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(71) Applicant (for all designated States except US): **INVUE SECURITY PRODUCTS, INC.**; 15015 Lancaster Highway, Charlotte, NC 28277 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FAWCETT, Chris** [US/US]; 11534 Falling Leaves Drive, Charlotte, NC 28277 (US). **HOOKS, Larry, K., Jr.** [US/US]; 2209

Minstrels Way, Fort Mill, SC 29707 (US). **GOLDSTEIN, Mitchell, S.** [US/US]; 1799 Overbrook Drive, Rock Hill, SC 29732 (US).

(74) Agents: **DREMANN, Christopher, C.** et al.; Christopher C. Dremann, P.C., 15015 Lancaster Highway, Charlotte, NC 28277 (US).

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(54) Title: DISPLAY STAND INCLUDING MEANS FOR DISPENSING AND COLLECTING HELICAL CABLE

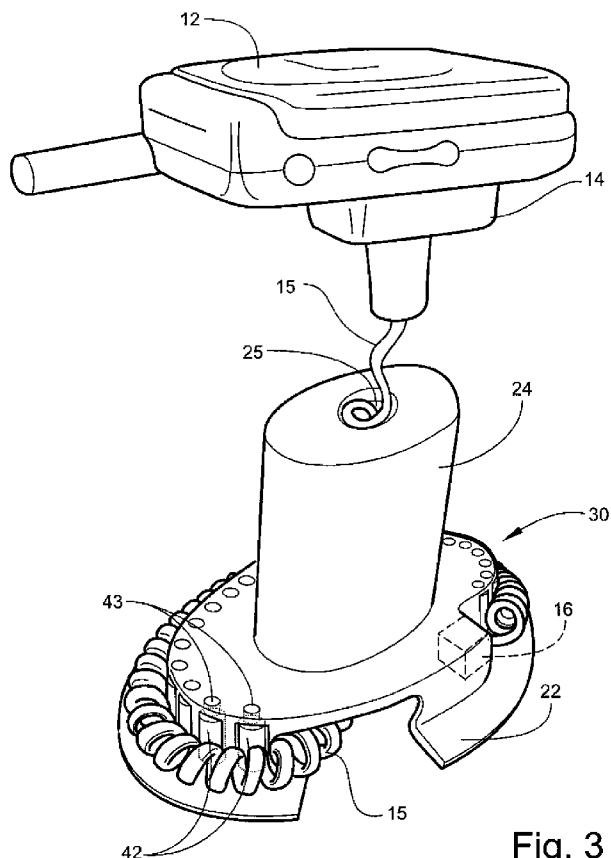


Fig. 3

(57) Abstract: A display stand (20) for displaying an article of merchandise (12) includes a base (22) defining an outer periphery for dispensing and collecting a helical cable (15) attached to the article of merchandise. The outer periphery of the base supports and guides the helical cable on the base between a retracted length and an extracted length. The display stand may include at least one wheel (32) disposed on the outer periphery of the base. The display stand may include at least one roller (42) disposed on the outer periphery of the base. The display stand may include a low-friction surface (52) disposed on the outer periphery of the base. The display stand include a scalloped surface (62) disposed on the outer periphery of the base. The display stand may further include a collection tube (24) having an internal passageway (25) for delivering the helical cable to the article.

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DISPLAY STAND INCLUDING MEANS FOR DISPENSING AND COLLECTING HELICAL CABLE

CROSS REFERENCE TO RELATED APPLICATION

[0001] This International (PCT) application claims the benefit of United States Application No. 12/246,900, filed October 7, 2008, and United States Provisional Application No. 61/019,453, filed January 7, 2008.

BACKGROUND OF THE INVENTION

[0002] This invention relates generally to security systems for displaying articles of merchandise, while deterring theft and preventing inadvertent removal of the merchandise from a display area by an unauthorized person. More particularly, the invention relates to a merchandise display stand including means for dispensing and collecting a helical cable attached to an article of merchandise.

[0003] It is common practice for retailers to display articles of merchandise, such as relatively small, relatively expensive consumer electronics products, in a display area of a retail store on a display stand of a merchandise security system. The display stand allows a potential purchaser to closely examine and operate an article of merchandise prior to purchasing the item. At the same time, the security system deters theft or removal of the article of merchandise from the display area by an unauthorized person. The use of a merchandise security system including a display stand also improves sales efficiency and reduces labor costs by permitting a potential purchaser to examine and operate a sample of the merchandise at his or her leisure regardless of the availability of a salesperson. The relatively small size and expense of the consumer electronics products, however, increases the

possibility that the merchandise will be stolen or maliciously removed from the display area by an unauthorized person.

[0004] A known disadvantage of conventional merchandise security systems is that the cable for mechanically securing the article of merchandise to a fixed support and the cable for powering the alarm are visible, distracting and oftentimes unsightly. Furthermore, the security cable and the electrical cable can become twisted or entangled and render it difficult, or even impossible, for the potential purchaser to examine and operate the article of merchandise. One known solution to this problem is to provide a device, commonly referred to as a "recoiler," for permitting one or more cables to be extracted (i.e. dispensed) under an applied stress or tension, while biasing the cables to return to the retracted (i.e. collected) condition. Such recoiler devices, however, oftentimes exert a biasing force so excessive that it is cumbersome for a potential purchaser to readily examine and operate the article of merchandise attached to the cable(s).

[0005] Another known solution addressing this same problem is to combine the security cable and electrical cable into a unitary helical cable, similar to a tightly-coiled telephone cord, having sufficient elasticity to be reversibly extensible in response to an applied stress or tension. In other words, the helical cable can be easily stretched to an extended length and tends to return to its unstressed length when released. The helical cable typically runs between a fixed connection to a power supply and a sensor affixed to the article of merchandise, and is therefore commonly referred to as a "sensor cable." The helical cable, however, may still become twisted or entangled, and thus, fail to return to a fully collected condition. As a result, the display area may appear disorganized or cluttered, and thereby possibly dissuade the potential purchaser from purchasing the merchandise.

[0006] Accordingly, there exists a need for an improved security system for displaying articles of merchandise, while deterring theft and preventing inadvertent removal of the merchandise from a display area by an

unauthorized person. More particularly, there exists a need for a security system having a display stand including means for dispensing and collecting a helical cable that is attached to an article of merchandise. There exists a specific, unresolved need for a display stand including means for dispensing and collecting a helical cable without the helical cable becoming twisted or entangled.

BRIEF SUMMARY OF THE INVENTION

[0007] The aforementioned needs, objectives and advantages, as well as others that will be readily apparent to those skilled in the art, are provided by an improved security system for displaying articles of merchandise, while deterring theft and preventing inadvertent removal of the merchandise from a display area by an unauthorized person. In one aspect, the present invention provides a display stand for displaying an article of merchandise including a base defining an outer periphery and means for dispensing and collecting a helical cable attached to the article of merchandise. The means for dispensing and collecting guides the helical cable along the outer periphery of the base between a retracted length and an extracted length. The display stand may further include a collection tube mounted on and depending from the base and having an interior passageway formed therethrough for delivering the helical cable to the article of merchandise.

[0008] In one embodiment, at least one wheel is disposed on the outer periphery of the base for dispensing and collecting the helical cable.

[0009] In another embodiment, at least one roller is disposed on the outer periphery of the base for dispensing and collecting the helical cable.

[0010] In yet another embodiment, a low-friction surface is disposed on the outer periphery of the base for dispensing and collecting the helical cable.

[0011] In still another embodiment, a scalloped surface is disposed on the outer periphery of the base for dispensing and collecting the helical cable.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The present invention is best understood by reference to the following detailed description when taken in conjunction with the accompanying drawing figures.

[0013] Fig. 1A is a top perspective view of a display stand of a merchandise security system including means for dispensing and collecting a helical cable according to the present invention shown with the helical cable retracted.

[0014] Fig. 1B is a top perspective view of the display stand of Fig. 1A shown with the helical cable partially extended.

[0015] Fig. 2A is a bottom perspective view of one embodiment of a means for dispensing and collecting a helical cable according to the present invention shown with the helical cable retracted.

[0016] Fig. 2B is a bottom perspective view of the means for dispensing and collecting the helical cable of Fig. 2A shown with the helical cable partially extracted.

[0017] Fig. 3 is a top perspective view of another embodiment of a means for dispensing and collecting a helical cable according to the present invention shown with the cover of the display stand removed for purposes of clarity and with the helical cable retracted.

[0018] Fig. 4A is a top perspective view of yet another embodiment of a means for dispensing and collecting a helical cable according to the present invention shown with the cover of the display stand exploded for purposes of clarity and with the helical cable retracted.

[0019] Fig. 4B is a detailed section view of the display stand of Fig. 4A taken along the line 4B-4B.

[0020] Fig. 5A is a top perspective view of still another embodiment of a means for dispensing and collecting a helical cable according to the present invention shown with the cover of the display stand exploded for purposes of clarity and with the helical cable retracted.

[0021] Fig. 5B is a detailed section view of the display stand of Fig. 5A taken along the line 5B-5B.

DETAILED DESCRIPTION OF THE INVENTION

[0022] Referring now to the accompanying drawing figures wherein identical reference numerals denote the same elements throughout the various views, a merchandise security system, indicated generally at **10**, according to the present invention is shown. The security system **10** is operable for supporting and displaying articles of merchandise, such as relatively small, relatively expensive consumer electronics products (e.g. mobile telephones, digital cameras, digital music players, etc.), indicated generally at **12**, on a display stand **20**. The security system **10** is commonly utilized in a retail store to permit a potential purchaser to closely examine and operate an article of merchandise **12**, while deterring theft and preventing inadvertent removal of the merchandise from a display area by an unauthorized person.

[0023] As shown and described herein, the security system **10** comprises a sensor **14** affixed to the article of merchandise **12** for detecting when the article is separated from the sensor. The security system **10** typically further comprises a power supply (not shown) for supplying electrical power to the sensor **14**, and optionally the article of merchandise **12**, and an alarm (not shown) that produces an audible or visible alert when the article is separated from the sensor or when electrical power to the sensor is interrupted. The sensor **14** is electrically coupled to the power supply by a helical cable **15** that extends between the power supply and the sensor. Accordingly, the helical cable **15** is commonly referred to as a "sensor cable." The helical cable **15** is attached to the sensor **14** in a manner that prevents it from being readily

detached from the sensor. As such, the helical cable **15** further acts as a security cable for mechanically securing (i.e. physically attaching) the article of merchandise **12** to a fixed support. A display stand **20** according to the present invention, however, may also be utilized independent of the sensor **14**, the power supply and the alarm to merely display the article **12** on a display stand having an extensible and retractable helical cable **15**. In the latter instance, the article of merchandise **12** may be powered by an internal power source, such as a battery, and the helical cable **15** serves to only physically attach the article of merchandise to the display stand **20**. If desired, the cable **15** may be strengthened sufficiently to likewise mechanically secure the article **12** to a fixed support beyond the display stand **20**.

[0024] Regardless, the helical cable **15** is constructed similarly to a conventional tightly-coiled telephone cord. As a result, the helical cable **15** has sufficient elasticity to be reversibly extensible in response to an applied stress or tension. In other words, the helical cable **15** can be easily stretched to an extended (also referred to herein as "extracted") length and tends to return to its pre-stretched (also referred to herein as "retracted") length when released. A helical cable **15** suitable for use with the present invention is elastically extensible to an extended length of at least about one and one-half times its unstressed length, and returns to within at least about five percent of its unstressed length after being extended. Thus, the helical cable **15** has an elongation of at least about 150% and a memory of at least about 95%. Such cords and cables are readily available and well known to those skilled in the art, and therefore, need not be further described with regard to the present invention.

[0025] Fig. 1A and Fig. 1B show a display stand **20** of a security system **10** including means **30** for dispensing and collecting a helical cable **15** according to the present invention. The helical cable **15** is shown collected (i.e. retracted) within the display stand **20** in Fig. 1A, and is shown dispensed (i.e. extracted) partially from the display stand in Fig. 1B. As used herein, the term "dispensing" refers to the action of extending or extracting the helical cable **15**

from the display stand **20**, for example when a potential purchaser lifts the article of merchandise **12** off the display stand to examine and/or operate the article. Similarly, the term "collecting" refers to the action of releasing or retracting the helical cable **15** to the display stand **20**, for example when the potential purchaser returns the article of merchandise **12** to the display stand. As previously mentioned, the helical cable has a natural tendency to return to its unstressed length after being dispensed to a stressed length by virtue of the helical, tightly-coiled construction of the cable.

[0026] The display stand **20** shown in Fig. 1A and Fig. 1B comprises a base **22** and a collection tube **24** mounted thereon and depending upwardly from the base. The display stand **20** further comprises a cover **23** that extends between the base **22** and the collection tube **24** and overlies the base. The base **22**, cover **23** and collection tube **24** may be formed in any known manner from any suitable structural material, such as plastic, composite or metal, but preferably are molded from a hard, durable, lightweight plastic. As shown, the collection tube **24** is generally circular or elliptical and formed as a cylinder having an internal passageway **25** formed therethrough for transitioning the helical cable **15** between the base **22** and the sensor **14** affixed to the article of merchandise **12**. The base **22** is generally circular or elliptical and has a diameter substantially greater than the diameter of the collection tube **24**, for a purpose to be described. In a collected condition, a majority of the retracted length of the helical cable **15** is stored within the base **22** between the outer periphery of the base and the cover **23**. In a dispensed condition, a portion of the length of the helical cable **15** passes through the passageway **25** of the collection tube **24** such that a sufficient length of the helical cable is disposed outside the collection tube to permit the article of merchandise **12** to be examined an/or operated off the display stand **20**. When the article or merchandise **12** is replaced on the display stand **20**, the dispensed portion of the length of the helical cable **15** returns through the passageway **25** and the retracted length of the helical cable is collected on the base **22**.

[0027] Fig. 2A and Fig. 2B show one embodiment of a means **30** for dispensing and collecting a helical cable **15** according to the present invention. The helical cable **15** is shown collected (i.e. retracted) within the display stand **20** in Fig. 2A, and is shown partially dispensed (i.e. extracted) from the display stand in Fig. 2B. In addition, the base **22** of the display stand **20** is shown disposed beneath a display surface **13**, such as a counter, table, shelf or desk, while the collection tube **24** extends upwardly from the display surface. Thus, the display surface **13** is disposed between the base **22** and the collection tube **24** and, if desired, the cover **23** may be eliminated from the display stand **20**. In this manner, the display stand **20** can be positioned and secured on the display surface **13** in a desirable location with the means **30** for dispensing and collecting the helical cable **15** out of the way and inaccessible to the potential purchaser for purposes of both aesthetics and security. However, one skilled in the art will readily appreciate that all of the display stand **20**, or any portion thereof, may be disposed above or below the display surface **13** without departing from the intended scope of the present invention.

[0028] Regardless, the means **30** for dispensing and collecting the helical cable **15** depicted in Fig. 2A and Fig. 2B comprises a plurality of generally cylindrical wheels **32** disposed about the outer periphery of the base **22**. The wheels **32** support and guide the helical cable **15** within the base **22** to the passageway **25** of the collection tube **24**. At least one of the wheels **32** is rotatably mounted on an axle **33** fixed to the base **22**. The remainder of the wheels **32** may be fixed so as to merely support and guide the helical cable **15** between the retracted length and the extracted length. As shown herein, both the wheel nearest to and the wheel farthest from the entrance to the passageway **25** of the collection tube along the path of travel of the helical cable **15** are rotatable. Alternatively, more or all of the wheels **32** may be rotatably mounted so as to further facilitate movement of the helical cable **15** between the retracted length and the extracted length. Whether rotatable or fixed, the wheels **32** are made of a smooth material, such as metal or hard plastic, so as to minimize the amount of surface friction between the outer

surface of the wheel and the helical cable 15. As will be readily apparent to those skilled in the art, the outer surface of the wheels 32 may be provided with a surface coating or lubrication to further reduce surface friction with the helical cable 15. Furthermore, the contour of the wheels 32 reduces the amount of friction with the helical cable 15.

[0029] In the particular embodiment shown in Fig. 2A and Fig. 2B, the means 30 comprises a series of 5 wheels 32 disposed about the outer periphery of the base 22 in a generally U-shaped arrangement. The helical cable 15 extends from a fixed connection 16, such as a connector plug or jack electrically coupled to the power supply, along the wheels 32 around the outer periphery of the base 22. The helical cable 15 extends in a clockwise direction (as viewed from below) along the wheels 32 to the opening of the U-shape, towards the center of the base 22, and then upwardly into the passageway 25 of the collection tube 24. The helical cable 15 is dispensed when the article of merchandise 12 is lifted off the display stand 20 and is collected again when the article is replaced onto the display stand, as previously described. It should be noted that due to the coiled geometry of the helical cable 15, a greater length of the helical cable passes over the wheel 32 located nearest the entrance to the passageway 25 of the collection tube 24 than over the wheel 32 located nearest the fixed connection 16 since a greater amount of the elongation from the retracted length to the extracted length occurs adjacent the end of the helical cable 15 attached to the sensor 14. Accordingly, a progressively lesser length of the helical cable 15 passes over the wheels 32 located medially between the passageway 25 of the collection tube 24 and the fixed connection 16.

[0030] Fig. 3 shows another embodiment of the means 30 for dispensing and collecting the helical cable 15 according to the present invention. The helical cable 15 is shown collected (i.e. retracted) within the display stand 20 in Fig. 3, the dispensed (i.e. extracted) configuration being substantially identical to the embodiments previously described. As shown, the base 22 of the display stand 20 is configured to be mounted onto the top of a display

surface, such as a counter, table, shelf or desk. In addition, the aesthetic and protective cover **23** of the display stand **20** is removed for purposes of clarity. In this embodiment, the means **30** comprises a plurality of generally cylindrical rollers **42** disposed about the outer periphery of the base **22**. The rollers **42** support and guide the helical cable **15** within the base **22** to the passageway **25** of the collection tube **24**. In particular, the helical cable **15** is guided within the base **22** of the display stand **20** between the outer surface of the rollers **42** and the inner surface of the cover **23** (not shown).

[0031] The rollers **42** may be fixedly mounted on the base **22** so as to merely support and guide the helical cable **15** between the retracted length and the extracted length. As shown herein, each of the rollers **42** is rotatably mounted on an axle **43** fixed to the base **22** so as to further facilitate movement of the helical cable **15** between the retracted length and the extracted length. Alternatively, one or more of the rollers **42** may be rotatable, while the remainder of the rollers remain fixed. Whether rotatable or fixed, the rollers **42** are made of a smooth material, such as metal or hard plastic, so as to minimize the amount of surface friction between the outer surface of the roller and the helical cable **15**. As will be readily apparent to those skilled in the art, the outer surface of the rollers **42** may be provided with a surface coating or lubrication to further reduce surface friction with the helical cable **15**. Furthermore, the contour of the rollers **42** reduces the amount of friction with the helical cable **15**.

[0032] In the particular embodiment shown in Fig. 3, the rollers **42** are disposed about the outer periphery of the base **22** in a generally U-shaped arrangement. The helical cable **15** extends from a fixed connection **16**, such as a connector plug or jack electrically coupled to the power supply, along the rollers **42** around the outer periphery of the base **22**. The helical cable **15** extends in a counter-clockwise direction (as viewed from above) along the rollers **42** to the opening of the U-shape, towards the center of the base **22**, and then upwardly into the collection tube **24**. The helical cable **15** is dispensed when the article of merchandise **12** is lifted off the display stand **20**

and is collected again when the article is replaced onto the display stand, as previously described. It should be noted that due to the helical coiled geometry of the helical cable **15**, a greater length of the helical cable passes over the rollers **42** located nearer the entrance to the passageway **25** of the collection tube **24** than over the rollers **42** located nearer the fixed connection **16** since a greater amount of the elongation from the retracted length to the extracted length occurs adjacent the end of the helical cable **15** attached to the sensor **14**. Accordingly, a progressively lesser length of the helical cable **15** passes over the rollers **42** located medially between the passageway **25** of the collection tube **24** and the fixed connection **16**.

[0033] Fig. 4A and Fig. 4B show another embodiment of the means **30** for dispensing and collecting the helical cable **15** according to the present invention. The helical cable **15** is shown collected (i.e. retracted) within the display stand **20** in Fig. 4A, the dispensed (i.e. extracted) configuration being substantially identical to the embodiments previously described. As shown, the base **22** of the display stand **20** is configured to be mounted onto the top of a display surface, such as a counter, table, shelf or desk. In addition, the aesthetic and protective cover **23** of the display stand **20** is shown exploded upwardly from the base **22** and in broken lines for purposes of clarity.

[0034] In this embodiment, the means **30** comprises a smooth, low-friction surface **52** disposed about the outer periphery of the base **22**. The surface **52** supports and guides the helical cable **15** on the base **22** to the passageway **25** of the collection tube **24**. In particular, the helical cable **15** is guided along the surface **52** on the outer periphery of the base **22** between the base and the inner surface of the cover **23**. Preferably, the surface **52** is formed from a metal or hard plastic so as to minimize the amount of friction between the surface **52** and the helical cable **15**. As will be readily apparent to those skilled in the art, the surface **52** may be provided with a coating, for example a sprayed layer of Teflon®, or lubrication to further reduce friction with the helical cable **15**.

[0035] In the particular embodiment shown in Fig. 4A, the surface **52** is disposed about the outer periphery of the base **22** in a generally reverse J-shaped configuration. The helical cable **15** extends from a fixed connection **16**, such as a connector plug or jack electrically coupled to the power supply, along the surface **52** around the outer periphery of the base **22**. The helical cable **15** extends in a counter-clockwise direction (as viewed from above) along the surface **52** to the opening of the U-shape, towards the center of the base **22**, and then upwardly into the collection tube **24**. The helical cable **15** is dispensed when the article of merchandise **12** is lifted off the display stand **20** and is collected again when the article is replaced onto the display stand, as previously described. It should be noted that due to the coiled geometry of the helical cable **15**, a greater length of the helical cable passes over the portion of the surface **52** nearer the entrance to the passageway **25** of the collection tube **24** than over the portion of the surface **52** nearer the fixed connection **16** since a greater amount of the elongation from the retracted length to the extracted length occurs adjacent the end of the helical cable **15** attached to the sensor **14**. Accordingly, a progressively lesser length of the helical cable **15** passes over the portion of the surface **52** located medially between the passageway **25** of the collection tube **24** and the fixed connection **16**.

[0036] In an alternative embodiment, a relatively thin strip of a low-friction material **54** may be affixed, for example by an adhesive, to the surface **52** about at least a portion of the outer periphery of the base **22**. The low-friction material may be any substance that minimizes the amount of resistance generated by the helical cable **15** moving along the surface **52**. For purposes of example and without limitation, the low-friction material **54** may include silicone, polytetrafluoroethylene, perfluoroalkoxy, fluorinated ethylene propylene, Teflon®, or an equivalent. In Fig. 4A, the low-friction material **54** is shown exploded upwardly from the base **22** for purposes of clarity. As best shown in Fig. 4B, the low-friction material **54** has a generally inverted J-shaped configuration consisting of an arcuate portion that depends outwardly from the outer periphery of the base **22** (i.e. from surface **52**) and a linear

portion that is parallel, and preferably, in contact with the outer periphery of the base **22** (i.e. surface **52**). As a result, the helical cable **15** is disposed in relatively close relationship between a portion of the surface **52** (i.e. the horizontal portion of the outer periphery of base **22**) and the inner surface of the low-friction material **54**. In any event, the helical cable **15** is intended to be guided along the outer periphery of the base **22** and is not guided, supported, retained or mechanically restrained in any way by the inner surface of the cover **23**. As such, the cover **23** may be eliminated without compromising the function and/or operation of the display stand **20**, and in particular the means **30** for dispensing and collecting the helical cable **15**, except for the aesthetic and security benefits provided by the cover.

[0037] Fig. 5A and Fig. 5B show still another embodiment of the means **30** for dispensing and collecting the helical cable **15** according to the present invention. The helical cable **15** is shown collected (i.e. retracted) within the display stand **20** in Fig. 5A, the dispensed (i.e. extracted) configuration being substantially identical to the embodiments previously described. As shown, the base **22** of the display stand **20** is configured to be mounted onto the top of a display surface, such as a counter, table, shelf or desk. In addition, the aesthetic and protective cover **23** of the display stand **20** is shown exploded upwardly from the base **22** and in broken lines for purposes of clarity.

[0038] In this embodiment, the means **30** comprises a smooth, scalloped surface **62** disposed about the outer periphery of the base **22**. As used herein, the term "scalloped surface" is intended to mean a generally concave, curvilinear or arcuate surface defined by the outer periphery of the base **22**, as best shown in Fig. 5B. The surface **62** supports and guides the helical cable **15** on the base **22** to the passageway **25** of the collection tube **24**. In particular, the helical cable **15** is guided along the scalloped surface **62** on the outer periphery of the base **22** between the base and the inner surface of the cover **23** of the display stand **20**. Preferably, the surface **62** is formed from a metal or hard plastic so as to minimize the amount of friction between the surface **62** and the helical cable **15**. As will be readily apparent to those

skilled in the art, the surface **62** may be provided with a coating, for example a layer of Teflon® or the like, or lubrication to further reduce friction between the surface **62** and the helical cable **15**. In an alternative embodiment, a relatively thin strip of the previously described low-friction material (not shown) may be affixed, for example by an adhesive, to the surface **62** about at least a portion of the outer periphery of the base **22**.

[0039] In the particular embodiment shown in Fig. 5A, the surface **62** is formed on the outer periphery of the base **22** in a generally sideways U-shaped configuration. The helical cable **15** extends from a fixed connection **16**, such as a connector plug or jack electrically coupled to the power supply, along the surface **62** around the outer periphery of the base **22**. The helical cable **15** extends in a counter-clockwise direction (as viewed from above) along the surface **62** to the opening of the U-shape, towards the center of the base **22**, and then upwardly into the collection tube **24**. The helical cable **15** is dispensed when the article of merchandise **12** is lifted off the display stand **20** and is collected again when the article is replaced onto the display stand, as previously described. It should be noted that due to the coiled geometry of the helical cable **15**, a greater length of the helical cable passes over the portion of the surface **62** nearer the entrance to the passageway **25** of the collection tube **24** than over the portion of the surface **62** nearer the fixed connection **16** since a greater amount of the elongation from the retracted length to the extracted length occurs adjacent the end of the helical cable **15** attached to the sensor **14**. Accordingly, a progressively lesser length of the helical cable **15** passes over the portion of the surface **62** located medially between the passageway **25** of the collection tube **24** and the fixed connection **16**. In any event, the helical cable **15** is intended to be guided along the outer periphery of the base **22** and is not guided, supported, retained or mechanically restrained in any way by the inner surface of the cover **23**. As such, the cover **23** may be eliminated without compromising the function and/or operation of the display stand **20**, and in particular the means **30** for dispensing and collecting the helical cable **15**, except for the aesthetic and security benefits provided by the cover.

[0040] The foregoing has described exemplary embodiments of a security system for displaying articles of merchandise, while deterring theft and preventing inadvertent removal of the merchandise from a display area by an unauthorized person. In each exemplary embodiment, the security system includes a display stand and means for dispensing and collecting a helical cable attached to an article of merchandise. In the exemplary embodiments shown and described herein, the means for dispensing and collecting includes a plurality of wheels, a plurality of rollers, a smooth surface and/or a low-friction material, and a scalloped surface for guiding the helical cable between a retracted length and an extracted length.

[0041] While particular embodiments of the present invention have been described, it will be apparent to those skilled in the art that various modifications thereto can be made without departing from the spirit and scope of the invention. Accordingly, the foregoing description of preferred embodiments of the invention and the best mode for practicing the invention are provided for the purpose of illustration only, and not for the purpose of limitation. In particular, it will be appreciated that a display stand including means for dispensing and collecting a helical cable in accordance with the present invention may be applicable for use with various articles and with or without an accompanying security system.

That which is claimed is:

1. A display stand (20) for displaying an article of merchandise (12) comprising a base (22) defining an outer periphery for dispensing and collecting a helical cable (15) attached to the article of merchandise, the outer periphery supporting and guiding the helical cable on the base between a retracted length of the helical cable and an extracted length of the helical cable.

2. The display stand (20) according to claim 1, wherein the outer periphery of the base (22) defines a continuous arcuate surface for supporting and guiding the helical cable (15).

3. The display stand (20) according to claim 1, wherein at least one wheel (32) is disposed on the outer periphery of the base for dispensing and collecting the helical cable.

4. The display stand (20) according to claim 3, wherein the at least one wheel (32) is rotatably mounted to the base (22).

5. The display stand (20) according to claim 3 or claim 4, comprising a plurality of wheels (32) arranged in a generally U-shaped configuration.

6. The display stand (20) according to claim 1, wherein at least one roller (42) is disposed on the outer periphery of the base (22) for dispensing and collecting the helical cable.

7. The display stand (20) according to claim 6, wherein the at least one roller (42) is rotatably mounted to the base (22).

8. The display stand (20) according to claim 6 or claim 7, comprising a plurality of rollers (42) arranged in a generally U-shaped configuration.

9. The display stand (20) according to claim 1, wherein a low-friction surface (52) is disposed on the outer periphery of the base (22) for dispensing and collecting the helical cable.

10. The display stand (20) according to claim 9, wherein the low-friction surface (52) has a generally reverse J-shaped configuration.

11. The display stand (20) according to claim 9, wherein the low-friction surface (52) has a generally inverted J-shaped configuration.

12. The display stand (20) according to claim 11, wherein the low-friction surface (52) comprises an arcuate portion that depends outwardly from the outer periphery of the base (22) and a linear portion that is parallel and in contact with the outer periphery of the base.

13. The display stand (20) according to claim 1, wherein a scalloped surface (62) is disposed on the outer periphery of the base (22) for dispensing and collecting the helical cable.

14. The display stand (20) according to claim 13, wherein the scalloped surface (62) has a generally sideways U-shaped configuration.

15. The display stand (20) according to claim 1, further comprising a collection tube (24) mounted on and depending from the base (22), the collection tube having an interior passageway (25) formed therethrough for delivering the helical cable (15) to the article of merchandise (12).

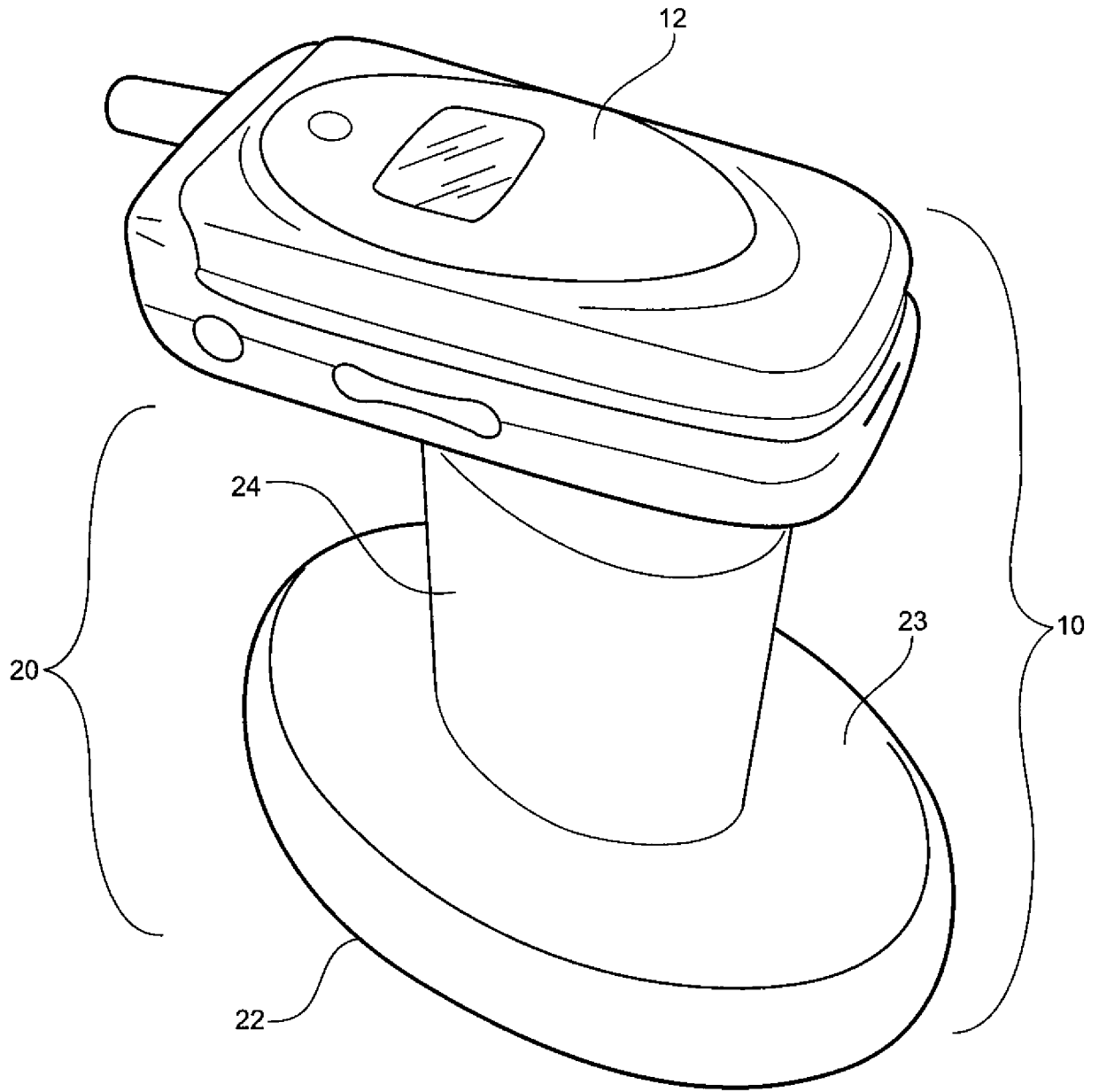


Fig. 1A

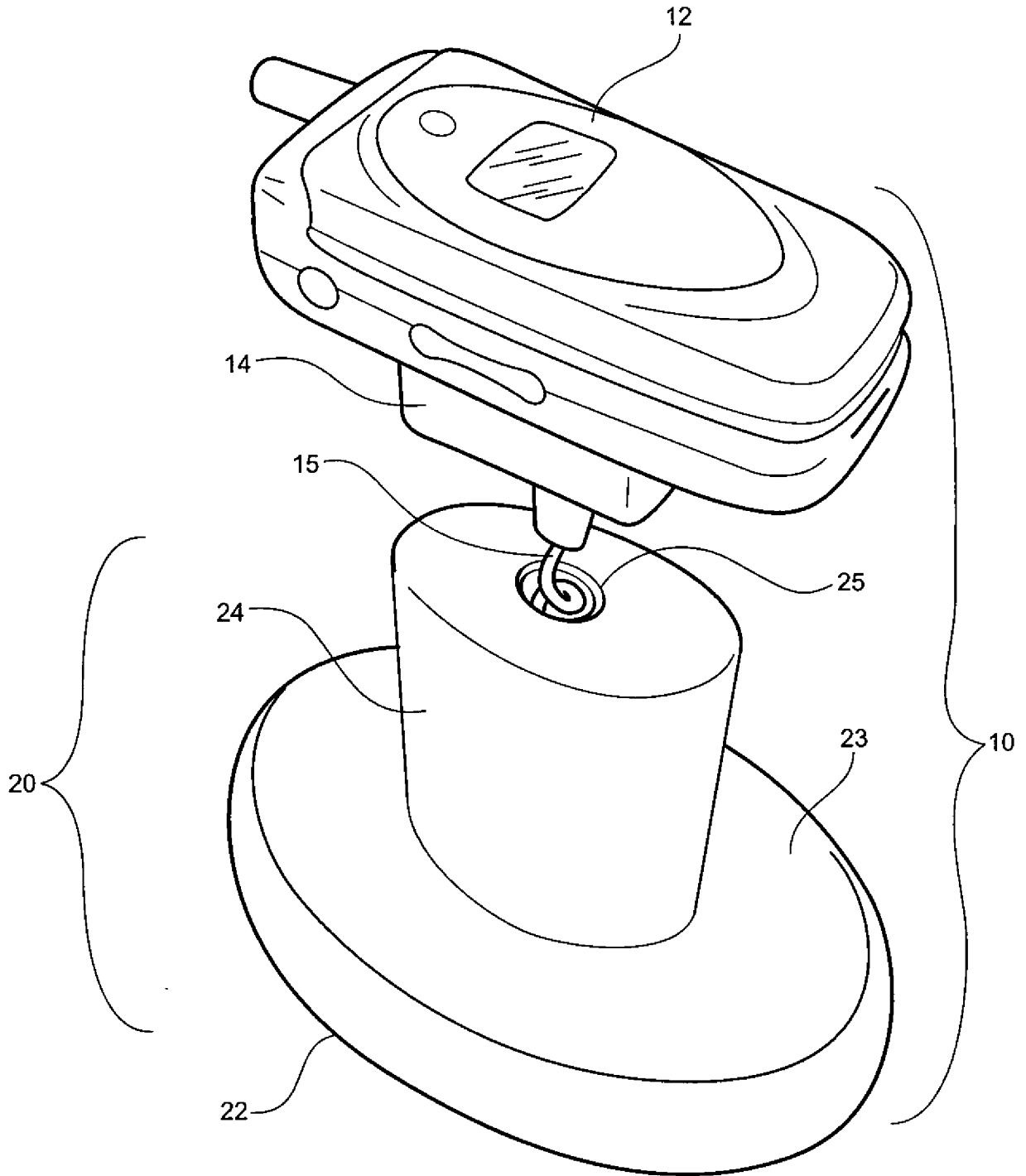


Fig. 1B

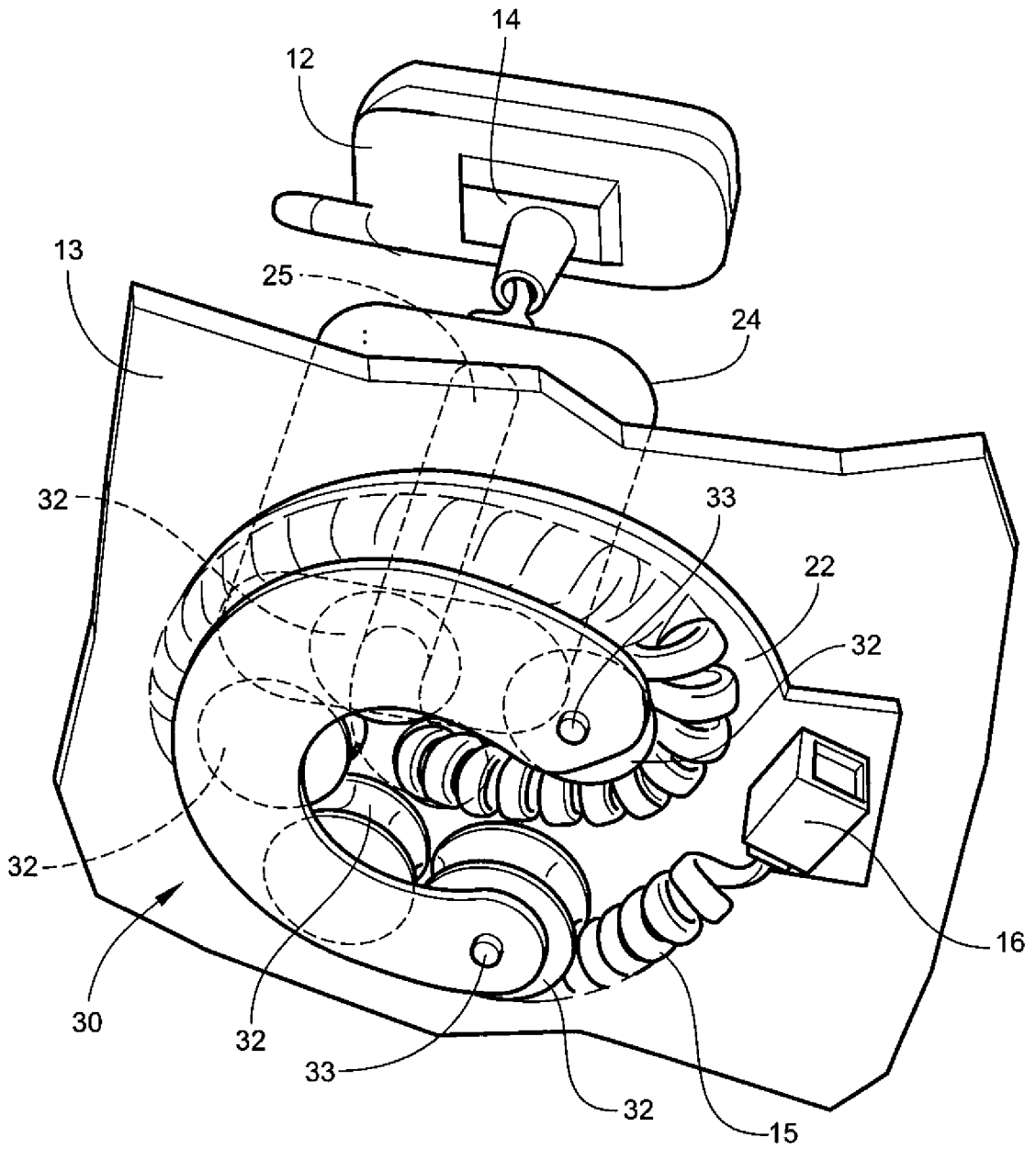


Fig. 2A

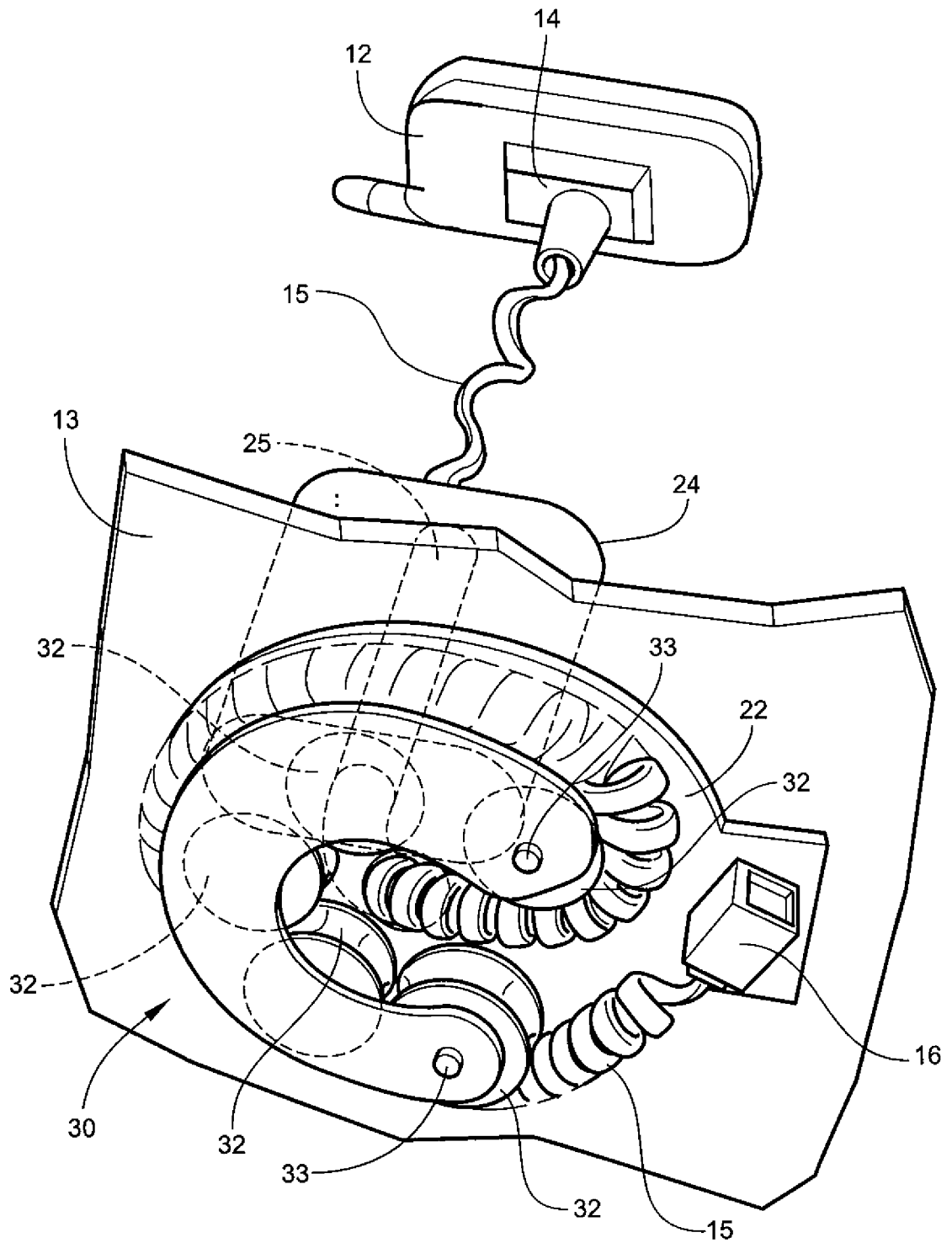
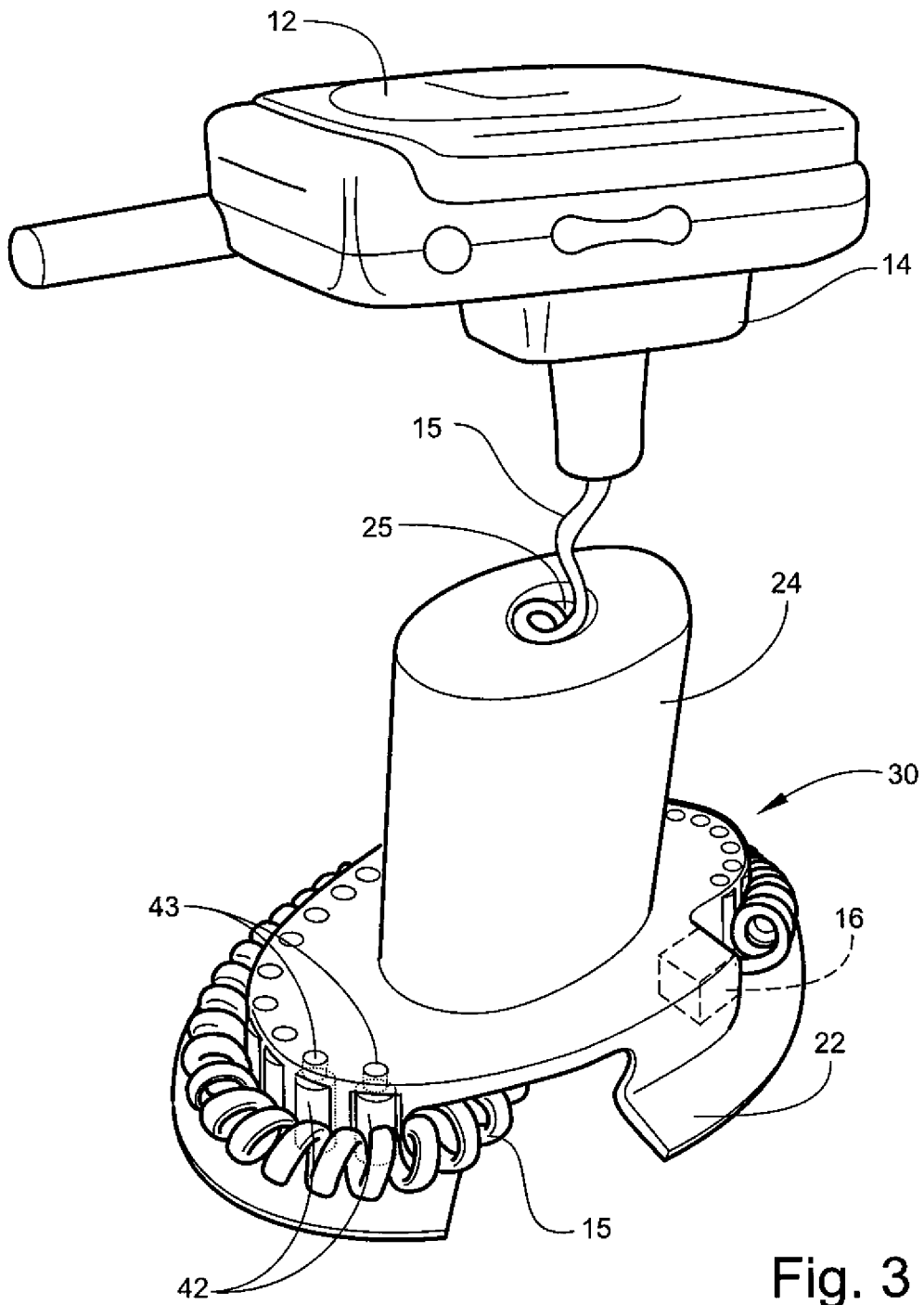


Fig. 2B



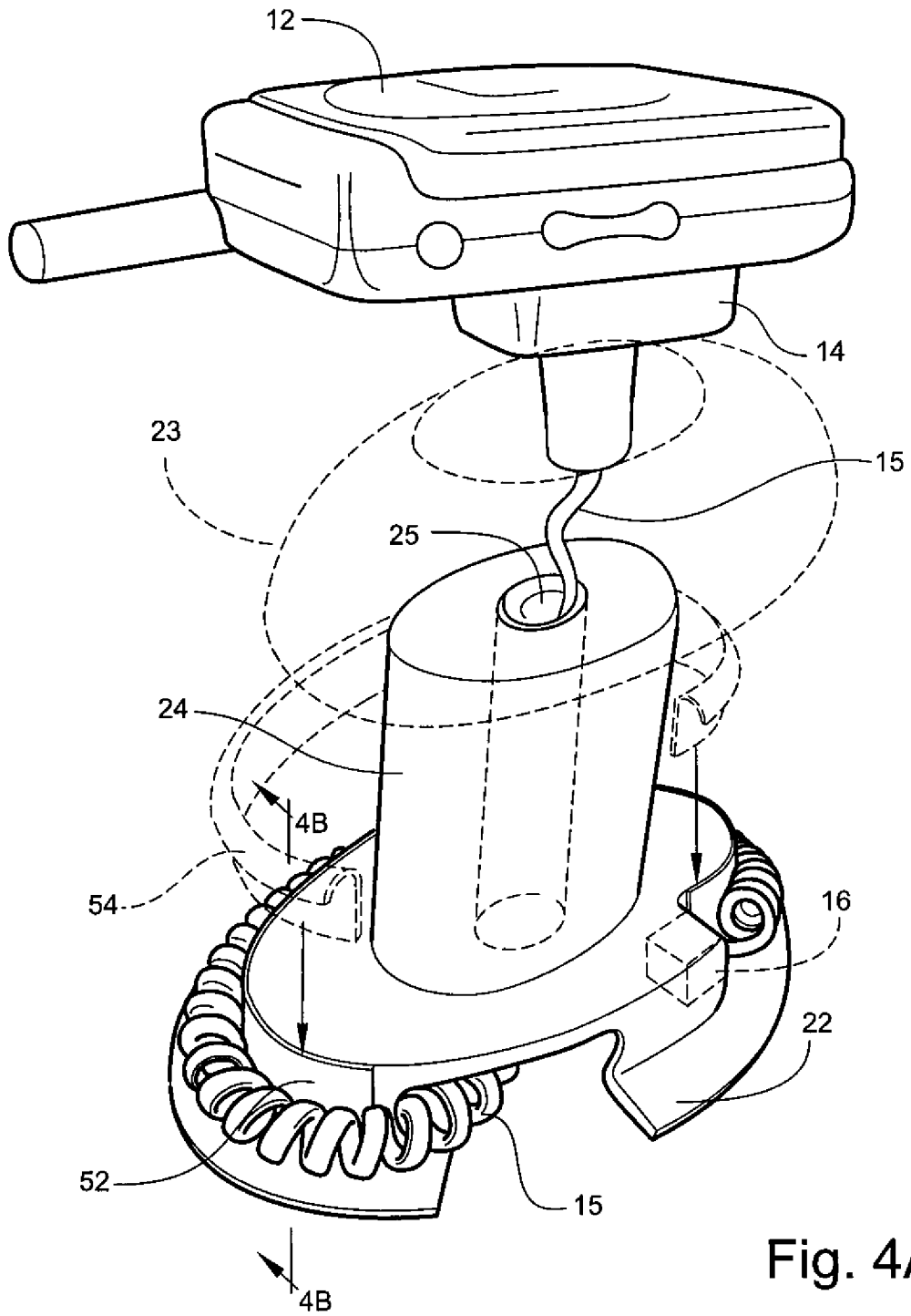


Fig. 4A

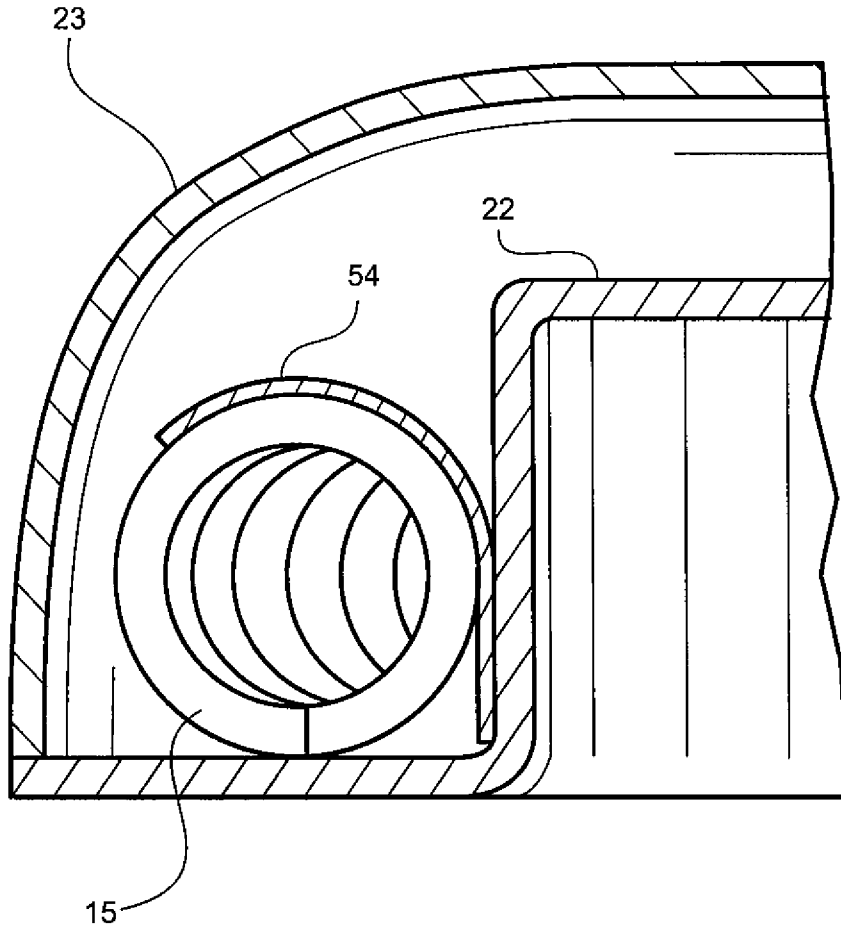


Fig. 4B

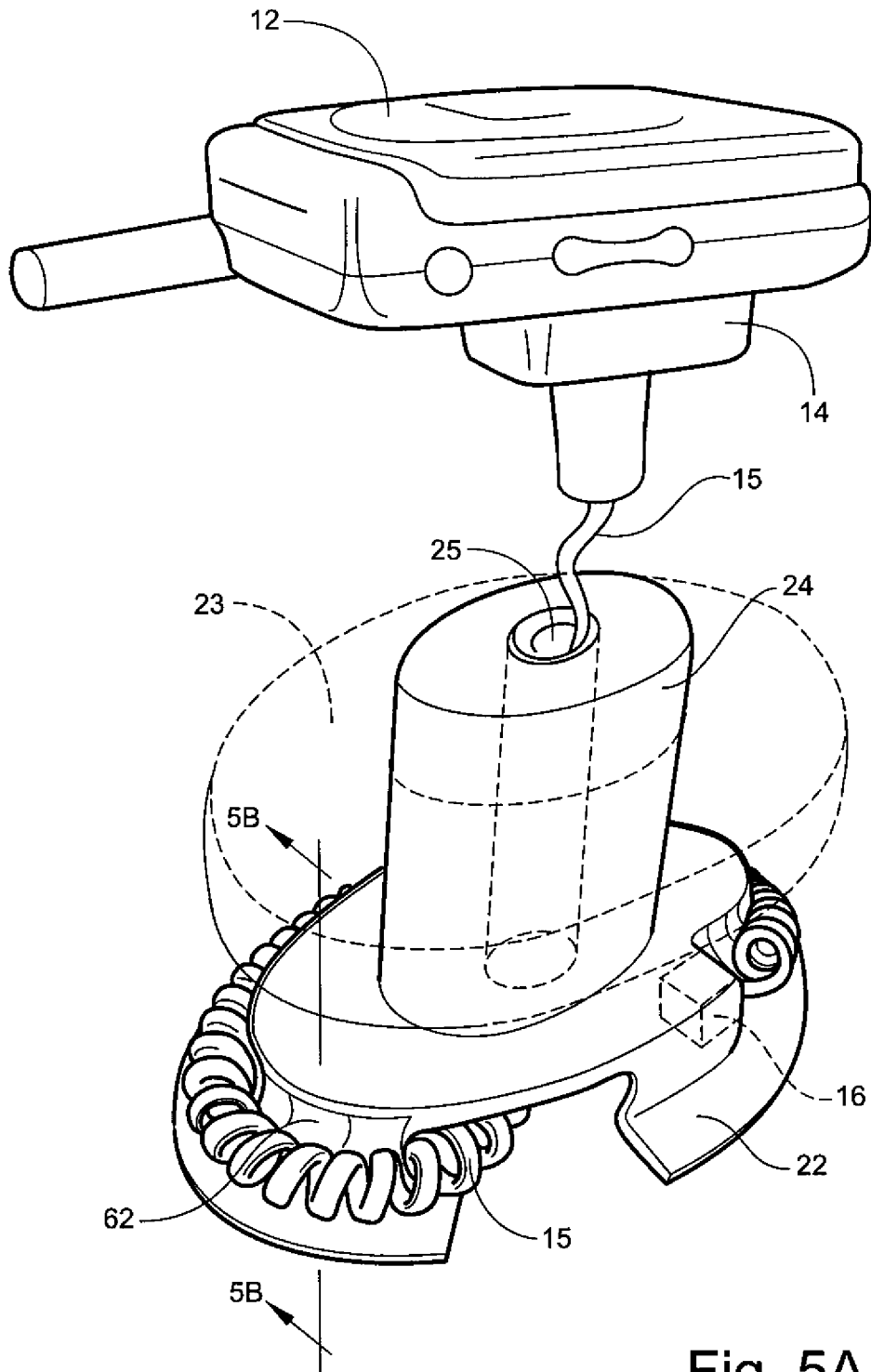


Fig. 5A

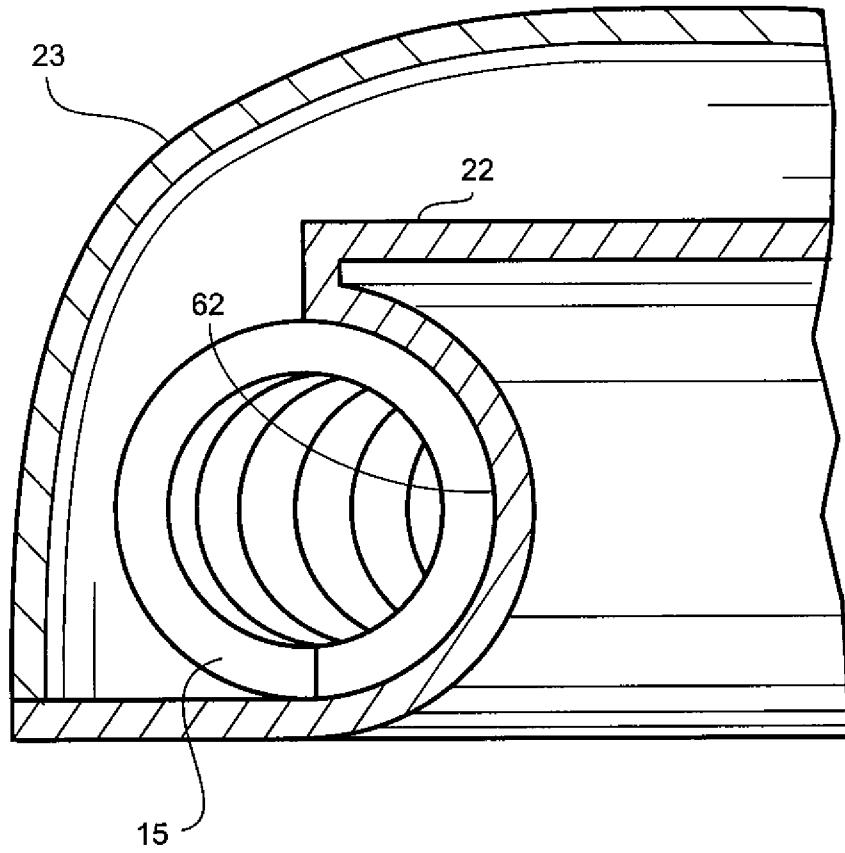


Fig. 5B

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2008/079290

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47F7/024

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A47F G08B

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 practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2007/145209 A1 (MARSILIO RONALD M [US] ET AL) 28 June 2007 (2007-06-28) abstract; figures 2,9 -----	1
A	WO 2005/027694 A (ALPHA SECURITY PROD INC [US]) 31 March 2005 (2005-03-31) page 11, line 10 - line 12; figure 14 -----	1
A	DE 199 51 020 A1 (OTT REINHOLD [CA]) 7 June 2001 (2001-06-07) column 4, line 4 - line 7; figure 1 -----	1
A	WO 01/97661 A (A A SYSTEMES D AUTOMATISMES D [FR]; GRESSET ERIC [FR]) 27 December 2001 (2001-12-27) figures 3,4 -----	1
	-/--	

Further documents are listed in the continuation of Box C.

See patent family annex.

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Date of the actual completion of the international search

14 January 2009

Date of mailing of the international search report

29/01/2009

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

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Alff, Robert

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2008/079290

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 384 688 A (SMITH JOHN N) 24 May 1983 (1983-05-24) abstract -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2008/079290

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