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(54) **WIRELESS MOBILE DEVICE CARRIER**

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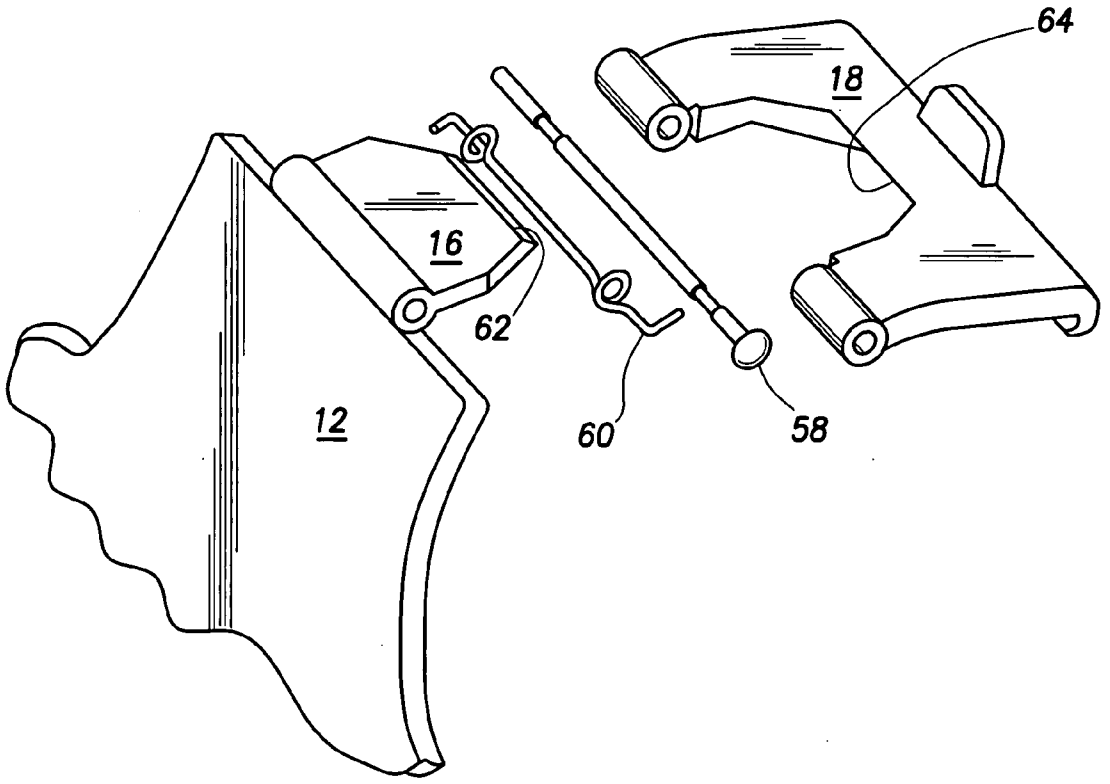
(57) **ABSTRACT**

A wireless mobile device carrier. At least some of the illustrative embodiments are a wireless mobile device carrier comprising a holster assembly adapted to hold the wireless mobile device on a first side, a protrusion from a second side of the holster assembly (a perimeter of the protrusion defines a substantially circular shape, and the protrusion also defines a notch), a backing member with an aperture having a plurality of grooves (the protrusion of the holster assembly within the aperture of the backing member), a rod disposed in the notch of the protrusion (wherein rotation of the holster relative to the backing member moves the rod from one of the plurality of grooves into an adjacent one of the plurality of grooves), and a clip member having a hook portion and an opening tab, the clip member attached to the backing member such that pressing the opening tab causes the hook portion to be positioned away from the backing member for attachment to an article of clothing.



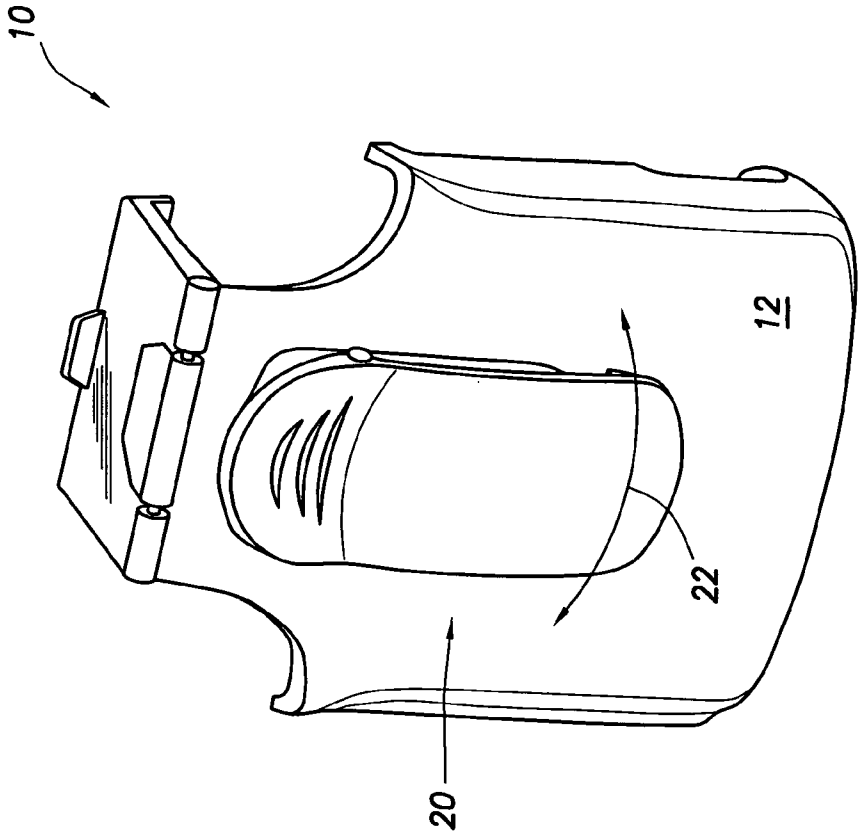


FIG.3

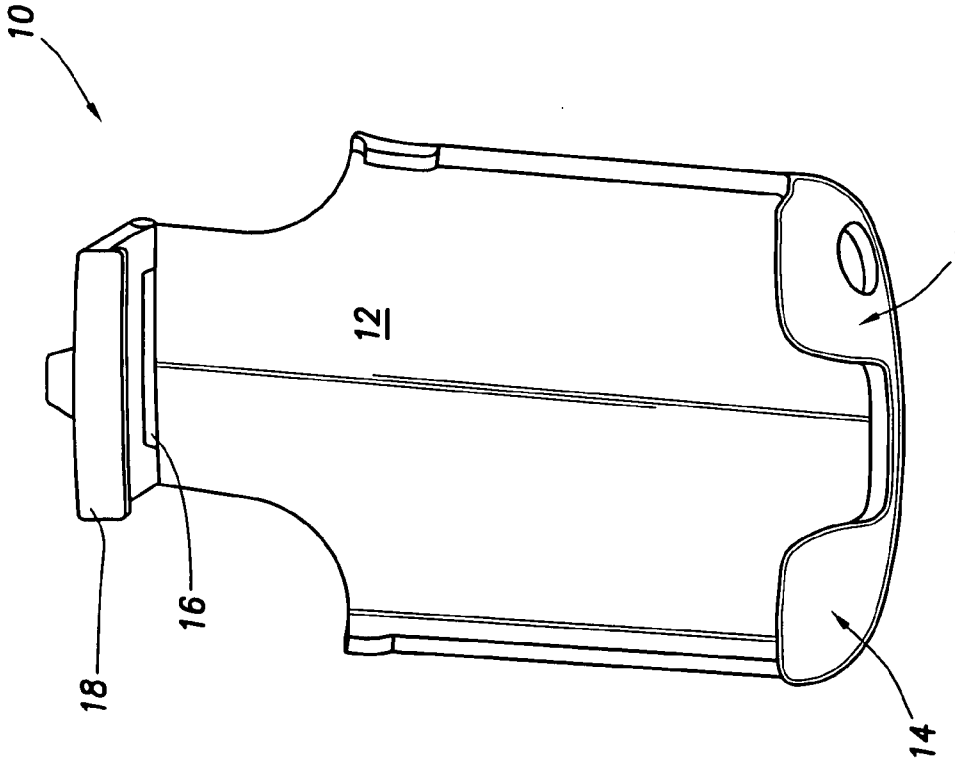


FIG.1

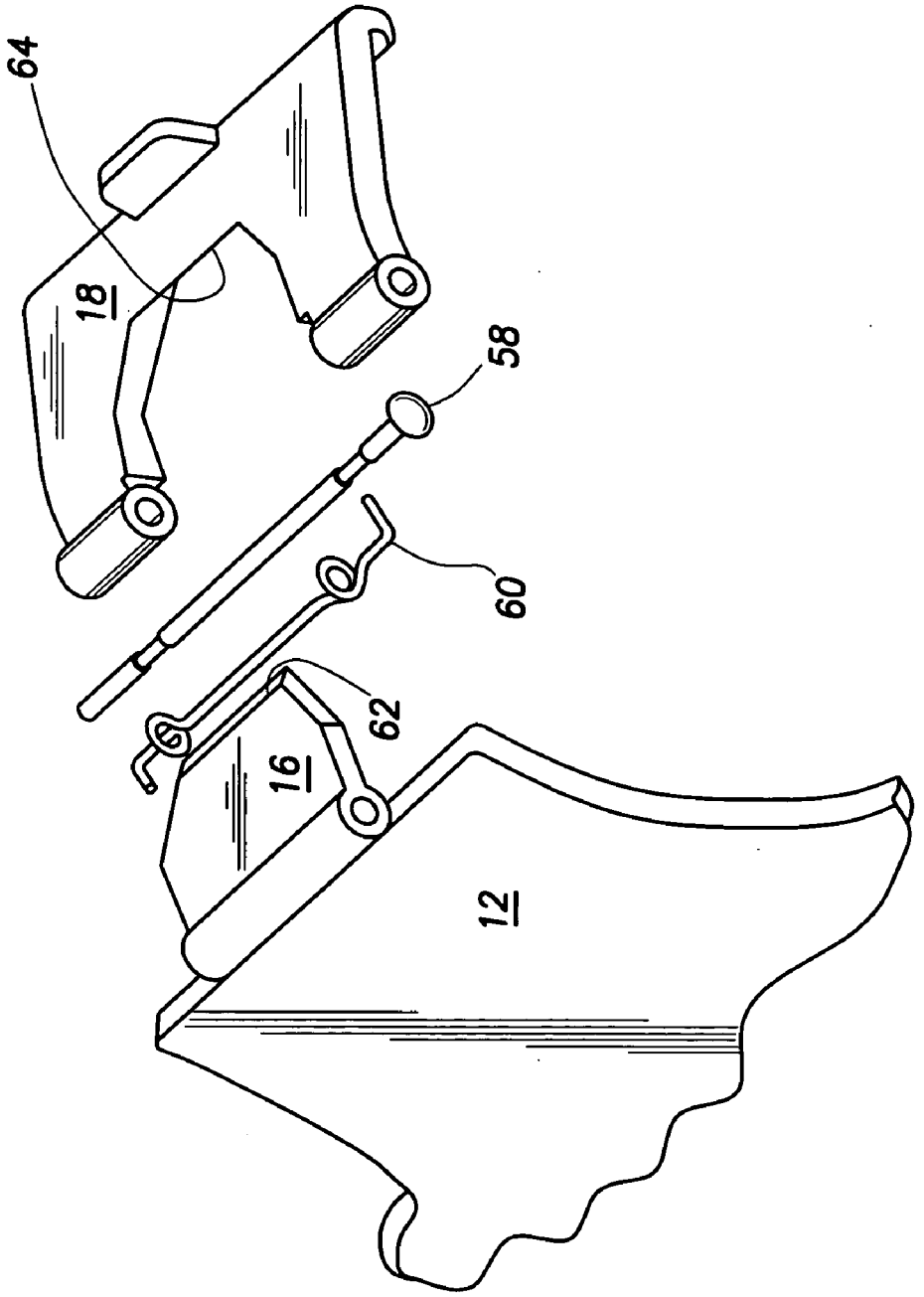


FIG.2

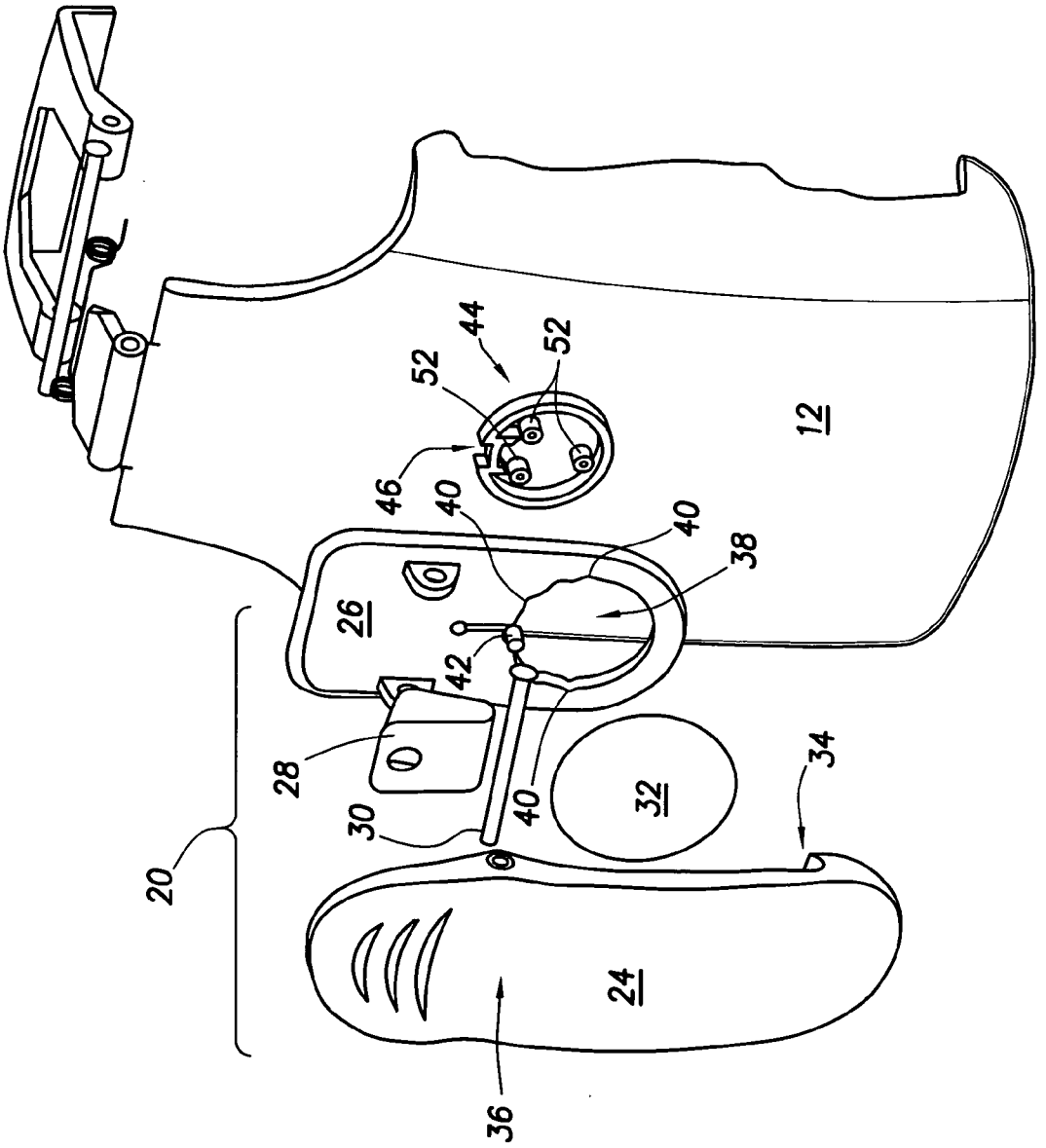


FIG.4

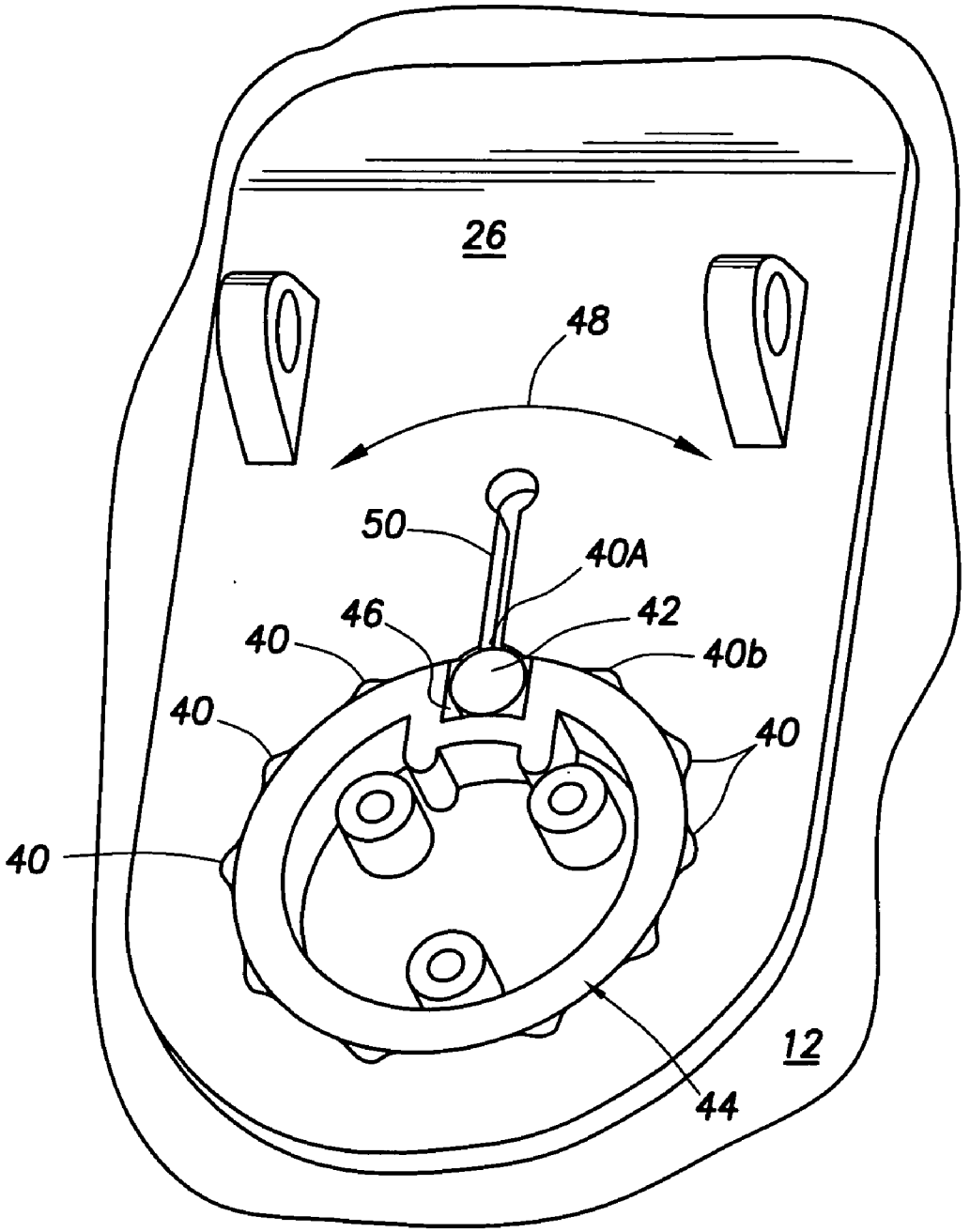


FIG.5

WIRELESS MOBILE DEVICE CARRIER

BACKGROUND

[0001] Wireless mobile devices (e.g., personal digital assistance (PDA), cell phones, or combination devices termed "PDAphones") are carried by their users on an almost continuous basis. Wearing a wireless mobile device in a holster (e.g., clipped to the user's belt) may be uncomfortable in a sitting position of the user, unless the wireless mobile device can be rotated. Moreover, it is difficult, sometimes a two-handed operation, to remove a wireless mobile device from a holster.

BRIEF DESCRIPTION OF THE DRAWINGS

[0002] For a detailed description of exemplary embodiments of the invention, reference will now be made to the accompanying drawings in which:

[0003] FIG. **1** shows a wireless mobile device carrier in accordance with embodiments of the invention;

[0004] FIG. **2** shows a back perspective exploded-view of a top portion of a wireless mobile device carrier in accordance with embodiments of the invention;

[0005] FIG. **3** shows a back perspective view of the wireless mobile device carrier in accordance with embodiments of the invention;

[0006] FIG. **4** shows a back perspective exploded-view of a wireless mobile device carrier in accordance with embodiments of the invention; and

[0007] FIG. **5** shows a more detailed view of the interrelationship of the backing member, protrusion, notch and rod in accordance with embodiments of the invention.

NOTATION AND NOMENCLATURE

[0008] Certain terms are used throughout the following description and claims to refer to particular system components. As one skilled in the art will appreciate, computer companies may refer to a component by different names. This document does not intend to distinguish between components that differ in name but not function.

[0009] In the following discussion and in the claims, the terms "including" and "comprising" are used in an open-ended fashion, and thus should be interpreted to mean "including, but not limited to . . . ." Also, the term "couple" or "couples" is intended to mean a direct or indirect connection. Thus, if a first device couples to a second device, that connection may be through a direct connection, or through an indirect connection via other devices and connections.

DETAILED DESCRIPTION

[0010] The following discussion is directed to various embodiments of the invention. Although one or more of these embodiments may be preferred, the embodiments disclosed should not be interpreted, or otherwise used, as limiting the scope of the disclosure. In addition, one skilled in the art will understand that the following description has broad application, and the discussion of any embodiment is meant only to be exemplary of that embodiment, and not intended to intimate that the scope of the disclosure is limited to that embodiment.

[0011] FIG. **1** shows a front perspective view of a wireless mobile device carrier **10** in accordance with embodiments of the invention. In particular, the wireless mobile device carrier **10** comprises a holster assembly **12** where a wireless mobile device is carried. The holster assembly **12** comprises a curved panel portion **14** on a bottom of the holster assembly **12**. The curved panel portion **14** receives a bottom portion of the wireless mobile device, allows slight rotation of the wireless mobile device (as discussed below in connection with the operational relationship of tab **16** and latch member **18**). The curved nature of portion **14** prevents movement of the wireless mobile device away from the holster assembly **12**.

[0012] The holster assembly **12** comprises a tab **16** and a latch member **18** disposed on an opposite end of the holster assembly **12** from the curved panel portion **14**. A wireless mobile device is placed within the carrier **10** by placing a bottom end within the curved panel portion **14**, while holding a top end away from the tab **16** and latch member **18**, which may be referred to as "toeing in" the wireless mobile device. After placing the bottom end of the wireless mobile device within the curved panel portion **14**, the wireless mobile device may be rotated (about the bottom end in the curved panel portion **14**) toward the tab **16**. When the wireless mobile device is rotated fully within the holster assembly **12**, the tab **16** prevents the movement of the wireless mobile device away from the curved panel portion **14** in a plane defined by the wireless mobile device. In order to retain the wireless mobile device in the holster assembly **12**, latch member **18** prevents movement of the wireless mobile device away from tab **16**. To remove the wireless mobile device from the holster assembly **12**, the latch member is rotated away from the curved panel portion **14**, thus enabling the wireless mobile device to move away from tab **16** (by rotation about the curved panel portion **14**). Once clear of the tab **16** and latch member **18**, the wireless mobile device may be removed from the holster assembly **12** by pulling the device out of the curved panel portion **14**. Because of the arrangement of the various components, removal of the wireless mobile device may be accomplished with one hand. Moreover, once the latch member **18** is released and the device rotated away from the tab **16**, very little force is needed to detach the device from the panel portion **14**; once the latch member **18** is disengaged, this decreases the likelihood of dislodging the hook portion **34** of the clip member **24** (FIG. **3**) from an attached article of clothing.

[0013] FIG. **2** shows a back perspective exploded-view of a top portion of a wireless mobile device carrier **10**, and in particular the tab **16** and latch member **18**. In accordance with at least some embodiments, the latch member **18** straddles the tab **16**, and is hinged to the top portion of the holster assembly **12** by way of hinge pin **58**. Spring **60** also couples to the top portion of the holster assembly **12** and the latch member **18**, and biases the latch member **18** toward the curved panel portion **14** (FIG. **1**). In accordance with embodiments of the invention, the tab **16** limits rotational travel of the latch member **18**. In particular, the tab **16** has an angled stop portion **62** on a distal end thereof. Correspondingly, the latch member **18** has a complementary angled stop portion **64**. As the latch member **18** rotates toward the panel portion **14**, rotational movement is stopped when the angled stop portions **62** and **64** meet.

[0014] FIG. **3** shows a back perspective view of the wireless mobile device carrier **10** in accordance with embodiments of the invention. In particular, the wireless mobile device carrier **10** comprises a clothing clip assembly **20** rotatably coupled to the holster assembly **12**, as indicated by arrow **22**. In accordance with some embodiments, the relative position of the clothing clip assembly **20** and the holster assembly **12** may rotate through 180 degrees of rotation, with positive stops approximately every twenty degrees. In alternative embodiments, the relative position of the clothing clip assembly **20** and the holster assembly **12** may rotate through 360 degrees of rotation and/or have positive stops at other desired locations (e.g., every 10° or every 30°).

[0015] In order to more fully explain relative rotation of the clothing clip assembly **20** and holster assembly **12**, and in particular the positive stopping mechanism, FIG. **4** shows a back perspective exploded-view of the wireless mobile device carrier **10**. In accordance with at least some embodiments, the clothing clip assembly **20** further comprises a clip member **24**, backing member **26**, spring **28**, hinge pin **30** and cap **32**. The clip member **24** has a hook portion **34**, which hooks to an article of clothing (e.g., a belt) and also has a tab portion **36**. When the tab portion **36** is pressed, the clip member rotates about hinge pin **30**, causing the hook portion **34** to be positioned away from the backing member **26** for attachment to an article of clothing. Spring **28** biases hook portion **34** of the clip member **24** toward the backing member **26**, and thus to some extent holds the wireless communication device carrier on the article of clothing. The backing member **26** further comprises an aperture **38** having a plurality of circularly spaced grooves **40** (the grooves in some embodiments normal to a plane defined by the backing plate **26**). Rod **42** fits in operational relationship with one of the plurality of grooves **40**. Cap **32** couples to corresponding portions (discussed below) of the holster assembly **12**, and while allowing relative rotational movement between the backing member **26** and the holster **12**, prevents those two devices from separating along an axis of rotation between them.

[0016] Still referring to FIG. **4**, the holster assembly **12** further comprises protrusions **44**. The protrusions **44** have a perimeter that defines a substantially circular shape, save a notch **46**. The substantially circular shape defined by the protrusions **44** has a diameter that is slightly less than that of the aperture **38**, and the protrusions **44** extend into the aperture **38** when assembled. The protrusions **44** also comprises a plurality of coupling members **52**, to which the cap **32** couples.

[0017] FIG. **5** shows a more detailed view of the interrelationship of the backing member **26**, protrusions **44**, notch **46** and rod **42**. In particular, rod **42** sits within the notch **46**, and further the rod **42** is in operational relationship with one of the plurality of grooves **40**. As the backing plate **26** is rotated relative to the holster assembly **12** (as indicated by arrow **48**), the rod **42** moves from one of the plurality of grooves (e.g., **40**A) to an adjacent one of the plurality of grooves (e.g., **40**B). The combination of the notch **46**, rod **42** and portions of the backing member between the grooves **40** resist rotation of the backing member **26** relative to the holster assembly **12**. Thus when rod **42** is within a groove **40**, the combination acts as a positive stopping mechanism for relative rotation of the backing member **26** and the holster assembly **12**. In accordance with at least some embodiments, the rod **42** is metallic and substantially a solid circular cylinder. In alternative embodiments, the rod **42** may be made of other materials (e.g., high density plastics, or metal coated plastics), may be of different shapes (e.g., octagonal), or may be a hollow cylinder made of any suitable material. Although FIG. **5** shows the plurality of grooves **40** placed in a circular array around the aperture **38**, in alternative embodiments the plurality of grooves extend only partially around the aperture, such as an arc of 180 degrees.

[0018] In some embodiments the backing plate **26** may comprise a relief notch **50**, which also acts as one of the plurality of grooves **40**. The relief notch **50** enables slight deformation of the backing plate **26** to reduce the force needed to move the rod **42** from one of the plurality of grooves **40** to an adjacent one of the plurality of grooves.

What is claimed is:

1. A wireless mobile device carrier comprising:

a holster assembly adapted to hold the wireless mobile device on a first side;

a protrusion from a second side of the holster assembly, a perimeter of the protrusion defines a substantially circular shape, and the protrusion also defines a notch;

a backing member with an aperture having a plurality of grooves, the protrusion of the holster assembly within the aperture of the backing member;

a rod disposed in the notch of the protrusion, wherein rotation of the holster relative to the backing member moves the rod from one of the plurality of grooves into an adjacent one of the plurality of grooves; and

a clip member having a hook portion and an opening tab, the clip member attached to the backing member such that pressing the opening tab causes the hook portion to be positioned away from the backing member for attachment to an article of clothing.

2. The wireless mobile device carrier as defined in claim 1 wherein the holster assembly further comprises:

a panel on a bottom portion of the holster assembly that receives a portion of the wireless mobile device;

a tab that prevents movement of the wireless mobile device away from the panel;

a latch member that when latched, at least in part, prevents movement of the wireless mobile device away from the tab.

3. The wireless mobile device carrier as defined in claim 2 wherein the tab limits rotational travel of the latch member toward the panel.

4. The wireless mobile device carrier as defined in claim 1 wherein the rod further comprises a cylindrical steel rod.

5. The wireless mobile device carrier as defined in claim 1 wherein the plurality of grooves of the aperture are arranged in a circular array.

6. A wireless mobile device carrier comprising:

a holster assembly adapted to receive the wireless mobile device on a first side;

a clothing clip assembly coupled to the holster assembly on a second side;

a receiving panel on a bottom portion of the holster assembly that receives a portion of the wireless mobile device;

a tab on a top portion of the holster assembly that prevents movement of the wireless mobile device away from the receiving panel;

a latch hinged to the holster assembly on the top portion, wherein the latch, at least in part, prevents movement of the wireless mobile device out of the holster assembly.

7. The wireless mobile device carrier as defined in claim 6 further comprising:

a hinge member that hingedly couples the latch to the top portion of the holster assembly; and

a bias mechanism that biases the latch toward a latched position.

8. The wireless mobile device carrier as defined in claim 6 further comprising:

wherein the tab further comprise an angled stop portion;

wherein the latch hingedly couples to the top portion of the holster straddling the tab, and wherein the latch has a complementary angled stop portion;

wherein the tab limits rotational travel of the latch toward the receiving panel at a rotational orientation where the angled stop portions meet.

9. The wireless mobile device carrier as defined in claim 6 further comprising:

a protrusion from a second side of the holster assembly, a perimeter of the protrusion defines a substantially circular shape, and the protrusion also defines a notch;

said the clothing clip assembly further comprising a backing member and a clip member;

said backing member defining an aperture having a plurality of grooves substantially normal to a plane defined by the backing member, the protrusion of the holster within the aperture of the backing member; and

a rod disposed in the notch of the protrusion, wherein rotation of the holster assembly relative to the clothing clip assembly moves the rod from one of the plurality of grooves into an adjacent one of the plurality of grooves, holding the holster assembly and clothing clip assembly in relative position.

10. A system comprising:

a means for holding a wireless communication device, the means for holding having a means for rotatably coupling;

a means for attaching to an article of clothing, the means for attaching having a complementary means for rotatably coupling coupled to the means for rotatably coupling of the means for holding;

a rod means in operational relationship with the means for rotatably coupling and the complementary means for rotatably coupling.

11. The system as defined in claim 10 wherein the rod means further comprises a substantially circular rod means.

12. The system as defined in claim 10 wherein the rod means further comprises a metallic rod.

13. The system as defined in claim 10 wherein the means for rotatably coupling of the means for holding further comprises a protrusion having a perimeter that defines a substantially circular shape.

14. The system as defined in claim 13 wherein the complementary means for rotatably coupling of the means for attaching further comprises an aperture having a plurality of circularly spaced grooves.

15. The system as defined in claim 10 wherein the means for rotatably coupling of the means for holding further comprises an aperture having a plurality of circularly spaced grooves.

16. The system as defined in claim 15 wherein the complementary means for rotatably coupling of the means for attaching further comprises a protrusion having a perimeter that defines a substantially circular shape.

17. A system comprising:

a means for holding a wireless communication device and for rotatably coupling, the means for holding comprising:

a means for receiving at least a portion of the wireless communication device; and

a means for selectively stopping movement of the wireless communication device away from the means for holding;

a means for attaching to an article of clothing, the means for attaching having a complementary means for rotatably coupling coupled to the means for rotatably coupling of the means for holding.

18. The system as defined in claim 17 wherein the means for holding further comprises a means for preventing movement of the wireless communication device away from the means for receiving.

19. The system as defined in claim 18 wherein the means for preventing further comprises a means for limiting rotational movement of the means for selectively stopping.

20. The system as defined in claim 17 wherein the means for selectively stopping further comprises a latch means rotatably coupled on an end opposite the means for receiving, the latch means biased towards the means for receiving.

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