E. H. ANGLE & J. L. YOUNG.

DENTAL TOOTH REGULATING APPLIANCE.

APPLICATION FILED AUG. 22, 1911.

1,039,683.

Patented Oct. 1, 1912.

FIG. I.

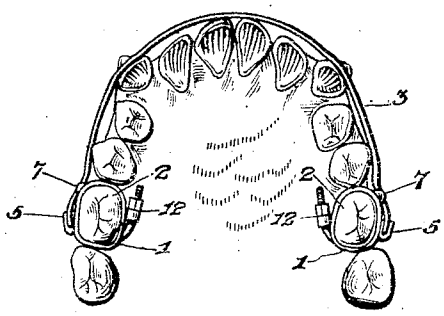


FIG. II.

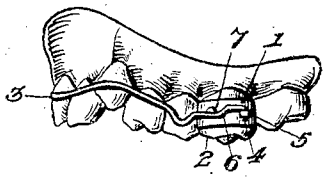


FIG. III.

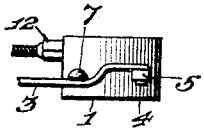


FIG. IV.

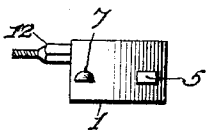


FIG. V.

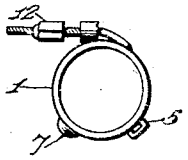


FIG. VI.

FIG. VII.

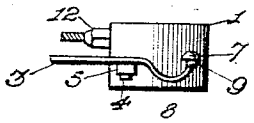


FIG. VIII.

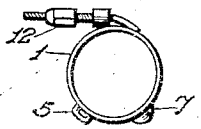


FIG. IX.

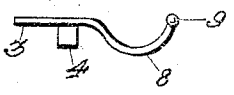


FIG. X.

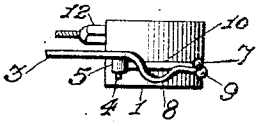


FIG. XI.

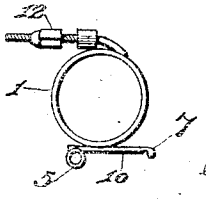
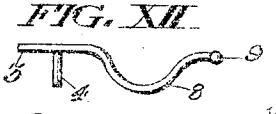


FIG. XII.



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UNITED STATES PATENT OFFICE.

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DENTAL TOOTH-REGULATING APPLIANCE.

1,039,683. Specification of Letters Patent. Patented Oct. 1, 1912.

Application filed August 22, 1911. Serial No. 645,437.

To all whom it may concern:

Be it known that we, EDWARD H. ANGLE and J. LOWE YOUNG, citizens of the United States, residing, respectively, at New London, in the county of New London and State of Connecticut, and New Rochelle, in the county of Westchester and State of New York, have invented a certain new and useful Improvement in Dental Tooth-Regulating Appliances; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to an improvement in dental tooth regulating or orthodontia appliances of the arch-bar type, our object being to improve the appliance shown, described and claimed in our former application, Serial Number 599,760, filed December 27, 1910.

The invention is illustrated in the accompanying drawings, described in the following specification and pointed out in the claims at the conclusion thereof.

In said drawing Figure I is a plan view of a mounted appliance. Fig. II is a side view thereof. Fig. III is an enlarged side view of an anchor band and the end of an arch-bar showing one form of our invention. Fig. IV is a similar view minus the arch-bar. Fig. V is a top or plan view of said anchor band. Fig. VI is a detached view of the arch-bar end. Fig. VII is a side view of an anchor-band and arch bar end showing another form of our invention. Fig. VIII is a top or plan view thereof. Fig. IX is a detached view of the arch-bar end of this particular form of connection. Fig. X is a side view of an anchor-band and arch-bar end of still another form of connection. Fig. XI is a top or plan view thereof. Fig. XII is a detached view of the arch-bar end thereof.

Our present invention is applicable to that class of the arch-bar type of tooth regulating or orthodontia appliances in which the delivery member or arch-bar is distended, projected or contracted, for moving malposed teeth, by bending, crimping, stretching or otherwise altering the length of the anterior portion of the arch-bar without actually moving it as a whole.

In our before-mentioned application we have disclosed appliances of this particular class in which there is provided detachable interlocking, non-adjustable connection between the arch-bar and the anchor-band or bands.

The various forms of connections illustrated in the drawings of said application show the interlocking connection directly between a tube or socket-piece attached to the anchor-band and the arch-bar.

In our present improvement the interlocking connection is not directly or entirely between said tube or socket-piece, a lug, projection or abutment being provided for this purpose, as will now be explained.

Referring to Figs. I and II, 1 indicates anchor-bands applied to molar teeth 2, said bands composing the anchor member of the appliance. The delivery member or arch-bar to which the malposed tooth or teeth may be secured in suitable manner, is indicated at 3. The anchor-bands may be provided with the usual means for securing the bands to the teeth, as the screw and nut 12.

In the form of connection indicated in Figs. III, IV, V and VI, each of the inner ends of the arch-bar 3 is bent at an angle or formed with a spur 4 adapted to fit in a tube or socket-piece 5 secured to or formed upon the anchor-band 1. At or near the spur 4 the arch-bar is preferably bent or curved, as at 6, and just inside of this bent or curved portion 6, the arch-bar is adapted to catch under a lug, projection or abutment 7 on the anchor-band 1. The parts are so related that the arch-bar, being of spring material, must be sprung in order to catch under the abutment 7. Thus, in attaching or applying the arch-bar, the spurs 4 are first inserted in the sockets 5 and the arch-bar sprung under or engaged with the abutments 7. To detach the arch-bar it is merely pulled from under or disengaged from the abutments 7 and the spurs 4 withdrawn from the sockets 5.

It will be observed that the connection between the spur and tube or socket is without catch or lock, the locking engagement being provided by the lug or abutment.

The construction is simple and the attachment between arch-bar and anchor-bands is sure, positive and easily and quickly effected.

The form of attachment indicated in Figs. VII, VIII and IX is similar to that just described, save that the spur 4, instead of being located at the extremity of the arch-bar, is located some distance from said extremity.

Also the relative positions of the socket 5 and the abutment 7 are transposed. In this form of connection the arch-bar extends beyond the spur 4, which enters the socket 5, into a curved portion 8, the end of which catches under or engages the abutment 7. The portions 8 may be termed spring extensions of the arch-bar.

The manner of attaching and detaching the arch-bar is the same in this form as in that first described, the ends of the arch-bar 8 being first engaged with or disengaged from the abutments before the spurs 4 are seated in or withdrawn from the sockets. To provide a nice finish the end 8 of the arch-bar may be rounded or formed with a terminal ball 9, as shown.

Instead of securing the tube or socket 5 and the lug or abutment 7 directly to the anchor-band, these parts may be carried by or formed upon a bar suitably secured to the anchor-band. Such a construction is indicated in Figs. X, XI and XII. The bar is shown at 10, the socket 5 being at one end and the abutment 7 at the other. This form has the advantage that the bar, socket and abutment may be made in one piece and secured to the anchor-band at one point only; whereas in the other forms the socket and the abutment are separately secured to said anchor-band. If desired, the relative positions of the socket 5 and abutment 7 on the bar 10 may be transposed.

The socket 5 and the spur 4 may be flat in cross section, as shown in Figs. III to IX inclusive; round, as shown in Figs. X, XI and XII, or of any other suitable cross section.

The engaging surface of the lug or abutment 7 may be plain, as indicated in Figs. III and IV and in Fig. VII, or if desired it may be notched, undercut or in the form of a ball, as indicated in Figs. X and XI.

Other changes and forms of our new connection within the scope of our invention will doubtless suggest themselves.

We claim as our invention:

1. A dental tooth regulating anchor-band, means thereon for securing it upon a tooth, a socket thereon for the reception of a spur on an arch-bar, and an abutment on said anchor-band for engaging said arch-bar.

2. A dental tooth regulating anchor-band, a bar secured to said anchor-band, a socket upon one end of said bar and an abutment upon the other end of said bar.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."