June 26, 1951 G. J. BROUSSARD 2,558,475

APPARATUS FOR STRAIGHTENING TEETH

Filed July 14, 1950

FIG. 1.

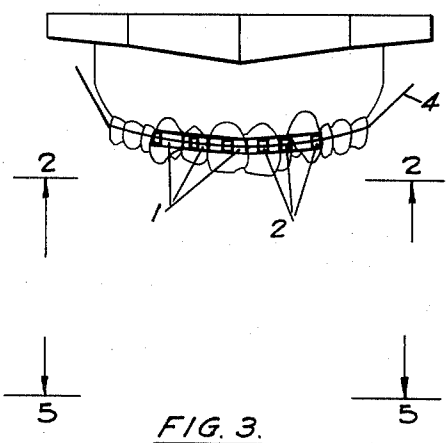


FIG. 2.

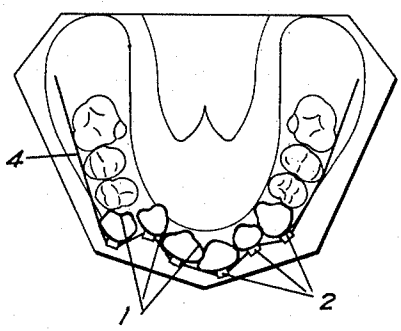


FIG. 3.

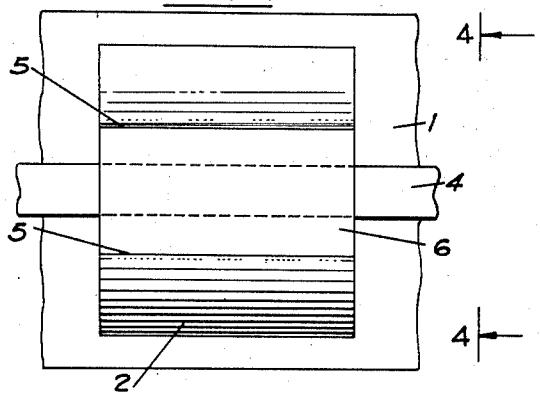


FIG. 4.

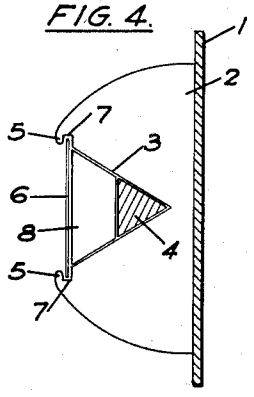
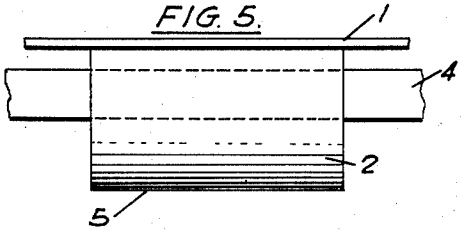


FIG. 5.



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APPARATUS FOR STRAIGHTENING TEETH

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5 Claims. (Cl. 32—14)

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The invention concerns apparatus for straightening human teeth, particularly front teeth, which are irregularly spaced, protrude or overlap one another.

In straightening teeth it has been customary in the past to fasten a shaped arch wire to each of the affected teeth and gradually, over a period of time, to urge the teeth into their proper position by adjustment of the arch wire. The arch wire usually is anchored at its ends to two of the rear teeth, and upon tightening the arch wire the teeth undergoing treatment are maintained under a slight tension. It is desirable, in carrying out such treatment, to apply the corrective pressure to the teeth very gently and over a considerable period of time in order that the roots of the teeth will not be unduly disturbed.

In fastening the arch wire to the teeth it is customary to first place a metal band around each of the teeth, the metal band having secured to its outer surface a grooved bracket adapted to receive the arch wire. The grooved bracket ordinarily is provided with detachable means for retaining the arch wire in engagement with the grooved bracket while permitting it to be readily disengaged therefrom.

An important feature of the invention is the employment of a grooved bracket in which the groove is triangular in cross section and the employment of an arch wire which likewise is triangular in cross section and is receivable in the triangular groove. This arrangement permits the arch wire to be inserted at least partially in the groove without forcing it or applying torque to it, and without causing any abrupt disturbance of the roots of the teeth. It also permits the arch wire to gradually adjust itself into position with respect to the groove as the corrective treatments proceeds. It is sometimes difficult to align each of the several grooved brackets of a series with the arch wire. The triangular groove of the invention, in conjunction with the triangular arch wire, permits the arch wire to effectively engage the grooved bracket even when the grooved bracket is not perfectly aligned with the arch wire.

Another feature of the invention is the employment of a grooved bracket in which the upper surface of the bracket is curved outwardly and downwardly and the lower surface of the bracket is curved outwardly and upwardly, the outer surfaces of the bracket terminating in narrow lips which are curved inwardly adjacent the outer edges of the groove. The curved surfaces

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of the bracket are adapted to act as guides to assist in maneuvering the arch wire into engagement with the groove.

Another feature of the invention is the employment of novel means for retaining the arch wire in engagement with the grooved bracket. The retaining means comprises a sliding closure which is receivable in grooves formed in the outer lips of the bracket immediately adjacent the outer edges of the triangular groove. This arrangement provides effective retaining means while at the same time providing a bracket having curved upper and lower surfaces as above described.

The invention contemplates the employment initially of a relatively fine arch wire, small in cross section, and the subsequent employment, as the treatment progresses, of relatively coarse arch wires, larger in cross section. In conjunction with the smaller arch wires the invention contemplates the employment of wedge shaped spacers which are receivable in the triangular grooves between the arch wires and the sliding closures.

The invention will be readily understood by referring to the following description and the accompanying drawing, in which:

Fig. 1 is a front view of a plaster cast representing a set of upper teeth, showing the method of applying the apparatus of the invention to the teeth.

Fig. 2 is a view taken on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged front view of apparatus embodying the invention.

Fig. 4 is a side view taken on the line 4—4 of Fig. 3.

Fig. 5 is a top view taken on the line 5—5 of Fig. 3.

Referring to the drawing, the apparatus of the invention includes a metal band 1 which is placed around each of the affected teeth. A bracket 2 is secured to the outer surface of the metal band 1. The bracket 2 may be secured directly to the tooth if desired. A groove 3 is formed in the outer surface of the bracket 2. The groove 3 is triangular in cross section and extends horizontally across the bracket 2. An arch wire 4, which likewise is triangular in cross section, is receivable in the triangular groove 3. The arch wire 4 is connected to a number of the grooved brackets 2 in series, and is anchored at its ends to two rear teeth (not shown).

The upper surface of the bracket 2 is curved outwardly and downwardly and the lower surface of the bracket 2 is curved outwardly and

upwardly, the outer surfaces of the bracket 2 terminating in narrow lips 5 which are curved inwardly adjacent the outer edges of the groove 3.

A sliding closure 6 is provided for retaining the arch wire 4 in engagement with the grooved bracket 2. The sliding closure 6 comprises a rectangular planar member, the edges of which are receivable in grooves 7 formed in the lips 5 of the bracket 2 immediately adjacent the outer edges of the triangular groove 3.

As shown in the drawing, the arch wire 4 is relatively small in cross section. A wedge shaped spacer 8 is receivable in the triangular groove 3 between the arch wire 4 and the sliding closure 6. The spacer 8 may be attached to the sliding closure 6 if desired.

The invention may be modified in various ways without departing from the spirit and scope thereof.

I claim:

1. Apparatus for straightening teeth comprising a bracket adapted to be secured to a tooth, a groove being formed in the outer surface of the bracket, the groove being triangular in cross section and extending horizontally across the bracket, the upper surface of the bracket being curved outwardly and downwardly and the lower surface of the bracket being curved outwardly and upwardly, the outer surfaces of the bracket terminating in narrow lips which are curved inwardly adjacent the outer edges of the groove, and an arch wire receivable in the triangular groove, the arch wire being triangular in cross section.

2. Apparatus for straightening teeth comprising a bracket adapted to be secured to a tooth, a groove being formed in the outer surface of the bracket, the groove being triangular in cross section and extending horizontally across the bracket, an arch wire receivable in the triangular groove, the arch wire being triangular in cross section, and a sliding closure comprising a rectangular planar member, the edges of the planar member being receivable in grooves formed in the bracket adjacent the outer edges of the triangular groove.

3. Apparatus for straightening teeth comprising a bracket adapted to be secured to a tooth, a groove being formed in the outer surface of the bracket, the groove being triangular in cross section and extending horizontally across the bracket, an arch wire receivable in the triangular groove, the arch wire being triangular in cross section, a sliding closure comprising a rectangular planar member, the edges of the planar member being receivable in grooves formed in the bracket adjacent the outer edges of the triangular groove, and a wedge shaped spacer receivable in the triangular groove between the arch wire and the sliding closure.

4. Apparatus for straightening teeth comprising a bracket adapted to be secured to a tooth, a groove being formed in the outer surface of the bracket, the groove being triangular in cross section and extending horizontally across the bracket, the upper surface of the bracket being curved outwardly and downwardly and the lower surface of the bracket being curved outwardly and upwardly, the outer surfaces of the bracket terminating in narrow lips which are curved inwardly adjacent the outer edges of the groove, an arch wire receivable in the triangular groove, the arch wire being triangular in cross section, and a sliding closure comprising a rectangular planar member, the edges of the planar member being receivable in grooves formed in the bracket adjacent the outer edges of the triangular groove.

5. Apparatus for straightening teeth comprising a bracket adapted to be secured to a tooth, a groove being formed in the outer surface of the bracket, the groove being triangular in cross section and extending horizontally across the bracket, the upper surface of the bracket being curved outwardly and downwardly and the lower surface of the bracket being curved outwardly and upwardly, the outer surfaces of the bracket terminating in narrow lips which are curved inwardly adjacent the outer edges of the groove, an arch wire receivable in the triangular groove, the arch wire being triangular in cross section, a sliding closure comprising a rectangular planar member, the edges of the planar member being receivable in grooves formed in the bracket adjacent the outer edges of the triangular groove, and a wedge shaped spacer receivable in the triangular groove between the arch wire and the sliding closure.

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