

E. H. ANGLE.
DENTAL TOOTH REGULATING APPLIANCE.
APPLICATION FILED JUNE 1, 1910. RENEWED AUG. 18, 1911.

1,014,030.

Patented Jan. 9, 1912.

Fig. I.

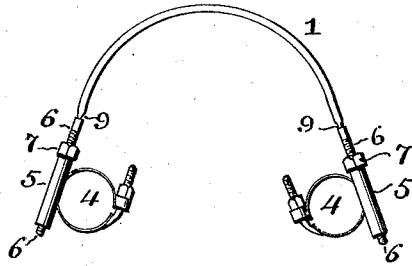


Fig. III.



Fig. II.

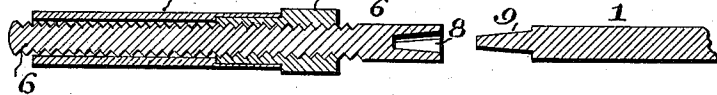


Fig. V.



Fig. IV.



Fig. VII.

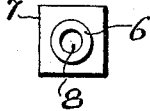


Fig. VI.

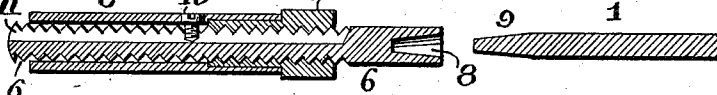


Fig. VIII.

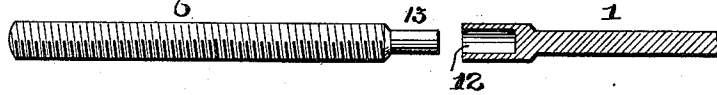


Fig. IX.

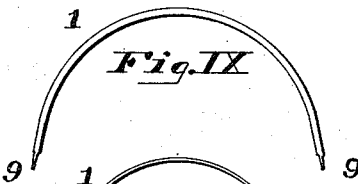


Fig. X.

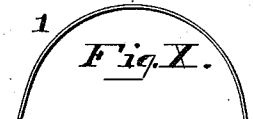
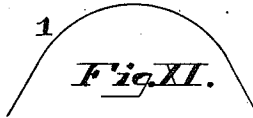


Fig. XI.



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DENTAL TOOTH-REGULATING APPLIANCE.

1,014,030.

Specification of Letters Patent.

Patented Jan. 9, 1912.

Application filed June 1, 1910, Serial No. 564,349. Renewed August 18, 1911. Serial No. 644,892.

To all whom it may concern:

Be it known that I, EDWARD H. ANGLE, a citizen of the United States, residing at New London, in the county of New London and State of Connecticut, have invented a certain new and useful Improvement in Dental Tooth-Regulating Appliances; and I 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.

My invention relates to an improvement in orthodontia or dental tooth regulating appliances of the arch-bar class.

The object of my invention is to facilitate the attachment and detachment of the arch-bar for the purpose of altering its shape or for substituting another arch-bar of different resiliency or size.

The invention therefore consists of an arch-bar, the middle section of which has sliding and detachable connection with the externally threaded end sections, as indicated in the accompanying drawings, described in the following specification and pointed out in the claims at the conclusion thereof.

In said drawings Figure I is a plan view of a dental tooth regulating appliance of the arch-bar class having my improvement applied thereto. Fig. II is a longitudinal sectional view on an enlarged scale of one of the end sections of the arch-bar, an anchor tube and an adjusting nut, one end of the middle section of said arch-bar being shown as separated from said end section. Fig. III is an end view of said end section and adjusting nut. Figs. IV and V are views corresponding to Figs. II and III, showing a modification. Figs. VI and VII are similar views showing another modification. Fig. VIII is a view in side elevation of still another modified end section and a sectional view of one end of the middle section separated from said end section. Figs. IX, X and XI represent middle sections of arch-bars of different sizes, shapes and degrees of resiliency.

A tooth regulating appliance of the class to which my present improvement is applicable is indicated in Fig. I. This comprises an arch-bar consisting of a resilient middle section 1 and externally threaded end sections 6, 6; anchor tubes 5, 5, through which said end sections 6, 6, pass, anchor

bands 4, 4, securely attached to said tubes 5, 5, and adjusting nuts 7, 7.

In practice the anchor bands 4, 4, are placed upon and securely attached to anchor teeth in the mouth, such as molar teeth, and the middle section 1 secured to a malposed tooth which is to be restored to its proper position in the dental arch. By suitably manipulating the adjusting nuts 7, the arch-bar may be projected or distended for placing the appliance under tension for moving the malposed tooth. During the operation of regulating, which sometimes extends over a period of many weeks, during which the appliance is worn by the patient, it is at times necessary to remove the arch-bar for the purpose of altering its shape, for substituting a lighter or a heavier arch-bar, or one of different shape, or for other purposes. To do this with appliances as now made it is necessary to remove the entire arch-bar, which is accomplished by backing out the regulating nuts 7 until the threaded end sections 6 of the arch-bar can be removed from the anchor tubes 5.

The necessity for removing the entire arch-bar is obviated by my present improvement which enables the middle section 1 of the arch-bar—which is the only portion thereof requiring alteration—to be removed without detaching the threaded end sections from the anchor tubes. This is made possible by making the middle section 1 of the arch-bar separate from the threaded end sections 6 and in providing a detachable mortise and tenon connection between the sections.

In the arch-bar indicated in Figs. I, II and III, one end of each threaded end piece 6 is socketed at 8 and the ends 9 of the middle section 1 are adapted to enter these sockets. When the adjusting nuts 7 are so turned as to project the threaded end sections 6 from the anchor tubes 5, the middle section is likewise projected. When, on the other hand, said nuts are turned to retract said end pieces, the sliding or telescopic connection permits said end sections to be moved without necessarily moving the middle section. In this way, and by sufficiently retracting the end sections, the middle section may readily be detached.

The sockets 8 and the ends 9 of the end pieces 6 may be conical as shown in Figs. II and III, and while manipulating the adjusting nuts 7 the end pieces may, if neces-

sary, be held against turning when the nuts are turned by means of pliers or other suitable implement. Or if desired, means forming part of the appliance may be provided for preventing the turning of the threaded end sections when the adjusting nuts are turned. This may be accomplished by making the socket 8 in the end section 6 square in cross section and the end 9 of the middle section which enters said socket of a corresponding cross section. Such a construction is indicated in Figs. IV and V. Another means for preventing turning of the end sections is indicated in Figs. VI and VII, in which a lug 10 on the interior of the anchor tube 5 enters a longitudinal groove 11 in the threaded end section 6. In this form the socket 8 and end 9 may be round.

Instead of socketing the threaded end sections as above described, the ends of the middle section may be socketed. Such a construction is indicated in Fig. VIII, the socket in the end of the middle section being shown at 12, and the reduced end of the end section which enters said socket being shown at 13.

In addition to the advantages of my invention already pointed out, it should be further understood that the improved arch-bar affords ready means for using middle sections of varying degrees of resiliency and also of different sizes with the same end sections, all of which middle sections may be quickly and easily interchanged without dis-

mounting the end sections. A series of middle sections differing in size, metal, shape and degree of resiliency, and all adapted to the same end sections are illustrated in Figs. VII, VIII and IX.

No claim is herein made to anything shown and claimed in my application, Serial No. 548,822, filed March 12, 1910.

I claim as my invention:

1. In a dental tooth regulating appliance, the combination of an arch-bar consisting of a resilient middle section, exteriorly threaded end sections forming continuations of said middle section, detachable mortise and tenon connections between the ends of said middle section and said end sections, anchor tubes through which said end sections pass, and adjusting nuts on said end sections and bearing against the ends of said anchor tubes.

2. An arch-bar for dental tooth regulating appliances consisting of a resilient middle section, exteriorly threaded end sections forming continuations of said middle section, and non-turning detachable mortise and tenon connections between the ends of said middle section and said end sections.

In testimony whereof I have fixed my signature in the presence of two witnesses.

EDWARD H. ANGLE.

Witnesses:

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