl. 32-14)

The present invention relates to an orthodontic appliance used in aligning irregularly spaced teeth, which appliance is known to orthodontists as an "extra-oral dental retractor" or as a "face bow." The invention is particularly concerned with an improved method of transmitting the rearward pressure from the mouth wire of such a device to the buccal tubes which are secured to the teeth.

Previous means for transmitting this pressure included drops of solder on the mouth wire, an adjusting nut engaged on a threaded portion of the mouth wire and sliding tubular metal spacers mounted on an additional metal wire in the mouth. The previous means were either expensive to produce or difficult to adjust. The purpose of the present invention is to provide a pressure transmission means in a face bow which is at once easily and cheaply manufactured, easily adjustable and retentive of an adjustment once made.

With these objectives, and others which may appear in the description, in mind, reference is made to the drawings, in which

FIG. 1 is a top view of a suitable face bow including the pressure transmission means and means for connection to two teeth;

FIG. 2 is an enlarged side view in cross section of the pressure transmission means on one side of the mouth wire between the lines 1-1 of FIG. 1.

Referring more particularly to the drawings, 11 indicates the mouth wire or inner arch generally and 12 indicates a buccal tube, which is normally attached to a band tightly encircling a selected tooth. In order to transmit the rearward pressure on the mouth wire to the buccal tube, a crimp, indicated generally by 18, is formed in the mouth wire 11. This crimp has included angles 14, 15, and 16, of which the angle 15 is substantially a right angle. A piece of plastic tubing, indicated generally by 13, having wall thickness such that it is relatively rigid longitudinally, relatively flexible transversely and can easily be cut to a desired length, is closely slidably received on said mouth wire. The tubing is of such internal diameter that it slides along the mouth wire 11 with its anterior end 19 abutting the crimp at angle 15, the acuity of which angle is such that the tubing cannot slide over it. In a preferred form of the invention, included angle 14 is substantially greater than included angle 16 so that the tubing may conform to angle 14 more easily. The posterior end 20 of the tubing 13 is cut to abut the buccal tube 12; thus the appliance can easily be adjusted to the desired position and to apply the desired degree of rearward pressure by cutting the tubing to proper length. In a preferred embodiment of the invention, the tube 13 is made of a thermoplastic or other material such as nylon which can be treated to impart a permanent bend 21 by the application of heat or other means while it is engaged in proper position on the mouth wire. In practice, the tubing is slid forwardly on the mouth wire until one end abuts the angle 15 and an anterior portion of the tubing is flexed in conforming to posterior angle 14. Heat or other means is then applied to the portion of the tubing in the region of angle 14, which portion is thereby given a "set" in the shape of angle 14. Such a "set" prevents the tubing from being accidentally dislodged when the appliance is removed from the mouth.

The drawings are to be understood as illustrative only; modifications may occur to one skilled in the art without violating the scope of the appended claims.

I claim as my invention:

1. In an orthodontic face bow containing a mouth wire having a centrally curved portion from which legs extend in diverging directions, means for exerting rearward pressure on at least one buccal tube of a semi-permanent brace, comprising on at least one side of said mouth wire of said face bow
 - a V-shaped crimp in said mouth wire having substantially a right angle at its apex, and
 - a closely fitting length of flexible tubing engaged on said mouth wire with its anterior end abutting the apex angle of said crimp and its posterior end abutting such a buccal tube.
2. The combination of claim 1 wherein said crimp is formed asymmetrically such that the bisector of the apex angle slants rearwardly away from said apex angle.
3. The combination of claim 1 wherein said tubing is made of nylon plastic.
4. In an orthodontic face bow containing a mouth wire having a centrally curved portion from which legs extend in diverging directions, means for exerting rearward pressure on the buccal tubes of a semi-permanent brace, comprising on each leg of said mouth wire
 - a V-shaped crimp in said mouth wire having substantially a right angle at its apex, and
 - a closely fitting length of flexible tubing engaged on said mouth wire with its anterior end abutting the apex angle of said crimp and its posterior end abutting such a buccal tube.
5. An orthodontic face bow containing a mouth wire having a centrally curved portion from which legs extend in diverging directions, at least one of said legs being formed, at a point significantly spaced from its posterior end, with a V-shaped crimp having substantially a right angle at the apex, and a closely fitting length of flexible tubing engaged on said leg with its anterior end abutting the apex angle of said crimp and its posterior end spaced from the posterior end of said leg for abutting engagement with the buccal tube of a semi-permanent brace.
6. The method of preparing an orthodontic face bow for application, said face bow including a mouth wire having a centrally curved portion from which legs extend in diverging directions, at least one of such legs being formed with a V-shaped crimp having substantially a right angle at its apex, comprising the steps of selecting a length of suitable tubing, sliding said tubing forwardly onto said one leg until an anterior portion of said tubing is flexed by following the posterior leg of said crimp and abuts the anterior leg of said crimp, and then treating said anterior portion of said tubing to "set" the same in its flexed condition.
7. The method of preparing an orthodontic face bow for application, said face bow including a mouth wire having a centrally curved portion from which legs extend in diverging directions, at least one of such legs having an abutment means on its anterior portion, comprising the steps of selecting a length of suitable flexible tubing, trimming it to a desired length, sliding the said tubing forwardly on said mouth wire until its anterior end is in contact with said abutment means, and sliding the posterior end of the mouth wire through the buccal tubes of a semi-permanent brace until the posterior end of said tubing abuts and exerts rearward pressure on the anterior end of said buccal tube.
8. An orthodontic face bow containing a mouth wire having a centrally curved portion from which legs extend in diverging directions, at least one of such legs having an abutment thereon, at a point significantly spaced from its posterior end, and a closely fitting length of tubing engaged on said leg with its anterior end in contact with said abutment and its posterior end spaced from the pos-

terior end of said leg for abutting engagement with the
buccal tube of a semi-permanent brace.

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