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A. B. BRUSSE ET AL
ORTHODONTIC APPLIANCE

2,062,395

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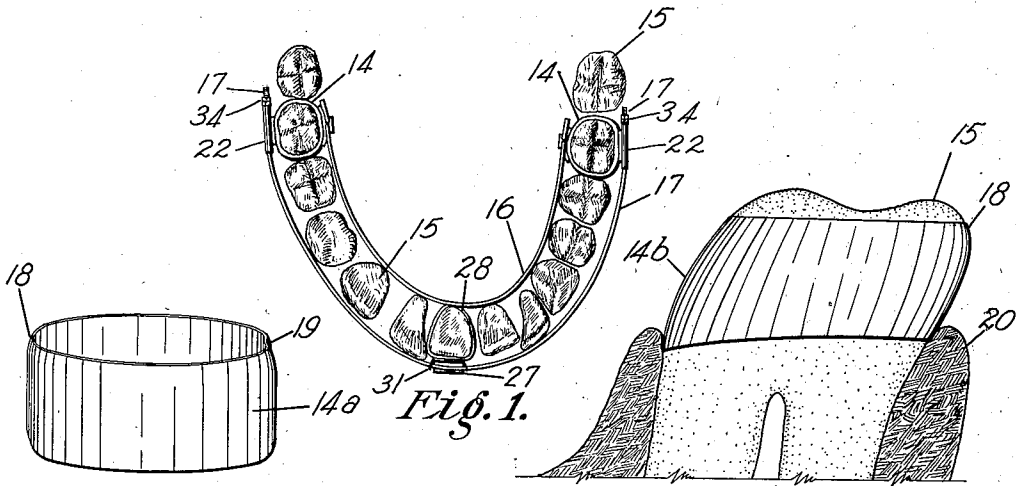


Fig. 2.

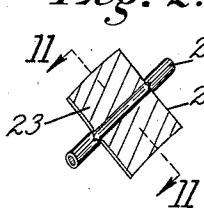


Fig. 3.

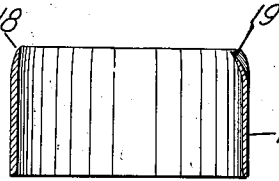


Fig. 4.

Fig. 5.

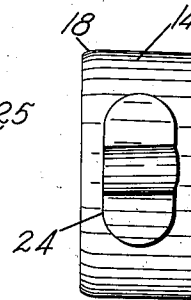
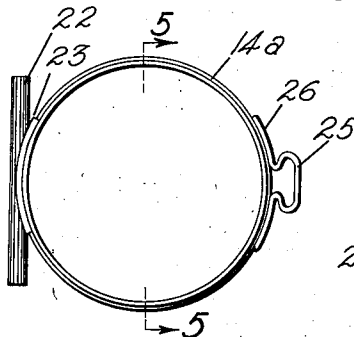
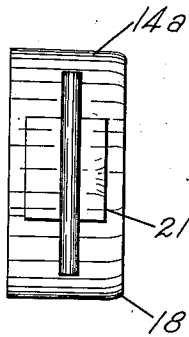
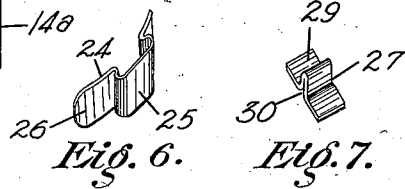


Fig. 8.

Fig. 9.

Fig. 10.



Fig. 11.

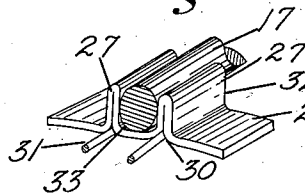


Fig. 12

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UNITED STATES PATENT OFFICE

2,062,395

ORTHODONTIC APPLIANCE

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7 Claims. (Cl. 32—14)

Our invention relates to orthodontic appliances and more particularly to anatomically contoured anchor bands forming part thereof.

It is an object of the invention to provide a band which is simple, inexpensive, and durable in use, and which may be accurately fitted to the teeth without injury to the gums.

A further object of the invention is the provision of bands especially adapted for attachment to the molars, both maxillary and mandibular, and shaped in conformity to the anatomical structure of the teeth.

Another object of the invention is the provision of simple and efficient means for attaching the arch wire to the bands, and which may be secured to the bands by spot welding.

Still another object of the invention is the provision of interchangeable means for holding the arch wires in position.

Other objects reside in details of construction and novel combinations and arrangements of parts, as will more fully appear in the course of the following description.

In the accompanying drawing, in the several views of which like parts have been similarly designated,

Figure 1 represents a plan view of the bands attached to teeth and supporting arch wires in operative relation to the teeth,

Figure 2 is a perspective view, drawn to an enlarged scale, of one of the maxillary molar bands,

Figure 3 is an elevation, drawn to an enlarged scale, of one of the mandibular molar bands, attached to a tooth and fitted between the tooth and the gums,

Figure 4 is a perspective view of a flanged buccal socket-element used for attachment to a band to support the labial arch wire,

Figure 5 is a section taken along the line 5—5 of Figure 9,

Figure 6 is a perspective view of a flanged lingual socket-element used for attachment to a band to support the lingual arch wire,

Figure 7 is a perspective view of a flanged lug used for fastening the labial arch wire to the incisor bands when it is necessary to stabilize the arch,

Figure 8 is an elevation of a band to which the buccal socket-element of Figure 4 has been attached,

Figure 9 is a plan view of a band showing the buccal and lingual socket-elements attached thereto,

Figure 10 is an elevation of a band to which

the lingual socket-element of Figure 6 has been attached,

Figure 11 is a section taken along the line 11—11 of Figure 4, and

Figure 12 is a perspective view drawn to an enlarged scale, of a double lug, showing the manner of placing the arch wire and tie wires relative thereto.

Referring further to the drawing, the anchor bands, designated generally as 14, are shown in Figure 1 attached to teeth 15, and arch wires 16 and 17 are supported on the bands to exert the required pressure against the teeth.

The bands are of two types, the band 14a being provided for use on the maxillary molar teeth, and the band 14b being provided for use on the mandibular molar teeth. The bands 14a and 14b are constructed in a range of sizes to closely correspond to the variations in sizes of teeth, so that in each treatment a band of the required size is available for use.

The band 14a is of substantially uniform circumference throughout its width, with its upper edge beveled inwardly as at 18, with a portion of its circumferential edge depressed as at 19 to provide a projection on its inner surface. This bevel and projection acts as a stop to prevent the band being forced past the bell of the molar teeth, the projection engaging the buccal groove when the band is in place on the molar.

The band 14b differs somewhat from band 14a in that the circumferential walls incline slightly from an upright position, in addition to the beveling and depressing of its upper edge as explained hereinabove. This inclination is effected by cutting the band from seamless stock, at approximately a twelve degree bias. A projection (not shown in Figure 3, but similar to the projection 19 shown in Figure 5) is fitted in the lingual groove of the lower molar tooth, and prevents the band being forced down under the gums to any appreciable degree.

The various devices used for connecting the bands 14 with the arch wires 16 and 17 are provided with flanges which permit their attachment to the band by spot welding. Welding offers many advantages over solder, heretofore used in the art to fasten the connecting members on the bands, particularly in providing a stronger union and a reduction in expense, both in materials and labor. More accurate fitting can be accomplished by welding because of the ease with which the union is effected.

A flanged buccal socket-element 21, best shown in Figure 4, is preferably of one-piece construction

tion, having a hollow tubular socket 22, and flat flanges 23 extending tangentially from the socket 22. These flanges 23 are welded to a band 14, as explained in the preceding paragraph, so that the socket 22 is disposed tangentially to the band 14, in the manner indicated in Figure 9. The arch wire 17 fits in the socket 22 and adjusting nuts 34 bearing against the socket tension the wire 17.

The flanged lingual socket-element 24, best shown in Figure 6, is preferably of one-piece construction with its tubular socket 25 oval in cross-section and flat flanges 26 extending tangentially thereto. The flanges are welded to a band 14 so that the hollow interior of the socket 25 is disposed substantially parallel to the hollow interior of the band 14. The socket-element 24 supports a lingual arch 16 by inserting the arch wire, bent double, into the socket 25.

When it is desired to stabilize the labial arch 17, a flanged lug 27, preferably of one-piece construction, is attached to an incisor band 28. Flanges 29 project laterally from the lug for welding to the band 28, and are spaced at their intersection with the lug 27 to provide a groove 30, in which a tie wire 31 is inserted and held after the lug 27 is welded to the band 28, for fastening the arch wire 17 to the lug 27. When a double lug 32 is attached to the band in this manner, the arch wire 17 is held in a channel 33 between the lugs 27 by wires 31 held in the grooves.

In the use of the devices, the teeth are first examined, and the size of the anchor band 14 required to fit upon the molar teeth is determined. When the correct size has been obtained, the buccal and lingual socket-elements are welded on the band in the manner indicated. The bands 14 are then fitted on the molars, and because of their anatomical conformity, they are held in place without injury to the tissue of gums 20. The arch wires 16 and 17 are next inserted in the sockets 22 and 25 and the necessary tightening of these wires is effected. The labial arch may be stabilized on the incisor band 28, if required.

It is apparent from the foregoing that the attachment devices are easily mounted on the bands and provide a durable union which will readily withstand any pressures exerted by the arch wires.

Variations in the construction and arrangement of the constituent parts may be resorted to within the spirit of the invention as defined in the hereunto appended claims.

What we claim and desire to secure by Letters Patent is:

1. As an article of manufacture, an orthodontic anchor band comprising a seamless tubular band open at both ends, the planes of the upper and the lower edges being inclined with respect to the

axis of the band, one edge of the band being beveled inwardly to engage a grinding surface of a tooth to which it is applied.

2. As an article of manufacture, an orthodontic anchor band comprising a seamless tubular band open at both ends, the planes of the upper and the lower edges being inclined with respect to the axis of the band, one edge of the band being beveled inwardly to engage a grinding surface of a tooth to which it is applied, the beveled edge having a portion depressed to provide a projection on the inner surface of the band to serve as a stop when the band is applied to the tooth.

3. As a new article of manufacture, an arch-wire support for orthodontic bands comprising a single plate formed into a tube portion to receive an orthodontic arch, and oppositely disposed flanges for fastening the article to an orthodontic band, projecting tangentially from the tube, in a direction transversely of the longitudinal axis of the tube, and in planes parallel with the axis of the tube, said portion projecting longitudinally beyond said flanges.

4. In an orthodontic device having an arch-wire, a band for application to a tooth, an anchoring device carried by the band for connecting an arch-wire thereto, said device having a tubular socket portion for the reception of one end of the arch-wire, the anchoring device having two flanges extending in opposite directions from the tubular socket portion, and which serve as means for attaching the anchoring device to the band so as to form an integral unitary structure, said tubular socket portion projecting longitudinally beyond said flanges.

5. As an article of manufacture, an orthodontic anchor band comprising a seamless tubular band open at both ends, and cut on a bias, whereby the planes of the upper and the lower edges are inclined with respect to the axis of the band.

6. As an article of manufacture, an orthodontic anchor band comprising a seamless tubular band open at both ends, and cut on a bias approximating twelve degrees from the axis, whereby the planes of the upper and lower edges are inclined with respect to the axis of the band.

7. As an article of manufacture, an orthodontic anchor band comprising a seamless tubular band open at both ends, and cut on a bias, whereby the planes of the upper and the lower edges are inclined with respect to the axis of the band, one edge of the band being beveled inwardly to engage a grinding surface of a tooth to which it is applied, the beveled edge having a portion depressed to provide a projection on the inner surface of the band to serve as a stop when the band is applied to the tooth.

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