A carry assembly for a portable electronic device includes a holster (20), a protrusion (23) formed on the holster (20), a clip support member (30) pivotally attached to the holster (20) and a positioning member (70). A spring (60) is received in the protrusion (23). The clip support member (30) includes an opening (31) having a plurality of grooves (33). The positioning member (70) is disposed between the grooves (33) and the spring (60). Wherein rotation of the holster (20) from one position to another position moves the positioning member (70) from one of the grooves (33) into another, thereby locking the holster (20) into position.
CARRY ASSEMBLY FOR PORTABLE ELECTRONIC DEVICE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

The present invention relates to a carry assembly for a portable electronic device, and more particularly to a carry assembly for a portable electronic device hanging on a belt of a user.

[0002] 2. Background of the Invention

As portable electronic device such as personal digital assistant (PDA) becomes smaller and smaller, more and more users choose to carry the devices by fastening them to a holster that is somehow attached to a user’s belt. The conventional carrying holster typically include a portion for holding the PDA and a clip portion attached to the carrying portion for attachment to a user’s article of closing. When the PDA and the holster are attached to a user’s article of closing, the position of the PDA may restrict a person’s movement. For example, when the person sits, the bottom of the carrying holster can cause discomfort to the user’s leg or the top of the carrying holster can cause discomfort or pain to the user’s waist.

[0005] An adjustable holster having a rotatable connection between the belt loop assembly and the holster has been invented. The holster includes two rigid plates. One of the rigid plates includes a number of bosses in a circular array. The other plate includes the same number of mating recesses in a circular array. When the holster is in use, the bosses of one plate engage mating recesses in the other plate and the plates are held in place by a position locking screw to provide rigid angular positioning of the holster body with respect to the belt loop assembly. However, the adjustment process requires timely and inconvenient steps of obtaining a tool, loosening the position locking screw, adjusting the position of the holster and tightening the screw.

[0006] Accordingly, what is needed is a carry assembly for a portable electronic device whereby the position of the electronic devices with respect to the mounting mechanism can be easily adjusted and locked into position without using a tool.

SUMMARY OF THE INVENTION

[0007] A carry assembly for an electronic device includes a holster, a protrusion formed on the holster, a clip support member pivotally attached to the holster and a positioning member. A spring is received in the protrusion. The clip support member includes an opening having a plurality of grooves. The positioning member is disposed between the grooves and the spring. Wherein rotation of the holster from one position to other position moves the positioning member from one of the grooves into other, thereby locking the holster into position.

[0008] Other advantages and novel features of the present invention will be drawn from the following detailed description of preferred embodiment with attached drawings, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is an exploded isometric view of the preferred embodiment of a carry assembly for a portable electronic device;

[0010] FIG. 2 is another aspect view of FIG. 1;

[0011] FIG. 3 is an assembled view of the carry assembly of FIG. 1 with the holster in a vertical position; and

[0012] FIG. 4 is an assembled view of the carry assembly of FIG. 1 with the holster in a horizontal position.

DETAILED DESCRIPTION OF THE INVENTION

[0013] Referring to FIGS. 1 and 2, a carry assembly for a portable electronic device, such as a personal digital assistant (PDA) 10 includes a holster 20 used to contain a portable electronic device therein, a clip support member 30 and a clip 40.

[0014] The holster 20 is integrally formed of a rear panel 21, a pair of curved side panels 22, a bottom panel 24 and a top panel 25 pivotedly connected to the rear panel 21, which are connected together to form a bracket for receiving a PDA. A protrusion 23 protrudes from a center of the rear panel 21. Preferably, the perimeter of the protrusion 23 forms a substantially annular shape. A narrow receiving channel 231 is defined in the protrusion 23, and each side of the receiving channel 231 has a cavity 233. A ridge 26 used as a stopper for preventing the clip support member 30 over-rotating is formed under the protrusion 23.

[0015] As shown in FIGS. 1 and 2, a clip mechanism includes a clip support member 30, a pin 37, a clip 40 having a displacement end 41 and an engagement end 43, an elastic member 44 and a cap 50. One end of the clip support member 30 defines an opening 31 with a plurality of grooves 33 for capturing the positioning member in place arranged in a circular array. Integrally formed on the other end of the clip support member 30 are a pair of tabs 36 having pivotal holes 361 for the pin 37 mating through.

[0016] The clip 40 includes a pair of pivotal holes 401 for the pin 37 passing through and engaging to the clip support member 30. A post 405 protrudes from the inner side of the clip 40. The elastic member 44 is disposed between the clip 40 and the clip support member 30, to allow pivotal movement of clip 40 in relation to holster 20 about the axis of pin 37. The elastic member 44 has a first plate 441 with a receiving hole 445 and a second plate 443, which together form V-shaped. A receiving hole 445 for the post 405 of the clip 40 protruding through is defined in the first plate 441. The elastic member 44 allows the clip 40 to be easily placed onto and removed from the user’s belt or other article of closing. A pair of prongs 53 corresponding to the cavities 233 of the holster 20 are integrally formed on the inside of the cap 50.

[0017] FIGS. 3 and 4 show how clip support member 30 is coupled to the holster. Opening 31 accepts protrusion 23 of holster 20. A spring 60 is received in the channel 231 of the clip support member 30. A positioning member 70 disposed between the spring 60 and one of the grooves 33 of opening 31 locks the holster 20 in position with respect to the clip support member 30, wherein the positioning member 70 is rigid enough not to be distorted. In the present embodiment, the positioning member 70 is a steel column that can reduce the abrasion of the carry assembly. The prongs 53 of the cap 50 protrude through the cavities 233 and fix the clip support member 30 to the holster 20.

[0018] The position of the holster 20 with respect to the clip support member 30 can be adjusted by rotating spring
The carry assembly of the present invention allows a user carry a PDA or other electronic device on an article of closing more comfortably than known assemblies. Whenever the user desires, such as before sitting, he or she can adjust the orientation of the device so that it does not cause discomfort to parts of the body. The present invention allows the user to move the device into a plurality of grooves and lock the device in place while maintaining the carrier assembly securely mounted on a belt or other article of closing. No tools need to operate the adjustment. User can simply rotate and position the carry assembly into the required angle with one hand.

It is to be understood, however, that even though numerous characteristics and advantages have been set forth in the foregoing description of preferred embodiments, together with details of the structure and function, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size, and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

We claim:

1. A carry assembly for an electronic device comprising:
   a holster for carry a portable electronic device;
   a spring received in the holster;
   a clip support member pivotally attached to the holster defining an opening having a plurality of grooves; and
   a positioning member disposed between the grooves and the spring, wherein rotation of the holster from one position to another position moves the positioning member from one of the grooves into another, thereby locking the holster into position.

2. The carry assembly for a portable electronic device as described in claim 1, wherein a protrusion is formed on the holster, and a receiving channel is defined in the protrusion for the spring received therein.

3. The carry assembly for a portable electronic device as described in claim 2, wherein the protrusion is rounded.

4. The carry assembly for a portable electronic device as described in claim 1, wherein the positioning member is not deformable.

5. The carry assembly for a portable electronic device as described in claim 1, wherein the positioning member is a steel column.

6. The carry assembly for a portable electronic device as described in claim 1, wherein a ridge for preventing the holster over-rotating is formed on the holster.

7. The carry assembly for a portable electronic device as described in claim 1, further comprising a clip pivotally attached to the clip support member, and an elastic member is disposed between the clip and the clip support member.

8. The carry assembly for a portable electronic device as described in claim 7, wherein the clip comprises a post and the elastic member comprises a hole for the post protruding therethrough.

9. A carry assembly for a portable electronic device of an electronic device comprising:
   a clip support member comprising an opening having a plurality of grooves;
   a holster pivotally attached to the clip support member;
   and
   a retractable positioning member received between the clip support member and the holster, thereby defining a relative angle between the clip support member and the holster, wherein the rotation of the holster forces the positioning member to retract and move from one of the plurality of grooves to other groove to lock the holster in position.

10. The carry assembly for a portable electronic device as described in claim 9, further comprising a protrusion for pivotally mating with the opening of the clip support member.

11. The carry assembly for a portable electronic device as described in claim 10, wherein the protrusion is rounded.

12. The carry assembly for a portable electronic device as described in claim 10, wherein the protrusion comprises a receiving channel for a spring received therein.

13. The carry assembly for a portable electronic device as described in claim 12, wherein the positioning member is a steel column disposed between one of the plurality grooves and the spring.

14. The carry assembly for a portable electronic device as described in claim 10, wherein a ridge for preventing the holster over-rotating is formed under the protrusion.

15. The carry assembly for a portable electronic device as described in claim 9, wherein the positioning member is rigid enough not to be distorted.

16. The carry assembly for a portable electronic device as described in claim 9, further comprising a clip pivotally attached to the clip support member, and an elastic member is disposed between the clip and the clip support member.

17. The carry assembly for a portable electronic device as described in claim 16, wherein the clip comprises a post, and the elastic member comprises a hole for the post protruding therethrough.

18. An assembly for carrying an electronic device, comprising:
   a container of said assembly having an inner space to receive an electronic device therein;
   a support member movably attachable to said container and capable of being further attachable to a user of said electronic device, said container capable of being moveable to at least two orientations thereof relative to said support member and getting in position along each of said at least two orientations; and
   a stopper formed at one of said container and said support member, and facing and interferingly interactive with the other of said container and said support member so as to restrain said container from moving to undesired orientations thereof relative to said support member.

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