

[54] **PLIERS-TYPE BAND AND CEMENT REMOVER**

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[51] Int. Cl.² **A61C 7/00**

[58] Field of Search **32/43, 66, 14**

[56] **References Cited**

UNITED STATES PATENTS

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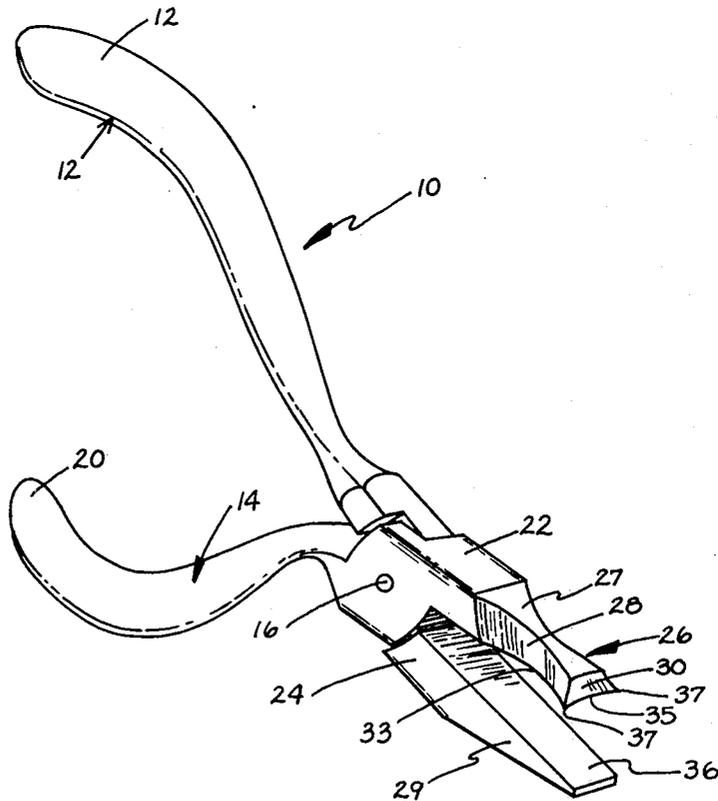
struments" Copyright 1972, Box 65, 925 Penna. Blvd., Feasterville, Pa.

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[57] **ABSTRACT**

A dental pliers comprising a pair of pivoted opposed members having complementary jaws. One of the jaws has upwardly and inwardly tapered concave shaped sides and front for forming gripping edges for facilitating the removal of metal bands cemented to teeth and the removal of cement on teeth.

1 Claim, 5 Drawing Figures



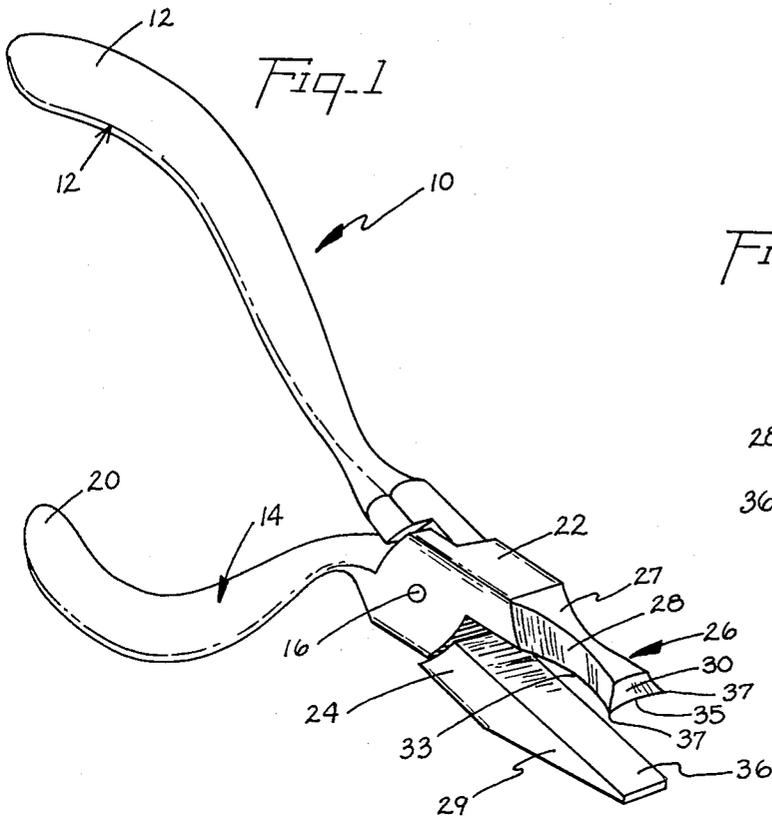


Fig-4

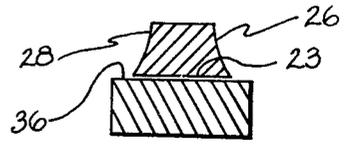


Fig-2

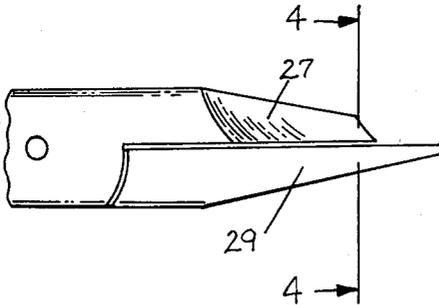


Fig-5

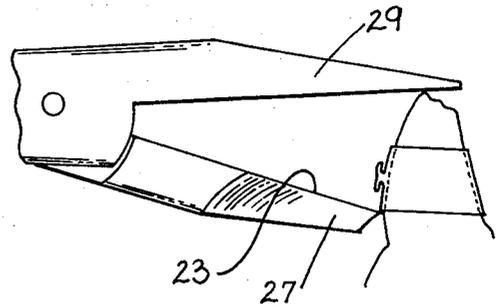
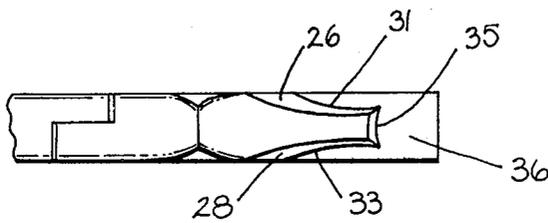


Fig-3



PLIERS-TYPE BAND AND CEMENT REMOVER

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to pliers generally and, in particular, for removing affixed substances and objects from tooth surfaces. It is particularly suited to reach the labial surfaces of anterior teeth and buccal and palatal surfaces of posterior teeth for removal of orthodontic bands and adhering cement. In addition, the pliers is capable of reaching interproximal surfaces for similar purposes.

2. Description of the Prior Art

In the past it has often been necessary to use several instruments when removing metal bands cemented onto teeth. First, the band was removed with a pliers-type instrument, then hand scalers were employed to remove the adhering tenacious cement on the tooth surface. Great effort and, occasionally, discomfort to the patient resulted from removing this adhering cement by this technique. In the mouth, the dentist, physician, or surgeon must possess an exceptional degree of manual dexterity with hand tools and scalers to achieve a fulcrum and apply leverage to remove cement in these generally inaccessible areas.

SUMMARY OF THE INVENTION

Accordingly, the present invention overcomes the disadvantage of the prior art in the provision of a tool which readily reaches into these areas formerly difficult of access and provides a fulcrum so that with minimum effort the dentist, physician, or surgeon can readily remove bands and cement adhering to the teeth.

An object of the present invention is to provide a multi-purpose instrument for removing bands and removing cement, where formerly, several instruments were used. The ability to use one instrument reduces the amount of time and effort on the part of the dentist, physician, or surgeon and benefits the patient by minimizing his discomfort.

Another object of the present invention is to provide a single instrument which will take the place of multiple separate instruments and will not require as much storage space as would the use of multiple separate instruments.

Still further, it is an object of the invention to provide a single multi-purpose instrument which will take the place of numerous separate single-purpose instruments, thereby eliminating the need for sterilization of many separate instruments.

These, together with the various ancillary objects and features of the invention which will become apparent as the following description proceeds, are attained by this multi-purpose band and cement removing pliers, a preferred embodiment of which has been illustrated in the accompanying drawings by way of example, wherein:

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a pliers constructed in accordance with the concepts of the present invention;

FIG. 2 is a plan view of the jaw portions of the pliers illustrating the manner in which one jaw extends beyond the other in all dimensions;

FIG. 3 is a side elevation view of the jaw portion of the pliers illustrating the pliers in a closed position;

FIG. 4 is an enlarged transverse sectional view taken along the plane of line 4—4 in FIG. 2 illustrating the shape of each jaw;

FIG. 5 illustrates the orientation of the jaws when in actual use.

With continuing reference to the accompanying drawings wherein like reference numerals designate similar parts throughout the various views, reference numeral 10 generally designates the pliers constructed in accordance with the concept of the present invention. This pliers includes a pair of opposed members, 12 and 14, which are pivoted together by a pivot 16 in the form of a pin or rivet it being noted that each of the opposed members 12 and 14 includes handles 19 and 20 respectively, as well as jaws 22 and 24. The inner surfaces of jaws 22 and 24 are flat and mate with each other. The jaws terminate in beaks 27 and 29 and are relatively short and closely adjacent to the pivot 16 for facilitating close work and high mechanical advantage in practical applications in orthodontic procedures, band and cement removing.

The location and short length of the jaws enable easy placement of pliers on selected teeth. In addition to the pliers joint shown, other types of pivotal arrangement for pliers can be used, including a box joint.

Beak 27 is provided with a flat inner surface, 23. This flat surface is bounded by three scraping surfaces, two side scraping surfaces, 26 and 28, and a front scraping surface, 30. These side and front surfaces each meet the inner surface, 23, at an acute angle, forming scraping edges 31 and 33 on the sides and 35, in front. These scraping edges 31, 33 and 35 have a generally concave shape with a varying radius of curvature. Edges 31 and 33 meet edge 35 in sharp scraping points, 37. The scraping surfaces 26, 28, and 30 are beveled away and tapered upwardly from surface 23 to permit scraping edges 31, 33, and 35 to make close and intimate contact with the teeth being scraped or the bands being removed. Beak 29 is flat, rectangular, and larger than beak 27. The inner surface, 36, of beak 29 extends beyond the inner surface 23 of beak 27 and provides a surface to rest upon the occlusal surface of the tooth and acts as a pivot and fulcrum when beak 27 makes contact with the tooth surface being scraped. When the handles 14 and 18 of the pliers are closed, the jaws 22 and 24 are brought together and, in this act, the selected scraping edge, e.g., 35 of beak 27 in contact with the tooth scrapes along the tooth surface and removes cement or lifts the orthodontic band. The pliers is angled so that a scraping point, 37, fits into the interproximal space and the interproximal space can be scraped clean by brining beaks 27 and 29 together. When the side scraping edge, 31, is placed upon the buccal surface can be scraped free of adhering material.

A latitude of modification, substitution and change is intended in the foregoing disclosure, and in some instances some features of the invention will be employed without a corresponding use of other features.

I claim:

1. Pliers comprising two opposed members, one of said members having a short movable jaw, the other of said members including a second shorter movable jaw, means pivotally mounting said members for movement of said jaws toward and away from each other, each of the said jaws having complementary abutting beaks provided with flat surfaces for abutment with each other, said first jaw projecting beyond said second jaw

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on both sides and at the forward end thereof, said sides being tapered inwardly and upwardly, said second jaw having its sides curved concavely inwards with varying radii of curvature and meeting the front edge of said

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second jaw, said front edge sloping downwardly and forwardly and being concavely shaped said concave edges meeting at two forward points.

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