

[54] **ADJUSTABLE RING HAVING BRIDGE ELEMENT AND FIRMLY SECURED NOTCHED LATCH BAR**

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[57] **ABSTRACT**

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An adjustable finger ring having two tubular pivoted sections, one having a slot with a transverse catch pin and the second pivoted section having an arcuate spring slidably engaged in the first pivoted section and an arcuate notched latch receivable in the slot and lockingly engageable with the transverse catch pin. The inner end of the latch has a tooth engaged in an aperture in the spring, and the spring is channelled to receive the inner end of the latch. The interengaged inner end portions of the latch and spring are telescopically received in the second pivoted section and the inner end of the spring is fastened to the second pivoted section by a pin.

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[51] Int. Cl. **A44c 9/02**

[58] Field of Search 63/15.7, 15.5, 15.65, 63/7

[56] **References Cited**

UNITED STATES PATENTS

3,221,514 12/1965 Newman63/15.7

FOREIGN PATENTS OR APPLICATIONS

932,162 7/1963 Great Britain.....63/15.65

8 Claims, 4 Drawing Figures

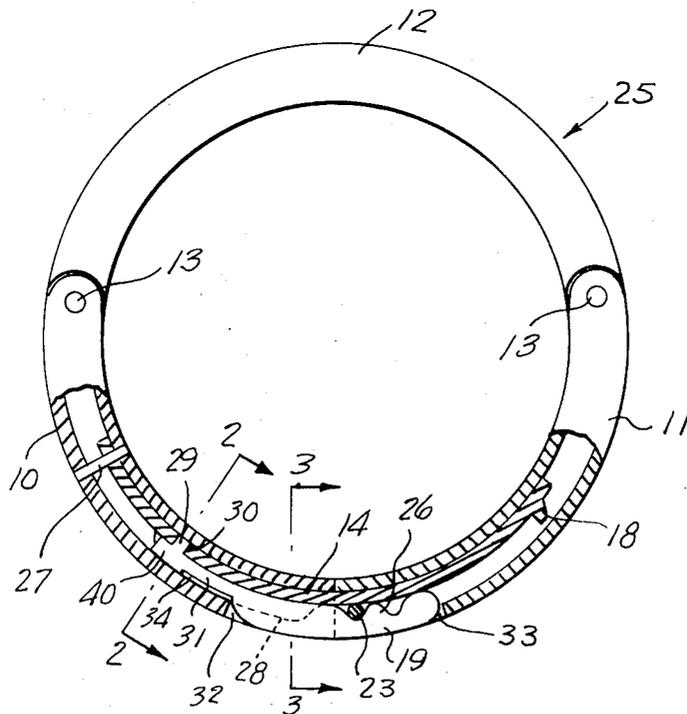


FIG. 1.

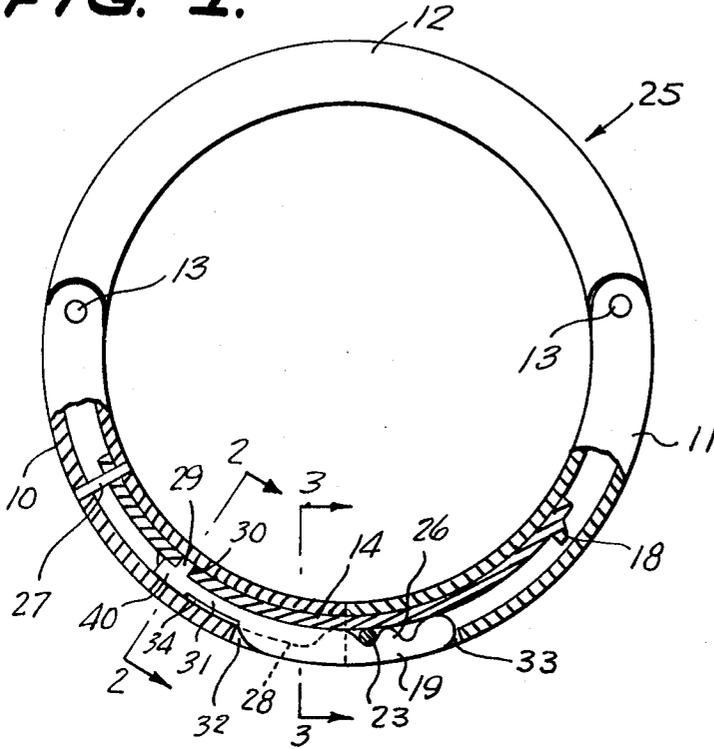


FIG. 2.

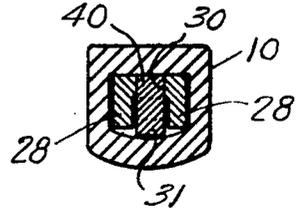


FIG. 3.

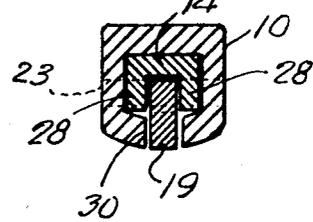
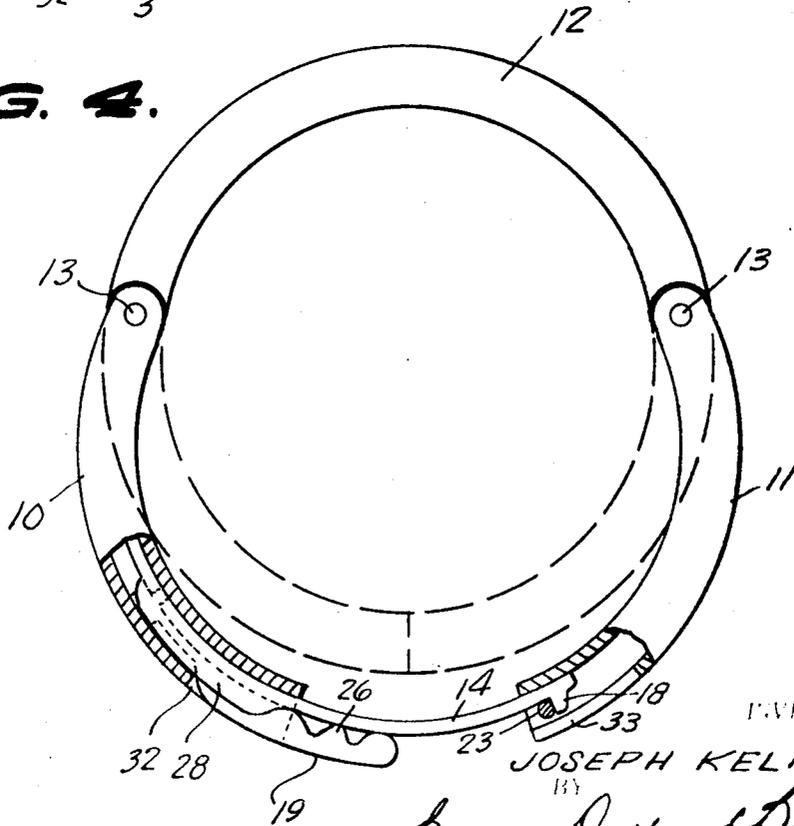


FIG. 4.



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ADJUSTABLE RING HAVING BRIDGE ELEMENT AND FIRMLY SECURED NOTCHED LATCH BAR

This invention relates to finger rings, and more particularly to a finger ring of the type which is capable of adjustment in size so as to permit the ring to be enlarged, if necessary, to slide over a finger joint which is larger in size than the area at which the ring is normally worn on the finger.

A main object of the invention is to provide an improved adjustable finger ring of the type employing an arcuate spring and a cooperating notched latch member and a tubular section slidably receiving the spring and being adapted to receive the latch member for locking inter-engagement therewith, the finger ring having improved means connecting the inner end of the latch member to the spring for effective cooperation therewith, the improved structure being relatively simple, being easy to fabricate, and providing a more reliable connection between the spring and latch member than has been heretofore available.

A further object of the invention is to provide an improved adjustable finger ring of the type employing a latch member connected to an arcuate spring, the latch member and spring being telescopically received in the pivoted section of the ring and being interengageable with another pivoted section of the ring, the latch member being connected to the spring in a manner allowing adequate clearance between the latch member and the tubular pivoted section of the ring in which it is secured so that it can rotate freely with respect to the spring in the area adjacent to its connection therewith without binding and so that it can efficiently cooperate with the spring in providing the desired adjustable lockable connection between the two pivoted sections of the ring.

A still further object of the invention is to provide an improved adjustable finger ring of the type employing a pair of pivoted sections with locking means for adjustably securing them together, the improved structure being such that it is relatively easy to fabricate, does not require unusual materials, and which does not reduce the resiliency of the locking action, as compared with structures heretofore employed.

A still further object of the invention is to provide an improved adjustable finger ring of the type employing pivoted sections with an arcuate spring and a relatively rigid latch member secured to and carried by one of the pivoted sections and being interengageable with the other pivoted section, the structure being such that it is not necessary to flatten the inner end of the latch member, whereby the latch member may be made of a relatively conventional rigid alloy material having high strength and durability.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

FIG. 1 is an elevational view of an adjustable finger ring constructed in accordance with the present invention, shown partly in cross-section and in closed position.

FIG. 2 is an enlarged transverse vertical cross-sectional view taken substantially on the line 2—2 of FIG. 1.

FIG. 3 is an enlarged transverse cross-sectional view taken substantially on the line 3—3 of FIG. 1.

FIG. 4 is an elevational view similar to FIG. 1 but showing the finger ring in an open position.

The present invention is directed to improvements in adjustable finger rings of the type disclosed in U. S. Pat. No. 3,221,514 to J. Newman. A ring of this type comprises three arcuate sections, namely, two side sections 10 and 11 and an intermediate section 12 which can all be of approximately the same length, or alternatively, the intermediate section may be shorter than the side sections. The intermediate section 12 is pivoted on each end to one of the side sections in any suitable manner, such as by pivot pin connections 13. As pointed out in the above-mentioned patent to Newman, the pivot pin connections are such as to allow opening movement to a sufficient degree to permit removal of the ring from the wearer's finger or to permit the ring to be slipped over the user's finger joint. The side sections 10 and 11 are of tubular material, and the side section 10 is provided with a forwardly projecting arcuate spring blade 14 which is conformably engageable in the bore of the other pivoted section 11 and which is provided with a small projection 18 at its free extremity which is engageable with a transverse catch pin 23 provided in the free end portion of the pivoted section 11 to prevent complete separation of the sections. For example, FIG. 4 shows how the lug 18 cooperates with the transverse catch pin 23 to prevent total separation of the pivoted sections.

An adjustable finger ring of the above general type according to the present invention employs an arcuate latch bar whose inner end is secured in the pivoted section 10 and which has an externally projecting outer end portion which is suitably notched or serrated to cooperate with the catch pin 23 and which cooperates with the arcuate spring blade element 14 to releasably lock the sections 10 and 11 in adjusted relationship in accordance with the size of the user's finger. Thus, the improved finger ring of the present invention, designated generally at 25 in the drawings, employs a latch bar 19 formed with serrations 26 defining notches there-between which face the arcuate spring blade or bridging element 14, the transverse catch pin or element 23 being embraced between the bar 19 and the spring blade 14 in the manner illustrated in FIG. 1, so that the catch pin 23 is engaged in one of the notches of the latch bar 19. To disengage the latch bar from the pin 23 to open the pivoted tubular sections 10 and 11 or to change the adjustment between the pivoted sections 10 and 11, it is necessary for the latch bar 19 to rotate in a clockwise direction from the position thereof shown in FIG. 1 to a sufficient extent to permit the latch bar 19 to slip past the catch pin 23. This means that the inner end of the latch bar must be provided with sufficient clearance to permit such rotation without binding.

In the prior art devices, represented, for example, by the structure shown in the above mentioned patent to J. Newman, U.S. Pat. No. 3,221,514, and particularly FIG. 3 thereof, the catch member 19' is stamped from suitable material, such as 14-carat conventional gold alloy and a second operation is required to flatten out an area on the end of the catch to be contained in section 10' to a sufficient extent to receive the single enclosing pin. The requirement for flattening out the inner end of the catch member presents several serious problems:

Firstly, the actual stamping of this piece cannot be uniformly controlled and a high percentage of these pieces become twisted during the stamping process. Secondly,

the overflow or excess material must be manually removed by skilled jewelers. Thirdly, the stamping operation tends to flatten out the original curvature created in the original forming operation, and since this cannot be uniformly controlled, some of the latch bars become too soft for practical use. Further, the throat or thin portion of the latch bar, which is located between the flattened end and the mid-point of the latch bar, was not thin enough to avoid binding with the wall of section 10' when the ring was opened or closed. The present invention is directed toward correcting these problems.

In accordance with the present invention, the inner end of the blade 14 is secured in the pivoted section 10 by a diametral fastening pin 27. The pivoted section 10 is provided with a longitudinal slot 32 for the free end portion of the bar 19. Near the free end of the pivoted section 10, the spring blade 14 is formed with a pair of parallel flanges 28, 28, FIG. 2, whereby this portion of the spring blade defines a rectangular channel which slidably receives the latch bar 19 and prevents it from twisting.

The inner end portion 40 of latch bar 19 is suitably formed, as by filing it down, to snugly fit between spring blade 14 and the opposite wall of section 10, and so as to hold the spring blade firmly against the adjacent wall of the bore of section 10. The top edge of portion 40 is formed with a rectangular tooth or detent 29 which is lockingly received in a correspondingly-shaped aperture 30 provided in spring blade 14.

The reduced portion 31 is defined by the provision of a shallow elongated notch 34 in the bottom edge of latch bar 19 adjacent the locking end portion 40.

The unreduced main body portion of latch bar 19 is received in a longitudinal end slot 32 formed in pivoted section 10.

As shown in FIG. 1, it will be noted that the locked inner end portion 40 of latch bar 19 is relatively short and that the reduced portion 31 is relatively long, whereby the latch bar is relatively flexible in this region. The notch 34 provides ample clearance to permit flexing of the latch bar and to allow the latch bar to move outwardly as required, to allow it to slip past the latch pin 23. The pivoted section 11 is provided with a slot 33 in which the free end portion of latch bar 10 is normally received and which thus allows the free end portion of the latch bar to move outwardly as the size of the ring is changed.

It will be noted that the flanges 28,28 serve not only as guide means for the latch bar 19 and prevent it from twisting, but also serve to strengthen the spring blade 14 in the region of the aperture 30. It will be further noted that the flanges 28, 28 are of substantial length and cooperate with the inside bore of section 10 to keep the arcuate spring blade firmly in place against the top portion of the bore of section 10, as shown in FIGS. 1 and 2. Also, because of the above described arrangement, the edge of latch member 19 can be filed, as required, to avoid binding, without interfering with the interlock between the latch member 19 and the spring blade 14. Spring blade 14 may be made up of conventional 14-carat gold alloy or other suitable material, so that the flanges 28, 28 may be easily formed. However, the latch bar 19 is made of relatively hard durable material, such as a gold alloy having the following

Gold

73%

Copper	3%
Nickel	18%
Zinc	6%
Total:	100%

5 However, this is only representative of alloys which are satisfactory. Others skilled in the art will be able to select other alloys having the main qualities needed in fabricating the latch bar; viz., relatively hard, capable of being blanked or stamped, and resilient. A material 10 having the aforementioned desirable qualities would not be useable in the prior art rings, such as in U.S. Pat. No. 3,221,514, because although it can be blanked or stamped, it cannot be satisfactorily flattened, as required in making the ring of U.S. Pat. No. 3,221,514.

15 Due to the greatly increased strength of this material, the throat portion 31 may be relatively thin but still quite resilient. Thus, the latch bar 19 may be made of relatively thin stock, sufficient to be received between the flanges 28, 28, and avoid binding when flexed. 20 However, in any event, the relatively narrow throat portion 31 is supported against twisting since it is rectangular in cross-section and is seated snugly in the rectangular channel of the spring blade 14 defined by the flanges 28, 28.

25 As above mentioned, the throat portion 31 is narrowed by the provision of the shallow notch 34, which provides sufficient clearance for the required flexure of the latch bar as it is moved relative to the catch pin 23. 30 Movement of the latch bar past the catch pin 23 is facilitated by making the serrations and notches in the latch bar rounded, and the free end of the latch bar is likewise rounded to facilitate its movement past the catch pin 23 when the ring is closed, namely, when the sections 10 and 11 are changed from the position shown in FIG. 4 to the position of FIG. 1 or to another adjusted position of the ring.

35 While a specific embodiment of an improved adjustable finger ring has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

40 What is claimed is:

45 1. In an adjustable finger ring comprising in combination a main section, a first tubular side section pivoted to said main section, a second tubular side section pivoted to said main section at a point spaced from the pivot connection of said main section to said first section, said side sections having their free ends movable toward each other to form a continuous ring with said main section, a catch element in said second section, a bridging element having one end secured within the free end of said first section and having its other end slidably engaged in the free end of said second section, and a latch bar adjacent said bridging element for engaging said catch element when said side sections are moved toward each other, the improvement comprising:

- a. means for lockingly securing one end of said latch bar to said bridging element within said first side section;
- b. means on said bridging element for retaining said bridging element firmly in place against the radially inner portion of the tubular interior of said first side section, comprising a pair of spaced elongated

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flanges cooperating with the inside bore of said first section, said latch bar passing therebetween; and
c. a longitudinal slot in said first side section for receiving the catch-engaging portion of said latch bar.

2. In an adjustable finger ring comprising in combination a main section, a first tubular side section pivoted to said main section, a second tubular side section pivoted to said main section at a point spaced from the pivot connection of said main section to said first section, said side sections having their free ends movable toward each other to form a continuous ring with said main section, a catch element in said second section, a bridging element having one end secured within the free end of said first section and having its other end slidably engaged in the free end of said second section, and a latch bar adjacent said bridging element for engaging said catch element when said side sections are moved toward each other, the improvement comprising:

a. means for lockingly securing one end of said latch bar to said bridging element within said first side section and for securing said one end of said latch bar against movement within said first tubular side section radially of said ring;

b. a section of reduced height in said latch bar adjacent to said means for lockingly securing said latch bar to said bridging element, comprising a shallow elongated substantially rectangular notch in the radially outer side of said latch bar terminating inter-

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mediate the ends thereof; and

c. a longitudinal slot in said first side section for receiving the catch-engaging portion of said latch bar.

3. The finger ring set forth in claim 1, wherein said means for lockingly securing comprises detent means in said one end of said latch bar for engaging aperture means in said bridging element.

4. The finger ring set forth in claim 2, wherein said bridging element includes means for retaining said bridging element firmly in place against the radially inner portion of the interior of said first side section.

5. The finger ring set forth in claim 4, wherein said means for retaining comprises a pair of spaced elongated flanges, cooperating with the inside bore of said first section, said latch bar passing therebetween.

6. The finger ring set forth in claim 2, wherein said means for lockingly securing comprises detent means in said one end of said latch bar for engaging aperture means in said bridging element.

7. The finger ring set forth in claim 1, wherein said latch bar comprises detent means for engaging said catch element when said side sections are moved toward each other.

8. The finger ring set forth in claim 2, wherein said latch bar comprises detent means for engaging said catch element when said side sections are moved toward each other.

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