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ORTHODONTIA APPLIANCE.

APPLICATION FILED DEC. 30, 1912. RENEWED JUNE 29, 1916.

1,215,442. Patented Feb. 13, 1917.

Fig. 1

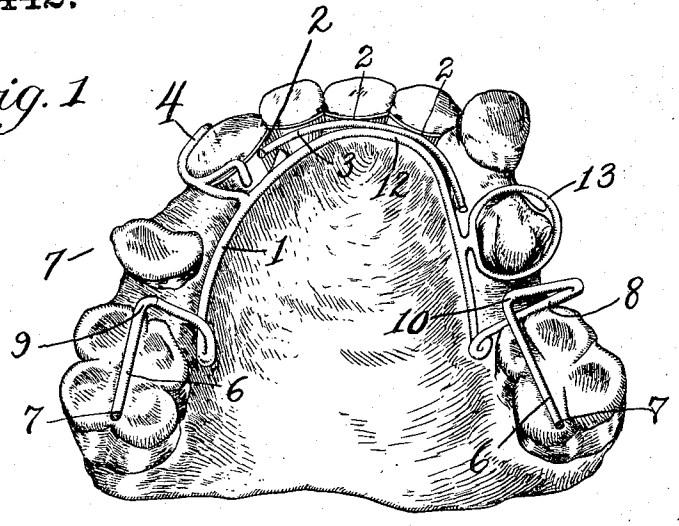


Fig. 7

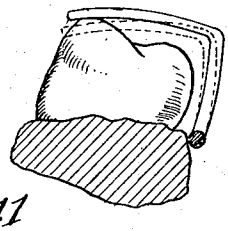


Fig. 2

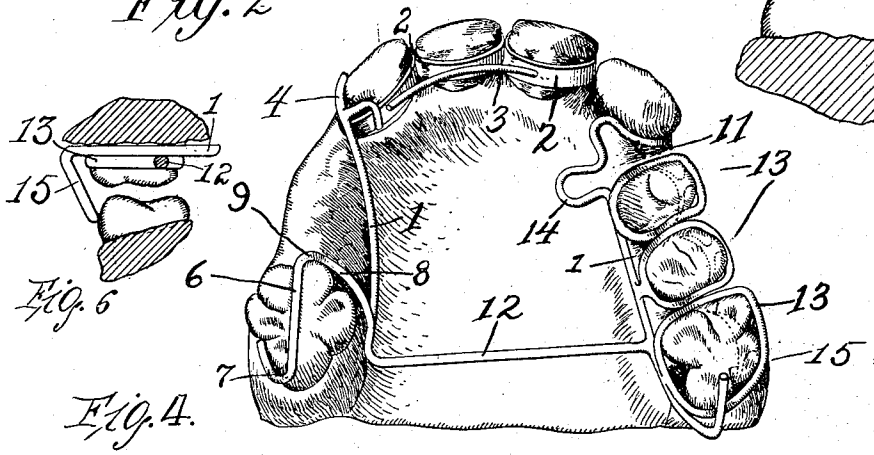


Fig. 6

Fig. 4.



Fig. 5.

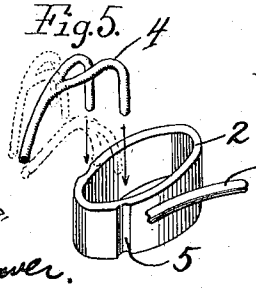


Fig. 3

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Witnesses

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UNITED STATES PATENT OFFICE.

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ORTHODONTIA APPLIANCE.

1,215,442. Specification of Letters Patent. **Patented Feb. 13, 1917.**

Original application filed October 14, 1911, Serial No.654,769. Divided and this application filed December 30, 1912, Serial No. 739,383. Renewed June 29, 1916. Serial No. 106,731.

To all whom it may concern:

Be it known that I, WILLIAM ERNEST WALKER, a citizen of the United States, and a resident of New Orleans, in the parish of Orleans and State of Louisiana, (whose post-office address is 629 Maison Blanche, in said city of New Orleans,) have invented certain new and useful Improvements in Orthodontia Appliances, of which the following is a specification.

This is a division of my co-pending application Serial No. 654,769, filed Oct. 14, 1911.

This invention relates to the mechanical treatment of the teeth, individually, or in groups, as for instance by influencing a tooth or teeth for the purpose of correcting existing, or resisting impending irregularities in teeth improperly influenced by another tooth or by abnormal forces.

This invention resides primarily in an improvement in the art of orthodontia which, like the co-pending case referred to, involves the bringing to bear upon the tooth or teeth to be affected, of one or more forces of a relatively mild, but persistent or continuing character; but the present case depends more particularly upon the localizing of a natural force such as that derived from occlusion, or upon the simulating of forces which normally influence the positioning of the teeth during their development, as for instance by applying a force or forces such as those produced by light resilient extensions from a carrying member; said extensions being designed, according to the present invention, to localize and direct their pressure toward the changed position to be induced, and always with respect to some axis of movement of the tooth. Such axis of movement is either transverse at one end of the tooth, or transverse or longitudinal at some intermediate position therein, the natural support of the tooth being utilized where the axis of adjustment is at the root of the tooth, and a support or sustaining bearing being artificially provided where the axis of movement is in the crown of the tooth.

The present invention relates further to the particular means for anchoring the appliance on the teeth; also to the carrying members removably attached to the anchoring members; also to the bridge extending across from one side of the jaw to the other; all of which features coöperate in better adapting the device to realize the purposes set forth.

A further novel feature in this appliance resides in bearing members attached to the carrying members and multiple anchorages for the carrying members, whereby said attached bearing members are caused to influence a tooth both axially (by occlusion) and laterally; this lateral influence being either medio-distally or bucco-lingually. The multiple anchors are upon a plurality of teeth and maintain the anchor teeth in their existing relations, while influencing an individual tooth or teeth; such anchorage being provided by a series of separate anchorage bands united, and one of these bands, in the illustrative embodiment, being provided with grooves or tubular sockets receiving a fork-shaped extension of the carrying member constructed to effect angularly rigid connection between the carrying member and the united anchorage bands, in order, on the one hand, to provide a readily releasable connection, and on the other hand, to leave the group of anchorage teeth standing as a whole, without being angularly or torsionally influenced by resistance encountered by the carrying member.

One embodiment of the several features of this invention is illustrated in the accompanying drawing, in which:—

Figure 1 shows the plan view of a lower jaw with the appliance attached;

Fig. 2 illustrates a plan view of the upper jaw of the same mouth with an appliance embodying the bridge across the jaw.

Figs. 3 and 4 show, on a larger scale, two different embodiments of the gripped anchoring band, while Fig. 5 is a detail view of the coöperating forked gripper.

Fig. 6 is a sectional view illustrating an occlusion device for influencing advancement of one jaw relatively to the other.

Fig. 7 is a sectional view illustrating the transfer of occlusal pressure from an existing point of occlusion to a point outside the axis of a tooth for the purpose of straightening the latter.

The gripped anchoring band 2, as well as those bands united thereto, are permanently attached to some of the adjoining teeth

which are not to be influenced by the appliance. The union of these bands is conveniently effected through the wire 3 permanently soldered thereto. The carrying member 1 is removably attached to the anchoring bands by means of a fork 4 (Fig. 5) which embraces the tooth and engages in recesses provided by grooves 5, on one of the bands, as best illustrated in Fig. 3, or the spurs of which fork enter recesses provided by the tubular sockets 5^a shown in Fig. 4.

The carrying member is provided with pressing fingers 6, located to receive occlusal pressure from the teeth of one jaw at the points 9 and 10 and localize such pressure at points 7 on corresponding teeth, to one side of their axes, in order to correct inclination in the latter.

One of the fingers 6 in Fig. 1 as well as that shown in Fig. 2 is connected to the carrying member 1, through means of a linguobuccally extending pressure arm 8 set to exert pressure distally against the same tooth that is to be tipped by occlusal pressure imparted through said finger. Said finger 6 presents a free extension of considerable length which admits of wide adjustment for selectively localizing the occlusal pressure transmitted therethrough. The arms 8 and the fingers 6 projecting therefrom exert a combined laterally displacing and axially tipping influence against the tooth with which they are associated.

In Fig. 2 is further shown a pressure finger 15 acting as an occlusal spur projecting from the carrying member 1 toward the opposite jaw, in position to impinge by occlusion, against the distal surface of the molar thereof for the purpose of influencing the entire opposing jaw forwardly in relation to the jaw carrying said spur. This spur is effective largely by suggestion or by creating in the patient the inclination to voluntarily hold the jaws toward the relative position desired to be ultimately attained, with the result that the glenoid fossa forms around the condyle in the correct position. This spur is particularly advantageous, in that, in many cases it avoids the necessity of wearing appliances through which to establish elastic connections between the jaws, for accomplishing the purpose stated.

One or more additional detachable anchorages or circumferential positioning members 13 are disclosed in both Figs. 1 and 2, upon teeth distant from the occlusal fingers 6 to assist in holding said fingers accurately in place. These additional positioning members may be of any approved type, for instance, the form of anchorage disclosed in my co-pending application, Serial No. 739,382. In Fig. 2, the carrier and the occlusal finger on the opposite side are directly sustained, laterally, by the strut or bridge 12, which, with the member 1 extending from anchor 4, renders the finger 6 particularly effective since it is positioned by two forces acting at right angles.

11, in Fig. 2, is a finger positioned and tensioned to move the tooth against which it bears, from a position encroaching upon the position of an unemerged tooth.

I claim:—

1. In orthodontia appliances, an anchorage band adapted for surrounding a tooth and provided with recesses on opposite sides, a fork-shaped gripper adapted to embrace the tooth and enter said recesses, a carrying member supported by said gripper, and pressure delivering fingers on said carrying member.

2. In orthodontia appliances, an anchorage band adapted for surrounding a tooth and provided with recesses on opposite sides, a fork-shaped gripper adapted to embrace the tooth and enter said recesses, a carrying member supported by said gripper, and pressure delivering fingers on said carrying member, comprising a member projecting in position to receive pressure from occlusion.

3. In orthodontia appliances, an anchorage band adapted for surrounding a tooth and provided with recesses on opposite sides, a fork-shaped gripper adapted to embrace the tooth and enter said recesses, a carrying member supported by said gripper, and a pressure delivering finger on said carrying member, comprising a member projecting in position to receive pressure from occlusion of one tooth and suspended from said carrying member in an approximately perpendicular direction thereto in order to deliver said pressure to the occlusal surface of another tooth, at a point to one side of its axis.

4. In orthodontia appliances, the combination of a carrying member, an anchorage for said carrying member on one tooth, having detachable connection with said member, a circumferential positioning member connected with said carrying member and fitting on another tooth in the same jaw, a pressure developing finger projecting from said carrying member into position to encounter a tooth in the opposite jaw by occlusion and deliver pressure to a tooth in the first named jaw.

5. In orthodontia appliances, the combination of a carrying member, an anchorage for said carrying member on one tooth having detachable connection with said member, a circumferential positioning member connected with said carrying member and fitting on another tooth in the same jaw, a pressure developing finger constructed to deliver pressure on a tooth in the same jaw and projecting from said carrying member into position to encounter a tooth in the opposite jaw by occlusion; said carrying member having two arms located on opposite

sides of the dental arch; the pressure developing finger and the circumferential positioning member being connected to the respective arms of the carrying member.

6. In orthodontia appliances, a lever adapted to extend into the path of a tooth, and means for detachably anchoring said lever to a distant tooth, said lever constructed to deliver pressure, during occlusion, to a tooth in the jaw carrying the anchoring means.

7. In orthodontia appliances, a suitable anchorage, a carrying member, and an occlusal pressure finger detachably supported on said carrying member constructed to deliver pressure during occlusion to a tooth in the jaw carrying the anchoring means.

8. In orthodontia appliances, a suitable anchorage on a tooth in one jaw, a carrying member detachably mounted on the anchorage, and an occlusal pressure finger supported on said carrying member; said occlusal pressure finger having a portion receiving pressure from occlusion of a tooth in the opposite jaw, and a remote portion imparting the pressure so received to a tooth of the first named jaw.

9. In orthodontia appliances, a suitable anchorage on a tooth in one jaw, a carrying member on the anchorage, and an occlusal pressure finger supported on said carrying member; said occlusal pressure finger having a free end and being adjustable to determine the point of delivery of occlusal pressure transmitted through it to a tooth in the same jaw.

10. In orthodontia apliances, a suitable anchorage on a tooth in one jaw, a carrying member on the anchorage, and an occlusal pressure finger supported on said carrying member; said occlusal pressure finger having a portion receiving pressure from occlusion of a tooth in the opposite jaw, and a remote portion imparting the pressure so received to a tooth of the first named jaw; said occlusal pressure finger being flexible, thereby rendering the positions of its pressure receiving and transmitting points, selective at will.

The foregoing specification signed at Washington, District of Columbia, this 14 day of September, 1912.

WILLIAM E. WALKER.

In presence of two witnesses:

HERVEY S. KNIGHT,

EDWIN S. CLARKSON.

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