

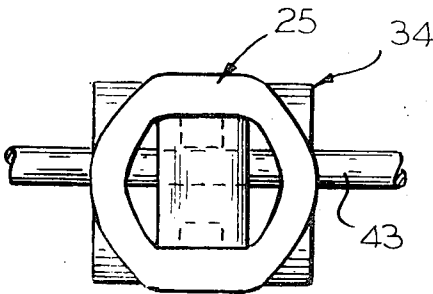
[54] **ORTHODONTIC APPLIANCE**  
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[22] Filed: **Dec. 21, 1970**  
[21] Appl. No.: **99,846**  
[52] U.S. Cl. .... **32/14 A**  
[51] Int. Cl. .... **A61c 7/00**  
[58] Field of Search..... **32/14 A**

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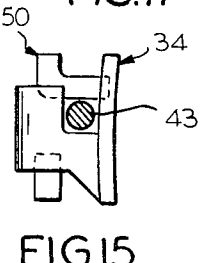
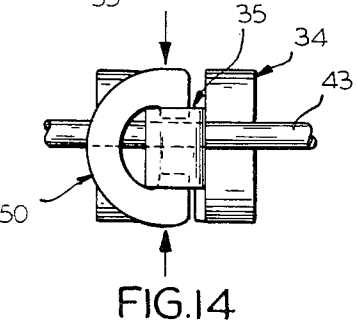
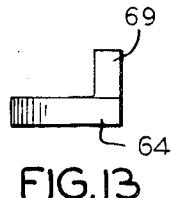
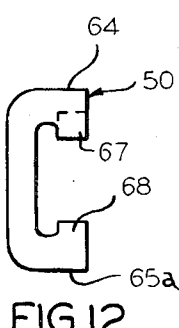
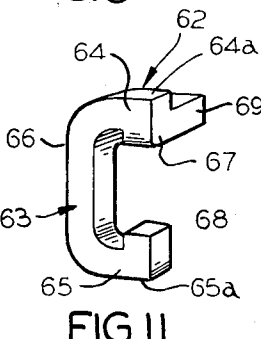
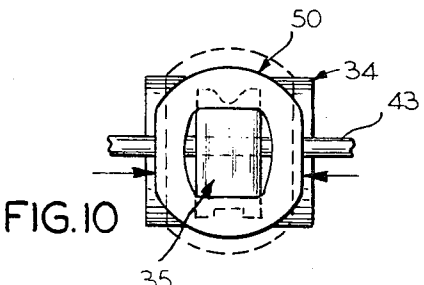
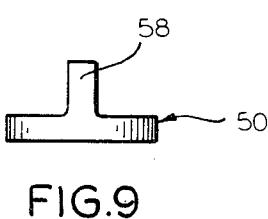
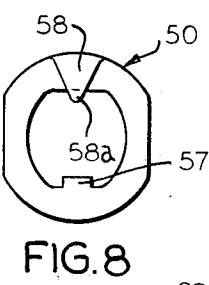
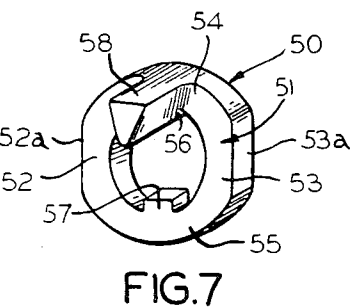
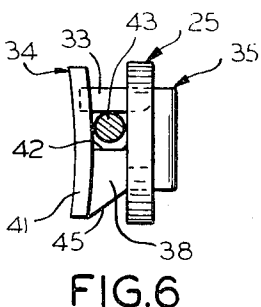
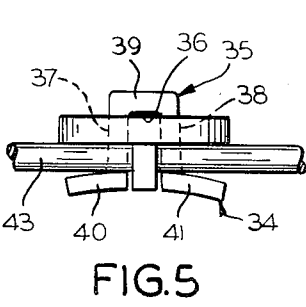
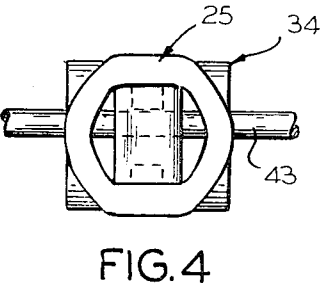
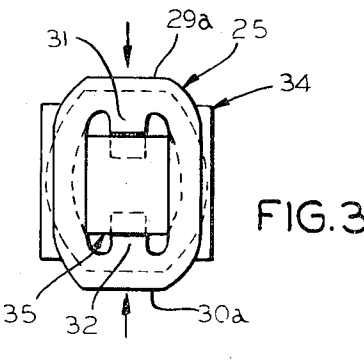
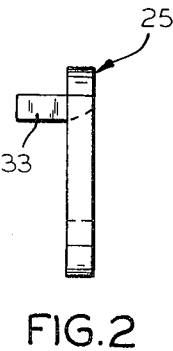
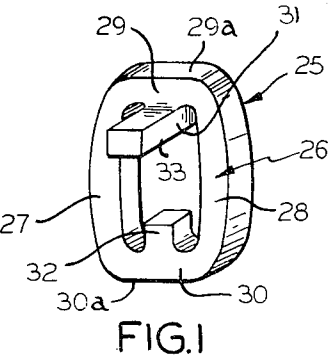
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[57] **ABSTRACT**  
An orthodontic appliance for locking an arch wire or arch wires to an orthodontic bracket and to provide movement control, wherein the bracket includes an occlusal-gingivally extending opening or suitable sockets. The appliance, in the form of a full or half-ring shaped frame, includes an arch wire locking arm extending from the frame that will lock the arch wire or arch wires in place on a bracket and will also extend into one end of the bracket opening, and a projection on the frame opposite the arm which extends into the other end of the bracket opening.

**15 Claims, 20 Drawing Figures**







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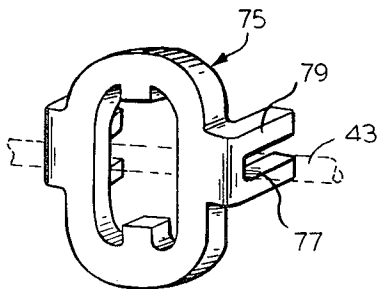


FIG. 16

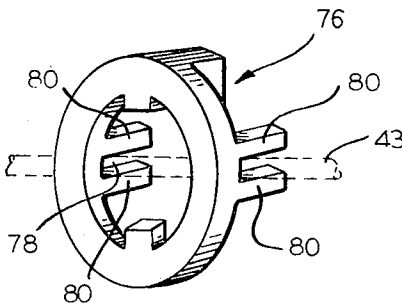


FIG. 17

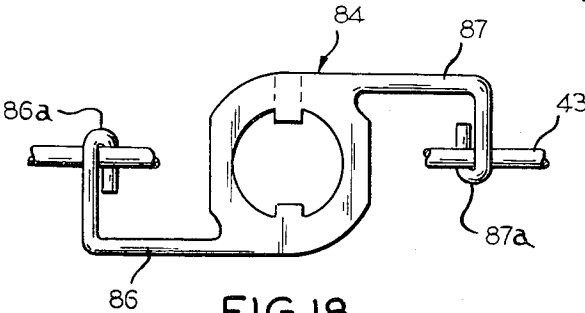


FIG. 18

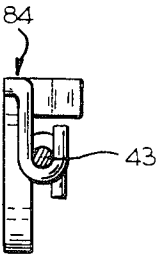


FIG. 19

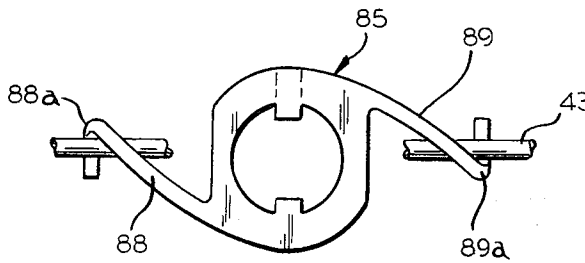


FIG. 20

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**ORTHODONTIC APPLIANCE**

The invention relates in general to orthodontic appliances, and more particularly to appliances adapted to be used in combination with orthodontic brackets for locking arch wires to the bracket and to provide movement control of a tooth, and still more particularly to a full or half-ring shaped member that may be quickly and easily applied to a bracket to lock a wire in place; and still more particularly to an appliance for taking the place of the well-known lock pin.

Heretofore, it has been usual to connect an arch wire or arch wires to an orthodontic bracket mounted on a tooth by using ligature wires or lock pins. A typical lock pin usage is illustrated in my U.S. Pat. No. 3,085,336. While lock pins have worked well, they are sometimes difficult to use. For example, where a patient may have protruding gums or gingiva, rupturing of the gingiva and bleeding causing discomfort to the patient is quite common when inserting the pins, as they usually are inserted from the gum line. Further, pins can become loosened and displaced during brushing of teeth where the tail bent along the side of the bracket may be bent straight to allow the pin to come out or loosen to permit the wire to go free. Sometimes when a pin is to be inserted in a bracket, it is necessary to cut off an excess amount of the pin tail before bending and locking the pin in place, and this leaves sharp edges which can be uncomfortable to the patient. In a typical pin insertion, it is necessary to grip the pin with a pliers, insert the pin in the bracket with the pliers, disengage the pliers from the pin, sometimes cut off a portion of the tail, then apply the pliers to the pin to bend the tail along one side of the bracket, these actions all being time consuming and tedious. Moreover, the bending of the tail must be done in two steps wherein the tail is first bent at right angles to the main body of the pin, and then bent against the side of the bracket.

The present invention overcomes the difficulties of the heretofore known lock pin, and additionally provides movement control of teeth that was not possible with lock pins.

The appliance of the invention in one form is a lock ring which includes a ring-shaped frame or body that is adapted to fit over the body of any of the well known pin receiving brackets, is anchored to the body by projections extending into the pin opening, and has means for locking the arch wire or arch wires to the bracket. The pin opening effectively defines sockets at its opposite ends which receive the projections of the lock ring. It will be appreciated that the appliance of the invention is especially intended to be used with brackets of the type used in the light wire, or Begg technique, such as the brackets covered by my U.S. Pat. No. 3,178,821, wherein the bracket includes a pair of attaching flanges, a body extending from the attaching flanges and having an occlusal-lingually extending pinway or opening, and an arch wire notch that extends mesial-distally. The lock ring of the invention may be fitted quickly and easily to a bracket for locking the arch wire in place. Further, the portions of the frame of the lock ring which are arranged mesial and distal of the bracket body contact the arch wire and coact with the attaching flanges to enhance rotational control of a tooth by preventing or effecting rotation as is necessary. Further, since the lock ring surrounds the bracket body and is bottomed at the occlusal and gingival ends

of the body, it also serves as a safety locking device to permit tipping relatively between the arch wire and tooth, although means may be added to the lock ring to effect or prevent tipping.

The lock ring may be made of metal or molded from plastic. When made of metal, it is preferably made from "dead soft" material, such as brass, and before usage would be in a form so that it could be easily applied over the body of the bracket and thereafter deformed by squeezing the ring along the occlusal-lingual axis until the projections are received in the opposite ends of the occlusal-lingual opening of the body and the ring is seated at the occlusal and gingival ends of the bracket. For example, the lock ring may be placed in the jaws of a pair of pliers, positioned over the bracket, and then squeezed to lock it in place.

The lock ring may also be molded from plastic, and then it is molded in the shape that it will ultimately take when applied to a bracket for locking the arch wire in place, and accordingly, when the lock ring herein is applied it must be deformed to slip over the bracket body. Application of the lock ring may be accomplished by placing the lock ring in the jaws of a pliers, squeezing the lock ring out of shape so that it can be applied over the bracket body, slipping the lock ring over the bracket body, and then releasing it so that it engages the bracket body seating against the occlusal and gingival ends of the body and in a position to lock the wire in the arch wire notch of the bracket.

While the appliance of the invention may take the form of a full-ring shaped member, it should be appreciated that it could also be provided in a half-ring shaped form, wherein projections engaging in the bracket opening are held together by a single connection at the mesial, distal or labial side of the bracket. Again, this embodiment could be made of metal or molded from resilient plastic.

Another form of the appliance according to the invention may include the addition of linguallally-facing notches to accept the arch wire and to effect mesiodistal inclinations of teeth. Similarly, flexible mesiodistally directed extensions on a lock ring may be employed to effect mesiodistal inclinations of teeth.

It is therefore an object of the present invention to provide a new and improved appliance for locking arch wires to brackets, which takes the place of the heretofore well known lock pin.

Another object of this invention is in the provision of an appliance in the form of a full or half-ring shaped member which can be easily and quickly applied to a bracket for locking an arch wire in position and for providing rotational control between the arch wire and bracket. Conversely, the appliance may be easily and quickly removed from a bracket when it is desired to remove the arch wire.

A further object of the present invention is in the provision of an appliance for locking an arch wire to a bracket that may easily be modified to also effect mesiodistal inclinations of teeth. Other objects, features and advantages of the invention will be apparent from the following detailed disclosure, taken in conjunction with the accompanying sheets of drawing, wherein like reference numerals refer to like parts, in which:



FIG. 1 is a lingual perspective view of one form of an appliance according to the present invention wherein it takes the form of a metal lock ring which is illustrated in the shape for application to a bracket;

FIG. 2 is a side elevational view of the lock ring of FIG. 1;

FIG. 3 is a front elevational view of the lock ring of FIGS. 1 and 2 and a bracket to which it has been applied, illustrating in solid lines the shape after it has been slid onto the bracket, and in dotted lines the shape after it has been deformed into locking position;

FIG. 4 is a front elevational or labial view of the lock ring of FIGS. 1 and 2 after it has been anchored in position on a bracket, and illustrating the wire in locked arrangement;

FIG. 5 is a top or gingival view of the assembly of FIG. 4;

FIG. 6 is a side elevational view of the assembly of FIG. 4;

FIG. 7 is a perspective lingual view of a modified lock ring according to the invention which is molded of plastic;

FIG. 8 is a rear elevational or lingual view of the lock ring of FIG. 7;

FIG. 9 is a top or gingival view of the lock ring of FIG. 7;

FIG. 10 is a front elevational or labial view of the lock ring of FIG. 7 as applied to a bracket with a wire for locking the wire to the bracket, and illustrating in dotted lines the deformed lock ring that enables it to be applied to the bracket, and in solid lines the lock ring after it has been seated;

FIG. 11 is a labial perspective view of the further embodiment of the invention wherein it is shown in half-ring form;

FIG. 12 is a front or labial elevational view of the appliance of FIG. 11;

FIG. 13 is a top or gingival view of the appliance of FIG. 11;

FIG. 14 is a front or labial elevational view of an assembly showing the half-lock ring of FIG. 11 seated on a bracket with the wire locked in place, it being illustrated as a metal half-lock ring which is deformed following positioning on the bracket;

FIG. 15 is a side elevational view of the assembly of FIG. 14;

FIG. 16 is a labial perspective view of a further embodiment of the invention and showing an arch wire in phantom as it will be engaged by notches of the appliance to effect mesiodistal inclinations of teeth, the appliance being made of soft metal and therefore being deformable once it is positioned on a bracket to be fastened in place;

FIG. 17 is a view of a further modified appliance which differs from that of FIG. 16 only in that it is formed of resilient metal or plastic, and therefore would be deformable prior to positioning on a bracket;

FIG. 18 is a front or labial elevational view of a still further embodiment of the invention which illustrates the use of flexible mesial-distally directed extensions for effecting mesiodistal inclinations of teeth;

FIG. 19 is a side elevational view of the embodiment of FIG. 18; and

FIG. 20 is a variation of the embodiment of FIG. 18 to illustrate a different form of extension for effecting

mesiodistal inclinations of teeth. Referring now to the drawings, and particularly to FIGS. 1 to 6, which illustrate one of the preferred embodiments, it will be appreciated that this form of appliance according to the invention is generally ring shaped, and it therefore may be defined as a lock ring 25. It is illustrated in FIGS. 1 to 3 in the form that it is made, which enables it to be easily slipped over the bracket, and thereafter be deformed and locked in place as shown in FIGS. 4 to 6. Thus, the lock ring is made of "dead soft" material, such as brass, wherein it can be deformed by applying squeezing forces as shown in FIG. 3. Once the lock ring has been deformed, it will maintain the shape.

The lock ring includes a generally ring shaped frame or body 26 defined by opposed sides 27 and 28 and upper and lower ends 29 and 30. Projections 31 and 32 extend inwardly from the upper and lower ends 29 and 30 and the upper projection 31 includes a lingually extending arm 33. The lock ring is adapted for use with a bracket such as that illustrated by the numeral 34 which includes a body 35 defining an occlusal-gingivally extending opening 36 formed by opposed walls 37 and 38 joined at the labial side with a connecting wall 39. Attaching or welding flanges 40 and 41 extend from the opposing walls 37 and 38, and are adapted to be suitably secured to a band or cemented to a tooth. An arch wire notch or slot 42 is provided at the gingival end and lingual side of the bracket body 35 into which an arch wire may be received such as the arch wire 43, shown in FIGS. 4 to 6. Only one arch wire is illustrated in the arch wire slot, yet it should be appreciated that two wires could be arranged therein providing the slot is deep enough, but for simplicity purposes, only a single wire is illustrated in the drawings.

While the bracket of U.S. Pat. No. 3,178,921 is illustrated, it should be appreciated that other types of brackets may be used in conjunction with lock ring 25 as long as they have an arch wire slot, and openings or sockets at the upper and lower ends of the bracket body into which the projections may be received. The pin opening 36 effectively defines sockets at its opposite ends. Thus, while it is not necessary that an occlusal gingival opening be provided in the bracket body, it is practical to make the bracket in this fashion, and lock pins can also be used if that be desired. Even so, the lock ring of the present invention is intended to replace the lock pin.

In order to facilitate the handling of the lock ring 25, the outer surfaces of the frame ends 29 and 30 are respectively flattened at 29a and 30a. Accordingly, it is easier to grip the lock ring between jaws of a pliers for placing same on a bracket.

Following the application of the lock ring to the bracket body, where it is slipped over the body and against the arch wire with the arch wire being in the slot 42 and the lock ring arm 33 being in overlying position to the arch wire, pressure is applied at the opposite ends of the lock ring to deform same and cause the projections 31 and 32 to enter into the opposite ends of the opening 36, as seen in dotted lines in FIG. 3, and as shown in FIGS. 4 to 6. With the projections in place, the upper and lower frame ends 29 and 30 bear or seat against the upper and lower ends of the bracket body 35, while the projections 31 and 32 extend within the opening 36 and firmly lock the ring in position on the



bracket. Further, the locking arm 33 of the locking ring 25 extends lingually over the arch wire 43 and the arch wire slot 42 to lock the wire in place on the bracket. As seen in FIGS. 5 and 6, the lingual-labial thickness of the lock ring is such as to cause the opposite sides 27 and 28 to contact the arch wire mesially and distally of the bracket body 35 and urge it against the attaching flanges 40 and 41, thereby enabling the lock ring to control tooth rotation by preventing or effecting rotation of the tooth. Accordingly, better rotational control is produced with lock ring 25 than with any lock pin.

To emphasize the ease with which the lock ring may be mounted, it is only necessary to position the lock ring between the jaws of a pair of pliers, preferably so that the jaws engage the upper and lower end surfaces 29a and 30a, position the lock ring on the body of the bracket, and then apply force with the pliers to squeeze the upper and lower ends in seated position against the gingival and occlusal ends of the bracket body 35 so that the projections 31 and 32 are received within the gingival and occlusal ends of the opening 36. When it is desired to remove the lock ring, it is then only necessary to apply force with a pliers to the faces 27a and 28a of the opposing sides 27 and 28 until the projections are clear of the ends of the opening 36 so that the lock ring may be withdrawn from the bracket, and thereafter the arch wire may be removed.

As seen in FIG. 6, the upper or gingival end of the lock ring is held in spaced relation to the attaching flanges by the arch wire 43. In the illustration, the occlusal end of the bracket body 35 includes inclined portions 45 which maintain the incisal or occlusal end of the lock ring in spaced relation from the attaching flanges.

During the manufacture of the lock ring, it would be subjected to a tumbling process to eliminate sharp edges, and since it would not be necessary to trim the lock ring in any manner when using it, no sharp edges would be encountered following mounting of the lock ring in place, thereby contributing to the comfort of the patient. Further, the lock ring is positioned slightly lingually of the labial surface of the bracket to contribute to a compact assembly. It can be appreciated that where a patient might have protruding gums, application of the lock ring would not interfere with the gums or cause any discomfort to the patient. Further, inasmuch as the lock ring in mounted position is seated at both the gingival and occlusal ends of a bracket body, the arch wire locking arm 33 can function to allow free tipping or uprighting of the teeth by being spaced from the bottom of the arch wire slot 42, a distance greater than the diameter of the arch wire.

The embodiment of FIGS. 7 to 10 illustrates how the lock ring of the invention can be made from a resilient material such as plastic. For example, this embodiment could be molded of nylon or any other suitable plastic. A resilient metal could also be used as the material. It would differ slightly from the embodiment of FIGS. 1 to 6 in that it would be made in the shape it would take when it is in locking position on the bracket, wherein it would be necessary to first deform the lock ring so that it could be slipped onto the bracket and thereafter released so that it could return to its normal shape which would be in locking position. This lock ring is generally indicated by the numeral 50, and similarly in-

cludes a generally ring shaped frame 51 defined by opposing sides 52 and 53, and upper and lower ends 54 and 55. Projections 56 and 57 respectively extend toward each other from the upper and lower ends 54 and 55, which projections serve the same purpose as the projections 31 and 32 of the lock ring 25 to engage in the opposite ends of the bracket opening 36 and anchor the lock ring on the bracket. An arch wire locking arm 58 extends lingually of the upper end 54.

The opposed sides 52 and 53 have at their exterior surfaces flat faces 52a and 53a adapted to be engaged by the jaws of a pliers during the mounting and demounting of the lock ring upon the bracket. Accordingly, when mounting the lock ring 50 onto a bracket, the ring is deformed by applying forces against opposed faces 52a and 53a as shown by the arrows in FIG. 10 to deform the ring in the shape shown in dotted lines, so that it can be slipped over the bracket body to the position where, when released, the projections 56 and 57 engage in the gingival and occlusal ends of the opening of the bracket to lock the ring in place and to lock the arch wire on the bracket. The lock ring may be removed by following the reverse procedure of deforming the ring by applying pressure against the opposite sides until it can be slipped off the bracket body.

This embodiment differs in one other respect from the embodiment of FIGS. 1 to 6 in that the arch wire engaging the edge of the locking arm 58 is formed to define a line or knife edge to further facilitate tipping action between the arch wire and tooth, the line edge being defined at 58a.

The embodiment of FIGS. 11 to 15 illustrates another form of the invention wherein the appliance is formed generally as a half-ring, and is generally designated by the numeral 62. This wire locking member includes a frame or body 63 that is crescent or half-ring shaped. The frame 63 comprises upper and lower ends 64 and 65 interconnected by a single rotation control member 66. Upper and lower projections 67 and 68 respectively extend toward each other from the upper and lower ends 64 and 65, and are adapted to engage in the upper and lower ends of the bracket body opening. An arch wire locking arm 69 extends lingually of the upper end 64. This embodiment would be employed where it was only desired to provide rotational control at the mesial or distal side of the bracket, and it should be appreciated that it could be made of the opposite hand wherein the rotation control member 66 would be on the opposite side from the illustrated embodiment. This embodiment would normally be made of "dead soft" metal, and therefore it would be formed so that it could be easily slipped over the bracket body and thereafter squeezed to bring the projections into the bracket body opening. To facilitate gripping of the half-lock ring, the upper and lower ends 64 and 65 are flattened at their exterior surfaces at 64a and 65a so that a pliers may readily and easily have its jaw engage the flat faces. It should be appreciated it could also be formed so that the member connecting the upper and lower ends would extend along the labial side of the bracket, and then it would not effect any rotation control.

The embodiments of FIGS. 16 and 17 illustrate a variation where the lock ring appliance of the invention can also effect mesiodistal inclinations of teeth by integrally including means for accepting the arch wire



and preventing relative tipping between the arch wire and lock ring. The difference in the embodiments of FIGS. 16 and 17 is that the lock ring of FIG. 16, generally indicated by the numeral 75, is formed of metal in the same fashion as the embodiment of FIG. 1, while the embodiment of FIG. 17, generally indicated by the numeral 76, is molded of plastic or made of resilient metal in the same fashion as the embodiment of FIG. 7. Accordingly, application of lock rings 75 and 76 to a bracket will be respectively the same as application of the lock rings 25 and 50.

The means for restraining the arch wire 43 in these embodiments is defined by lingually facing notches arranged at the opposite sides of the lock ring. In the embodiment of FIG. 16, the notches are defined by the numeral 77, while in the embodiment of FIG. 17 the notches are defined by the numeral 78. The notches 75 are defined by lingually facing extensions 79, while the notches 78 in the lock ring 76 are defined by lingually facing extensions 80. It should be appreciated that a notch may be provided on only one side of the notch ring if desired, but that better control is provided by defining notches on both sides of the lock ring, and where the arch wire is contained by the notches, mesiodistal inclinations of the teeth can be effected. The notches as shown define a ninety degree relationship between the long axis of the bracket and arch wire, but it should be appreciated that they could be repositioned to define any other angular relationship.

The embodiment of FIGS. 18 and 19, and the embodiment of FIG. 20 illustrate other forms of lock rings according to the invention that are capable of effecting mesiodistal inclinations of teeth, these differing from the embodiments of FIGS. 16 and 17 in that they include flexible mesiodistally directed extensions for engaging the arch wire. The lock ring of FIGS. 18 and 19 is generally designated by the numeral 84, while the lock ring of FIG. 20 is generally designated by the numeral 85. Both of these embodiments will be made by molding same out of a plastic having the desired amount of resiliency so that the extensions are resilient, and they will be applied to a bracket in the same manner as heretofore described in connection with the lock ring 50 of FIG. 7.

Referring particularly to the embodiment of FIGS. 18 and 19, flexible mesial and distal directed extensions 86 and 87 extend from the top and bottom ends of the lock ring body, and have hook portions 86a and 87a at their ends, which are capable of engaging the arch wire 43 as illustrated so that the arch wire cannot top relative to the lock ring and tooth, and so that it will therefore effect mesiodistal inclinations of the tooth. The only difference in the embodiment of FIG. 20 is that the extensions 88 and 89 do not extend directly oppositely of the lock ring body, but extend angularly. Otherwise, the function of the lock ring 85 is identical to that of the lock ring 84. Again, hooks 88a and 89a are formed on the ends of the extensions 88 and 89 for engagement with the arch wire 43. It should be appreciated that a single mesial or distal-directed extension may be employed where tipping action is desired.

It should also be recognized with respect to the embodiments of FIGS. 16 and 17, that use of rectangular in cross-section arch wire fitting closely with the slots defined by the lingual extensions would also permit torquing the roots of teeth labially or lingually.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention, but it is understood that this application is to be limited only by the scope of the appended claims.

This invention is hereby claimed as follows:

1. An orthodontic appliance for use in combination with a bracket having attaching flanges, and a body extending labially from the flanges and having socket means at the occlusal and gingival ends thereof and a mesial-distally extending arch wire slot opening, along the occlusal gingival axis said appliance comprising a frame, projections on the frame engaging in the socket means and locking the appliance on the bracket, and at least the projection at the slot end of the appliance having a labiolingual depth to extend over the arch wire slot and lock the arch wire to the bracket, whereby deformation of the appliance is necessary to mount and demount same on the bracket.

2. An orthodontic appliance as defined in claim 1, wherein said frame includes means coacting with a flange to control rotational movement between the bracket and arch wire.

3. An orthodontic appliance as defined in claim 1, wherein the appliance is made of metal and initially formed for application to the bracket after which it can be permanently deformed into locking position.

4. An orthodontic appliance as defined in claim 1, wherein the appliance is molded of resilient plastic in the form that it will take when in locked position on the bracket and thereby be deformed when applying it to the bracket.

5. An orthodontic appliance as defined in claim 1, wherein the frame is generally ring-shaped.

6. An orthodontic appliance as defined in claim 1, wherein the frame is generally half ring-shaped.

7. An orthodontic appliance as defined in claim 1, and means extending lingually from the frame defining an arch wire slot for receiving the arch wire and controlling mesiodistal inclinations of the bracket.

8. An orthodontic appliance as defined in claim 1, and mesiodistally-directed extensions on the frame having hook-shaped ends engaging the arch wire to control mesiodistal inclinations of the bracket.

9. A lock ring for use in combination with a bracket having attaching flanges, and a body extending labially from the flanges and having socket means at the occlusal and gingival ends thereof and a mesial-distally extending arch wire slot opening gingivally, said lock ring comprising a generally ring-shaped frame defined by gingival and occlusal ends and mesial and distal sides, projections extending inwardly from the gingival and occlusal ends for engaging in the socket means to lock the lock ring on the bracket, the projection at the gingival end of the frame extending lingually to overlie the arch wire slot and lock the arch wire therein while permitting relative tipping between the arch wire and the bracket, and the mesial and distal sides being positioned mesial and distal of the bracket body to engage the arch wire at points mesial and distal from the bracket body and effect rotation control, whereby deformation of the appliance is necessary to mount and demount same on the bracket.

10. A lock ring as defined in claim 9, wherein the socket means of the bracket body are defined by a gingival-occlusally extending opening through the body.



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11. A lock ring as defined in claim 10, wherein the lock ring is made of dead soft metal in the form that it will allow the ring to be slipped over the bracket body and thereafter be deformed to cause the projections to engage in the opposite ends of the body opening.

12. A lock ring as defined in claim 10, wherein the lock ring is molded of plastic in the form that it will take when in locked position on the bracket, and said lock ring having such resiliency that will permit deformation to a shape that will slip over the bracket body.

13. A lock ring as defined in claim 10, and means on the mesial and distal frame sides defining lingually ex-

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tending notches for receiving the arch wire to effect mesiodistal inclinations of the bracket.

14. A lock ring as defined in claim 10, and flexible means extending mesial and distal of the frame terminating in arch wire hook portions for connection to the arch wire to effect mesiodistal inclinations of the bracket.

15. A lock ring as defined in claim 1, wherein said arch wire locking means coacts with the slot to permit tipping between the bracket and arch wire.

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UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 3,686,758  
DATED : August 29, 1972  
INVENTOR(S) : Peter C. Kesling

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Col. 1, line 15, before "While" delete "336."  
Col. 4, line 1, begin a new paragraph at "Referring"  
Col. 7, line 51, change "top" to --tip--  
Col. 8, line 11, after "opening" delete the comma  
line 12, after "axis" insert a comma (,)

**Signed and Sealed this**

*Twenty-eighth Day of March 1978*

[SEAL]

*Attest:*

**RUTH C. MASON**  
*Attesting Officer*

**LUTRELLE F. PARKER**  
*Acting Commissioner of Patents and Trademarks*