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(54) Title: RING-RETENTION DEVICE

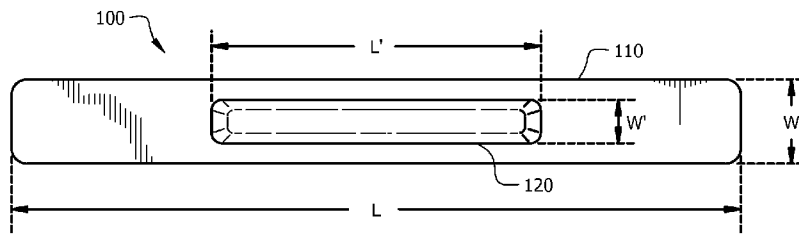


FIG. 1A

(57) Abstract: A ring-retention device comprising a band having a band length and a band width and a retaining element comprising an elevated region forming at least a portion of the band width and at least a portion of the band length to provide security against loss of a ring or other jewelry while said ring or other jewelry is being worn by a wearer.

## RING-RETENTION DEVICE

## CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to U.S. provisional application serial no. 61/370,756, filed August 4, 2010.

## TECHNICAL FIELD

[0002] The present invention is directed to a device (hereinafter referred to as a ring-retention device) and method to prevent loss of jewelry, particularly rings, worn on appendages, primarily fingers and toes.

## BACKGROUND OF THE INVENTION

[0003] Throughout recorded history and across the cultures of the world, men and women have adorned their fingers and other appendages with decorative rings and bands: as jewelry, as symbols of marriage, and as signs of friendship or kin or achievement. Collectively, herein these are referred to as “rings.”

[0004] Among the many rings worn, some are considered more precious than others, because of their symbolic or sentimental meaning (engagement rings, wedding rings, family heirloom rings, graduation rings and ceremonial rings) or because of their value in terms of gemstone rarity, precious metals used, artistic style or decoration, ring price or cost or other attributes valued by consumers.

[0005] Rings are sometimes misplaced or lost. Sometimes rings are stolen by others. For these reasons, consumers want to protect their rings from loss. Many rings are lost because they simply fall off the finger of those wearing them because the rings are not properly sized to the fingers at the time of loss. Some rings are simply too large at the time of purchase for the fingers that wear them. Other times the owner’s finger size becomes smaller due to weight loss, aging, ambient temperature, humidity, or other factors which are either internal or external to the wearer.

[0006] Sometimes rings slip off because fingers get wet or slippery in the presence of liquids, powders or other substances. Sometimes rings come off because the wearer is engaged in physical activities that pull them off or enable their loss; such activities include swimming, gardening, dishwashing, cooking, wearing gloves, and other routine or episodic

activities. While no product can guarantee that loss will not occur off the appendages of ring wearers, a ring-retention device which hinders that loss may prevent it.

[0007] In some cases, rings are stolen right off the fingers of the wearer. Pickpockets take them from the unwary, muggers pull them off fingers, caregivers take them while wearers are sleeping, unconscious or otherwise disabled. While no product can guarantee that theft will not occur off the fingers of ring wearers, a ring-retention device which hinders that theft may prevent it, or will provide the ring wearer with timely notice that the theft has occurred, which may enable its recovery.

[0008] Regardless of the reason rings are lost or stolen, when that happens the owners of the rings experience loss, sometimes devastating loss, whether measured in material terms or emotional ones, or both.

[0009] Earlier attempts to address the issue have problems that the inventor of the present invention has minimized or eliminated.

[0010] Some of the available ring-retention products are undesirable to consumers because they require semi-permanent or permanent modification of the rings themselves. Products which are formed out of glue, paste or other adhesives which adhere to or affix upon the rings are among those in the semi-permanent category. Ring-retention products which consist of an attachable metal bar or brace which has the effect of making the ring-size of the ring smaller, or tighter, also fall within the semi-permanent category. A key problem with products in the semi-permanent category is that the ring wearer must wear the product on their finger regularly or even continuously, because the products are not easily applied to or removable from the wearer's ring. In the category of products involving permanent modification of the wearer's ring are products such as those which require replacements of the shanks of the wearer's ring band. Some of these semi-permanent and permanent products require a jeweler's intervention to adapt the product to a user's ring, and some of these products require a permanent alteration of a wearer's ring, both of which are undesirable to some users and costly to use. Some of the available products are stand-alone permanent solutions which do not modify the wearer's rings. These include stand-alone rubber and plastic rings which rest alongside the wearer's other ring(s) as well as bases or platforms resting on fingers onto which a wearer's ring must be mounted to be protected. To be usable,

the wearer of these products must keep track of them and have them readily available when the product is needed, which may also have the undesirable consequence of having to purchase multiple units of the product to have them available as and when needed, a potentially costly investment.

[0011] Some ring-retention products consist of multiple components connecting the finger to the wrist which results in an unsightly and bulky appearance, and in movement-restricting encumbrances to the hand.

[0012] One existing device consists of a neoprene band which wraps around the wearer's finger, and which contains a slit through which the wearer's ring comes through to achieve exposure. The present inventor considers this product to be unattractive, excessively thick, cumbersome, cosmetically unattractive, and uncomfortable to wear for extended periods of time.

[0013] Another product consists of a tube of hypoallergenic silicone liquid product which is applied to the inner circle of a ring and, when dried, has the effect of making the ring's interior smaller. While the product is intended to reduce slipping, sliding and twisting of rings, some wearers have characterized this product as messy and oily. Additionally, some users report that the liquid can remain moist for extended periods, making the substance tacky and undesirable. Some users claim that the unused product has a short shelf-life, quickly drying up within the tube and becoming unusable. The present inventor believes this product to be messy to apply, difficult to use, and cosmetically unattractive.

[0014] Another product consists of a plastic tube slit lengthwise, which is attached to the ring on the palm side of the finger and has the effect of making the ring's interior smaller. Applicant considers the product to be excessively bulky, and so flimsy that it will fall off the wearer's ring regularly. The present inventor believes that this detracts from the appearance of the ring that it is meant to protect and may be uncomfortable to wear. This product maker says this device is inappropriate for use with wedding bands, school rings and adjustable rings.

[0015] Yet another product consists of a metallic device with pronged ends which wrap around the user's ring on two sides, and has the effect of making the ring's practical interior smaller. The product is designed for small-band women's rings and will not fit

(wider) men's rings, wedding bands, school rings or other wide band rings. This product is available only in yellow gold tone color, making it ill-suited to rings of platinum, silver or other colors. The present inventor considers this product to be uncomfortable to wear and believes that, when worn, the product will likely interfere in some wearer activities because it creates a space between the outer edge of the ring guard and the inner edge of the user's ring. The present inventor also believes that this product suffers from the disadvantage that it is difficult for non-jewelers to install.

[0016] Another product comprises a hinged expandable ring shank which opens to enable a ring to slip over a knuckle and then closes and locks to fit the wearer's finger. The product comes in multiple sizes and metals to match a variety of ring types. This product replaces the existing shank of a wearer's ring. The present inventor considers this device to be suboptimal because it is impractical for and unappealing to most ring wearers because it (a) requires permanent modification of the wearer's ring to remove the ring's existing shank and replace it with the product, and (b) requires a jeweler to perform cutting, filing, fitting and soldering to attach the device onto the wearer's ring. It has the disadvantage of requiring the wearer to modify their rings in order to use the product. It is also relatively costly.

[0017] Another product comprises a plastic device which snaps onto the base of a wearer's ring and thereby decreases the practical girth of the ring to make it fit the wearer's finger more snugly. The present inventor considers this product to be difficult to use because it must be attached to a wearer's ring before the ring is worn, thereby limiting the ability of the wearer to fit the ring over (usually) larger knuckles. According to some users, this device suffers from the disadvantage that it tends to come off the ring unnoticed, causing wearers to be vulnerable to ring loss.

[0018] There is also a product that is a self-adjusting ring sizer which ostensibly allows one to adjust rings up to three ring sizes. It uses a leaf spring to apply tension when fitting over knuckles. It comes in several sizes and white and yellow gold colors. The device is crimped onto the wearer's ring. The present inventor believes that the complexity of this product renders it unreliable in use and believes most ring wearers will not wish to attach it to their rings because it has crimped ends that potentially snag the wearer's apparel and other material to which the wearer comes into contact.

[0019] Finally, there is a product that applies a substance (from a tube) to the interior of a ring, a substance which hardens to decrease the practical ring-size of the ring so that it more snugly fits the wearer's finger. This product is similar to one of the products discussed above and suffers from similar disadvantages.

[0020] What is needed but has not been provided previously is a simple, convenient and reliable way for ring-wearers to protect or safeguard their rings from accidental loss and from (undetected) intentional theft off the wearer's finger. The need is greatest for those rings considered to be keepsakes by those who wear them.

[0021] Yet few products are available to ring wearers to minimize loss, and those that are available to ring wearers are currently not serving consumers well. The present invention was conceived in an effort to ensure the security of valued rings. The inventor has addressed the problem, but has avoided using adhesive bandages that are both unsightly, and poorly suited to the principal function of securing a ring. The inventor has invented an alternative device which provides the desired protection to the wearer's ring, yet is more visually appealing than an adhesive bandage. In addition to functionality, the device of the present invention is a device that is aesthetically appealing while not detracting from the jewelry itself.

#### BRIEF SUMMARY OF THE INVENTION

[0022] The present invention is directed to a device and method to prevent loss of jewelry worn on appendages such as fingers and toes.

[0023] In one aspect of the present invention, there is a ring-retention device for an appendage of a wearer, said device comprising: a band having a band length, a band width, a bottom appendage-contacting surface, and a top surface and, a retainer element disposed on the top surface of the band, the retainer element having a width that is less than or equal to the band width and a length that is less than or equal to the band length.

[0024] In some embodiments, the band comprises a hypoallergenic material. In some embodiments, the band comprises an adhesive material. In some embodiments, wherein the band comprises an adhesive material, the adhesive material is on the bottom, appendage-contacting surface.

[0025] In some embodiments, the retainer element comprises a contoured dome-like shape as viewed from side to side. In some embodiments, the retainer element is symmetrically disposed about the band. In some embodiments, the band comprises synthetic material. In some embodiments wherein the band comprises synthetic material, the synthetic material comprises plastic, rubber, or a combination thereof.

[0026] In some embodiments, the band length is from 60 mm to 90 mm. In some embodiments, the band width is from 6.0 mm to 13 mm. In some embodiments, the band thickness is from 0.04 mm to 0.28 mm. In some embodiments, the retainer element has a dome-shaped upper contour, a length from 12.5 mm to 38 mm, a width from 3.0 mm to 12.7 mm, and a height of 0.2 mm to 1.3 mm. In some embodiments, the device comprises a non-skid material. In some embodiments, the retainer element comprises a plurality of discontinuous sub-elements disposed on the band.

[0027] In some embodiments, the ratio of the height of the retainer element measured from the surface of the band upon which it is disposed and the total height of the retainer element and the band (excluding adhesive) is in the range of 0.2 to 0.9. In some embodiments, the ratio of the ratio of the length of the retainer element, and the length the band is in the range of 0.15 to 0.6. In some embodiments, the ratio of the width of the retainer element to the width the band is in the range of 0.2 to 1.3. In some embodiments, the device further comprises a component to secure the device on said appendage, said component selected from the group consisting of a clasp, Velcro, a button, a buckle, a snap, an elastic material, and any combination thereof.

[0028] The foregoing has outlined rather broadly the features and technical advantages of the present invention in order that the detailed description of the invention that follows may be better understood. Additional features and advantages of the invention will be described hereinafter which form the subject of the claims of the invention. It should be appreciated by those skilled in the art that the conception and specific embodiment disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present invention. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the spirit and scope of the invention as set forth in the appended claims. The novel features which are believed to be characteristic of the invention, both as to its organization and method of operation, together

with further objects and advantages will be better understood from the following description when considered in connection with the accompanying figures. It is to be expressly understood, however, that each of the figures is provided for the purpose of illustration and description only and is not intended as a definition of the limits of the present invention.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0029]** For a more complete understanding of the present invention, reference is now made to the following descriptions taken in conjunction with the accompanying drawings, in which:

**[0030]** FIG. 1 is a schematic illustration of a preferred embodiment of the ring-retention device of the present invention;

**[0031]** FIG. 2 is an illustration of one embodiment of the use of the ring-retention device on the finger (hand) of a user.

**[0032]** FIG. 3 is an illustration of another embodiment of the use of the ring-retention device on the finger (hand) of a user.

**[0033]** FIG. 4 is an illustration of the use of the ring-retention device on the toe (foot) of a user.



## DETAILED DESCRIPTION OF THE INVENTION

[0034] As used herein, “a” and “an” means one or more than one unless otherwise stated; “mm” means millimeter(s); and “plastic” means manmade materials, including but not limited to, organic polymers

[0035] Although the term ring is typically differentiated from other jewelry such as watches and bracelets, as used herein, the term “ring” means any ring-like jewelry that is worn around a body appendage and includes finger and toe rings, bracelets, watches, necklaces and the like. In many instances, reference is made herein to “finger” or “fingers”, however, it should be understood that the devices that are the subject of the disclosure can be used on toes and possibly other appendages. For this reason, a reference to fingers should be understood to encompass toes and other appendages, unless otherwise clear from the context.

[0036] While some consumers may wish to have continual or permanent protection of their rings, many consumers will choose to guard their rings only in certain settings or under certain conditions of a more-temporary nature. Among these consumers having situational needs for a ring-retention device are 1) people traveling to unfamiliar or risky places where thieves might be encountered, 2) people engaged in sports, exercise, or physical work involving the hands (gardening, crafts, hobbies, dishwashing, cooking, etc.), 3) people wearing gloves, 4) people who experience changing temperatures, such as cold weather, 5) people who experience changing humidity, such as when flying on airplanes, and 6) people traveling to the beach, swimming pool or other destinations where water or other substances might enable rings to slip off more easily.

[0037] Some aspects of the present invention provide a ring-retention device having the following characteristics: 1) a size, shape and cost characteristics that make it amenable to wide availability for purchase and use by end users, 2) relatively low cost/economical to own, 3) ease and reliability of use, 4) it will not substantially change the shape, size or appearance of the wearer’s ring, and 5) in some embodiments, it may be disposable, intended for one-time use.

[0038] Reference is made to FIGs. 1A-1C which show a preferred embodiment of the ring-retention device 100 of the present invention. Referring now to the top-down view of FIG. 1A, the device comprises a band 110 which, when in use, alone or in combination

with an adhesive, contacts the skin of the wearer. The length of the band,  $L$ , may vary and is such that it wraps around at least a portion of the circumference of the appendage upon which it is worn. The width of the band,  $W$ , may vary, but it is preferably shorter than the length,  $L$ . In preferred embodiments, the band wraps around the entire circumference of the appendage of a wearer having a common ring size and may overlap at the ends for most wearers. Shown in FIG. 1A is the top surface of the band. The top surface of the band is that surface which does not contact the wearer's appendage; it is easily visible in the top-down view of FIG. 1A. The band 110 also has a bottom appendage-contact surface, with or without the presence of an adhesive. This band can be seen in the cross-sectional view of FIG. 1B, the side-edge view. Disposed on the top surface of the band is a retainer element 120. The retainer element 120 is elevated with respect to the top surface of the band. The retainer element 120 has a length  $L'$  and a width  $W'$ . Like that for the band, the width of the retainer element,  $W'$ , may vary, but it is preferably shorter than the length,  $L'$ . The band of the device has a thickness,  $T$ , which may vary, and the retainer element has a thickness (also referred to as its height),  $T'$ , which may vary. When in use, the bottom surface of the band which is opposite to that surface upon which the retainer element is disposed is that surface of the band which, with or without an adhesive, contacts the wearer's appendage. In preferred embodiments the appendage-contacting surface comprises adhesive to provide a level of fixation stability on the wearer. It should be understood that in the general case, the device may comprise an adhesive material on any of its surfaces. In other preferred embodiments, such as those involving a circular device without ends, the appendage-contacting surface may not comprise an adhesive and may instead rely upon plasticity and non-skid surfaces to provide a level of fixation stability. FIG. 1C shows an exploded side edge view and demonstrates the optional adhesive layer 130 of preferred embodiments.

**[0039]** Table 1 provides dimensions for the preferred embodiments for the device for use on fingers; it should be understood that the dimensions provided in Table 1 are illustrative of preferred embodiments and not exhaustive.

Table 1. Dimension of Preferred Embodiments for the Ring-Retention Device for Use on Fingers

<b><u>Dimension</u></b>	<b><u>Lower Value</u></b>	<b><u>Upper Range</u></b>
Band Length ( $L$ )	60.0 mm	90.0 mm

Band Width (W)	6.0 mm	13.0 mm
Band Thickness (T)	0.05 mm	0.3 mm
Retainer Element Length (L')	19.0 mm	38.0 mm
Retainer Element Width (W')	3.0 mm	10.0 mm
Retainer Element Height (T')	0.8 mm	1.6 mm

**[0040]** The retainer element is preferably a single unitary length disposed on the band. However, it should be understood that as defined herein, the “retainer element” may comprise a discontinuous plurality of sub-elements. In such a case, length of the retainer element is measured from the beginning of the first sub-element to the end of the last sub-element. Similarly, the width of the retainer element in this case would be measured from the closest position of any sub-element with respect to the edge of the widthwise boundary of the band to the closest position of any sub-element with respect to the opposite edge of the widthwise boundary of the band. In such cases, the sub-elements can be in any geometrical configuration with respect to one another and to the band. This refers to the spacing of the sub-elements with respect to one another and with respect to their absolute geometries (i.e., one may be dome-shaped, while another may be rectangular, etc).

**[0041]** In some embodiments, the ratio of 1) height of the retainer element, measured from the surface of the band upon which it is disposed and 2) the total height of the retainer element and the band (the height contribution of the band being its thickness as shown in FIG. 1), without regard to adhesives, is in the range of 0.6 - 0.9 (60% to 90%, expressed as a percentage). In the most preferred embodiment, this ratio is in the range of 0.80 to 0.90 (80% to 90%, expressed as a percentage). However, it should be understood that this ratio may be outside of these ranges in the more general case. The following provides non-limiting examples of the more general case. In some embodiments, this ratio is in the range of 0.1 to 0.95 (10% to 95%, expressed as a percentage). In some embodiments, this ratio is in the range of 0.2 to 0.95 (20% to 95%, expressed as a percentage). In some embodiments, this ratio is in the range of 0.3 to 0.95 (30% to 95%, expressed as a percentage). In some embodiments, this ratio is in the range of 0.4 to 0.95 (40% to 95%, expressed as a percentage). In other embodiments, this ratio is in the range of 0.5 to 0.95 (50% to 95%, expressed as a percentage). In other embodiments, this ratio is in the range of 0.6 to 0.95 (60% to 95%, expressed as a percentage). In other embodiments, this ratio is in

the range of 0.7 to 0.95 (70% to 95%, expressed as a percentage). In yet other embodiments, this ratio is in the range of 0.8 to 0.95 (80% to 95%, expressed as a percentage). In yet other embodiments, this ratio is in the range of 0.9 to just under 1.0 (90% to just under 100%, expressed as a percentage). In embodiments wherein the device has a retainer element having an irregular and/or variable height, this ratio is calculated using the highest height (i.e., the peak height).

**[0042]** In some embodiments, the ratio of 1) the length of the retainer element, and 2) the length the band, is in the range of 0.1 to 1 (10% to 100%, expressed as a percentage). In the case of a ratio of 100%, the retaining element extends for the entire length of the band. In the most preferred embodiments, this ratio is in the range of 0.18 to 0.50 (18% to 50%, expressed as a percentage). However, this ratio may be outside of this range in the more general case. The following provides non-limiting examples of the more general case. In some embodiments, this ratio is in the range of 0.2 to 1 (20% to 100%, expressed as a percentage). In other embodiments, this ratio is in the range of 0.3 to 1 (30% to 100%, expressed as a percentage). In other embodiments, this ratio is in the range of 0.4 to 1 (40% to 100%, expressed as a percentage). In other embodiments, this ratio is in the range of 0.5 to 1 (50% to 100%, expressed as a percentage). In other embodiments, this ratio is in the range of 0.6 to 1 (60% to 100%, expressed as a percentage). In other embodiments, this ratio is in the range of 0.7 to 1 (70% to 100%, expressed as a percentage). In other embodiments, this ratio is in the range of 0.8 to 1 (80% to 100%, expressed as a percentage). In other embodiments, this ratio is in the range of 0.9 to 1 (90% to 100%, expressed as a percentage).

**[0043]** In some embodiments, the ratio of 1) the width of the retainer element (measured from where its base begins to rise from the surface of the band, at each side) and 2) the width the band is in the range of 0.1 to 1 (10% to 100%, expressed as a percentage). In the case of a ratio of 100%, the retaining element extends for the entire width of the band. In some embodiments, this ratio is in the range of 0.2 to 1 (20% to 100%, expressed as a percentage). In some embodiments, this ratio is in the range of 0.3 to 1 (30% to 100%, expressed as a percentage). In some embodiments, this ratio is in the range of 0.4 to 1 (40% to 100%, expressed as a percentage). In some embodiments, this ratio is in the range of 0.5 to 1 (50% to 100%, expressed as a percentage). In some embodiments, this ratio is in the range of 0.6 to 1 (60% to 100%, expressed as a percentage). In some embodiments, this ratio is in the range of 0.7 to 1 (70% to 100%, expressed as a percentage). In some embodiments, this

ratio is in the range of 0.8 to 1 (80% to 100%, expressed as a percentage). In some embodiments, this ratio is in the range of 0.9 to 1 (90% to 100%, expressed as a percentage). In the most preferred embodiments, this ratio is in the range of 0.5 to 1.0 (50% to 100%, expressed as a percentage). In embodiments wherein the device has a retainer element having an irregular and/or variable width, this ratio is calculated using the greatest width along the length (i.e., the peak width).

**[0044]** The precise form, materials, size and shape of the ring-retention device of the present invention may vary. However, in the preferred embodiment, the device will embody certain key characteristics.

### Shape

**[0045]** The basic shape of the device of the present invention will follow the general form and some functions of products currently serving as adhesive bandages, but with some important differences. For example, it preferably will not have an absorbent pad which appears on adhesive bandages to cover wounds or deliver antiseptics or other medications. It preferably will not be flesh-toned, colored or otherwise decorated to call attention to itself, except in those embodiments designed to be “fashion” items. In preferred embodiments, the device will have a plastic, rubber or synthetic band which on one side (bottom) is coated with an adhesive and on the other side has a riser, dome, stop or other form of retainer element (discussed above and below) to help prevent a wearer’s ring from being lost. Finally, it will have the geometrical and configurational characteristics as provided herein, particularly with respect to the absolute and relative dimensional specifications of the band and retainer element.

**[0046]** The ring-retention device will comprise a band having a length sufficient to wrap around at least a portion (or all) of an appendage (preferably a finger or toe), the band comprising at least one retainer element disposed on the top side of the band, the retainer element comprising an elevated portion which will rise above the basic band surface (one side of which preferably contains an adhesive in one preferred embodiment); such retainer element will serve the purpose of providing lift or girth to the band in order to catch or retain a ring which is in the process of coming off the wearer’s appendage (usually, the wearer’s finger or toe) and reduce twisting and turning of rings on the wearer’s appendage. The width of the band is greater than or equal to (but, in one preferred embodiment, preferably greater

than) the width of the retainer element. The retainer element is referenced as 120 in FIG. 1. It should be understood that the retainer element is preferably, but not necessarily, dome-shaped across the width of the band, as illustrated in FIG. 1A. It can be rectangular, triangular, ovoid, or any other shape. The length of the band is greater than or equal to (but preferably greater than) the length of the retainer element. FIGs. 1A-1C show one specific embodiment wherein the band length is greater than the length of the retainer element and the band width is greater than the width of the retainer element. In general and specifically in reference to FIG. 1A (top-down view), when reference is made to the width of an element, it should be understood to mean the short axis of that element and where reference is made to the length of an element, it should be understood to mean the long axis of that element. When reference is made to thickness, this dimension is illustrated in the side-edge view (illustrating one thickness of both the band and the retaining element).

[0047] While in the preferred embodiment, the retainer element is symmetrical with respect to one or more of its axes, in some embodiments, it may be asymmetrical with respect to any of its axes. In particular, it may be asymmetric with respect to the longitudinal axis (its lengthwise axis). Some embodiments may incorporate a different shape for the side of the retainer element which is nearest to the ring that the device is intended to protect. In this way, the portion of the retainer element which is nearest to the ring may be of a shape to provide extra protection against loss of the ring. For example, a concave shape at this portion of the device could be used to help trap the ring against the height of the retainer element, making it less likely that the ring can bounce over the top of the retainer element when the wearer strikes a ring or an appendage against an object or otherwise makes a rapid motion with an appendage.

[0048] While the retainer element is said to be disposed on the band, it may be unitary with the band (preferable in some embodiments) or it may be a separate detached element which is bonded or adhered to the band.

#### Band Properties and Materials

[0049] Preferably, the ring-retention device of the present invention is flexible, in order to make it fit snugly and comfortably on wearers' appendage. Preferably the exterior of the device will comprise a plastic or rubberized material, or another form of synthetic material. Preferably the exterior material of the device will be translucent or semi-

transparent, have a matte finish, and have a surface which is non-reflective, so that it does not appear shiny in natural or manmade light. Preferably the exterior of the retainer element will be made of a non-skid material which prevents the wearer's ring from easily sliding along the surface, yet may not be sufficiently sticky as to cause the ring to stop upon coming in contact with the base of the retainer element. In some preferred embodiments the ring will typically stop only upon reaching a point along the retainer element located toward the middle of the device.

[0050] Preferably, the ring-retention device of the present invention will be made from rubber, plastic or other forms of synthetic materials which are resistant to curling, crinkling or fraying along the edges, as well as be resistant to tearing, splitting or other forms of deterioration during normal use.

#### Securing the Device

[0051] Preferably, the ring-retention device of the present invention will employ an adhesive made of materials which are intended to be hypoallergenic, so as to prevent irritation to the wearer's skin, and be water resistant, perhaps even waterproof, to reduce the likelihood that the ring-retention device will come off the wearer's appendage during dishwashing, swimming, or sweat-inducing sports and exercise or during routine activities. While in one preferred embodiment the device preferably uses an adhesive material to secure the device onto the user's appendage, it may alternatively comprise other components or properties to secure the device, such as a clasp, Velcro, a button, a buckle, a snap, etc. or rely upon plasticity or elasticity to achieve similar aims. The device may also use an elasticity of the materials used to form compression against the appendage to secure the device to the digits.

#### Size and Configuration

[0052] The ring-retention device of the present invention will preferably have an overall size and configuration embodying the following characteristics. Specifically in reference to use on fingers, as per length, the overall length of the device will preferably be sufficient to wrap around all but the largest finger sizes, preferably on the order of magnitude of at least a size 12 ring (allowing for some overlap of the band), or approximately 3 inches (75 mm) in length. However, other lengths are possible. As per width, the overall width of

the device will be sufficiently wide to enable the placement, in the center of the upper surface, of a dome, riser or stop which will serve as a retainer element against which (or on top of which) a ring in process of coming off the finger will come to rest, without coming off the finger undetected.

**[0053]** The sizes provided above for rings are intended to be adequate to cover the smallest to the largest ring sizes found in a high percentage of the general population. In the case of other appendages, one of ordinary skill in the art would understand that dimensions for secure and comfortable use would change, while preserving effectiveness as a device to secure the jewelry.

**[0054]** The retainer element may have any of numerous shapes and configurations, but the preferable shape would be somewhat similar to a medicinal capsule cut in half lengthwise and contoured out toward the sides of the band surface much like a bell curve or dome. In other words, the preferable shape would be semi-cylindrical on the upper surface and round down to the band sitting upon the appendage surface on each of its two sides, as well as be contoured downward on each of its two ends. It may be dome shaped, rectangular, triangular, ovoid, or any other shape, including, but not limited to, the shape of a bell curve. While the overall width of the retainer element may vary, it is preferably in the range of 1/8 inch (3.175 mm) to 1/4 inch (6.35 mm) plus the length of any slope on the edges from the band to the main portion of the retaining element. Similarly, the overall length dimensions of the retainer element may vary, but it is preferably in the range of 1/2 inch (12.7 mm) to 1-1/2 inch long (38 mm). The retainer element is preferably symmetrically located within the boundaries of the band (i.e., having equal length and width of band on either side of the retainer element). However, in some embodiments, it may be asymmetrically disposed on the band, being nearer to one side (length-wise or width-wise) than to the other side.

**[0055]** In addition to illustrating the symmetrical disposition of the retainer element on the band, FIGs. 1A-1C also illustrate an overall symmetry of the ring-retention device with symmetrical components. For example, in FIGs. 1A-1C, the band has a substantially rectangular shape and the retainer element, when viewed from above in the top-down view, also has a substantially rectangular shape. It should be noted that while this degree of symmetry in the overall device and in its individual components is preferable, the device may have geometries having lesser degrees of symmetry.



Thickness

[0056] The thickness of the band, and the height of the retainer element disposed on the band of the ring-retention device, may vary. However, the band's thickness would preferably be in the range of 0.03 mm to 0.15 mm. In a preferred embodiment the band's thickness would range from 0.05 mm to 0.15 mm. The retainer element disposed on the band preferably will have a height ranging from 0.2 mm to 1.4 mm. In a preferred embodiment the retainer height preferably ranges from 0.4 mm to 0.6 mm. It should be noted that the dimensions provided are preferred, and that other dimensions outside of the ranges provided can also be used.

[0057] While the foregoing provides some basic features of the ring-retention device, some embodiments possess additional or different features. For example in some embodiments the ring-retention device may be made without a retainer element, with or without the use of adhesive. In some embodiments the ring-retention device may be made with decorative elements applied to the upper surface. In some embodiments, the ring-retention device may have a circular (ring-like) form (with the absence of any cut to separate the device into one having two ends in the lengthwise direction). This ring-like form is different from the embodiment best illustrated in FIG. 1A, which has distinct ends in the lengthwise direction. This embodiment would preferably be made using an elastic, pliable form of plastic, rubber or synthetic material, or combination thereof, formed into a closed-circle ring, with or without a retaining element, with any retaining element positioned along the lines previously discussed, centered from front to back upon the exterior of such ring. Such versions might be produced with or without an adhesive underside.

[0058] In some embodiments, the ring-retention device may comprise fabric, such as lace, with elastic properties, to form a closed-circle ring made out of other substances like expandable lace, while potentially continuing to use a retainer element to catch a ring that otherwise might slip off the appendage. The underside of such fabric ring preferably would consist of a non-slip plastic, rubber or synthetic material which might or might not contain an adhesive. Variations of these forms might fall within a broad category of devices offered as a decorative or fashion line of products.

[0059] In some embodiments, the ring-retention device may be comprised of non-latex material so as to accommodate ring wearers who are allergic to latex. In some embodiments, the ring-retention device may be comprised of hypoallergenic material.

[0060] In the alternative or in combination with one or more of the previously discussed embodiments, the retainer element on the device may be made as a single, continuous riser sitting atop the device, or may be made of multiple smaller risers (like bumps), and may be shaped with angular edges or curved edges rising upward at any of a number of different slope angles. Such retainer elements may sit atop the center of the ring-retention device or extend in either or both directions toward the ends or sides of the device, perhaps all the way to the edge of each.

[0061] In some embodiments, the length and width of the device may be reduced, proportionately, to enable a better fit to wearers during toe-ring applications. The height of the retainer element may also be modified for use in toe-ring applications.

[0062] The device may have decorative designs on the exterior to add a decorative dimension to the product. Examples of such designs include animal-skin prints, glitter-like decorations, printed images of endearing pets or objects, etc., or may contain textural designs, alone or in combination with printed elements.

[0063] FIG. 2 illustrates one embodiment of how the ring-retention device 100 may be worn on the finger 200 of a wearer. FIG. 2 illustrates the ring-retention device 100 positioned between the ring 210 and the knuckle on a finger. The exact position may vary, based on the comfort or preferences of the user. Although one device is needed to insure adequate performance, the use of multiple devices on one finger is within the scope of the invention. It should also be noted that while FIG. 2 illustrates the preferred positioning of the device such that the retainer element 120 is aligned (relative to the circumference of the finger) with the gemstone (or the largest portion of the ring), it may be possible to position the retainer element adjacent to another portion of the ring, such as on the underside of the appendage and in general out of view in most cases. It is envisioned that the ring-retention device may be worn by the wearer on any portion of the appendage, with the embodiment of FIG. 2 being merely illustrative.

[0064] FIG. 3 illustrates another example of how the ring-retention device 100 may be worn on the finger of a wearer. FIG. 3 illustrates the ring-retention device 100 positioned below the ring 210. The exact juxtaposition of the ring-retention device 100 with ring 210 may vary, based on the comfort or preferences of the user. Although one device is needed to insure adequate performance, the use of multiple devices on one finger is within the scope of the invention. Although not visible in FIG. 3 it should also be understood that like the illustration of FIG. 2, the preferred positioning of the device is such that the retainer element is aligned (relative to the circumference of the finger) with the gemstone (or the largest portion of the ring), however it may be possible to position the retainer element adjacent to another portion of the ring, such as on the underside of the appendage and in general out of view in most cases. It is envisioned that the ring-retention device may be worn by the wearer on any portion of the appendage with the embodiment of FIG. 3 being merely illustrative.

[0065] FIG. 4 illustrates the use of ring-retention device 100 with a toe ring 410 on a toe 400 of a wearer. Ring-retention device 100 is shown with retainer element 120 in an upward position, aligned (relative to the circumference of the toe) with the top of the ring 410. However, like the embodiments described for use on a finger, other alignments of retainer element 120 and ring 410 are possible. The various embodiments for use on a toe are the same as those for a finger. In FIG. 4, although ring-retention device 100 is shown positioned between ring 410 and the knuckle of the toe, it is possible to position ring-retention device 100 at least partially below the ring 410, between the ring 410 and the surface of the toe 400. The latter position would be analogous to that shown in FIG. 3 for a finger.

[0066] While the preferred embodiments of the present invention use the ring-retention device on the finger or toe of a wearer, it should be understood that the scope of the invention is not so limited. The ring-retention device may be used on any appendage of the body upon which a ring or ring-like device may be worn. This includes, but is not limited to, ankles and wrists. Oftentimes, watches, bracelets and other ring-like devices are worn on ankles, wrists, and other appendages. It is fully within the scope of the present invention and known to the artisan of ordinary skill that the scope of the present invention encompasses such embodiments. In the case of such other uses, the ring-retention device may or may not contain a retainer element but instead may use adhesives on one or both surfaces or may use

elasticity or other components or properties of its materials to achieve loss prevention or to reduce slipping, sliding and twisting, and to provide other benefits to the wearer.

[0067] While the description has been provided in terms of rings for either fingers or toes, it should be noted that the described device can be applied to other jewelry as well. For example, in some embodiments the present invention is also applicable to watches and bracelets, as well as other jewelry.

[0068] Because at least a portion of the ring-retention device or its adhesive will contact the skin of the wearer, some embodiments incorporate features which are important for this use. For example, in some embodiments, the device comprises a wickable material that wicks away perspiration of the wearer or other moisture to which the wearer comes into contact. In the simplest case, this may be accomplished by including a plurality of holes in the device, preferably very small holes. Other well-known wickable materials may be used. Examples include specially-engineered polyester fibers or polymers which improve "breathability" compared to non-porous materials. In those embodiments employing an adhesive material, the adhesive material itself may be wickable. Additionally, the device may comprise sterile materials to decrease the risk of infection or transmission of disease.

[0069] Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made herein without departing from the spirit and scope of the invention as defined by the appended claims. Moreover, the scope of the present application is not intended to be limited to the particular embodiments of the process, machine, manufacture, composition of matter, means, methods and steps described in the specification. As one of ordinary skill in the art will readily appreciate from the disclosure of the present invention, processes, machines, manufacture, compositions of matter, means, methods, or steps, presently existing or later to be developed that perform substantially the same function or achieve substantially the same result as the corresponding embodiments described herein may be utilized according to the present invention. Accordingly, the appended claims are intended to include within their scope such processes, machines, manufacture, compositions of matter, means, methods, or steps.

## CLAIMS

What is claimed is:

1. A ring-retention device for an appendage of a wearer, said device comprising:  
  
a band having a band length, a band width, a bottom appendage-contacting surface, and a top surface and,  
  
a retainer element disposed on said top surface of said band, said retainer element having a width that is less than or equal to said band width and a length that is less than or equal to said band length.
2. The device of claim 1 wherein the band comprises a hypoallergenic material.
3. The device of claim 1, wherein said band comprises an adhesive material.
4. The device of claim 3, wherein said band comprises an adhesive material on said bottom appendage-contacting surface.
5. The device of claim 1, wherein said retainer element comprises a contoured dome-like shape as viewed from side to side.
6. The device of claim 1, wherein said retainer element is symmetrically disposed about said band.
7. The device of claim 1, wherein said band comprises synthetic material.
8. The device of claim 7, wherein said synthetic material comprises plastic, rubber, or a combination thereof.
9. The device of claim 1, wherein the band length is from 60 mm to 90 mm.
10. The device of claim 1, wherein the band width is from 6.0 mm to 13 mm.
11. The device of claim 1, wherein the band thickness is from 0.04 mm to 0.28 mm.

12. The device of claim 1, wherein the retainer element has a dome-shaped upper contour, a length from 12.5 mm to 38 mm, a width from 3.0 mm to 12.7 mm, and a height of 0.2 mm to 1.3 mm.
13. The device of claim 1, wherein said device comprises a non-skid material.
14. The device of claim 1, wherein said retainer element comprises a plurality of discontinuous sub-elements disposed on said band.
15. The device of claim 1, wherein the ratio of the height of the retainer element measured from the surface of the band upon which it is disposed and the total height of the retainer element and the band (exclusive of adhesive) is in the range of 0.2 to 0.9.
16. The device of claim 1, wherein the ratio of the ratio of the length of the retainer element, and the length the band is in the range of 0.15 to 0.6.
17. The device of claim 1, wherein the ratio of the width of the retainer element to the width the band is in the range of 0.2 to 1.3.
18. The device of claim 1, further comprising a component to secure the device on said appendage, said component selected from the group consisting of a clasp, Velcro, a button, a buckle, a snap, an elastic material, and any combination thereof.

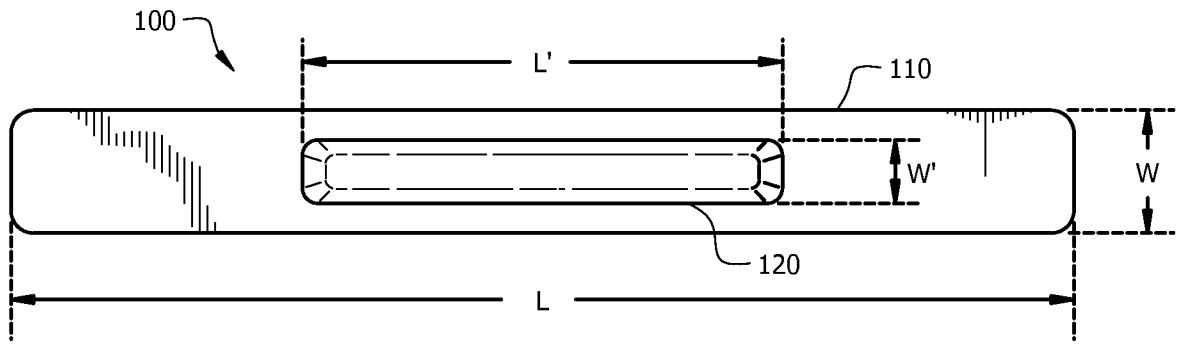


FIG. 1A



FIG. 1B

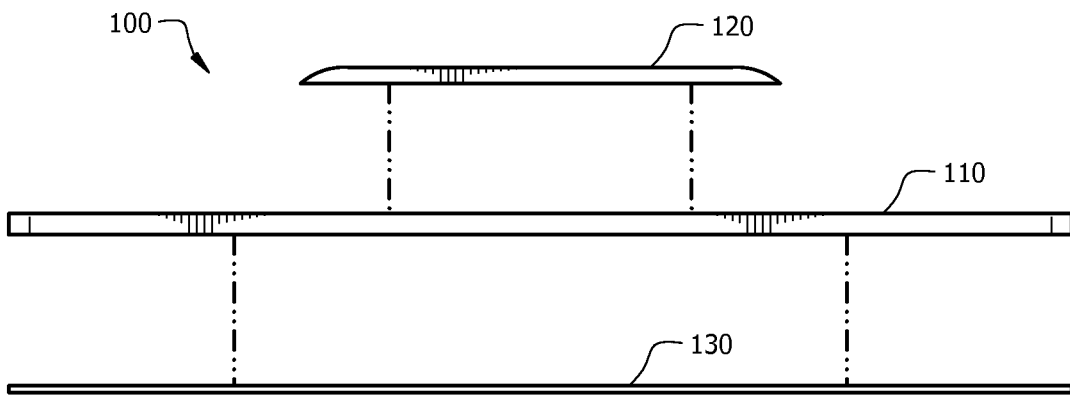
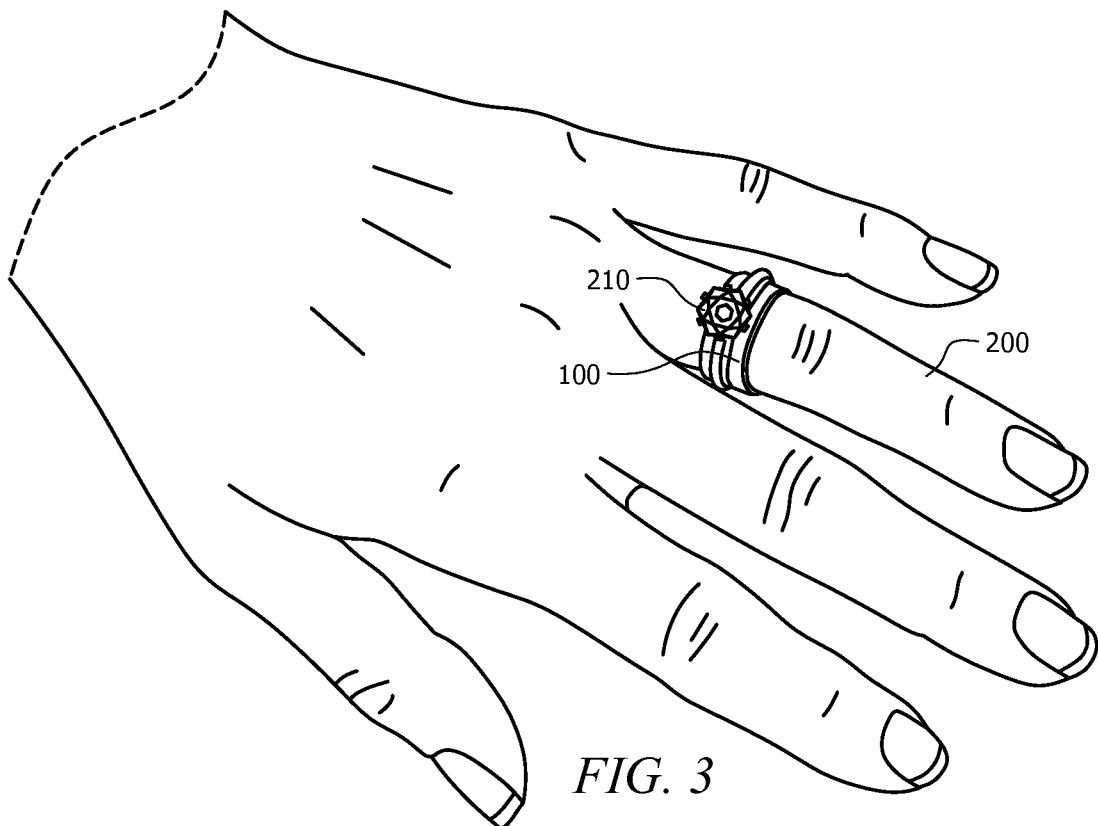
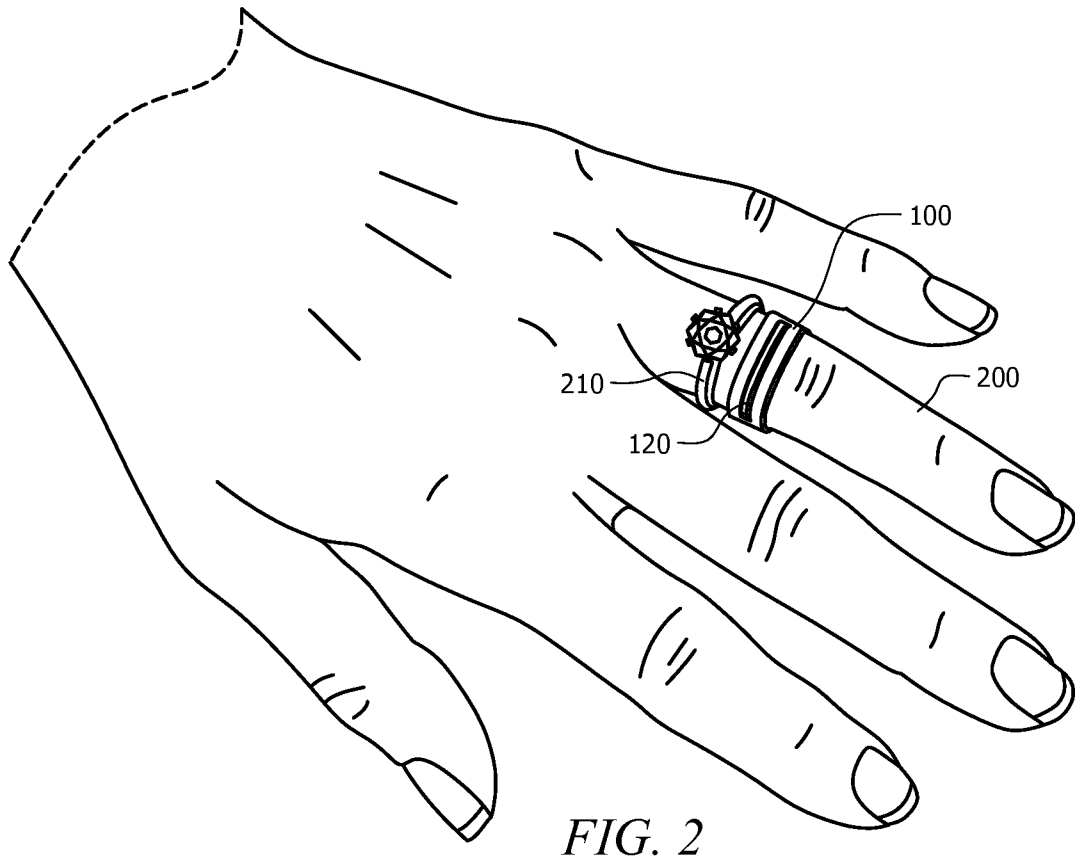


FIG. 1C





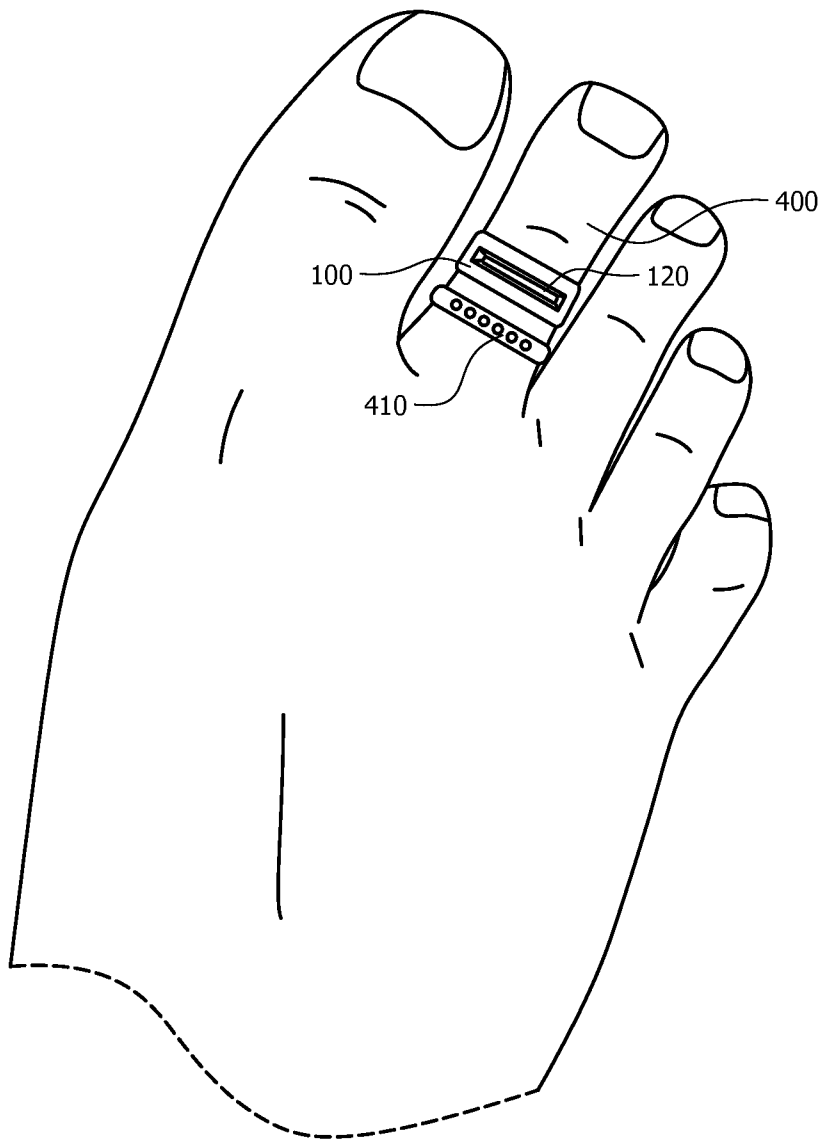


FIG. 4

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2011/046009

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(8) - A44C 9/00 (2011.01) USPC - 63/15 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC(8) - A44C 9/00, 9/02, 19/00 (2011.01) USPC - 2/170; 63/3, 15, 15.7, 15.8 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PatBase		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2001/0039733 A1 (OFIESH, II) 15 November 2001 (15.11.2001) entire document	1-18
Y	US 2009/0056373 A1 (CZAJKA et al) 05 March 2009 (05.03.2009) entire document	1-18
Y	US 2004/0134228 A1 (SILLS) 15 July 2004 (15.07.2004) entire document	3, 4
Y	US 5,261,256 A (ELLENBECKER et al) 16 November 1993 (16.11.1993) entire document	5, 12, 13, 15-17
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 21 December 2011		Date of mailing of the international search report <b>05 JAN 2012</b>
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201		Authorized officer: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774