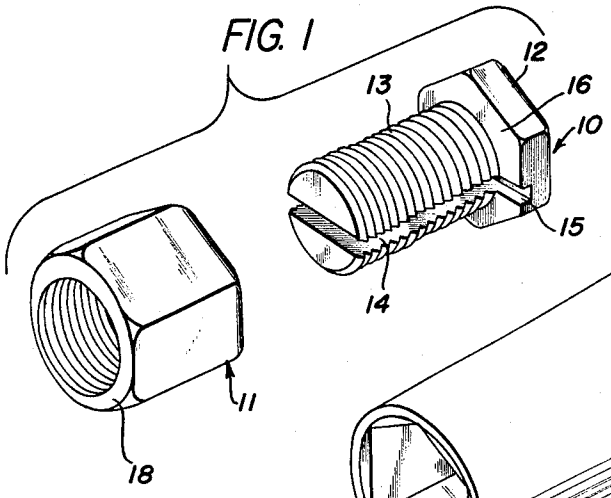
Nov. 15, 1960 L. GURIN 2,959,856

ORTHODONTIC DEVICE

Filed Sept. 15, 1959

FIG. 1



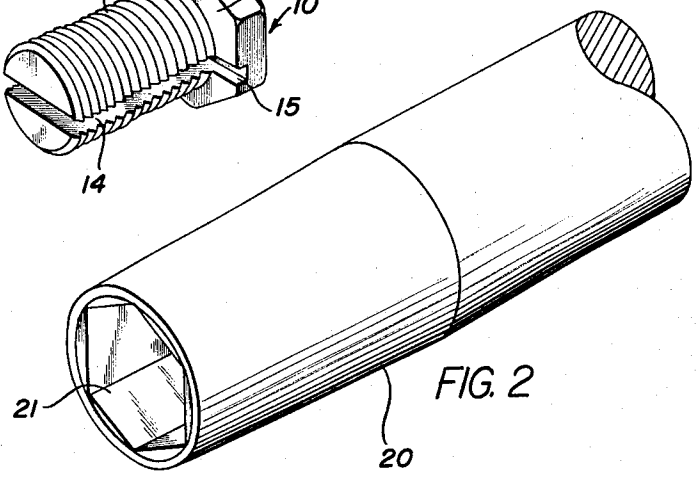


FIG. 2

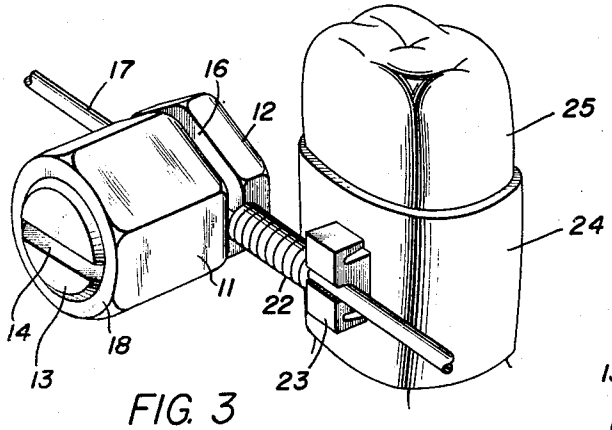
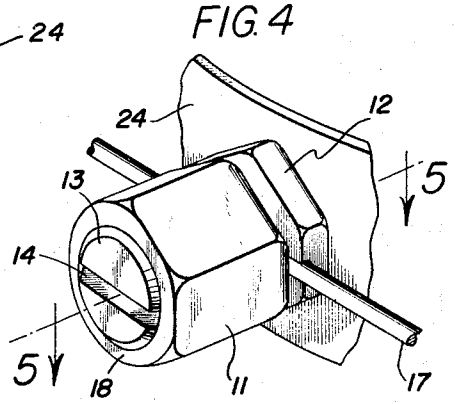


FIG. 3

FIG. 4



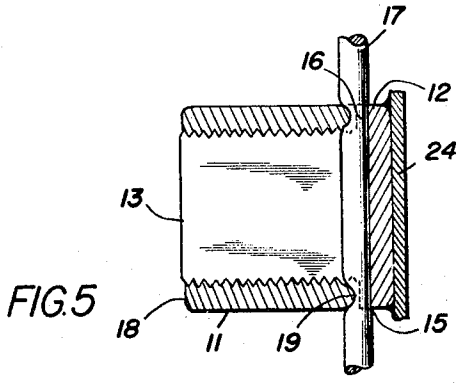


FIG. 5

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ORTHODONTIC DEVICE

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3 Claims. (Cl. 32—14)

The present invention relates generally to orthodontic devices, and more particularly to a device for attaching an archbow to selected teeth of the dental arch for the purpose of moving or straightening the teeth, and to an adjustable clamp on an arch wire permitting activation of forces to move teeth. The present application is a continuation-in-part of my pending application, Serial Number 662,025, for Orthodontic Device, filed May 28, 1957.

An orthodontic appliance which may be employed in modern orthodontia in the treatment of malocclusion comprises a clamp or lock mounted on a tooth enveloping band, a suitable anchored arch wire seated in a slotted portion in said clamp, with removable clamping means for clamping the wire against longitudinal displacement relative to the clamp. A lock of this character is extremely small, measuring approximately three sixty-fourths of an inch in diameter, and to make it possible to practically use such a lock to obtain positive displacement of the wire, an easy, sure and quick method of handling the lock is desirable. Accordingly, a primary object of the present invention is to provide a novel and improved lock arrangement which is relatively simple in construction and which provides a maximum clamping action against displacement of the arch-bow.

Another object of the invention is to provide an orthodontic clamp or lock which can be removed and inserted without the need to first remove the arch wire and which is easily adjustable to either actuate a spring or act as a stop.

Other objects of the invention are to provide an orthodontia lock which shall constitute a minimum projection from the teeth so as to cause a minimum of irritation in the mouth of the patient, to provide an orthodontia lock which shall be simple and inexpensive in construction yet strong and durable, and which shall simplify orthodontia operations.

To the accomplishment of the foregoing objects and such other objects as may hereinafter appear, my invention relates to the orthodontic device as sought to be defined in the appended claims and as described in the following specification taken together with the accompanying drawing, in which:

Figure 1 is a perspective view of the device forming the subject matter of the present invention, said device being shown on a much larger scale than the actual device.

Figure 2 is an enlarged perspective view of one end of a wrench used to operate the nut part of the present invention.

Figure 3 is a perspective view of one form of use of the present invention.

Figure 4 is a perspective view of another form of use of the present device.

Figure 5 is a sectional view taken on the line 5—5 of Figure 4.

Referring to the drawing in detail, the present orthodontic device comprises a threaded plug generally indicated by the number 10 and a nut generally indicated by the numeral 11. The plug consists of a bolt head 12 of hexagonal or other shape from which extends a threaded bolt member 13 having a longitudinally disposed slot 14 extending substantially throughout its length and through a portion of the head thereby defining a groove 15 in bearing face 16 of the head. The slot 14 is of such size to freely receive the conventional arch wire 17 used in orthodontia. The wire is shown as round in cross-section but any suitably shaped wire may be used.

The nut 11 is interiorly threaded and has its outer face hexagonally shaped to correspond to the shape of the bolt head 12. The height of the nut is approximately the same as the length of the bolt member as shown in Figures 3 and 4. The outer edge of the nut is rounded at 18 so as not to irritate the soft tissues of the mouth and the inner edge of the nut is also rounded as indicated at 19 to provide a circular cutting edge for reasons to be pointed out.

Figure 2 indicates a socket wrench 20, having a socket opening 21 for receiving the nut 11 for applying torque thereto.

Figure 3 discloses one use of the present device wherein it is clamped on a wire compressing a coil spring 22 which, in turn, presses against a conventional bracket 23 attached to a band 24 cemented on a tooth 25.

Figure 4 discloses another use of the present appliance wherein the rear face of the plug 10 is attached directly to the tooth encircling band 24.

In the use of the present orthodontic device, the plug 10 is secured by soldering or other conventional means to a tooth band 24 which is connected to a tooth 25. The plug is secured to the band with the slot 14 in a substantially horizontal plane in the customary manner. The arch wire 17 is then inserted in the slot and the nut 11 screwed into place over the threaded bolt member 13 until the wire is clamped in position. As seen in Figure 5, when the nut is tightened, the inner edge 19 is embedded in the wire at two points thereby forming a positive lock which will prevent shifting of the wire.

In another use of the device, the plug 10 is slipped onto an arch wire 17 and the nut 11 is screwed into place over the threaded bolt member 13. As seen in Figure 3, when the nut is tightened so that the entire device compresses the coil spring 22 against the bracket 23, which is usually tied to the arch wire, it will cause the tooth to be moved in the desired direction. As seen in Figure 5, when the nut is tightened, the inner edge 19 is embedded in the wire at two points thereby forming a positive lock which will prevent the pressure of the compressed coil spring and chewing forces from displacing the lock.

The ease of handling the nut is highly important since the clamps are of necessity very minute. By providing a nut as shown in place of plugs previously used, enables a tight clamping of the wire without damage to the clamp.

The orthodontic appliance of the present invention, the manner of its use and the many advantages thereof in the technique of orthodontia will in the main be fully apparent from the above detailed description thereof. It will be further apparent that while I have described my invention in a preferred form, changes may be made therein without departing from the spirit of the invention defined in the following claims.

Having thus described the invention, what is claimed is:

1. A wire gripping orthodontic device comprising an externally threaded screw mounted on a base member extending beyond the outer circumference of the screw, said screw being axially slotted through its entire length, an internally threaded nut for engaging the screw, said

nut having a substantially knife-like engaging rim for engaging a wire within said slot and cooperating with said base member whereby said engaging rim is adapted to be embedded in said wire at spaced points upon tightening of said nut to hold the wire in positively locked position.

2. A wire gripping orthodontic device as defined in claim 1, a channel formed in said base member in line with the axial slot in said screw, said channel being substantially square-shaped in section.

3. A wire gripping orthodontic device as defined in claim 1, said wire engaging rim on said nut being circular.

References Cited in the file of this patent

UNITED STATES PATENTS

822,492 Turner ---------- June 5, 1906

FOREIGN PATENTS

236,663 Great Britain ---------- July 13, 1925