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2,985,962

ORTHODONTIA APPLIANCE TOOL

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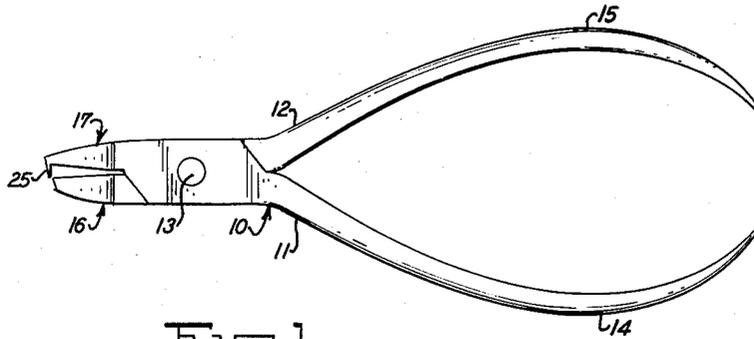


Fig. 1

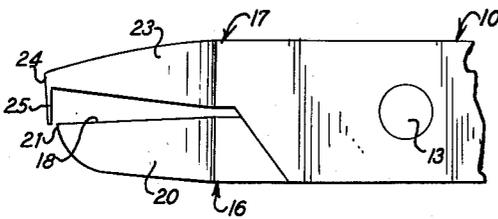


Fig. 2

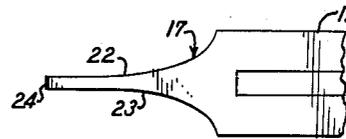


Fig. 3

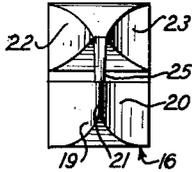


Fig. 4

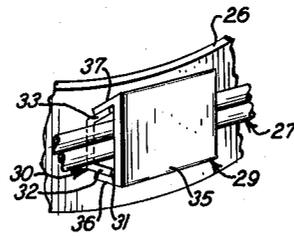


Fig. 5

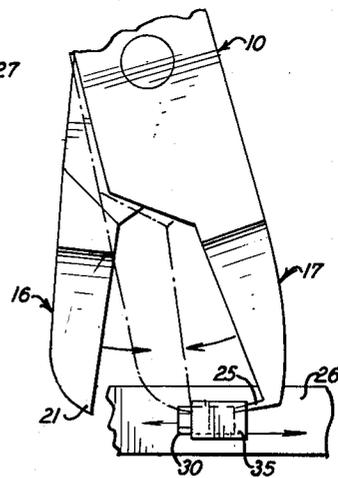


Fig. 6

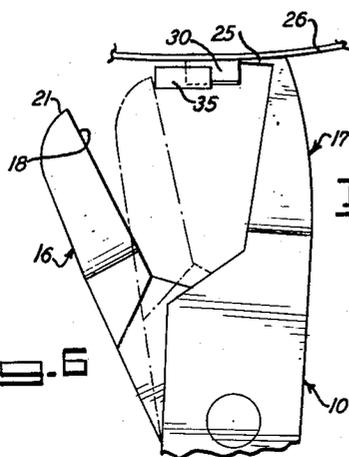


Fig. 7

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ORTHODONTIA APPLIANCE TOOL

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1 Claim. (Cl. 32-66)

This invention relates to dentistry and more particularly to a tool for use with orthodontia appliances of the type shown in Patent No. 1,952,320, to J. E. Johnson, issued March 27, 1934.

Orthodontia appliances are utilized for adjusting or moving teeth which are out of place and the appliance shown and described in the above mentioned patent includes an arch bow formed of wires which are secured to anchoring teeth, such as molars with the bow extending across the front faces of the intervening teeth and being secured to each intervening tooth by a band encircling the tooth, there being a bow locking base secured to each band and providing a channel for receiving the arch bow and a cap for retaining the arch bow in the channel slidably received on the base by a dovetail, the cap being applied and removed by movement longitudinally of the base and arch bow.

Removal of the cap from the base in this type of orthodontia appliance has presented numerous difficulties, including discomfort for the patient, since heretofore the cap has normally been removed by utilizing a pair of pliers in which one jaw engages the tooth or the band surrounding the tooth and the other jaw engages the cap and upon movement of the jaws toward each other, the cap is moved on the base to remove the same therefrom. Since the base is firmly secured to the tooth by the band encircling the same, this method of removal of the cap results in exerting a twisting, as well as a bending force on the tooth thereby resulting in discomfort to the patient and in some instances, damage to the tooth. It will, therefore, be seen that the provision of a tool for removing the cap from the base of orthodontia appliances of this type which will perform this operation without exerting a twisting or bending force on the tooth represents a significant step forward in the art.

It is accordingly an object of the invention to provide an orthodontia appliance tool which may be conveniently and economically manufactured from readily available materials and which may be utilized to partially remove the cap from the base of an orthodontia appliance and in which the removing forces are applied solely to the base and the cap.

A further object of the invention is the provision of an orthodontia appliance tool in the form of a pair of pliers having jaws so formed as to engage the base and cap of an orthodontia appliance to partially remove the cap from the base solely by the application of force to the cap and base.

A still further object of the invention is the provision of an orthodontia appliance tool which may be utilized for partially removing the cap from the base of an orthodontia appliance and without modification of such appliance.

Further objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawing wherein:

Fig. 1 is a side elevational view of an orthodontia ap-

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pliance tool constructed in accordance with this invention;

Fig. 2 an enlarged side elevational view of the jaw portion of the tool shown in Fig. 1 and particularly showing the structure of the appliance engaging jaws;

Fig. 3 a fragmentary edge elevational view further showing the shape and structure of the appliance engaging jaws;

Fig. 4 an end elevational view of the appliance engaging jaws of the tool shown in Fig. 1;

Fig. 5 is a fragmentary view in perspective showing a portion of an orthodontia appliance of the type for which the tool of this invention is designed;

Fig. 6 a fragmentary elevational view showing the manner of utilizing the tool of this invention to partially remove the cap of an orthodontia appliance; and

Fig. 7 a view similar to Fig. 6 and further showing the use of the tool of this invention.

With continued reference to the drawing, there is shown an orthodontia appliance tool constructed in accordance with this invention, which tool may well comprise a pair of pliers 10 having crossed levers 11 and 12 pivotally connected at 13, the levers 11 and 12 being provided with handle portions 14 and 15 at one side of the pivot 13 and at the opposite side of the pivot 13 with jaws 16 and 17.

The jaw 16 is provided with a substantially flat inner cap engaging jaw face 18 and the jaw 16 is tapered at the sides 19 and 20, as shown in Figs. 2 and 4, with the jaw 16 terminating in a thin outer end 21.

The jaw 17 as shown in Figs. 2 and 4, is provided with tapered sides 22 and 23 of substantially the same configuration as the tapered sides 19 and 20 of jaw 16 and the jaw 17 terminates in a thin outer end 24 disposed outwardly of the outer end 21 of the jaw 16. An elongated base engaging prong 25 projects from the outer end 24 of the jaw 17 at substantially right angles to the jaw 17 and toward and across the outer end 21 of the jaw 16 and it is to be noted, that the length of the prong 25 is approximately two-thirds the length of the cap of the orthodontia appliance which will be presently described.

With particular reference to Fig. 5, there is shown a portion of an orthodontia appliance with which the tool of this invention is to be utilized and such appliance may include a tooth engaging band 26 which is secured to a tooth in a conventional manner and an arch bow 27 comprising a pair of wires which are anchored to teeth, such as molars, in a conventional manner, it being noted that one or more of the bands 26 are applied and secured to teeth intervening between the teeth to which the arch bow 27 is anchored. Provided on each tooth engaging band 26 is an arch bow retaining clip 29 in the form of a base member 30 secured to the outer surface of the band 26 in any suitable manner and the base 30 provides an outwardly opening channel 31 for receiving the arch bow 27. The flanges 32 and 33 of the base 30 diverge, as clearly shown in Fig. 5, to provide a dovetail and slidably received on the flanges 32 and 33 is a cap 35 having inwardly converging flanges 36 and 37 slidably engaging the flanges 32 and 33 of the base 30.

When in place on the base 30, the cap 35 operates to retain the arch bow 27 in the channel 31 of the base 30.

The orthodontia appliance above described is well known in the art as illustrated by the above noted Johnson Patent No. 1,952,320 and the dimensions of the parts of such appliance are standard and also well known. These appliances are commonly supplied with the arch bow wires 27 having a diameter of .010 inch and the cap 35 is one-eighth inch long, one-sixteenth inch wide and one-thirty second inch thick or deep. Consequently, the portion of the prong 25 which is received within the cap 35 during the removing operation must have a cross

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sectional dimension in the plane of the jaws 16 and 17 not greater than .010 inch, this dimension being determined by the diameter of the arch bow wires 27 which determines the available space beneath the cap 35 when in place on the clip 29.

The operation of the tool of this invention is best shown in Figs. 6 and 7 and as will be seen from an inspection of these figures, the jaw face 18 of the jaw 16 is engaged with an end of the cap 35 while the end of the prong 25 engages a portion of the base 30. Operation of the tool to move the jaws 16 and 17 toward each other results in moving the cap 35 with relation to the base 30, the cap moving over the prong 25 as shown in dotted lines in Fig. 6, and in full lines in Fig. 7. It will be seen that the force exerted on the cap 35 and base 30 is completely isolated from the band 26 and consequently, there is no twisting or bending force applied to the tooth on which the band 26 is secured. Operation of the tool of this invention as above described, moves the cap 35 with respect to the base 30 a sufficient distance to permit removal of the cap without the application of sufficient force to cause discomfort to the patient or damage to the tooth.

While the above described tool is relatively simple in construction, nevertheless, it will be seen that the same will operate to effectively remove the cap from the base of an orthodontia appliance and in a manner which precludes the application of a twisting or bending force to the tooth thereby eliminating discomfort to the patient and precluding the possibility of damage to the tooth.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is shown in the draw-

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ing and described in the specification, but only as indicated in the appended claims.

What is claimed is:

A tool for partially removing the retaining cap for the arch bow of an orthodontia appliance from the base in which the base is fixed to a tooth band and provides a channel for receiving the arch bow, the cap being slidably received on the base in contact with the arch bow by a dovetail for application and removal longitudinally of the arch bow, said tool comprising a pair of pliers having crossed pivotally connected levers with the levers at one side of the pivot point providing handles and at the opposite side of the pivot point providing jaws, one of said jaws having a substantially flat inner cap engaging jaw face and tapered sides terminating in a thin outer end, the other jaw extending outwardly of said one jaw and having tapered sides terminating in a thin outer end and a base engaging prong on the outer end of said other jaw, said prong projecting at substantially right angles from said other jaw toward and across the outer end of said one jaw when said jaws are closed, said prong having a length of approximately two-thirds the length of the cap, and a cross sectional dimension in the plane of the jaws not greater than .010 inch, whereby said prong may engage one end of the base and said one jaw engage the opposite end of the cap and upon movement of said jaws together, the cap will be moved on the base and over said prong to partially remove the cap from the base.

References Cited in the file of this patent

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