United States Patent [19]

Wilson

[11] **3,881,334**

[45] **May 6, 1975**

[54] **STORAGE RING WITH INTEGRAL CLOSURE**

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[21] Appl. No.: **430,577**

[52] **U.S. Cl.** ..... **70/457;** 24/230 AV; 24/241 R; 70/459; 403/323; 403/379

[51] **Int. Cl.** **A44b 15/00;** A44b 11/00

[58] **Field of Search** ..... 24/208 R, 208 A, 211 L, 24/211 M, 211 P, 211 R, 211 K, 230 AV, 222 SE, 222 SS, 3 K, 201 SL, 201 BN, 201 LP, 241 R; 403/378, 379, 319, 323; 70/457, 459

[56] **References Cited**

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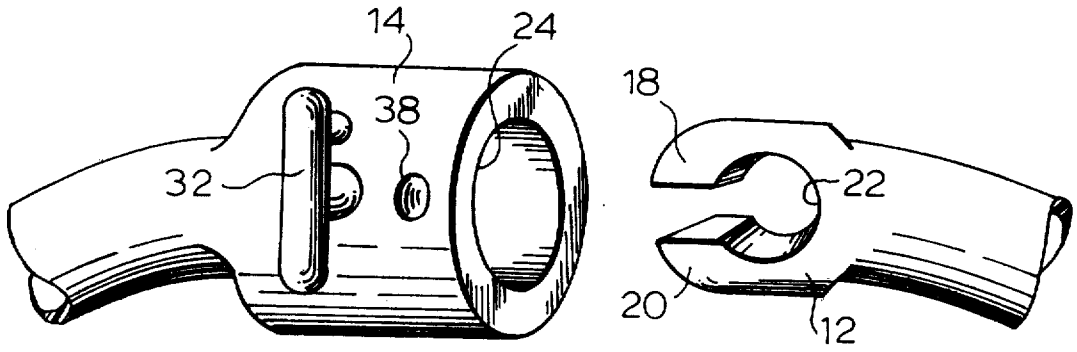
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Primary Examiner—Paul R. Gilliam
Assistant Examiner—Kenneth J. Dorner
Attorney, Agent, or Firm—Laurence, Stokes & Neilan

[57] **ABSTRACT**

A ring upon which a plurality of articles may be stored has an integral separable closure for adding or removing articles from the ring. The closure comprises a hollow socket at one end of the ring adapted to receive a plug on the other end of the ring, which plug has a pair of flexible lips defining a narrow slot leading to an enlarged recess. A locking rod extending through the socket has one dimension of a size to permit passage of the locking rod into the narrow slot, whereupon the locking rod may be rotated to an orientation in which the dimension of the locking rod adjacent the slot is greater than the width of the slot to prevent opening of the closure.

4 Claims, 6 Drawing Figures



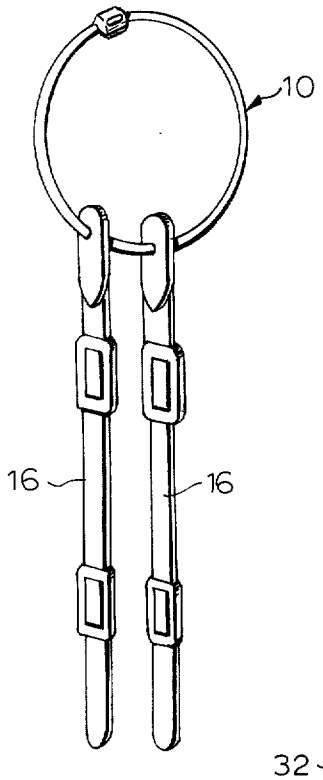


FIG. 1

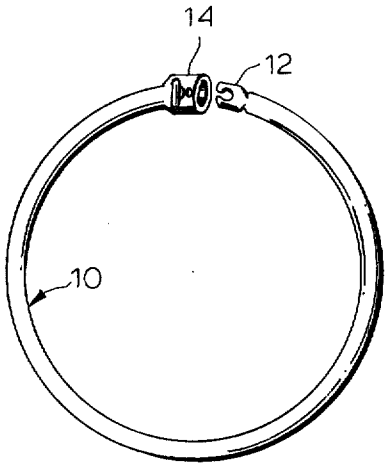


FIG. 2

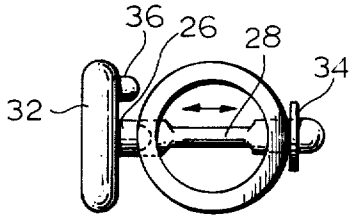


FIG. 3

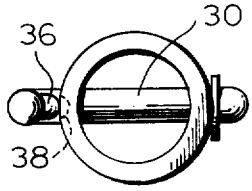


FIG. 4

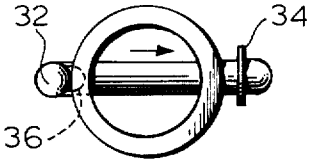


FIG. 5

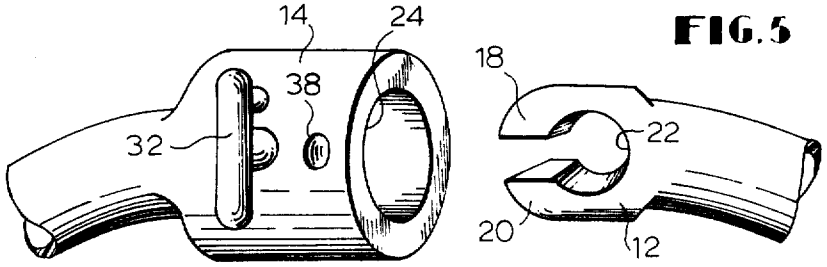


FIG. 6

STORAGE RING WITH INTEGRAL CLOSURE

BACKGROUND OF THE INVENTION

The present invention relates to storage rings and to novel closures. More particularly, the present invention is concerned with a novel quick release closure which may be utilized to join the ends of a flexible ring or the like to each other.

SUMMARY OF THE INVENTION

A particularly preferred embodiment of the invention comprises a split ring of snythetic plastic material which has an integral closure comprised of a socket at one end of the ring and a plug at the other end of the ring which may be secured within the socket to form a closed ring. The integral closure is inexpensive and may be readily opened so that the plug and socket members may be pulled apart, for example, in order to add or remove articles from the ring.

The storage ring has numerous uses, for example, one presently preferred use is to store flag belt equipment utilized in playing flag football which equipment is of the type disclosed in my U.S. Pat. No. 2,966,356. Another preferred use of the invention is to store combination locks in numerical sequence.

A primary object of the present invention is to provide a novel, inexpensive storage ring and associated closure to permit ready opening of the storage ring.

Another principal object of the invention is to provide a novel closure for securing two members together which closure is integral with the members.

The above and other objects, features and advantages of the invention will become more apparent as this description proceeds.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a presently preferred embodiment of the invention showing the storage ring in its closed position with a pair of belt elements stored thereon.

FIG. **2** is a perspective view of the storage ring per se showing the integral closure in an open position.

FIG. **3** is an end view of the socket member of the closure showing a locking member extending through the socket.

FIG. **4** is a view similar to FIG. **3** showing the locking member rotated to another orientation.

FIG. **5** is a view similar to FIG. **4** showing the locking member moved in the direction of the arrow, i.e., to the right.

FIG. **6** is a view showing the socket and plug portions of the closure disposed as in FIG. **2** but on an enlarged scale.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings, reference numeral **10** generally designates a storage ring in accordance with a presently preferred embodiment of the invention. The ring is actually a split ring made of a material such as a synthetic plastic which allows a plug **12** at one end of the ring to be inserted into and removed from an integral socket **14** at the other end of the ring as will be appreciated from the illustration in FIG. **2** which shows the plug and socket spaced from each other in an open position.

When the closure is opened as in FIG. **2**, articles to be stored such as a pair of belts **16** (FIG. **1**) may be placed onto the belt by passing the plug **12** through holes in the belts **16**.

As best seen in FIG. **6**, plug **12** has a pair of opposed lips **18, 20** which are spaced from each other to define a narrow slot which leads to an enlarged arcuate recess **22** within the plug. The lips **18** and **20** are made of a plastic material or the like and have limited flexibility towards and away from each other when pressure is applied to the lips.

In order to close the ring, plug **12** is inserted into an axial bore **24** in socket **14**. The outer surfaces of lips **18** and **20** are curved to facilitate this insertion.

A locking rod **26** extends transversely through socket **14**. The portion of locking rod occupying most of the distance across bore **24** is of a generally rectangular configuration having narrow sides **28** and wider sides **30**. Since the remainder of the locking rod is cylindrical, it may be rotated by handle **32**.

When the handle **32** is disposed vertically as seen in FIGS. **2, 3** and **6**, that is, at right angles to the central axis of bore **24**; the locking rod is oriented so that one of the smaller sides **28** is facing the opening into bore **24** as seen in FIG. **3**. With the locking rod in this orientation, when plug **12** is inserted into bore **24**, the lips **18** and **20** may be forced past the locking rod **26**. When lips **18, 20** are forced past the locking rod, the locking rod is received within the enlarged recess **22**. Recess **24** has a diameter somewhat larger than the width of sides **30** of the locking rod.

In order to restrain plug **12** within socket **14**, handle **32** is now rotated through 90° so that one of the wider sides **30** of the central portion of the locking rod faces the opening to bore **24**. This orientation of the locking rod is illustrated in FIG. **4** in which for the sake of clarity plug **12** is not shown. Since the width of side **30** is greater than the distance between lips **18** and **20**, inadvertent removal of plug **12** from the socket is prevented.

The length of the locking rod between handle **32** at one end and a retainer such as a spring clip **34** on the other end permits limited reciprocating movement of the locking rod. In order to prevent rotation of locking rod **26** out of the position in which it secures plug **12** in the socket; handle **32** is depressed pushing the locking rod to the right from the FIG. **4** position to the FIG. **5** position at which point a small latch member or detent **36** on handle **32** is seated within an aperture **38** in the outer wall of socket **14**. With the latch member **36** seated in recess **38**, the locking rod **26** cannot be rotated to the FIG. **3** position, that is, a position in which the smaller side **28** is in alignment with the slot between lips **18, 20**. Accordingly, inadvertent movement of handle **32** to a position in which the plug **12** may be disengaged from the socket is prevented.

When it is desired to open the ring, the locking rod **26** is moved in the opposite direction back to the FIG. **4** position whereupon the rod may be rotated to the FIG. **3** position which allows the plug to be withdrawn from the socket.

While a presently preferred embodiment of the invention has been shown and described with particularity, it will be appreciated that the invention is susceptible of many modifications which may readily suggest themselves to those of ordinary skill in the art upon being apprised of the present invention. For example, the storage member could take other configurations than that of a ring, other objects in lieu of the belts **16**

might be stored upon the ring, and in some applications the ring might find utility for other purposes than storing articles. Accordingly, it is intended to encompass all such changes and modifications as fall within the scope and spirit of the appended claims.

What is claimed is:

1. Apparatus comprising a unitary flexible member having first and second ends and closure means detachably connecting said ends, said closure means comprising a hollow socket on one of said ends and a plug on the other of said ends, said plug having a pair of lips defining a narrow slot, an enlarged recess provided in said plug in communication with said slot, said socket having a bore for the reception of said plug, a locking rod extending transversely across said bore and in one position thereof being configured to pass through said slot into said recess in said plug, means to enable rotation of said locking rod to a position preventing removal of said rod from said recess, said locking rod extending outwardly from two sides of the exterior periphery of said socket, whereby said locking rod can move perpendicular to the longitudinal axis of the bore in said socket to a position preventing rotation of said locking rod, and a latch to maintain said locking rod in said position preventing rotation of said locking rod.

2. Apparatus according to claim 1, further comprising a handle connected to one end of said locking rod externally of said socket.

3. Apparatus according to claim 2, wherein said latch is on said handle, and a recess provided in said socket for receiving said latch to prevent movement of said locking rod.

4. Apparatus according to claim 1, wherein said unitary member comprises a storage ring.

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