

(No Model.)

E. H. ANGLE.
ART OF REGULATING TEETH.

No. 534,849.

Patented Feb. 26, 1895.

Fig. 1.

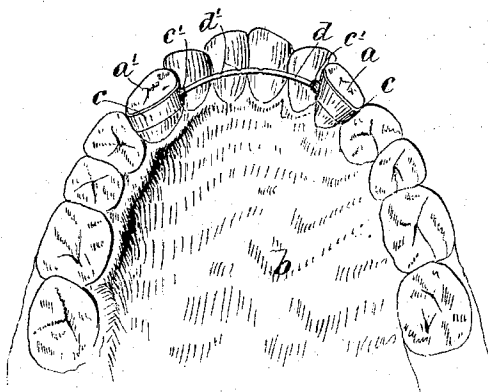


Fig. 2.

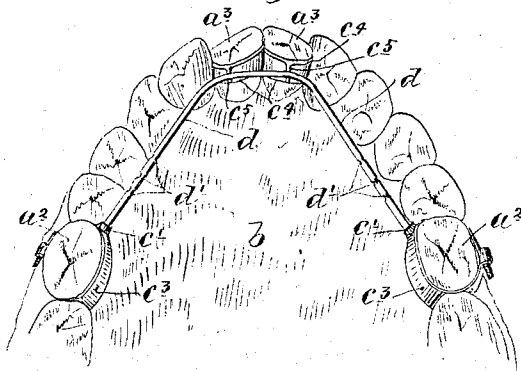


Fig. 3.

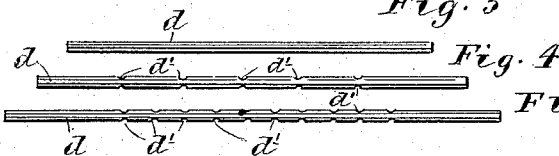


Fig. 4.

Fig. 5.

Witnesses.

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ART OF REGULATING TEETH.

SPECIFICATION forming part of Letters Patent No. 534,849, dated February 26, 1895.

Application filed May 7, 1894. Serial No. 510,347. (No model.)

To all whom it may concern:

Be it known that I, EDWARD H. ANGLE, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in the Art of Regulating Teeth; 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 has for its object to provide an improvement in the art of regulating teeth.

To this end, the improvement in the art consists in applying to the tooth to be moved an anchored metallic rod and in lengthening the applied rod, while in position, from time to time, as may be required, by displacement in the particles of its mass; and, more specifically stated, the lengthening of the rod is effected by pinching the same to reduce the cross section and extend the same lengthwise by the displacement of the particles of its mass, which is effected under the pinching action.

My invention is illustrated, in respect to the apparatus, and, in respect to the result of the method, in the accompanying drawings. Therein like letters refer to like parts.

Figure 1 is a plan view of part of a human jaw, with my device shown as applied for forcing a pair of teeth outward with a pushing action, one on each side of the jaw. Fig. 2 is a similar view, showing my device as applied for forcing a pair of teeth forward in the jaw, from a fixed base of resistance or anchorage. Figs. 3, 4, and 5 illustrate the rod and the effect of the pinching action thereon. Of the said views, Fig. 3 is a plan view of a specimen rod, of German silver, or other suitable metal, before it has been lengthened, by displacement in the particles of its mass. Figs. 4 and 5 are plan views, showing the same rod, as extended by displacement in its mass, under the pinching action, Fig. 4 showing the amount of the extension resulting from five applications of the pinchers; and Fig. 5 the amount of the extension resulting from ten applications of the pinchers.

Referring to Fig. 1, a a' represent teeth in the jaw b , which require to be pushed outward, in order to occupy their proper positions

in the arch. c represents anchoring bands applied to the said teeth a a' ; and are provided with ferrules or short tubular projections c' , for the insertion therein of the rod d . The said rod, when first applied is of a length to just fit into the ferrules c' and bridge the space between the two. The rod is thus inserted into position, by springing the rod sufficiently to enter the ends of the same in the ferrules; and again straightening the rod, if necessary, after the ends of the same have been entered in the ferrules. The bands c are rigidly secured to the teeth a , by cement or otherwise, so as to prevent any displacement of the bands by slippage. After the rod d is in position, as stated, it is lengthened, to produce the required pressure on the teeth a a' , by the use of the pinchers; which, under the pinching action, will reduce the cross-section and longitudinally extend the rod by displacement in the particles of its mass, as before stated.

As illustrated in Fig. 1, there have been three applications of the pinchers to the rod d , as shown at d' . On successive days or at other required intervals, additional applications of the pinchers will be made to the rod d , for successively lengthening the rod and maintaining the pushing pressure on the teeth a a' , until they have been forced outward into their proper position in the arch.

As shown in Fig. 2, the rod d is modified in form, as required to adapt the ends of the same for anchorage to a pair of molars a^2 , and to bear at its central and forward portion against the central incisors a^3 , for pushing the same forward in the arch. For this case, I employ clamping bands c^3 , on the anchorage teeth a^2 , with ferrules c' properly positioned thereon, for receiving the ends of the rod d , in the line of strain adjacent to the dental arch; and on the incisors to be moved, I employ bands c^4 , which are cemented thereto, and are provided with notched lugs c^5 , adapted to receive the central and forward portion of the said rod d , and form a seat for the same in its pushing action on the teeth. In other words, the rod d is bent to conform approximately to the inside of the dental arch, and the bridge of the rod is made to bear against the incisors. The anchorage against the molars a^2 , affords a relatively strong base of re-

sistance, as compared with the incisors a^3 , which are to be moved. Hence, when the rod is in position, as described, the extension of the same produced by the application of the pinchers to the side portions of the rod, will all take place against the incisors, and be thereby made to force the same forward in the arch. Hence, by successively pinching the sides of the rod, the said incisors a^3 may be forced outward into the required position in the arch.

By properly conforming the rod to the dental arch, the same method may be utilized to pull one or more teeth backward in the arch, or to rotate the same in the arch. The rod may be applied of course, either to the inside or to the outside of the dental arch, according to the circumstances of the case. In a word, this method of regulation may be universally used wherever a pushing or a pulling action is required and can be secured, from proper anchorage, by an extension in the length of the rod. Both the cases shown illustrate a pushing action; but it must be obvious, that, if in the case shown in Fig. 2, the rod d had been placed on the outside of the arch and the bands c^4 , on the incisors, had been made fast to the rod, at the portion of the same in the front of the arch; then, on lengthening the side sections of the rod by the application of the pinchers, the bridge or arch portion of the rod would have been forced forward outside the dental arch, and would have pulled forward the incisors into proper position in the arch.

It should be especially noted that the pinching action on the rod not only spreads the particles of the metal, so as to increase the length of the rod, but tempers the part sub-

jected to the pinching action, thereby largely compensating for the reduction in the area of the cross section at that point, and consequently maintaining the strength and rigidity of the rod under the longitudinal strain thereon. The rod may therefore be comparatively light or of small cross section and nevertheless be made to answer its purposes.

The means herein shown and described, for the regulation of teeth, possess the distinctive merit of performing the work with the minimum of discomfort to the patient, and with the minimum of time and attention from the dentist. It is, of course, desirable to have the rod lie as close as possible to the line of the dental arch, in order to keep the same out of the road of the tongue or the lips. Hence, it is difficult to effect the pinching action, which is required for extending the rod, by the use of ordinary pinchers. I therefore provide pinchers of a special construction which are peculiarly well adapted for this work; and which pinchers will be found fully disclosed in a subsequent application.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

The improvement in the art of regulating teeth which consists in applying to the tooth to be moved an anchored metallic rod and lengthening the applied rod from time to time, as may be required, by displacement in the particles of its mass, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD H. ANGLE.

Witnesses:

JAS. F. WILLIAMSON,
EMMA F. ELMORE.