A neck strap of a portable apparatus, particularly the neck strap with a quick release unit. The quick release unit is linked between the neck and the portable apparatus. When an external stretching force exceeds a safety range, the quick release unit is quickly released from the neck strap to protect the user. The quick release unit is not in contact with the neck of the user, such that the user will not feel uncomfortable for wearing the neck strap. Further, as consideration of ergonomics is not required for the design of the quick release unit, and there is no limitation of the shape, the design flexibility is greatly enhanced.
NECK STRAP OF PORTABLE APPARATUS

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the priority benefit of Taiwan application serial no. 91215159, filed Sep. 25, 2002.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The invention relates in general to neck strap of a portable apparatus, and more particularly, to a neck strap of a portable apparatus that is quickly released to protect the user without affecting the neck of the user when an external force applied thereto exceeds a safety range.

[0004] 2. Related Art of the Invention

[0005] To provide the application convenience and portability of the conventional portable electronic apparatus such as the cellular phone, a neck strap is frequently used allowing the user to carry such cellular phone. The cellular phone is hanged on the neck strap, and the neck strap is typically collared on the neck of the user.

[0006] As the neck strap is collared on the neck, under certain specific conditions such as walking in an environment full of machines or factory equipment, the neck strap is easily entangled with the machine. The improper stretch of the neck strap is likely injure the neck of the user, or even endanger the lift of the user.

SUMMARY OF THE INVENTION

[0007] The present invention provides a neck strap of a portable apparatus, particular a neck strap with a quick release unit. The quick release unit is linked between the neck and the portable apparatus. When an external force applied to the neck strap exceeds a safety range, the quick release unit is quickly released to protect the user. The quick release unit will not affect the neck of the user.

[0008] The quick release unit linked between the neck and the portable apparatus is designed without the necessity of considering ergonomics and without limitation of shape. Further, as the direction of the external force applied to the quick release unit is linear, the problem of pull force angle does not exist. As a result, the actual safety range of the stretching force is identical to the stretching force specification as designed.

[0009] The neck strap of a portable apparatus in the present invention includes a non-neck-touchable quick release unit for pending the portable apparatus, such that the user wearing the neck strap will not feeling uncomfortable by the contact of the quick release unit.

[0010] The design of the neck strap of a portable apparatus is flexible. The external feature can be designed according to specific requirement of the clients. For example, the neck strap is more competitive with the quick release unit configured with trademark of the manufacturer, logo of the client, the popular cartoon character, or a unique shape.

[0011] The neck strap provided by the present invention includes a quick release unit which is not in contact with the neck of the user, so that when the quick release unit is released or broken by an external force over the safety range, the neck of the user will not be injured.

[0012] In the present invention, a neck strap carrying a portable apparatus and collared on the neck of a user is provided. The neck strap includes a neck-touchable portion and a non-neck-touchable portion. A quick release Unit is disposed in the non-neck-touchable portion. When the external force applied to the neck strap exceeds a safety range, the quick release unit is released to remove the neck strap from the neck of the user.

[0013] In one embodiment, the above-mentioned neck strap further comprises one microphone, one ear phone, one pair of ear phones, one microphone and one ear phone, or one microphone and one pair of ear phones. The microphone and the ear phone are applied to a communication system such as the cellular phone, an audio system such as the MP3 player, an AM/FM radio, a personal data assistant (PDA), a CD player, an MD (minidisk) player, or a digital audio broadcasting (DAB) player. The microphone and the ear phone are electrically connected to the portable apparatus allowing the portable apparatus to transmit an audio signal or a sound signal, such that the user can listen to the audio or sound signal. The microphone is used to transmit the sound of the user to the portable apparatus.

[0014] In the above neck strap, an electric wire is further included to connect the microphone and the ear phone, or the pair of ear phones to the portable apparatus. In one embodiment of present invention, the electric wire is embedded in a portion of the neck strap to connect with the portable apparatus. Preferably, the quick release unit is disposed in the non-neck-touchable portion between the position where the electric wire is embedded in the neck strap and the neck of the user.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] These, as well as other features of the present invention, will become more apparent upon reference to the drawings wherein:

[0016] FIG. 1 shows the structure of the neck strap in one embodiment of the present invention; and

[0017] FIG. 2 shows the user wearing the neck strap as shown in FIG. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] The present invention provides a neck strap of a portable electronic apparatus, particularly a neck strap with a quick release unit. The quick release unit is located between the neck and the portable apparatus. When an external force for stretching the neck strap exceeds a safety range, the quick release unit is instantly released from the neck strap to protect the user without affecting the neck of the user.

[0019] Referring to FIG. 1, the structure of the neck strap in one embodiment of the present invention is illustrated. The neck strap 120 can be used for carrying a portable apparatus 110 such as a cellular phone, a personal digital assistant, an MP3 player, an AM/FM radio, a CD player, an MD player or a digital audio broadcasting player. The neck strap 120 includes a first portion A, which is the neck-
toucbable portion, and a second portion B, which is a non-neck-touchable portion. The neck-touchable portion A is in contact with the neck of the user while the user is wearing the neck strap 120. Meanwhile, the non-neck-touchable portion B is not in contact with the neck of the user. The non-neck-touchable portion B is connected with the portable apparatus 110 via a connecting terminal 112.

[0020] In this embodiment, a quick release unit 150 is mounted to the non-neck-touchable portion B. The quick release unit 150 is located at a connecting part between the neck and the portable electronic apparatus 110 (the non-neck-touchable portion B). When an external force applied to stretch the neck strap 120 exceeds a safety range, the quick release unit 150 is quickly detached from the neck strap 120 to protect the user. The quick release 150 unit will not affect the neck of the user. The safety range can be adjusted according to specific design specification. The quick release unit 150 includes a clasp, for example. Within the safety range, the quick release unit 150 will not be detached from the neck strap 120. When the user is wearing the neck strap 120, the quick release unit 150 can protect the neck of the user from being injured by the excessive external force.

[0021] In case the quick release unit is located at the neck touchable portion A, particularly near the center of the back of the neck, though the quick release unit can be hidden from being observed, many problems may be caused as discussed as follows.

[0022] The most important issue is the safety consideration. As the neck strap supports the weight of the portable apparatus, the quick release unit will be closed in contact with the neck of the user while being located at the center of the back of the neck. The close contact requires the quick release unit to be designed with either an arc or flat shape according to ergonomics. The geometric limitation induces the difference between the actual safety range and the manufacture rating safety range of the stretching force. Further, the angle variation for touching the neck of the user results in the difference of force for quick release, such that the safety specification is different from the actual application. The manufacturer is responsible for any accident caused by the difference, while the user is endangered. In addition, the quick release unit at the back of the neck is easily entangled with the hair of the user. This causes the inconvenience and is likely to injure the user.

[0023] The second issue is the health of the user. As the quick release unit can withstand a stretch force within the safety range without being loosened, the material for making the quick release unit has to be rigid. Therefore, the contact between the quick release unit and the neck of the user, particularly when the user wearing the neck strap and walking around, will irritate the skin of the user. More seriously, the contact friction will hurt the skin at the back of the neck and cause allergy or infection of the skin. Further, the contact friction will scratch the skin and cause the skin easily burned by the sun.

[0024] With respect to design consideration, the quick release unit closely touching the neck of the skin has to be designed based on ergonomics. The external feature of the quick release unit is limited to arc shape to avoid discomfort of the user. The external feature of the quick release unit is thus very limit without any unique design.

[0025] Considering the breakage problem, the quick release unit can bear with a certain stretching force without being released. Therefore, the material for forming the quick release unit must be sufficient hard or rigid. The close attachment of the quick release unit at the back of the neck will be released or even broken when the external force exceeds the safety range. The neck of the user is thus easily injured by the breakage of the quick release unit.

[0026] In contrast, by disposing the quick release unit at the non-neck-touchable portion B of the neck strap has the following advantages.

[0027] Regarding safety issue, as the quick release unit 150 is disposed between the neck and the portable apparatus 110, the design of the quick release unit 150 is not restricted by ergonomics nor the shape. Further, as the external force applied to the quick release unit 150 is linear, no stretching force angle related problem is caused. Therefore, the actual safety range of the stretching force is identical to the designed safety range. The safety standard displayed by the manufacturer is thus met. The manufacturer is free from the responsibility of the inconsistent performance, while the life of the user is not endangered for using the neck strap. In addition, as being located at either side of the user, the quick release unit 150 will not be entangled with the hair of the user.

[0028] In the health viewpoint, the quick release unit 150 is not closely in contact with the neck. Therefore, even the user has to walk around while wearing the neck strap, discomfort will not be caused by wearing the quick release unit 150.

[0029] In the consideration of design, the design is very flexible by locating the quick release unit 150 between the neck and the portable apparatus 110. While designing the internal structure of the quick release unit 150, the external feature of the neck strap 120 can be taken into account. In addition, the position of the quick release unit 150 easily attracts the attention of others. Therefore, the quick release unit 150 can thus be designed with a feature required by the client. For example, the quick release unit 150 can be made with a specific configuration such as the trademark of the manufacturer, the logo of the company, the cartoon character or other unique shape to become more competitive.

[0030] For the breakage issue, the quick release unit 150 can bear with a certain stretching force without being released. Therefore, the material for forming the quick release unit must be sufficient hard or rigid. As the quick release unit 150 is not in contact with the neck of the user, the breakage thereof will not injure the neck of the user.

[0031] In FIG. 1, accessory can be added as required by the portable apparatus 110 carried by the neck strap 120. For example, the above neck strap 120 may further comprise a single microphone, a single ear phone, a pair of ear phones, a microphone plus an ear phone, or a microphone and a pair of ear phones. The accessory includes the microphone and ear phone of the communication system such as a cellular phone. Alternatively, the accessory includes the ear phone of the audio system such as the MP3 player, the AM/FM radio, the PDA, the CD player, the MD player or the DAB player. The above microphone and ear phone are electrically connected to the portable apparatus 110, allowing the portable apparatus 110 to transmit an audio or sound signal, and the
user to listen to the audio signal or to enjoy the sound signal. The microphone is used to transmit the sound of the user to the portable apparatus 110.

[0032] In one embodiment of the present invention, when the portable apparatus 110 in the neck strap 120 as shown in FIG. 1 is a cellular phone, a microphone 130 and a ear phone 140 may be included. An electric wire 134 extends from the position 132 of the neck strap 120. The length of the electric wire 134 is designed according to specific requirement. The electric wire 134 between the position 132 of the neck strap 120 and the portable apparatus 110 is embedded in the neck strap 120, and the position 132 extends towards the connecting terminal 112 to connect with the portable apparatus 110. If the portable apparatus 110 is a portable audio equipment such as a MP3 player or an AM/FM radio, another ear phone 142 is added. The embodiment is also suitable for the current integrated portable digital apparatus of the cellular phone and audio equipment

[0033] While considering the electric wire 134 of the microphone 130 and the ear phone 140, the quick release unit 150 of the neck strap 120 can be located at the non-neck-touchable portion B from the position 132 to the neck. Without considering the electric connection issue, the quick release unit 150 can be positioned at any portion of the non-neck-touchable portion B.

[0034] Referring to FIG. 2, the user 200 wearing the neck strap 220 is shown. The neck strap 220 can be used to carry a portable apparatus 210 such as a cellular phone, a PDA, a MP3 player, and an AM/FM radio. The neck strap 220 includes a first portion 222, that is, the neck-touchable portion and a second portion 224, that is, the non-neck-touchable portion. The neck-touchable 222 is collared around the neck of the user 200, while the non-neck-touchable portion 224 is not in contact with the user 200. The non-neck-touchable portion 224 is connected to the portable apparatus 210 via a connecting terminal.

[0035] If the portable apparatus 210 carried by the neck strap 200 as shown in FIG. 2 is a cellular phone, the neck strap 200 further comprises a microphone 240 and an ear phone 250. An electric wire 230 is embedded in a position of the neck strap 220 and connected to the portable apparatus 210. If the portable apparatus 210 is a portable audio equipment such as a MP3 player or an AM/FM radio, another ear phone 255 is added. The embodiment is suitable for the integrated portable digital apparatus integrating the cellular phone and the audio equipment.

[0036] The neck strap 220 includes a quick release unit 265 in the non-neck-touchable portion 222. The actual position of the quick release unit 265 is determined according to specific requirement. The quick release unit 265 is located at the connecting portion (the non-neck-touchable portion 222) between the neck and the portable electronic apparatus 210. When an external force over a safety range is applied to stretch the neck strap 220, the quick release unit 265 is quickly released to protect the safety of the user. The quick release unit 265 will not affect the neck of the user. The design of the safety range is adjustable according to design specification. The quick release unit 265 includes a clasp which will not be detached with the stretching force within the safety range. When the user is wearing the neck strap 220, the quick release unit 265 will protect the neck of the user from being injured by the external force.

[0037] Other embodiments of the invention will appear to those skilled in the art from consideration of the specification and practice of the invention disclosed herein. It is intended that the specification and examples to be considered as exemplary only, with a true scope and spirit of the invention being indicated by the following claims.

What is claimed is:

1. A neck strap, carrying a portable apparatus and collared around the neck of a user, comprising:

   a neck-touchable portion and a non-neck-touchable portion, wherein the neck-touchable portion is collared around the neck when the user is wearing the neck strap, while the non-neck-touchable is not in contact with the neck of the user;
   a quick release unit mounted to the non-neck-touchable portion, allowing the neck strap removed from neck when an external force applied to the neck strap exceeds a safety range.

2. The neck strap according to claim 1, further comprising a microphone electrically connected to the portable apparatus to transmit the sound of the user to the portable apparatus.

3. The neck strap according to claim 2, further comprising an electric wire connecting the microphone to the portable apparatus.

4. The neck strap according to claim 3, wherein the electric wire is embedded at a position of the neck strap and connected to the portable apparatus.

5. The neck strap according to claim 4, wherein the quick release unit is located at the non-neck-touchable portion between the position for embedding the electric wire and the neck of the user.

6. The neck strap according to claim 1, further comprising an ear phone electrically connected to the portable apparatus to transmit an audio signal of the portable apparatus.

7. The neck strap according to claim 6, further comprising an electric wire to connect the ear phone to the portable apparatus.

8. The neck strap according to claim 7, wherein the electric wire is embedded at a position of the neck strap and connected to the portable apparatus.

9. The neck strap according to claim 8, wherein the quick release unit is located at the non-neck-touchable portion between the position for embedding the electric wire and the neck of the user.

10. The neck strap according to claim 1, further comprising an ear phone electrically connected to the portable apparatus to transmit a sound signal of the portable apparatus for the user to listen.

11. The neck strap according to claim 10, further comprising a pair of ear phones electrically connected to the portable apparatus to transmit a sound signal of the portable apparatus for the user to listen.

12. The neck strap according to claim 1, further comprising an electric wire to connect the ear phones to the portable apparatus.

13. The neck strap according to claim 12, wherein the electric wire is embedded at a position of the neck strap and connected to the portable apparatus.

14. The neck strap according to claim 13, wherein the quick release unit is located at the non-neck-touchable portion between the position for embedding the electric wire and the neck of the user.
15. The neck strap according to claim 1, wherein the portable apparatus includes a cellular phone.

16. The neck strap according to claim 1, wherein the portable apparatus includes a personal digital assistant.

17. The neck strap according to claim 1, wherein the portable apparatus includes a MP3 player.

18. The neck strap according to claim 1, wherein the portable apparatus includes an AM/FM radio.

19. The neck strap according to claim 1, wherein the portable apparatus includes a CD player.

20. The neck strap according to claim 1, wherein the portable apparatus includes a minidisc player.

21. The neck strap according to claim 1, wherein the portable apparatus includes a digital audio broadcasting player.

22. A neck strap, used to carry a portable apparatus and collared around the neck of a user, comprising a neck-touchable portion and a non-neck-touchable portion, wherein the neck-touchable portion is collared around the neck when the user is wearing the neck strap, while the non-neck-touchable is not in contact with the neck of the user, the neck strap is characterized in

   including a quick release unit mounted to the non-neck-touchable portion, allowing the neck strap removed from neck when an external force applied to the neck strap exceeds a safety range.

23. The neck strap according to claim 22, further comprising a microphone electrically connected to the portable apparatus to transmit the sound of the user to the portable apparatus.

24. The neck strap according to claim 23, further comprising an electric wire connecting the microphone to the portable apparatus.

25. The neck strap according to claim 24, wherein the electric wire is embedded at a position of the neck strap and connected to the portable apparatus.

26. The neck strap according to claim 25, wherein the quick release unit is located at the non-neck-touchable portion between the position for embedding the electric wire and the neck of the user.

27. The neck strap according to claim 22, further comprising an ear phone electrically connected to the portable apparatus to transmit an audio signal of the portable apparatus.

28. The neck strap according to claim 27, further comprising an electric wire to connect the ear phone to the portable apparatus.

29. The neck strap according to claim 28, wherein the electric wire is embedded at a position of the neck strap and connected to the portable apparatus.

30. The neck strap according to claim 29, wherein the quick release unit is located at the non-neck-touchable portion between the position for embedding the electric wire and the neck of the user.

31. The neck strap according to claim 22, further comprising an ear phone electrically connected to the portable apparatus to transmit a sound signal of the portable apparatus for the user to listen.

32. The neck strap according to claim 31, further comprising an electric wire to connect the ear phones to the portable apparatus.

33. The neck strap according to claim 32, wherein the electric wire is embedded at a position of the neck strap and connected to the portable apparatus.

34. The neck strap according to claim 33, wherein the quick release unit is located at the non-neck-touchable portion between the position for embedding the electric wire and the neck of the user.

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