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(54) **TAPE DISPENSING DEVICES FOR A STETHOSCOPE**

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(52) **U.S. Cl.** **242/596; 242/597**

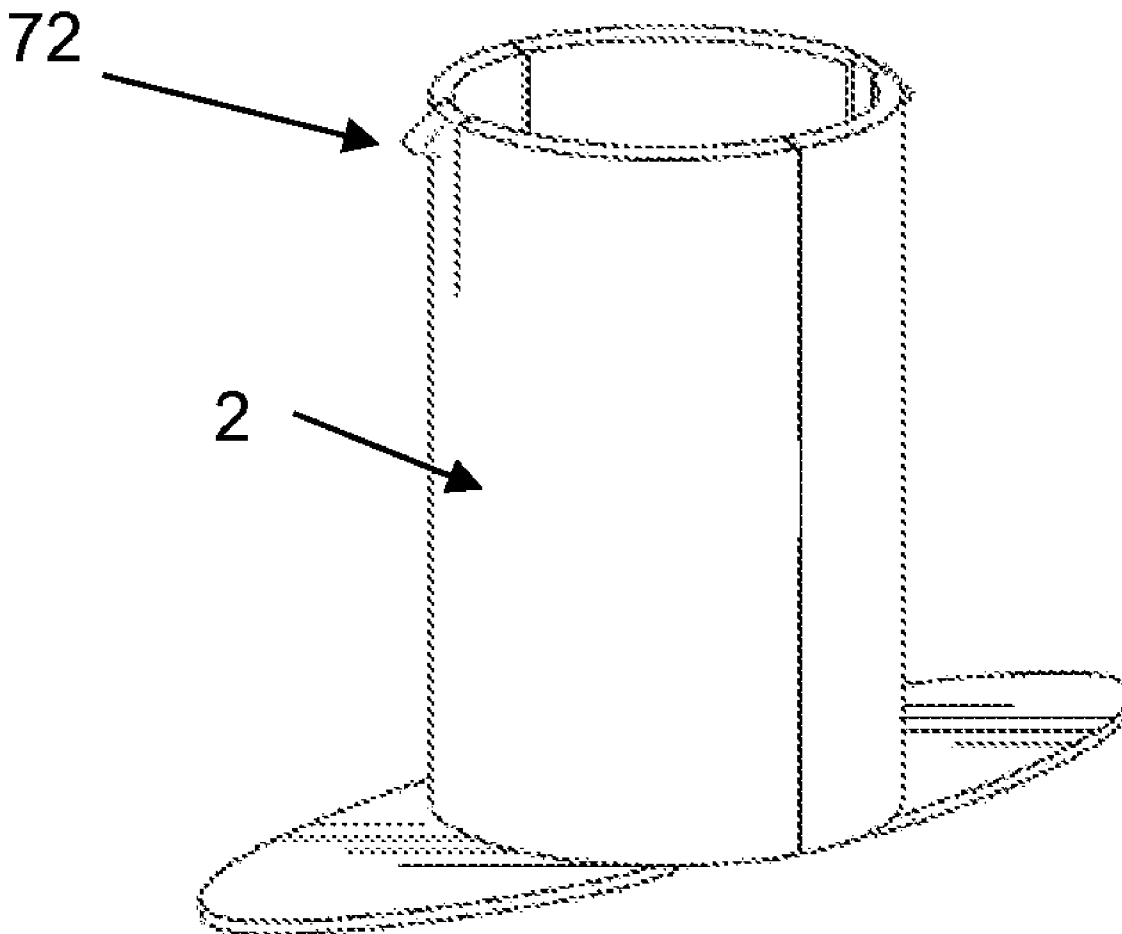
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(57) **ABSTRACT**

Related U.S. Application Data

(60) Provisional application No. 61/462,371, filed on Feb. 2, 2011.

Devices for dispensing medical tape are disclosed, particularly devices that may be reversibly attached to a medical stethoscope. The devices generally include (a) an element that is configured to receive and be disposed through a center hole of a roll of tape and (b) a means for attaching the device to a stethoscope.



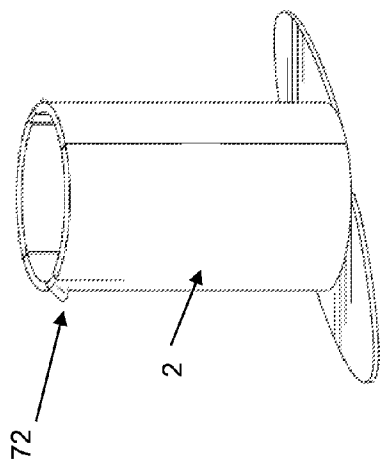


FIG. 1

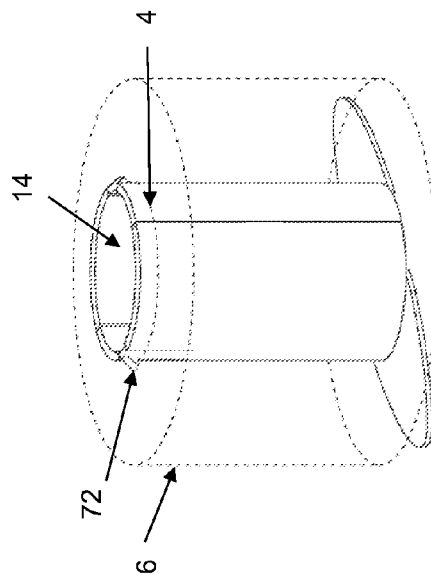


FIG. 2

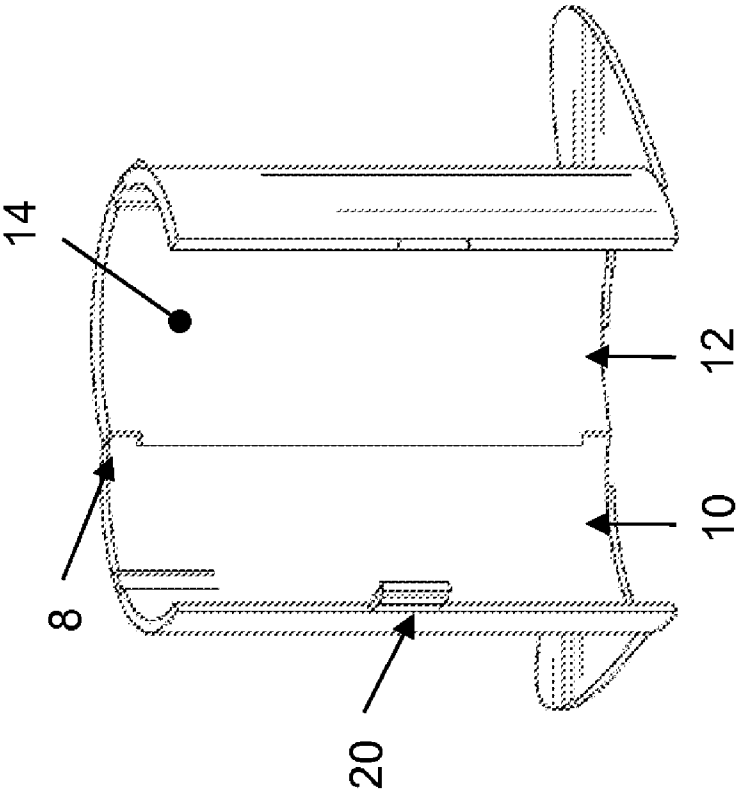


FIG. 3

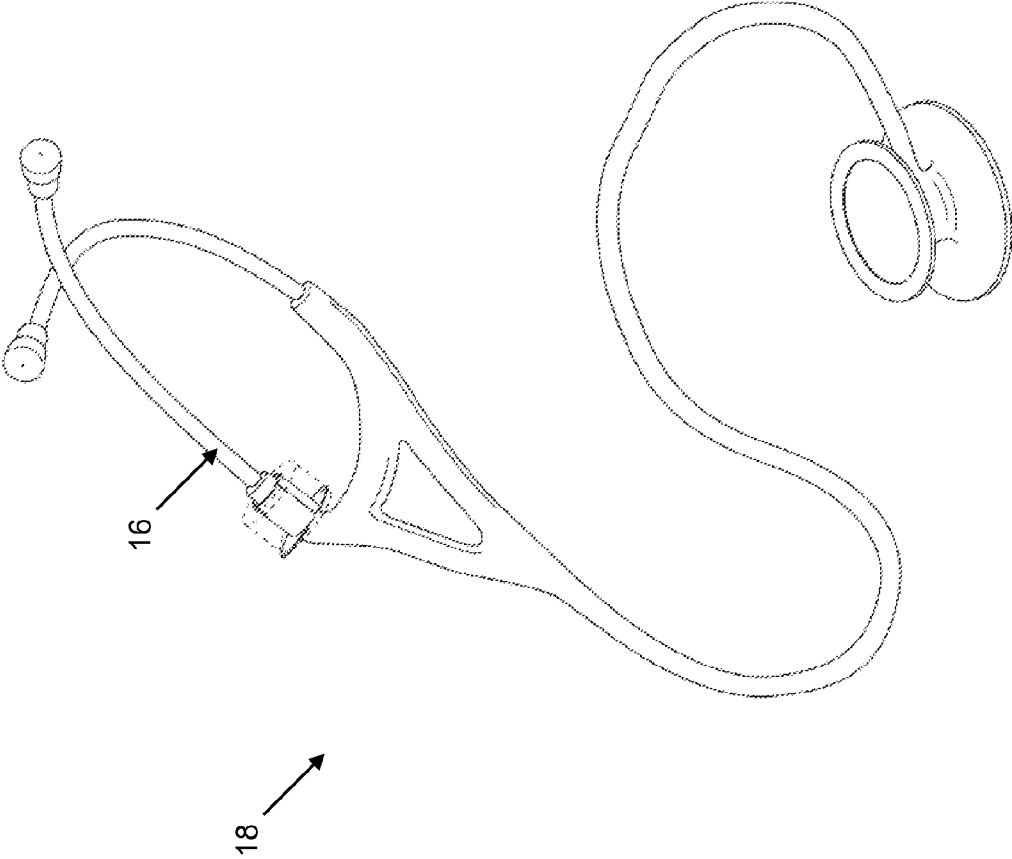


FIG. 4

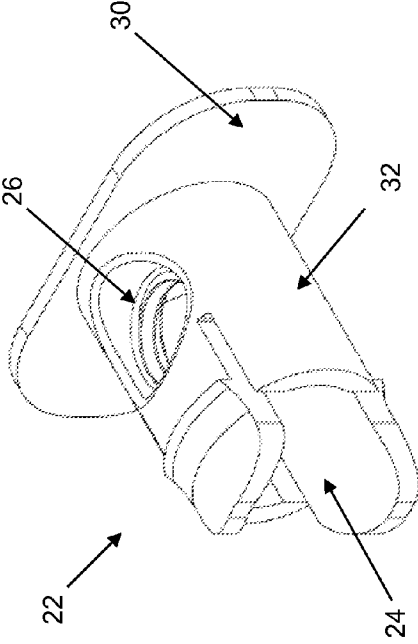


FIG. 7

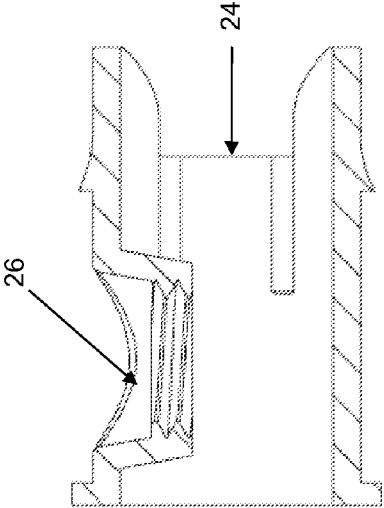


FIG. 8

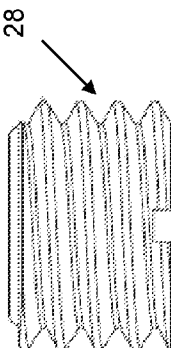


FIG. 5

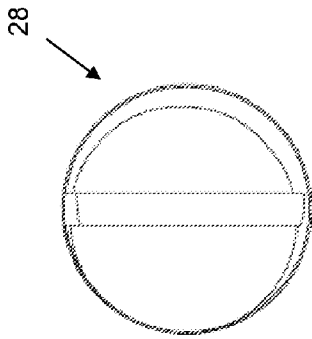


FIG. 6

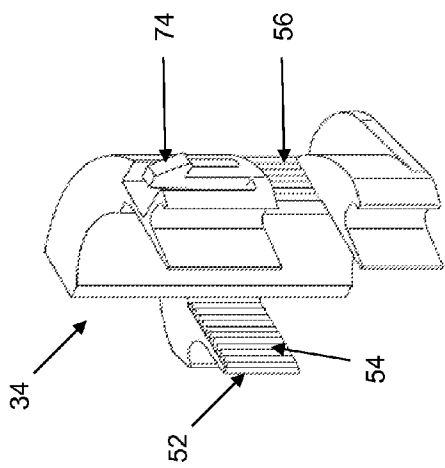


FIG. 11

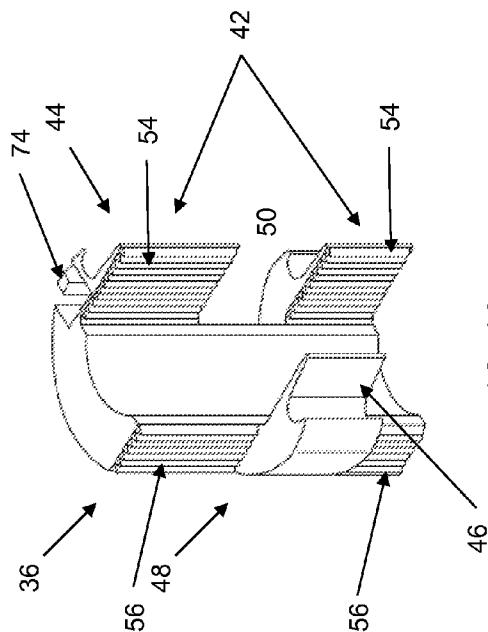


FIG. 12

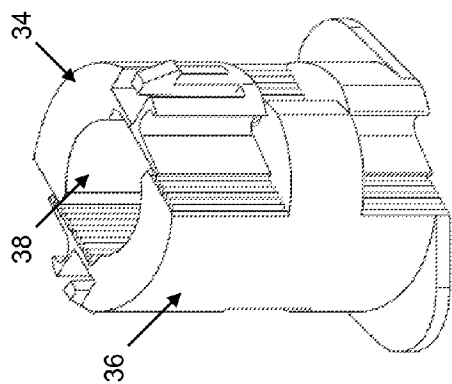


FIG. 9

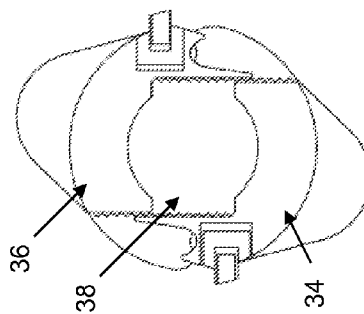


FIG. 10

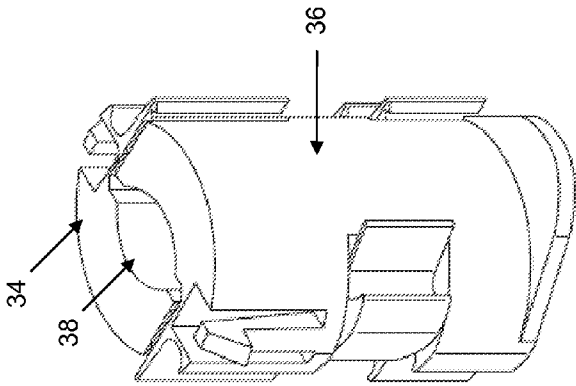


FIG. 13

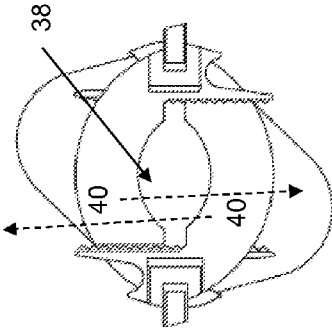


FIG. 14

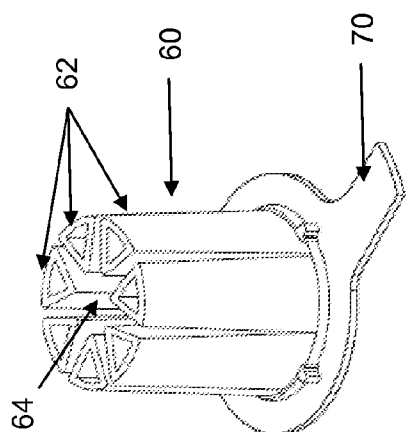


FIG. 16

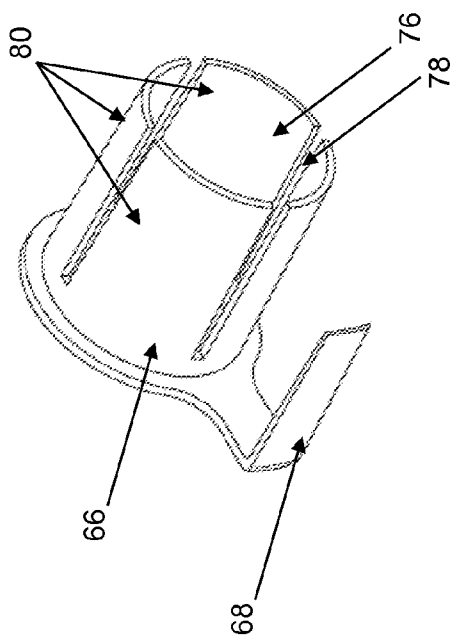


FIG. 15

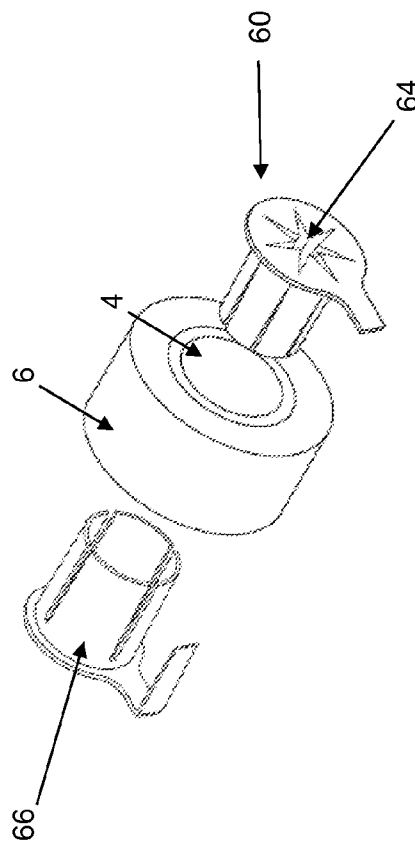


FIG. 17

TAPE DISPENSING DEVICES FOR A STETHOSCOPE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to, and incorporates by reference, U.S. provisional patent application Ser. No. 61/462,371, filed Feb. 2, 2011.

FIELD OF THE INVENTION

[0002] The field of the present invention relates to tape dispensing devices, particularly devices that may be attached to a medical stethoscope—as well as methods of using such devices to dispense tape.

BACKGROUND OF THE INVENTION

[0003] There are many tools and devices that healthcare practitioners routinely use and rely upon in order to rapidly treat patients. It is particularly important for such tools and devices to be readily accessible (and easily used) in an emergency room setting (or other situations which require the rapid application of a medical procedure). The use of medical tape is an example of a ubiquitous tool that healthcare practitioners routinely use, including during high-pressure and fast-paced emergency medical procedures, e.g., to secure intravenous lines, apply splints, etc. Such healthcare practitioners, including doctors, nurses, EMTs and paramedics, consistently carry their stethoscopes around their necks when not in use—and either do not have medical tape readily available, carry the tape in their pockets (which creates an uncomfortable bulge in such pockets), or have tape dangling freely on a part of their stethoscope. None of these methods are ideal.

[0004] In view of the foregoing, a continuing need exists for new and improved devices for dispensing medical tape—and particularly devices that may be quickly and easily used by healthcare practitioners.

SUMMARY OF THE INVENTION

[0005] According to certain aspects of the present invention, devices for dispensing medical tape are provided, which are particularly configured to be reversibly attached to a medical stethoscope. Such devices allow healthcare practitioners to quickly and easily access medical tape when needed, such as during emergency medical procedures (when practitioners do not have time to search for a roll of tape). The devices of the present invention, in the most general form, include an element that is configured to receive and be disposed through a center hole of a roll of tape, and a means for attaching the device to a stethoscope.

[0006] According to certain related aspects of the present invention, various means for attaching the device to a stethoscope are provided. For example, the invention provides that such means may include a clip or other mechanism for attaching the device to the tubing of a stethoscope. Still further, for example, the attaching means may comprise a cylindrical element that may be opened and closed, such that it may be opened to receive the tubing of a stethoscope, and then closed to secure the device thereto. In yet further embodiments, the attaching means may include two-part designs, which may be separated and connected back together to receive and be affixed around the tubing of a stethoscope. Additional embodiments include, but are not limited to, means that

employ the use of silicon inserts, which may be used to frictionally hold the medical tape dispensing device of the present invention to a particular location on the tubing of a stethoscope.

[0007] According to still further aspects of the invention, methods for dispensing medical tape are provided, which generally comprise using the devices described herein to dispense such tape.

[0008] The above-mentioned and additional features of the present invention are further illustrated in the Detailed Description contained herein.

BRIEF DESCRIPTION OF THE FIGURES

[0009] FIG. 1 is a drawing of a non-limiting example of a medical tape dispensing device of the present invention, which is positioned in a closed position.

[0010] FIG. 2 is an illustration of the device of FIG. 1, with a roll of medical tape affixed thereto and locked into position.

[0011] FIG. 3 is an illustration of the device of FIG. 1, which shows the device in an open position (prior to being attached to a stethoscope).

[0012] FIG. 4 is an illustration of the device of FIG. 1, which shows the device attached to a stethoscope with a roll of medical tape affixed thereto and locked into position.

[0013] FIG. 5 is an illustration of a side view of the screw described herein, which forms a part of a non-limiting example of an attachment means.

[0014] FIG. 6 is an illustration of a top view of the screw that is illustrated in FIG. 5.

[0015] FIG. 7 is an illustration of the first part of a non-limiting example of an attachment means described herein, which comprises a threaded aperture and is configured to receive the screw that is illustrated in FIG. 5.

[0016] FIG. 8 is an illustration of a side, cross-sectional view of the first part of the non-limiting example of an attachment means, which is illustrated in FIG. 7.

[0017] FIG. 9 is an illustration of another non-limiting example of an attachment means, which includes two parts that may be reversibly and mechanically connected to each other and a cavity through which a tubing of the stethoscope may be disposed.

[0018] FIG. 10 is an illustration of a top view of the attachment means of FIG. 9.

[0019] FIG. 11 is a first part of the attachment means of FIG. 9, which illustrates the connecting arms thereof.

[0020] FIG. 12 is a second part of the attachment means of FIG. 9, which illustrates the connecting arms thereof.

[0021] FIG. 13 is an illustration of the attachment means of FIG. 9, in which the volume of the interior cavity has been reduced.

[0022] FIG. 14 is an illustration of a top view of the attachment means of FIG. 13.

[0023] FIG. 15 is an illustration of the cylindrical end cap portion of another non-limiting example of an attachment means described herein.

[0024] FIG. 16 is an illustration of the silicon insert of another non-limiting example of an attachment means described herein.

[0025] FIG. 17 is an illustration of the cylindrical end cap and silicon insert of FIGS. 15 and 16, positioned outside of the center hole of a roll of tape.

DETAILED DESCRIPTION OF THE INVENTION

[0026] The following will describe, in detail, several preferred embodiments of the present invention. These embodiments are provided by way of explanation only, and thus, should not unduly restrict the scope of the invention. In fact, those of ordinary skill in the art will appreciate upon reading the present specification and viewing the present drawings that the invention teaches many variations and modifications, and that numerous variations of the invention may be employed, used and made without departing from the scope and spirit of the invention.

[0027] According to certain preferred embodiments, the present invention encompasses certain devices (and methods) for dispensing medical tape. Such devices generally comprise an element that is configured to receive and be disposed through a center hole of a roll of tape, and a means for attaching the device to a stethoscope. Preferably, the means for attaching the device to a stethoscope is configured such that the device may be reversibly attached to, and removed from, a stethoscope (e.g., the tubing portion of a stethoscope) as desired. In addition, the invention provides that the means for attaching the device to a stethoscope is preferably configured to accommodate the tubing portion of a variety of stethoscopes—despite the fact that such tubing portions may vary in diameter among stethoscopes. The invention provides that the various attachment means discussed herein are capable of being attached to such tubing portions, which may exhibit any of a range of different diameters.

[0028] Referring now to FIGS. 1-4, the invention provides that one non-limiting example of an attachment means comprises a cylindrical body 2. The cylindrical body 2 exhibits a diameter that is configured to receive and be disposed through a center hole 4 of a roll of tape 6. Preferably, the diameter of the cylindrical body 2 will be just slightly less than the diameter of the center hole 4 of the roll of tape 6, such that a relatively tight fitting is achieved when the cylindrical body 2 is disposed therein. According to such example, the attachment means comprises a hinged area 8 (FIG. 3). The hinged area 8 may comprise one hinge, or multiple hinges, which allows two sides 10,12 of the cylindrical body 2 to open and close.

[0029] Still referring to FIG. 3, the attachment means includes a mechanical engagement area 20 that may be disengaged to open the cylindrical body 2, such that the two sides 10,12 of the opened cylindrical body 2 are allowed to rotate about the hinged area 8. The invention provides that an interior area 14 of the opened cylindrical body 2 is configured to receive a tubing 16 of the stethoscope 18 (FIG. 4). According to these embodiments, the attachment means may further comprise a spring lock mechanism 72 (FIGS. 1 and 2), which is configured to move into a recess when a roll of medical tape 6 moves over the spring lock mechanism 72 and onto the device, and then reverts (springs) back to a position that protrudes from the exterior surface of the cylindrical body 2, which serves to lock the roll of tape 6 into position and onto the device.

[0030] As mentioned above, the invention provides that the attachment means further includes a mechanical engagement element 20, which may be engaged and disengaged to open and close the cylindrical body 2. FIG. 3 portrays the mechani-

cal engagement element 20 as a tab, which may be received and snapped into a correspondingly configured slot (to engage and close the cylindrical body 2). According to such embodiments, the cylindrical body 2 may be opened, applied around the tubing 16 of a stethoscope 18, and then closed. As such, the tubing 16 of the stethoscope 18 will be enclosed within the interior area 14 of the attachment means, to secure the device to such tubing 16.

[0031] Referring now to FIGS. 5-8, according to additional embodiments of the present invention, the attachment means may comprise a first and second part that may be reversibly connected to each other. The first and second parts comprise a tunnel through which the tubing 16 of the stethoscope 18 may be disposed. A first part 22 (of the two parts) is illustrated in FIGS. 7 and 8. As shown, the first part 22 includes a tunnel 24 through which the tubing 16 of the stethoscope 18 may be disposed. In addition, the first part 22 of the attachment means comprises a threaded aperture 26 which is configured to receive a screw 28. The invention provides that the screw 28 may be inserted into the aperture 26 and rotated until it makes contact with the tubing 16 of the stethoscope to reversibly secure the device to the tubing 16 of the stethoscope 18.

[0032] According to such embodiments, the first part 22 of the attachment means further comprises an integrally formed retaining wall 30, which is configured to retain a roll of medical tape on the device. The second part (not shown) of the attachment means also includes a retaining wall that is configured the same as, or substantially the same as, the retaining wall 30 of the first part 22. Such retaining walls will also have an aperture that is contiguous with the tunnel 24 through which the tubing 16 of the stethoscope 18 may be disposed, such that the tubing 16 is allowed to travel through the aperture of the retaining wall 30, through the tunnel 24 of the first part 22, through a tunnel of the second part (not shown), and through the aperture of the retaining wall (not shown) of the second part (when all of such components are connected together). As described above, such configuration allows the screw 28 to be inserted into the aperture 26 and rotated until it makes contact with the tubing 16 of the stethoscope—to reversibly secure the device to the tubing 16 of the stethoscope 18. According to such embodiments, the second part may consist of only a retaining wall that is configured the same as, or substantially the same as, the retaining wall 30 of the first part, with an aperture located in the center portion thereof, which is also configured to mechanically engage the first part 22 (e.g., a configuration whereby such second part snaps onto the first part 22). Alternatively, in other embodiments, the second part may be configured exactly the same as the first part 22, with the exception that it will comprise a portion that is configured to receive and be connected to a corresponding element on the first part 22 (e.g., whereby the first part 22 comprises a male connecting element which may be inserted into a corresponding female connecting element on the second part, to mechanically connect the first 22 and second parts).

[0033] According to such embodiments, the invention provides that the first part 22 and second part of the attachment means may be reversibly connected to each other via a mechanical snap mechanism. For example, still referring to FIGS. 5-8, the center hole of a roll of tape may receive and be disposed over a cylindrical portion 32 of the first part 22, such that a side of the tape roll is adjacent to the retaining wall 30. The second part, which includes its own retaining wall, may then be reversibly and mechanically connected to first part 22.

[0034] According to yet further embodiments of the present invention, and referring now to FIGS. 9-14, the attachment means may alternatively comprise two parts 34,36 that may be reversibly and mechanically connected to each other, which further includes a cavity 38 through which a tubing 16 of the stethoscope 18 may be disposed. According to such embodiments, the invention provides that a volume of the cavity may be reversibly reduced to tighten the attachment means around the tubing 16, by moving 40 the two parts 34,36 closer to each other (FIGS. 13 and 14).

[0035] Referring to FIGS. 11 and 12, each of the two parts 34,36 comprises two connecting arms 42 on a first side 44 of the part, and a single connecting arm 46 on a second side 48 of the part. The invention provides that the connecting arms of each part are configured to mate with the connecting arms of the other part. More particularly, as illustrated in FIGS. 9-12, the two connecting arms 42 on a first side 44 of part 36 are generally located near the top and lower portion of the first side 44 of the part, leaving a space 50 between the two connecting arms 42 on a first side 44 of the part 36. As such, a single connecting arm 52 on a second side 48 of the other part 34 will fit into such space 50, when the two parts 34,36 are connected to each other.

[0036] The invention further provides that a surface of the connecting arms that faces the cavity 38 comprises a series of engaging ridges 54, wherein the series of engaging ridges 54 on the connecting arms of a first part are configured to serve as a ratchet and correspond to a set of engaging ridges 56 located on an exterior surface of the second part. The invention provides that the volume of the cavity 38 may be reversibly reduced to tighten the attachment means around the tubing 16, by moving 40 the two parts 34,36 closer to each other, thereby causing the series of engaging ridges 56 on the connecting arms of the first part to move over the set of engaging ridges 58 located on the exterior surface of the second part, until a desired position is reached. The engaging ridges 56 on the connecting arms of the first part will mate with the engaging ridges 58 located on the exterior surface of the second part, to lock the two parts 34,36 into position. The invention provides that the attachment means may be removed from the tubing 16 of a stethoscope 18, by pulling the two parts 34,36 apart. This may be achieved by pulling on a lever arm 74 that is integrally formed with each of the two parts 34,36.

[0037] According to yet further additional embodiments of the present invention, and referring now to FIGS. 15-17, the attachment means may comprise a silicon insert 60, which is configured to make contact with and frictionally secure a roll of medical tape to a portion of tubing 16 of the stethoscope 18. The invention provides that the silicon insert 60 will preferably comprise a series of elements 62 that protrude towards a central axis of a tunnel 64 that is located at, or near, a center of the silicon insert 60. The elements 62 that protrude towards the central axis of the tunnel 64 may, in certain preferred embodiments, exhibit a triangular configuration. According to such embodiments, the invention provides that the silicon insert 60 is cylindrical and is configured to be disposed into the center hole of the roll of medical tape 6. The silicon insert 60 may include a tap 70, which may be gripped to facilitate removal of the silicon insert 60 from a roll of medical tape 6.

[0038] The invention further provides that the attachment means may comprise a cylindrical end cap 66, which is configured to be disposed into the center hole of the roll of medical tape 6, from a side opposite of a side through which

the silicon insert 60 is disposed. According to such embodiments, the cylindrical end cap 66 will help to keep the roll of medical tape 6 connected with the silicon insert 60. In addition, the cylindrical end cap 66 may comprise an arm 68, which is configured to partially surround the roll of medical tape 6 when the cylindrical end cap 66 is disposed therein. The arm 68 may be used to assist in tearing a piece of medical tape from the roll of medical tape 6. That is, the arm 68 may optionally include a series of teeth, a sharp edge, or other elements, which allows a user of the device to easily dispense and cut a piece of tape from a roll. Still further, the invention provides that the other attachment means discussed above may also comprise a similar type of cutting element, which facilitates the cutting of a piece of tape from a roll of tape.

[0039] Preferably, the diameter of the cylindrical end cap 66 will be just slightly less than the diameter of the center hole 4 of the roll of tape 6, such that a relatively tight fitting is achieved when the cylindrical end cap 66 is disposed therein. The cylindrical end cap 66 may comprise one or more channels 78, which run parallel with the length of the cylindrical end cap 66. The channels 78 are preferably configured to allow the resulting segments 80 of the cylindrical end cap 66 to exhibit some level of malleability, which will facilitate the insertion and retention of the cylindrical end cap 66 in the central hole 4 of a roll of medical tape 6. The resulting segments 80 of the cylindrical end cap 66 may exert some outward force on the central hole 4, which will help to retain the cylindrical end cap 66 in the central hole 4 of a roll of medical tape 6.

[0040] The cylindrical end cap 66 comprises an open end 76, which configured to receive the silicon insert 60 (when both are inserted into the central hole 4 of a roll of medical tape 6). According to such embodiments, the invention provides that the diameter of the silicon insert 60 will, preferably, be slightly less than the diameter of cylindrical end cap 66, such that a relatively tight filling is achieved between the cylindrical end cap 66 and the silicon insert 60, when both are disposed in the central hole 4 of a roll of medical tape 6.

[0041] The invention provides that the devices of the present invention may be made of a variety of materials, including plastics, elastomers, metals, combinations thereof, and other suitable materials. In the case of plastics, for example, the invention provides that the various devices described herein may be constructed using injection-molding procedures. In addition to the devices, the present invention further encompasses methods of dispensing medical tape. More particularly, such methods generally comprise using any of the devices described herein to dispense medical tape.

[0042] Although certain example methods, apparatus, and/or articles of manufacture have been described herein, the scope of coverage of this disclosure is not limited thereto. On the contrary, this disclosure covers all methods, apparatus, and/or articles of manufacture fairly falling within the scope of the appended claims—either literally or under the doctrine of equivalents.

What is claimed is:

1. A device for dispensing medical tape, which comprises (a) an element that is configured to receive and be disposed through a center hole of a roll of tape and (b) a means for attaching the device to a stethoscope.
2. The device of claim 1, wherein the means for attaching the device to the stethoscope allows the device to be reversibly attached to, and removed from, a stethoscope.

3. The device of claim 2, wherein the attachment means comprises a cylindrical body that comprises a hinged area and a mechanical engagement area, wherein:

- (a) the mechanical engagement may be disengaged to open the cylindrical body, wherein two sides of the opened cylindrical body are allowed to rotate about the hinged area;
- (b) an interior area of the opened cylindrical body are configured to receive a tubing of the stethoscope; and
- (c) the mechanical engagement may be subsequently engaged, to enclose the tubing of the stethoscope within the interior area of the attachment means, and to secure the device to said tubing of the stethoscope.

4. The device of claim 2, wherein the attachment means comprises a first and second part that may be reversibly connected to each other, wherein the first and second part comprise a tunnel through which the tubing of the stethoscope may be disposed, wherein the first part of the attachment means comprises a threaded aperture which is configured to received a screw, wherein the screw may be inserted into the aperture and rotated until it makes contact with the tubing of the stethoscope to reversibly secure the device to the tubing of the stethoscope.

5. The device of claim 4, which further comprises two retaining walls, which are configured to retain a roll of medical tape on the device, wherein a first retaining wall is integrally formed with the first part of the attachment means and a second retaining wall is integrally formed with the second part of the attachment means.

6. The device of claim 5, wherein the first and second part of the attachment means may be reversibly connected to each other via a mechanical snap mechanism.

7. The device of claim 2, wherein the attachment means comprises (a) two parts that may be reversibly and mechanically connected to each other and (b) a cavity through which a tubing of the stethoscope may be disposed.

8. The device of claim 7, wherein a volume of the cavity may be reversibly reduced to tighten the attachment means around the tubing, by moving the two parts closer to each other.

9. The device of claim 8, wherein each of the two parts comprises two connecting arms on a first side of the part, and a single connecting arm on a second side of the part, wherein the connecting arms of each part are configured to mate with the connecting arms of the other part.

10. The device of claim 9, wherein a surface of the connecting arms that faces the cavity comprises a series of engaging ridges, wherein the series of engaging ridges on the connecting arms of a first part are configured to serve as a ratchet and correspond to a set of engaging ridges located on an exterior surface of the second part.

11. The device of claim 10, wherein the volume of the cavity may be reversibly reduced to tighten the attachment means around the tubing, by moving the two parts closer to each other, thereby causing the series of engaging ridges on the connecting arms of the first part to move over the set of engaging ridges located on the exterior surface of the second part.

12. The device of claim 2, wherein the attachment means comprises a silicon insert that is configured to be disposed within the center hole of the roll of tape, wherein the silicon insert is configured to make contact with and frictionally secure the device to a portion of a tubing of the stethoscope.

13. The device of claim 12, wherein the silicon insert comprises a series of elements that protrude towards a central axis of a tunnel that is located at, or near, a center of the silicon insert.

14. The device of claim 13, wherein the elements that protrude towards the central axis of the tunnel exhibit a triangular configuration.

15. The device of claim 14, wherein the silicon insert is cylindrical and is configured to be disposed into the center hole of the roll of medical tape.

16. The device of claim 15, which further comprises a cylindrical end cap, which is configured to be disposed into the center hole of the roll of medical tape, from a side opposite of a side through which the silicon insert is disposed.

17. The device of claim 16, wherein the cylindrical end cap further comprises an arm, which is configured to partially surround the roll of medical tape.

* * * * *