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(54) **ELASTIC TAGS**

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Description

Technical Field

[0001] The present invention relates to elastic tags and methods of making and using the same.

Background of the Invention

[0002] There is a need in the art for elastic tags that are (i) suitable for a variety of uses including, but not limited to, binding one or more articles to one or more other articles or to itself, and identifying merchandise, (ii) easy to use, and (iii) relatively inexpensive to manufacture.

Summary of the Invention

[0003] The present invention is directed to elastic tags . The elastic tags of the present invention may be used in a variety of applications, and are particularly useful in the medical industry for controlling the position of a drape relative to, for example, a piece of equipment (e.g., a microscope). Document FR 2793339 A is considered the closest prior art.

[0004] In one exemplary embodiment, the elastic tag of the present invention comprises a first tag portion having an outer periphery extending along an outer edge of the first tag portion; and a second tag portion integrally attached to the first tag portion and extending beyond a first edge portion of the outer edge of the first tag portion, the second tag portion comprising a first closed loop having a loop inner periphery, at least a portion of the loop inner periphery being positioned a distance from the first tag portion and comprising an elastomeric material, wherein the first tag portion further comprises (a) at least one slotted opening positioned along and in communication with the outer periphery or (b) at least one slotted opening positioned along and in communication with said outer periphery and a second closed loop of elastic material.

[0005] These and other features and advantages of the present invention will become apparent after a review of the following detailed description of the disclosed embodiments and the appended claims.

Brief Description of the Drawings

[0006] The present invention is further described with reference to the appended figures, wherein:

FIGS. **1A-1D** depict frontal views of exemplary elastic tags of the present invention;

FIGS. **2A-2D** depict exemplary cross-sectional views of the exemplary elastic tag shown in FIG. **1A** as viewed along line **A-A** as shown in FIG. **1A**;

FIGS. **3A-3C** depict frontal and side views of the exemplary elastic tags of FIGS. 1A and 1C when a closed loop portion of a given exemplary elastic tag is connected to at least one slotted opening of the given exemplary elastic tag;

FIGS. **4A-4B** depict frontal views of elastic tags ; and

FIG. **5** depicts a side view of the exemplary elastic tag of FIG. **4A** when a first closed loop portion of the exemplary elastic tag is connected to a second closed loop portion of the exemplary elastic tag via a connection member.

Detailed Description of Embodiments

[0007] Although the present invention is herein described in terms of specific embodiments, it will be readily apparent to those skilled in this art that various modifications, rearrangements, and substitutions can be made without departing from the of the invention. The scope of the present invention is thus only limited by the claims appended hereto.

[0008] The present invention is directed to elastic tags. The elastic tags of the present invention comprise a first tag portion having an outer periphery extending along an outer edge of the first tag portion, and a second tag portion integrally attached to the first tag portion and extending beyond a first edge portion of the outer edge of the first tag portion. The second tag portion comprises a first closed loop having a loop inner periphery. At least a portion of the loop inner periphery is positioned a distance from the first tag portion and comprising an elastomeric material. The first tag portion further comprises (a) at least one slotted opening positioned along and in communication with the outer periphery, (b) a second closed loop of elastic material, or (c) both (a) and (b).

[0009] Exemplary elastic tags of the present invention are shown in FIGS. **1A-1D**. As shown in FIG. **1A**, exemplary elastic tag **10** comprises a first tag portion **11** having an outer periphery **111** extending along most of an outer edge **112** of first tag portion **11**. Exemplary elastic tag **10** further comprises a second tag portion **12** integrally attached to first tag portion **11.** As shown in FIG. **1A,** second tag portion **12** extends beyond a first edge portion **113** of the outer edge **112** of first tag portion **11,** and comprises a first closed loop **13** having a loop inner periphery **131** that surrounds a first closed loop opening **14**.

[0010] Exemplary elastic tag **10** further comprises at least one slotted opening **15** positioned along and in communication with outer periphery **111**. As used herein, the phrase "in communication with" refers to outer periphery **111** and a given slotted opening **15** sharing a common edge, namely, outer edge **112** of first tag portion **11** (i.e., the portion of outer edge **112** of first tag portion **11** that extends into and forms an inner edge of a given slotted opening **15**). Each slotted opening **15** comprises a loop containment reservoir **151** and a channel **152** that connects loop containment reservoir **151** with outer periphery **111**.

[0011] As used herein, outer periphery **111** is used to describe an outer perimeter extending along first tag por-

tion **11** and includes (i) portions of outer edge **112** and (ii) any gaps within outer edge **112** due to the presence of one or more channels **152** along outer periphery **111**. In contrast, as discussed above, outer edge **112** is used to describe a continuous outer edge of first tag portion **11** that includes (i) portions of outer edge **112** extending along outer periphery **111** and (ii) inner edge portions of any slotted openings **15** (i.e., inner edge portions of one or more channels **152** and inner edge portions of one or more loop containment reservoirs **151** positioned within outer periphery **111**.

[0012] Another exemplary elastic tag **20** is shown in FIG. **1B**. Exemplary elastic tag **20** comprises a first tag portion **11** having an outer periphery **111** extending along an outer edge (not shown) of first tag portion **11**. Exemplary elastic tag **20** further comprises a second tag portion **12** integrally attached to first tag portion **11**. As shown in FIG. **1B**, second tag portion **12** extends beyond a first edge portion **113** of the outer edge **112** of first tag portion **11**, and comprises a first closed loop **13** having a loop inner periphery **131** that surrounds first closed loop opening **14**. In addition, exemplary elastic tag **20** comprises a pair of slotted openings **15** positioned along and in communication with outer periphery **111**. As shown in FIG. **1B**, a first pair **155** of slotted openings **15** is positioned a substantially equal first distance $\mathbf{d_1}$ from first closed loop **13**, and a second pair **156** of slotted openings **15** is positioned a substantially equal second distance $\mathbf{d_2}$ from first closed loop **13**.

[0013] A further exemplary elastic tag **30** is shown in FIG. **1C**. Exemplary elastic tag **30** comprises a first tag portion **11** having an outer periphery **111** extending along an outer edge (not shown) of first tag portion **11**. Exemplary elastic tag **30** further comprises a second tag portion **12** integrally attached to first tag portion **11**. As shown in FIG. **1C**, second tag portion **12** extends beyond a first edge portion **113** of the outer edge **112** of first tag portion **11**, and comprises a first closed loop **13** having a loop inner periphery **131** that surrounds first closed loop opening **14**. In this embodiment, exemplary elastic tag **30** comprises a single slotted opening **15** positioned along and in communication with outer periphery **111**.

[0014] Yet another exemplary elastic tag **40** is shown in FIG. **1D**. Exemplary elastic tag **40** comprises a first tag portion **11** having an outer periphery **111** extending along an outer edge (not shown) of first tag portion **11**. Exemplary elastic tag **40** further comprises a second tag portion **12** integrally attached to first tag portion **11**. As shown in FIG. **1D,** second tag portion **12** extends beyond a first edge portion **113** of the outer edge **112** of first tag portion **11**, and comprises a first closed loop **13** having a loop inner periphery **131** that surrounds first closed loop opening **14**. In this embodiment, exemplary elastic tag **40** comprises three slotted openings **15** positioned along and in communication with outer periphery **111**.

[0015] As shown in FIGS. **1A-1D**, elastic tags of the present invention may have one or more slotted openings **15** positioned along and in communication with outer periphery **111**. In one exemplary embodiment, outer periphery **111** of first tag portion **11** comprises (i) a second edge portion (e.g., second edge portion **120** shown in FIG. **1A**) opposite a first edge portion (e.g., first edge portion **113**), (ii) opposite side edges connecting the second edge portion to the first edge portion, and (iii) at least one slotted opening **15** positioned along each of the opposite side edges. In another exemplary embodiment, outer periphery **111** of first tag portion **11** comprises (i) a second edge portion (e.g., second edge portion **120** shown in FIG. **1A**) opposite a first edge portion (e.g., first edge portion **113**), (ii) opposite side edges connecting the second edge portion to the first edge portion, (iii) at least one slotted opening positioned along the second edge portion, and (iv) at least one slotted opening positioned along one or both of the opposite side edges.

[0016] In each of the exemplary elastic tags shown in FIGS. **1A-1D** (and in FIG. **4B** described below), it should be understood that each slotted opening **15** may independently have any desired shape, size and configuration as long as the slotted opening **15** is positioned within first tag portion **11** and in communication with outer periphery **111**. For example, although each loop containment reservoir **151** is shown as having a circular shape, each loop containment reservoir **151** may independently have any desired shape including, but not limited to, a triangular shape, a square shape, a rectangular shape, a diamond shape, a polygonal shape, a hexagonal shape, a trapezoidal shape, an oval shape, an oblong shape, an irregular shape (e.g., a "figure 8" shape), or any other desired shape. Further, each loop containment reservoir **151** may independently have any desired size. Typically, each loop containment reservoir **151** has a largest dimension (e.g., diameter, length, width, etc.) that is less than an overall width W of first tag portion **11**, more typically, less than half of an overall width of first tag portion **11** (i.e.,½ W). In one exemplary embodiment, each loop containment reservoir **151** has a largest dimension (e.g., diameter, length, width, etc.) that is less than about 25.4 millimeters (mm) (1.0 inches (in.)), typically, less than about 12.7 mm (0.5 in.), and more typically, between about 0.64 mm (0.25 in.) to about 12.7 mm (0.5 in.).

[0017] In addition, each channel **152** may independently have any desired shape, size and configuration. For example, although each channel **152** is shown as having a rectangular shape with a channel width and a channel length greater than the channel width, each channel **152** may independently have any desired shape including, but not limited to, a square shape, a diamond shape, a polygonal shape, a trapezoidal shape, an irregular shape (e.g., an "S" shape), or any other desired shape. Further, each channel **152** may independently have any desired dimensions. Typically, each channel **152** has a channel length greater than a channel width. Further, typically, the channel width remains substantially constant along the channel length. In one exemplary embodiment, each channel **152** has a channel width that is less than about 12.7 mm (0.5 in.), typically, less than

about 0.64 mm (0.25 in.), and more typically, between about 0.01 mm (0.4 mils) to about 0.64 mm (0.25 in.); and a channel length that is less than about 25.4 mm (1.0 in.), typically, less than about 12.7 mm (0.5 in.), and more typically, between about 0.64 mm (0.25 in.) to about 12.7 mm (0.5 in.).

[0018] In each of the exemplary elastic tags shown in FIGS. **1A-1D** (and in FIG. **4B** described below), first tag portion **11** may be integrally attached to second tag portion **12** using a variety of bond configurations such as the exemplary bond configurations shown in FIGS. **2A-2D**. FIGS. **2A-2D** depict exemplary cross-sectional views of the exemplary elastic tag shown in FIG. **1A** as viewed along line **A-A** as shown in FIG. **1A**. As shown in FIG. **2A**, first tag portion **11** is integrally attached to second tag portion **12** via an exemplary bond configuration wherein a portion of first tag portion **11** is embedded within second tag portion **12**. In this exemplary embodiment, first tag portion **11** has an upper surface **114** and a lower surface **115**. A portion **116** of lower surface **115** and outer edge **112**, in particular, first edge portion **113,** is in contact with and integrally attached to second tag portion **12** along a bond length $\mathbf{b_L}$ and a bond height $\mathbf{b_h}$ as shown in FIG. **2A**, and a bond width $\mathbf{b_w}$ (see, for example, bond width $\mathbf{b_w}$ shown in FIG. **1A**). Bond width $\mathbf{b_w}$, bond length $\mathbf{b_L}$ and bond height $\mathbf{b_h}$ may have dimensions that vary depending on a number of factors including, but not limited to, the desired degree of bond strength between first tag portion **11** and second tag portion **12**, the materials used to form first tag portion **11** and second tag portion **12,** and the overall dimensions of the elastic tag.

[0019] FIG. **2B** provides another exemplary bond configuration. In this exemplary embodiment, first tag portion **11** is integrally attached to second tag portion **12** via an exemplary bond configuration wherein portion **116** of lower surface **115** is in contact with and integrally attached to an upper surface **121** of second tag portion **12** along a bond length $\mathbf{b_L}$ and a bond width $\mathbf{b_w}$. As discussed above, bond width $\mathbf{b_w}$ and bond length $\mathbf{b_L}$ may have dimensions that vary depending on a number of factors.

[0020] FIG. **2C** provides yet another exemplary bond configuration. As shown in FIG. **2C**, first tag portion **11** is integrally attached to second tag portion **12** via an exemplary bond configuration wherein a portion of first tag portion **11** is completely embedded within second tag portion **12**. A portion **116** of lower surface **115**, first edge portion **113**, and a portion **117** of upper surface **114** of first tag portion **11** is in contact with and integrally attached to second tag portion **12** along two bond length $\mathbf{b_L}$ (i.e., extending along portions **116** and **117**) and a bond height $\mathbf{b_h}$ (i.e., extending along first edge portion **113**) as shown in FIG. **2C**, and two bond width $\mathbf{b_w}$ (i.e., extending along portions **116** and **117**). As discussed above, bond widths $\mathbf{b_w}$, bond lengths $\mathbf{b_L}$ and bond height $\mathbf{b_h}$ may have dimensions that vary depending on a number of factors.

[0021] In another exemplary bond configuration shown in FIG. **2D**, first tag portion **11** is integrally attached to second tag portion **12** via an exemplary bond configuration wherein a portion of second tag portion **12** is completely embedded within first tag portion **11**. In this exemplary embodiment, second tag portion **12** has an upper surface **121** and a lower surface **122**. A portion **123** of lower surface **122**, an edge portion **125**, and a portion **124** of upper surface **121** of second tag portion **12** is in contact with and integrally attached to first tag portion **11** along two bond length $\mathbf{b_L}$ (i.e., extending along portions **123** and **124**) and a bond height $\mathbf{b_h}$ (i.e., extending along edge portion **125**) as shown in FIG. **2D**, and two bond width $\mathbf{b_w}$ (i.e., extending along portions **123** and **124**). As discussed above, bond widths $\mathbf{b_w}$, bond lengths $\mathbf{b_L}$ and bond height $\mathbf{b_h}$ may have dimensions that vary depending on a number of factors.

[0022] As discussed above, some elastic tags of the present invention may comprise a first tag portion that further comprises a second closed loop of elastic material. Exemplary elastic tags of the present invention comprising a second closed loop of elastic material are shown in FIGS. **4A-4C**.

[0023] As shown in FIG. **4A**, a prior art elastic tag elastic tag **50** comprises a first tag portion **11** having an outer periphery **111** extending along an outer edge (not shown) of first tag portion **11**. Exemplary elastic tag **50** further comprises a second tag portion **12** integrally attached to first tag portion **11**. As shown in FIG. **4A**, second tag portion **12** extends beyond first edge portion **113** of first tag portion **11**, and comprises first closed loop **13** having loop inner periphery **131** that surrounds first closed loop opening **14**. Exemplary elastic tag **50** further comprises a second closed loop **16** having a loop inner periphery **161** that surrounds a second closed loop opening **17**. In this exemplary embodiment, second closed loop **16** is an integral component of first tag portion **11**. In other words, second closed loop **16** and first tag portion **11** are formed from the same piece of material (e.g., an elastic film sheet).

[0024] Another prior art elastic tag **60** is shown in FIG. **4B**. Exemplary elastic tag **60** comprises first tag portion **11** and second tag portion **12** integrally attached to first tag portion **11**. As shown in FIG. **4B**, second tag portion **12** extends beyond first edge portion **113** of first tag portion **11**, and comprises first closed loop **13** having loop inner periphery **131** that surrounds first closed loop opening **14**. In this exemplary embodiment, exemplary elastic tag **60** further comprises a third tag portion **18** integrally attached to first tag portion **11**. As shown in FIG. **4B**, third tag portion **18** extends beyond another edge portion **118** of the outer edge of first tag portion **11**, and comprises second closed loop **16** having a loop inner periphery **161** that surrounds a second closed loop opening **17**. At least a portion of loop inner periphery **161** is positioned a distance from first tag portion **11**, and as shown in FIG. **4B**, all of loop inner periphery **161** may be positioned a distance from first tag portion **11**. Desirably, at least a portion (and possibly all) of loop inner periphery **161** comprises an elastomeric material.

[0025] Yet another exemplary elastic tag **70** is shown in FIG. **4C**. Exemplary elastic tag **70** comprises first tag portion **11**, second tag portion **12** integrally attached to first tag portion **11**, and third tag portion **18** integrally attached to first tag portion **11**. In this exemplary embodiment, exemplary elastic tag **70** further comprises a pair of slotted openings **15** positioned along and in communication with outer periphery **111** of first tag portion **11**. As shown in FIG. **4C**, a first pair **157** of slotted openings **15** is positioned a substantially equal first distance $\mathbf{d_1}$ from first closed loop **13,** and a second pair **158** of slotted openings **15** is positioned a substantially equal second distance $\mathbf{d_2}$ from first closed loop **13**.

[0026] In the embodiments shown in FIGS. **4A-4C,** first tag portion **11** may be integrally bonded to second tag portion **12** and third tag portion **18** using any of the above-described bond configurations. As discussed above, the degree of bonding between (i) first tag portion **11** and (ii) second tag portion **12** and/or third tag portion **18** may be varied as desired, for example, by adjusting bond width (s) $\mathbf{b_w}$, bond length(s) $\mathbf{b_L}$ and bond height $\mathbf{b_h}$. In some embodiments, it may be desirable for the bond strength between first tag portion **11** and second tag portion **12** to be greater than the bond strength between first tag portion **11** and third tag portion **18**. In other embodiments, it may be desirable for the bond strength between first tag portion **11** and second tag portion **12** to be less than the bond strength between first tag portion **11** and third tag portion **18**. In yet other embodiments, it may be desirable for the bond strength between first tag portion **11** and second tag portion **12** to be substantially equal to the bond strength between first tag portion **11** and third tag portion **18**.

[0027] The elastic tags of the present invention may be formed from a variety of materials. For example, first tag portion **11**, second tag portion **12** and third tag portion **18** may each independently comprise an elastomeric material. Suitable elastomeric materials include, but are not limited to, styrene-containing block copolymers (e.g., styrenebutadiene-styrene copolymers, styrene-isoprene-styrene copolymers, and styrene-ethylenebutylene-styrene copolymers), ethylene-propylene copolymers, natural rubbers, etc.

[0028] In some exemplary embodiments, first tag portion **11** comprises a sheet of inelastic material while second tag portion **12** and third tag portion **18** (when present) comprise any of the above-mentioned elastomeric materials. Typically, a substantial portion (i.e., greater than 50 wt-%) of second tag portion **12** and third tag portion **18** (when present) comprises an elastomeric material. More typically, at least 90 wt-% (or at least 95 wt-%, or at least 98 wt-%) of second tag portion **12** and third tag portion **18** (when present) comprises an elastomeric material.

[0029] Suitable inelastic materials may include, but are not limited to, paper, a polymeric film material, a fiber-reinforced polymeric film material, a polymeric foam material, an electrically conductive material, a ceramic material, a glass material, and any combinations thereof. When multiple inelastic materials are used in combination, first tag portion **11** may comprise a single layer of inelastic materials or multiple layers of inelastic materials. For example, first tag portion **11** may comprise a single sheet of paper or polymeric film, a single sheet of fiber-reinforced polymeric film material, or a multilayered structure comprising a paper layer and one or more outer polymeric film layers on one or more major outer surfaces of the paper layer.

[0030] In one desired embodiment, first tag portion **11** comprises a sheet of material (i.e., a single layer or multilayer sheet of material) having opposite outer major surfaces (e.g., upper surface **114** and lower surface **115**), wherein at least one of the opposite outer major surfaces (e.g., upper surface **114** and lower surface **115**) is capable of accepting and displaying indicia thereon. For example, in some embodiments, it may be advantageous to be able to print indicia on an outer surface of first tag portion **11**, for example, using a laser or ink jet printer. In some embodiments, it may be advantageous to be able to write indicia on an outer surface of first tag portion **11,** for example, using a pen, pencil or marker.

[0031] Various additives may be included in the materials used to form first tag portion **11**, second tag portion **12** and/or third tag portion **18** of the elastic tags of the present invention. These additives may be, for example, added to a polymeric blend melt or added to the formed material after casting/molding (e.g., during a coating step). Such additives include, but are not limited to, ultraviolet radiation absorbers, antioxidants, organic or inorganic colorants (e.g., dyes or pigments), stabilizers, fragrances, plasticizers, anti-microbial agents, flame retardants, antifouling compounds, and combinations thereof. The amount of each optional additive is generally no more than about 15 wt-% of the material used to form a given elastic tag component, often no more than 5 wt-% of the material used to form a given elastic tag component.

[0032] The elastic tags of the present invention may have overall dimensions that vary depending on the intended use. Typically, the overall thickness of an elastic tag, the thickness of first tag portion **11**, the thickness of second tag portion **12** and the thickness of third tag portion **18** (when present) may each vary independently from one another based on a number of factors including, but not limited to, the materials used, and a particular application or use. Typically, each of (i) the overall thickness of an elastic tag, (ii) the thickness of first tag portion **11**, (iii) the thickness of second tag portion **12** and (iv) the thickness of third tag portion **18** (when present) is less than about 0.64 mm (0.25 in.), more typically, less than about 0.32 mm (0.12 in.), and more typically, between about 0.01 mm (0.4 mils) to about 0.32 mm (0.12 in.).

[0033] As shown in FIGS. **1A-1D** and **4A-4C,** elastic tags may have a variety of overall shapes. It should be understood that the elastic tags of the present invention may have any desired shape. Further, elastic loops (e.g.,

first closed loop **13** and second closed loop **16**) of the elastic tags may have any dimensions, sizes and shapes. In some embodiments, the elastic loop component (e.g., first closed loop **13** and second closed loop **16**) has an overall width that is equal to or less than an overall width of first tag portion **11**. In other embodiments, one or more of the elastic loop components (e.g., first closed loop **13** and second closed loop **16**) may have an overall width that is greater than an overall width of first tag portion **11**.

[0034] Although the elastic tags of the present invention may have any desired dimensions, typically, elastic tags of the present invention have an overall length of less than about 61 centimeters (cm) (24 in.), more typically, less than about 30.5 cm (12 in.), and more typically, between about 7.6 mm (3.0 in.) to about 30.5 cm (12 in.). Typically, elastic tags of the present invention have an overall width of less than about 15.2 cm (6.0 in.), more typically, less than about 7.6 cm (3.0 in.), and more typically, between about 12.7 mm (0.5 in.) to about 7.6 cm (3.0 in.).

[0035] As shown in FIGS. **3A** and **3B**, exemplary elastic tag **10** may be used to surround a portion of an article (not shown) so that the article is positioned along upper surface **114** of exemplary elastic tag **10**. In this embodiment, first closed loop **13** of elastic tag **10** is inserted into and through channels **152** on opposite sides of first tag portion **11** so as to rest within loop containment reservoirs **151** located within an interior portion (e.g., away from outer periphery **111**) of first tag portion **11.** It should be noted that although not shown, exemplary elastic tag **10** could be used to surround a portion of an article (not shown) so that the article is positioned along lower surface **115** of exemplary elastic tag **10**. In other words, upper surface **114** could be facing away from the enclosed/surrounded article.

[0036] FIG. **3C** provides another view of the use of an elastic tag of the present invention. In this exemplary embodiment, exemplary elastic tag **30** may be used to surround a portion of an article (not shown) so that the article is positioned along upper surface **114** of exemplary elastic tag **30**. In this embodiment, first closed loop **13** of elastic tag **30** is inserted into and through a single channel **152** on a side of first tag portion **11** positioned away from first closed loop **13** so as to rest within loop containment reservoir **151** located within an interior portion (e.g., away from outer periphery **111**) of first tag portion **11**. In this embodiment, a single slotted opening **15** is used in combination with a ledge portion **119** of first tag portion **11** to temporarily secure first closed loop **13** to first tag portion **11.** As discussed above, it should be noted that although not shown, exemplary elastic tag **30** could be used to surround a portion of an article (not shown) so that the article is positioned along lower surface **115** of exemplary elastic tag **30** (i.e., upper surface **114** could be facing away from the enclosed/surrounded article).

[0037] In other embodiments, a separate connecting member may be used to surround a given article. One exemplary embodiment utilizing a separate connecting member is shown in FIG. **5**. As shown in FIG. **5**, exemplary elastic tag **60** of FIG. **4B** is configured so as to surround an article (not shown), wherein a connecting member **61** is used to join first closed loop **13** to second closed loop **16**. Connecting member **61** may comprise, for example, a plastic molded component, a metal component, a ceramic component, an elastomeric component, or any other type of component as long as connecting member **61** has enough structural integrity to connect first closed loop **13** to second closed loop **16**.

[0038] The elastic tags of the present invention may be used to surround a variety of articles and attach the article to another object or to itself. In one desired embodiment, the elastic tags of the present invention are used to control the position of a drape along a piece of medical equipment. Suitable pieces of medical equipment include, but are not limited to, a C-arm apparatus, a microscope, a surgical knife system, endoscopy equipment, an operating room table, a patient, a light, or a lamp.

[0039] The present invention is described above in a manner, which is not to be construed in any way as imposing limitations upon the scope of the invention. On the contrary, it is to be clearly understood that resort may be had to various other embodiments, modifications, and equivalents thereof which, after reading the description herein, may suggest themselves to those skilled in the art without departing from the of the present invention and/or the scope of the appended claims.

[0040] While the specification has been described in detail with respect to specific embodiments thereof, it will be appreciated that those skilled in the art, upon attaining an understanding of the foregoing, may readily conceive of alterations to, variations of, and equivalents to these embodiments. Accordingly, the scope of the present invention should be assessed as that of the appended claims.

Claims

1. An elastic tag (10) comprising: a first tag portion (11) having an outer periphery (111) extending along an outer edge (112) of the first tag portion (11); and a second tag portion (12) integrally attached to said first tag portion (11) and extending beyond a first edge portion (113) of the outer edge (112) of the first tag portion (11), said second tag portion (12) comprising a first closed loop (13) having a loop inner periphery (131), at least a portion of said loop inner periphery (131) being positioned a distance from said first tag portion (11) and comprising an elastomeric material, **characterized in that** said first tag portion (11) further comprises (a) at least one slotted opening (15) positioned along and in communication with said outer periphery (111), or (b) at least one slotted opening (15) positioned along and in communication with said outer periphery (111) and a second closed loop (16) of elastic material.

2. The elastic tag (10) of claim 1, wherein said first tag portion (11) comprises at least two slotted openings (15) positioned along and in communication with said outer periphery (111).

3. The elastic tag (10) of claim 2, wherein said at least two slotted openings (15) comprise one or more pairs of slotted openings (155,156), wherein each slotted opening (15) within a given pair of slotted openings (155,156) is positioned a substantially equal distance from said first closed loop (13).

4. The elastic tag (10) of claim 3, wherein said at least two slotted openings (15) comprise two pairs of slotted openings (155,156), wherein (i) each slotted opening (15) within a first pair of slotted openings (155) is positioned a first distance (d_1) from said first closed loop (13), (ii) each slotted opening (15) within a second pair of slotted openings (156) is positioned a second distance (d_2) from said first closed loop (13), and (iii) said first distance (d_1) is greater than said second distance (d_2).

5. The elastic tag (10) of claim 2, wherein said outer periphery (111) of said first tag portion (11) comprises (i) a second edge portion (120) opposite said first edge portion (111), (ii) opposite side edges connecting said second edge portion (120) to said first edge portion (113), and (iii) at least one slotted opening (15) positioned along each of said opposite side edges.

6. The elastic tag (10) of claim 2, wherein said outer periphery (111) of said first tag portion (11) comprises (i) a second edge portion (120) opposite said first edge portion (111), (ii) opposite side edges connecting said second edge portion (120) to said first edge portion (113), (iii) at least one slotted opening (15) positioned along said second edge portion (120), and (iv) at least one slotted opening (15) positioned along one or both of said opposite side edges.

7. The elastic tag (10) of claim 1, wherein said first tag portion (11) comprises a second closed loop (16) of elastic material.

8. The elastic tag (10) of claim 7, wherein said elastic tag (10) comprises a third tag portion (18) integrally attached to said first tag portion(11) and extending beyond a third edge portion (118) of the outer edge (112) of the first tag portion (11), said third tag portion (18) comprising the second closed loop (16), said second closed loop (16) having a second closed loop inner periphery (161), at least a portion of said second closed loop inner periphery (16) being positioned a distance from said first tag portion (11) and comprising an elastomeric material.

9. The elastic tag (10) of claim 8, wherein said first tag portion (11) has a substantially rectangular shape having a first tag portion length that is greater than a first tag portion width, and said first and second closed loops (13,16) are positioned along opposite edges of the first tag portion (11) separated from one another by a substantial portion of the first tag portion length.

10. The elastic tag (10) of claim 9, wherein said outer periphery (111) of said first tag portion (11) comprises (i) opposite side edges extending between said first and second closed loops (13,16), and (ii) at least one slotted opening (15) positioned along each of said opposite side edges.

11. The elastic tag (10) of claim 7, further comprising a connecting member (61) operatively adapted to connect said first closed loop (13) to said second closed loop (16).

12. The elastic tag (10) of claim 11, wherein said connecting member (61) is attached to said first closed loop (13) and is operatively adapted to connect to said second closed loop (16).

13. The elastic tag (10) of claim 1, wherein said first tag portion (11) comprises a sheet of inelastic material.

14. The elastic tag (10) of claim 13, wherein said inelastic material comprises paper, a polymeric film material, a polymeric foam material, an electrically conductive material, a ceramic material, a glass material, and any combinations thereof.

15. The elastic tag (10) of claim 1, wherein said first tag portion (11) comprises a sheet of material having opposite outer major surfaces, at least one of said opposite outer major surfaces being capable of accepting and displaying indicia thereon.

Patentansprüche

1. Elastisches Etikett (10), umfassend: einen ersten Etikettenteil (11) mit einem äußeren Umfang (111), der entlang einem äußeren Rand (112) des ersten Etikettenteils (11) verläuft, und einen zweiten Etikettenteil (12), der einstückig mit dem ersten Etikettenteil (11) verbunden ist und sich über einen ersten Randabschnitt (113) des äußeren Rands (112) des ersten Etikettenteils (11) hinaus erstreckt, wobei der zweite Etikettenteil (12) eine erste geschlossene Schlaufe (13) mit einem inneren Schlaufenumfang (131) umfasst, wobei wenigstens ein Teil des inneren Schlaufenumfangs (131) in einem Abstand vom ersten Etikettenteil (11) angeordnet ist und ein elastomeres Material umfasst, **dadurch gekennzeich-**

net, dass der erste Etikettenteil (11) des Weiteren (a) wenigstens eine schlitzförmige Öffnung (15) umfasst, die entlang dem äußeren Umfang (111) angeordnet ist und damit in Verbindung steht, oder (b) wenigstens eine schlitzförmige Öffnung (15), die entlang dem äußeren Umfang (111) angeordnet ist und damit in Verbindung steht, und eine zweite geschlossene Schlaufe (16) aus elastischem Material umfasst.

2. Elastisches Etikett (10) nach Anspruch 1, wobei der erste Etikettenteil (11) wenigstens zwei schlitzförmige Öffnungen (15) umfasst, die entlang dem äußeren Umfang (111) angeordnet sind und damit in Verbindung stehen.

3. Elastisches Etikett (10) nach Anspruch 2, wobei die wenigstens zwei schlitzförmigen Öffnungen (15) ein oder mehrere Paare schlitzförmiger Öffnungen (155, 156) umfassen, wobei jede schlitzförmige Öffnung (15) innerhalb eines gegebenen Paars schlitzförmiger Öffnungen (155, 156) in einem im Wesentlichen gleichen Abstand von der ersten geschlossenen Schlaufe (13) angeordnet ist.

4. Elastisches Etikett (10) nach Anspruch 3, wobei die wenigstens zwei schlitzförmigen Öffnungen (15) zwei Paare schlitzförmiger Öffnungen (155, 156) umfassen, wobei (i) jede schlitzförmige Öffnung (15) innerhalb eines ersten Paars schlitzförmiger Öffnungen (155) in einem ersten Abstand (d_1) von der ersten geschlossenen Schlaufe (13) angeordnet ist, (ii) jede schlitzförmige Öffnung (15) innerhalb eines zweiten Paars schlitzförmiger Öffnungen (156) in einem zweiten Abstand (d_2) von der ersten geschlossenen Schlaufe (13) angeordnet ist, und (iii) der erste Abstand (d_1) größer ist als der zweite Abstand (d_2).

5. Elastisches Etikett (10) nach Anspruch 2, wobei der äußere Umfang (111) des ersten Etikettenteils (11) folgendes umfasst: (i) einen zweiten Randabschnitt (120) gegenüber dem ersten Randabschnitt (111), (ii) gegenüberliegende seitliche Ränder, die den zweiten Randabschnitt (120) mit dem ersten Randabschnitt (113) verbinden, und (iii) wenigstens eine schlitzförmige Öffnung (15), die jeweils entlang der gegenüberliegenden Seitenränder angeordnet ist.

6. Elastisches Etikett (10) nach Anspruch 2, wobei der äußere Umfang (111) des ersten Etikettenteils (11) folgendes umfasst: (i) einen zweiten Randabschnitt (120) gegenüber dem ersten Randabschnitt (111), (ii) gegenüberliegende seitliche Ränder, die den zweiten Randabschnitt (120) mit dem ersten Randabschnitt (113) verbinden, (iii) wenigstens eine schlitzförmige Öffnung (15), die entlang dem zweiten Randabschnitt (120) angeordnet ist, und (iv) wenigstens eine schlitzförmige Öffnung (15), die entlang einem der gegenüberliegenden seitlichen Ränder oder beiden angeordnet ist.

7. Elastisches Etikett (10) nach Anspruch 1, wobei der erste Etikettenteil (11) eine zweite geschlossene Schlaufe (16) aus elastischem Material umfasst.

8. Elastisches Etikett (10) nach Anspruch 7, wobei das elastische Etikett (10) einen dritten Etikettenteil (18) umfasst, der einstückig mit dem ersten Etikettenteil (11) verbunden ist und sich über einen dritten Randabschnitt (118) des äußeren Rands (112) des ersten Etikettenteils (11) hinaus erstreckt, wobei der dritte Etikettenteil (18) die zweite geschlossene Schlaufe (16) umfasst, wobei die zweite geschlossene Schleife (16) einen inneren Umfang der zweiten geschlossenen Schlaufe (161) aufweist, wobei wenigstens ein Teil des inneren Umfangs der zweiten geschlossenen Schlaufe (16) in einem Abstand vom ersten Etikettenteil (11) angeordnet ist und ein elastomeres Material umfasst.

9. Elastisches Etikett (10) nach Anspruch 8, wobei der erste Etikettenteil (11) eine im Wesentlichen rechteckige Form mit einer Länge des ersten Etikettenteils aufweist, die größer ist als die Breite des ersten Etikettenteils, und erste und zweite geschlossene Schlaufe (13, 16) entlang gegenüberliegender Ränder des ersten Etikettenteils (11) durch einen wesentlichen Teil der Länge des ersten Etikettenteils voneinander getrennt angeordnet sind.

10. Elastisches Etikett (10) nach Anspruch 9, wobei der äußere Umfang (111) des ersten Etikettenteils (11) folgendes umfasst: (i) gegenüberliegende seitliche Ränder, die zwischen der ersten und der zweiten geschlossenen Schlaufe (13, 16) verlaufen, und (ii) wenigstens eine schlitzförmige Öffnung (15), die jeweils entlang der gegenüberliegenden seitlichen Ränder angeordnet ist.

11. Elastisches Etikett (10) nach Anspruch 7, des Weiteren umfassend ein Verbindungselement (61), das wirksam angepasst ist, um die erste geschlossene Schlaufe (13) mit der zweiten geschlossenen Schlaufe (16) zu verbinden.

12. Elastisches Etikett (10) nach Anspruch 11, wobei das Verbindungselement (61) an der ersten geschlossenen Schlaufe (13) angebracht und wirksam angepasst ist, um eine Verbindung mit der zweiten geschlossenen Schlaufe (16) zu ergeben.

13. Elastisches Etikett (10) nach Anspruch 1, wobei der erste Etikettenteil (11) eine Folie aus nicht elastischem Material umfasst.

14. Elastisches Etikett (10) nach Anspruch 13, wobei

das nicht elastische Material Papier, ein Polymerfilmmaterial, ein Polymerschaummaterial, ein elektrisch leitendes Material, ein Keramikmaterial, ein Glasmaterial und beliebige Kombinationen derselben umfasst.

15. Elastisches Etikett (10) nach Anspruch 1, wobei der erste Etikettenteil (11) ein Folienmaterial mit gegenüberliegenden äußeren Hauptflächen umfasst, wobei wenigstens eine der gegenüberliegenden äußeren Hauptflächen in der Lage ist, Markierungen aufzunehmen und anzuzeigen.

Revendications

1. Étiquette élastique (10) comprenant : une première partie d'étiquette (11) ayant une périphérie extérieure (111) s'étendant le long d'un bord extérieur (112) de la première partie d'étiquette (11) ; et une seconde partie d'étiquette (12) intégralement fixée à ladite première partie d'étiquette (11) et s'étendant au-delà d'une première partie de bord (113) du bord extérieur (112) de la première partie d'étiquette (11), ladite seconde partie d'étiquette (12) comprenant une première boucle fermée (13) ayant une périphérie intérieure de boucle (131), au moins une partie de ladite périphérie intérieure de boucle (131) étant positionnée à une distance de ladite première partie d'étiquette (11) et comprenant un matériau élastomère, **caractérisée en ce que** ladite première partie d'étiquette (11) comprend en outre (a) au moins une ouverture fendue (15) positionnée le long de et en communication avec ladite périphérie extérieure (111), ou (b) au moins une ouverture fendue (15) positionnée le long de et en communication avec ladite périphérie extérieure (111) et une seconde boucle fermée (16) de matériau élastique.

2. Étiquette élastique (10) selon la revendication 1, dans laquelle ladite première partie d'étiquette (11) comprend au moins deux ouvertures fendues (15) positionnées le long de et en communication avec ladite périphérie extérieure (111).

3. Étiquette élastique (10) selon la revendication 2, dans laquelle lesdites au moins deux ouvertures (15) comprennent une ou plusieurs paires d'ouvertures fendues (155, 156), dans laquelle chaque ouverture fendue (15) dans une paire donnée d'ouvertures fendues (155, 156) est positionnée à une distance sensiblement égale de ladite première boucle fermée (13).

4. Étiquette élastique (10) selon la revendication 3, dans laquelle lesdites au moins deux ouvertures fendues (15) comprennent deux paires d'ouvertures fendues (155, 156), dans laquelle (i) chaque ouverture fendue (15), dans une première paire d'ouvertures fendues (155), est positionnée à une première distance (d_1) de ladite première boucle fermée (13), (ii) chaque ouverture fendue (15), dans une seconde paire d'ouvertures fendues (156), est positionnée à une seconde distance (d_2) de ladite première boucle fermée (13) et (iii) ladite première distance (d_1) est supérieure à ladite seconde distance (d_2).

5. Étiquette élastique (10) selon la revendication 2, dans laquelle ladite périphérie extérieure (111) de ladite première partie d'étiquette (11) comprend (i) une seconde partie de bord (120) opposée à ladite première partie de bord (111), (ii) des bords latéraux opposés reliant ladite seconde partie de bord (120) à ladite première partie de bord (113) et (iii) au moins une ouverture fendue (15) positionnée le long de chacun desdits bords latéraux opposés.

6. Étiquette élastique (10) selon la revendication 2, dans laquelle ladite périphérie extérieure (111) de ladite première partie d'étiquette (11) comprend (i) une seconde partie de bord (120) opposée à ladite première partie de bord (111), (ii) des bords latéraux opposés reliant ladite seconde partie de bord (120) à ladite première partie de bord (113), (iii) au moins une ouverture fendue (15) positionnée le long de ladite seconde partie de bord (120) et (iv) au moins une ouverture fendue (15) positionnée le long d'un ou des deux bords latéraux opposés.

7. Étiquette élastique (10) selon la revendication 1, dans laquelle ladite première partie d'étiquette (11) comprend une seconde boucle fermée (16) en matériau élastique.

8. Étiquette élastique (10) selon la revendication 7, dans laquelle ladite étiquette élastique (10) comprend une troisième partie d'étiquette (18) intégralement fixée à ladite première partie d'étiquette (11) et s'étendant au-delà d'une troisième partie de bord (118) du bord extérieur (112) de la première partie d'étiquette (11), ladite troisième partie d'étiquette (18) comprenant la seconde boucle fermée (16), ladite seconde boucle fermée (16) ayant une seconde périphérie intérieure de boucle fermée (161), au moins une partie de ladite périphérie intérieure de seconde boucle fermée (16) étant positionnée à une distance de ladite première partie d'étiquette (11) et comprenant un matériau élastomère.

9. Étiquette élastomère (10) selon la revendication 8, dans laquelle ladite première partie d'étiquette (11) a une forme sensiblement rectangulaire, ayant une première longueur de partie d'étiquette qui est supérieure à une première largeur de partie d'étiquette, et lesdites première et seconde boucles fermées (13, 16) sont positionnées le long de bords opposés de

la première partie d'étiquette (11), séparés les uns des autres par une partie sensible de la première longueur de partie d'étiquette.

10. Étiquette élastique (10) selon la revendication 9, dans laquelle ladite périphérie extérieure (111) de ladite première partie d'étiquette (11) comprend (i) des bords latéraux opposés s'étendant entre lesdites première et seconde boucles fermées (13, 16) et (ii) au moins une ouverture fendue (15) positionnée le long de chacun desdits bords latéraux opposés.

11. Étiquette élastique (10) selon la revendication 7, comprenant en outre un élément de raccordement (61) opérationnellement adapté pour raccorder ladite première boucle fermée (13) à ladite seconde boucle fermée (16).

12. Étiquette élastique (10) selon la revendication 11, dans laquelle ledit élément de raccordement (61) est fixé à ladite première boucle fermée (13) et est opérationnellement adapté pour se raccorder à ladite seconde boucle fermée (16).

13. Étiquette élastique (10) selon la revendication 1, dans laquelle ladite première partie d'étiquette (11) comprend une feuille de matériau non élastique.

14. Étiquette élastique (10) selon la revendication 13, dans laquelle ledit matériau non élastique comprend le papier, un matériau en film polymère, un matériau en mousse polymère, un matériau électriquement conducteur, un matériau céramique, un matériau en verre et toute combinaison correspondante.

15. Étiquette élastique (10) selon la revendication 1, dans laquelle ladite première partie d'étiquette (11) comprend une feuille de matériau ayant des surfaces majeures extérieures opposées, au moins une desdites surfaces majeures extérieures opposées étant en mesure d'accepter et de présenter des repères sur elle.

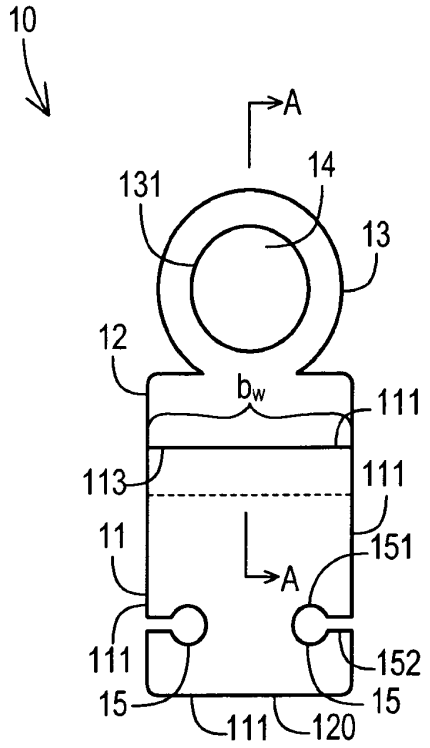

FIG. 1A

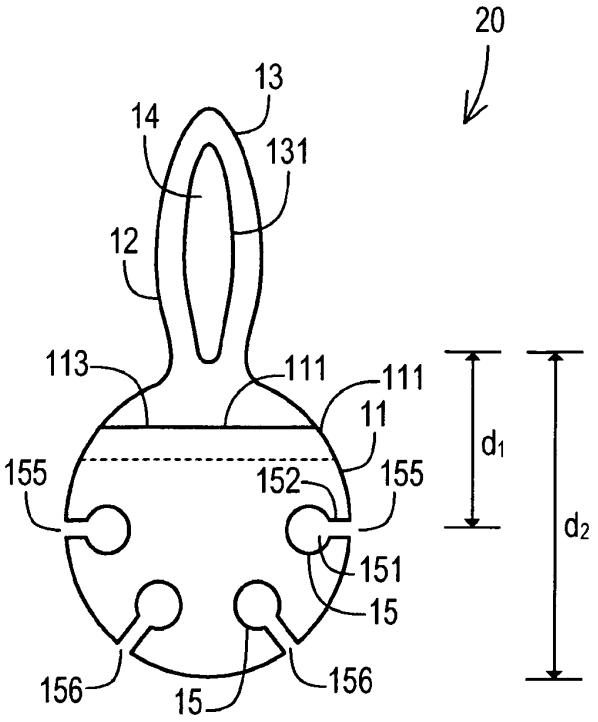

FIG. 1B

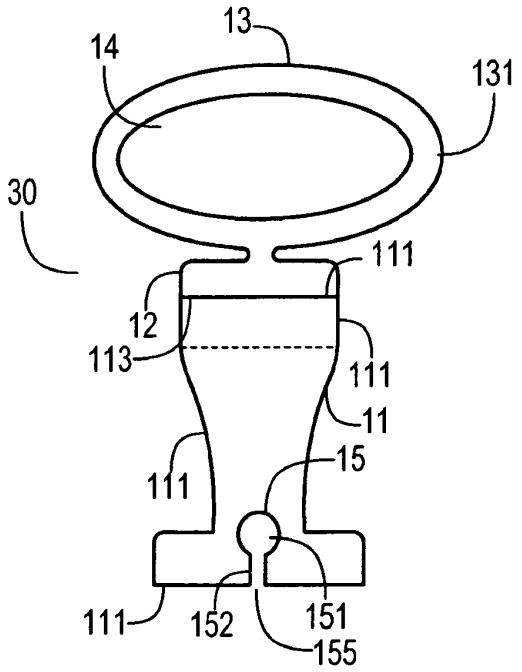

FIG. 1C

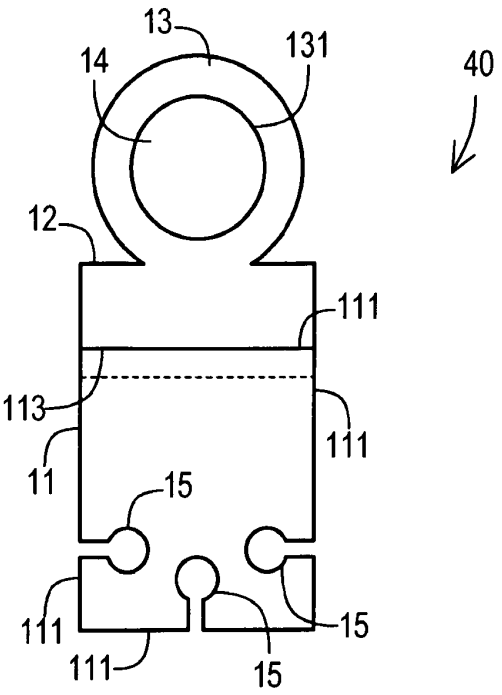

FIG. 1D

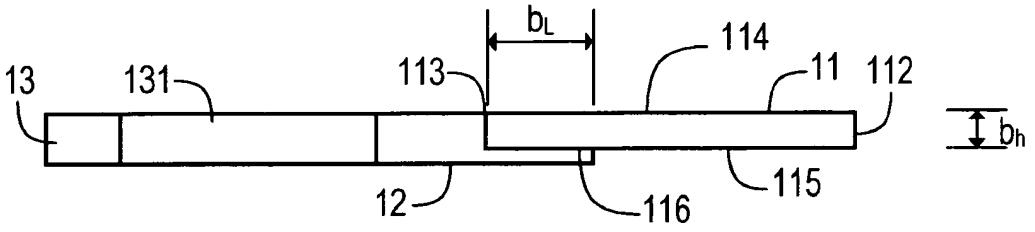

FIG. 2A

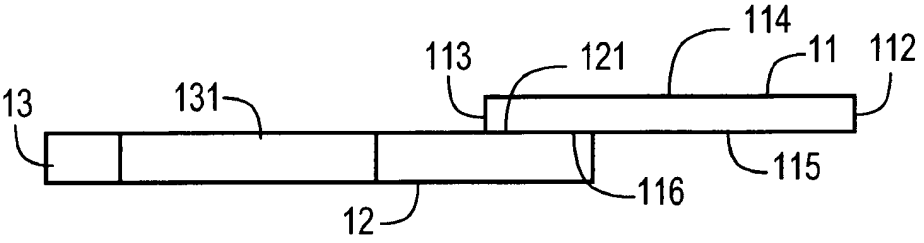

FIG. 2B

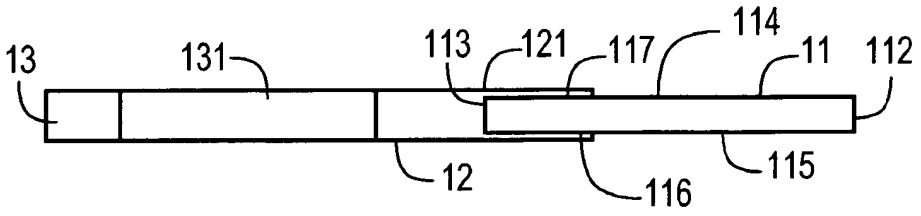

FIG. 2C

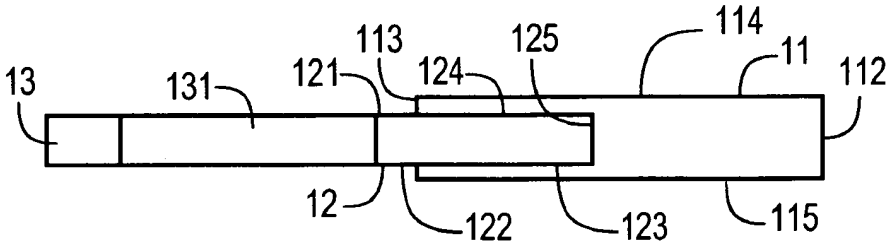

FIG. 2D

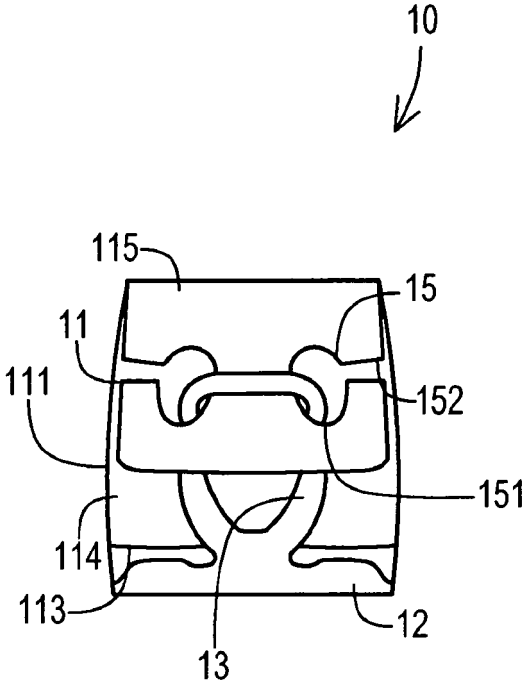

FIG. 3A

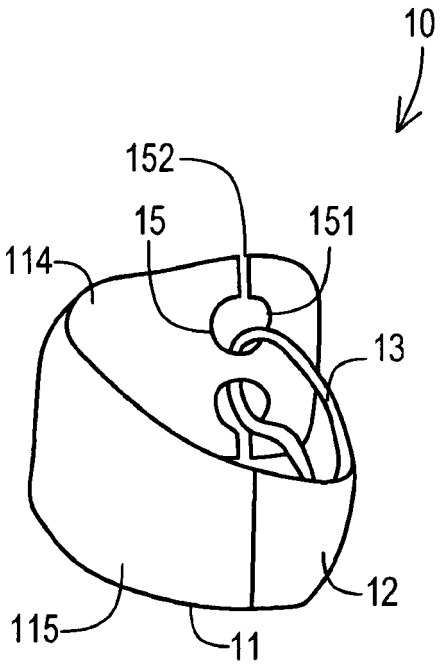

FIG. 3B

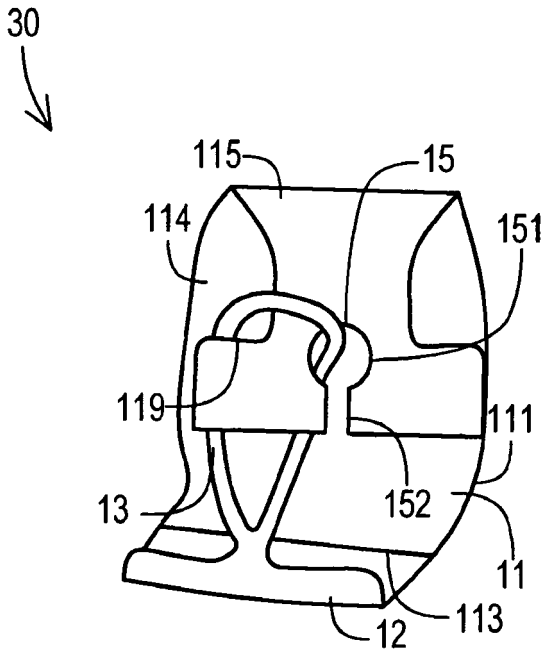

FIG. 3C

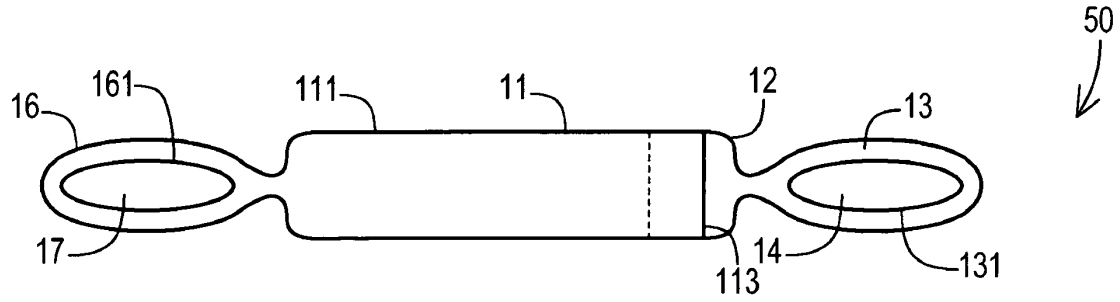

FIG. 4A

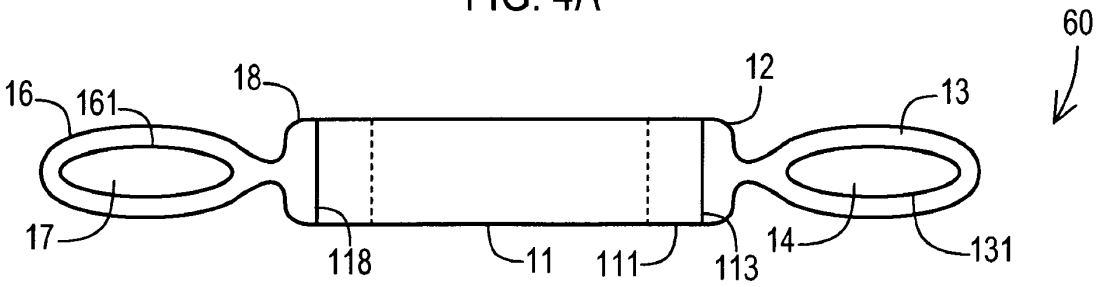

FIG. 4B

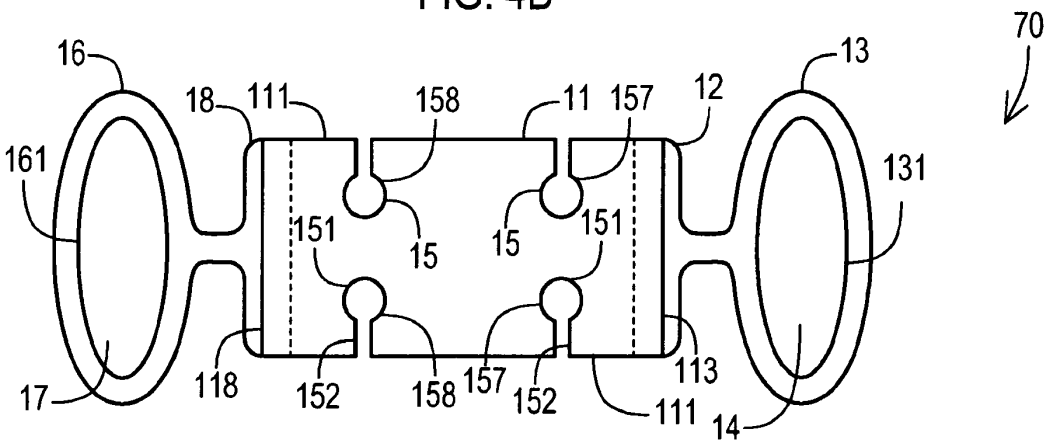

FIG. 4C

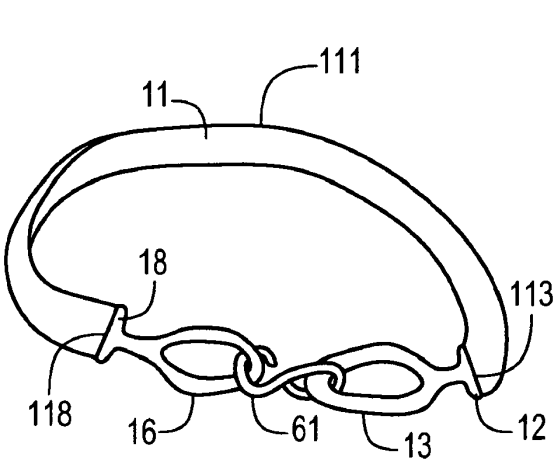

FIG. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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