The invention includes an apparatus for attachment to a camera. One embodiment of the invention includes an attachable storage container. Another embodiment of the invention includes an attachable retractable tether, and a third embodiment includes both an attachable storage container with a retractable tether.
CAMERA-ATTACHABLE DEVICE

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of provisional patent application Serial No. 60/393,344 filed Jul. 1, 2002. This application is also a continuation-in-part of U.S. patent application Ser. No. 10/262,323 filed Oct. 1, 2002. The specification and drawings of the aforementioned applications are hereby incorporated by reference in their entirety.

FIELD OF THE INVENTION

[0002] The present invention pertains to the attachment of components to a camera including but not limited to one or more of a storage container and a retractable tether.

BACKGROUND OF THE INVENTION

[0003] Cameras are often secured with a strap that is attached to the camera and worn around the user’s neck or shoulder. Straps are used to prevent accidental drops of a camera, as well as to allow the user to maneuver hands free when the camera is not in use. However, the protections and amenities offered by a strap are not available when the strap is not in use. Thus, even cameras with a strap are dropped when the user is not wearing the strap, or is not wearing the strap securely.

[0004] Cameras are often stored within a camera bag, and camera bags often have a strap worn by the user. Camera bags provide a useful place to store film, lens covers, additional lenses, cleaning equipment, and other useful items. However, camera bags can be bulky. Also, the use of a camera bag requires the user to constantly store and remove the camera, or wear the camera bag and the camera at the same time. Often, the user of a camera bag will not use a camera strap when briefly removing the camera for a quick shot.

[0005] What is needed is a storage container that attaches to the camera itself so that the camera does not need to be constantly stored and removed for use. Additionally, what is needed is a more secure means of attaching a camera to the user with a retractable tether.

[0006] These and other features and advantages of this invention will become apparent upon reading the following specification, which along with the drawings describes and discloses a preferred and alternative embodiment of the invention in detail.

SUMMARY OF THE INVENTION

[0007] In accord with the invention is disclosed an apparatus for attachment to a camera. One embodiment of the invention includes an attachable storage container. Another embodiment of the invention includes an attachable retractor assembly, and a third embodiment includes both an attachable storage container with a retractor assembly.

[0008] The retractor assembly generally includes a tether that has a free end that can be extended a desired length from the retractor. The free end generally will include a coupling device to couple to the user or to an anchor structure. Virtually any known coupling device may be used. The retractor assembly also includes a retraction mechanism for drawing the tether into the retractor assembly. Many kinds of retraction mechanisms are useable in the invention.

[0009] Embodiments of the retractable tether include a means for securing one end of the tether to an anchor such as the users belt or an object near the user. The means for securing one end of the tether to an anchor may be any selected securing means including a piston hook. Some embodiments of the invention couple to a standard tripod socket found on many cameras. Some embodiments further include apparatus for controlling a rate of retraction of said retractable tether such as a locking device or a brake device.

[0010] In some embodiments, the tethering apparatus may be modifid to allow a locking mechanism for the tether. Such a mechanism allows for the operator to use the tool without exerting a counter force against the retracting mechanism while the camera is being used. When done, the operator disengages the locking mechanism. As an alternative to the locking mechanism, a ratchet mechanism may be substituted which would allow the tool to be extended away from the anchor point, but would not allow a potentially uncontrolled retraction back toward the user. One embodiment of a ratchet mechanism would require the operator to disengage the ratchet mechanism and hold the mechanism disengaged while the camera is retracted.

[0011] In another embodiment, the retraction mechanism may be configured so that the tension applied to the tether varies as the tether is unwound from the retraction mechanism. For example, the tension may be high when the camera is near the coupling device attached to the operator in order to prevent the pliers from bouncing on the tether when the operator is walking. The tension may fall as the camera is moved away from the coupling device in order to reduce resistance to the operators handling and use of the tether.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] A better understanding of the present invention will be had upon reference to the accompanying drawings in which like numerals refer to like parts in the several views and in which:

[0013] FIG. 1 is a perspective view of one embodiment of the invention;

[0014] FIG. 2 is a perspective view of a camera and one embodiment of the invention coupled to the camera;

[0015] FIG. 3 is a perspective view of one embodiment of the invention;

[0016] FIG. 4 is an exploded, perspective view showing the major functional components of the invention;

[0017] FIG. 5 is a perspective view of an embodiment of the attachable device of the invention, including a retractor mechanism, but not a storage compartment.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] In accord with the invention is disclosed apparatus for attachment to or on a camera. The invention will be described in the context of example configurations. However, the invention is usable in a variety of configurations. For example, one embodiment of the invention includes an
attachable storage container. Another embodiment of the invention includes an attachable retractor assembly. A third embodiment includes both an attachable storage container with a retractor assembly, and a fourth embodiment includes a camera fabricated to include a retractor assembly. Virtually any size or shaped storage container, any kind of retractable tether, any type of tether coupling devices, and many kinds of cameras, may be usable in the invention.

[0019] The retractor assembly generally includes a tether that has a free end that can be extended a desired length from the retractor, a retraction mechanism for drawing the tether into the retractor assembly, and a coupling device on the free end of the tether to couple to the user or to an anchor structure.

[0020] Some embodiments of the storage container and/or the retractor assembly of the invention couple to a standard tripod socket found on many cameras.

[0021] Some embodiments further include apparatus for controlling a rate of retraction of said retractable tether such as a locking device or a brake device. For example, in some embodiments, the tethering apparatus may be modified to allow a locking mechanism for the tether. Such a mechanism allows for the operator to use the tool without exerting a counter force against the retracting mechanism while the camera is being used. When done, the operator disengages the locking mechanism. In other embodiments, a ratchet mechanism may be substituted which would allow the tool to be extended away from the anchor point, but would not allow a potentially uncontrolled retraction back toward the user. In another embodiment, the retraction mechanism may be configured so that the tension applied to the tether varies as the tether is unwound from the retraction mechanism. For example, the tension may be high when the camera is near the coupling device attached to the operator in order to prevent the pliers from bouncing on the tether when the operator is walking. The tension may fall as the camera is moved away from the coupling device in order to reduce resistance to the operators handling and use of the tether. One skilled in the art may easily make or select an appropriate retraction control means.

[0022] Referring to the drawings, and particularly to FIG. 1, an example is shown of an attachable device 100 including a tether 140, tether retractor housing 110, a coupling device 150, and a storage container 130.

[0023] In alternate embodiments, the attachable device 100 may include many other selected functional features including but not limited to a digital clock, storage, a finder, or wireless modem for electronically transmitting photographs. Furthermore, one skilled in the art may easily modify the shape and size of the attachable device 100 to adapt the device for use on particular camera models, or to adapt the device 100 for particular functions.

[0024] In the embodiment shown in FIGS. 1-4, the attachable device includes a retractable tether, with one end of the tether coupled to a retractor mechanism (best seen in FIG. 4) and the other coupled to a coupling device 150. The coupling device 150 seen in FIG. 1 is a piston hook 170. A detachable connector 160 allows the end of the tether to be removed from the piston hook 170 and attached to some other type of attachment means. This allows for the operator to employ a different attachment means that may be dependent on the type of surface the camera is to be attached. For example, the piston hook 170 could remain attached to a hook within a boat when connector 160 is detached, and then connector 160 could be attached to a second piston hook 170 on the operator’s pant belt loops. This feature allows the camera to be easily and quickly moved between different attachment locations that the operator may desire.

[0025] In alternate embodiments many other known coupling mechanisms may be substituted for the piston hook 170. Other embodiments may not use a detachable connector 160, and additional embodiments may include a swivel connector between the piston hook 170 and the tether 140. The tether 140 may be fabricated from virtually any material having sufficient strength to hold the camera.

[0026] The storage compartment 130 is configured to hold batteries, however, in alternate embodiments the storage compartment 130 may be configured to store a variety of desired objects such as memory components for digital cameras, film, and additional camera lenses. For example, FIG. 3 illustrates an embodiment of the invention wherein the storage compartment 330 is dimensioned to accommodate a roll of film. Returning to FIG. 1, any acceptable material may be used to fabricate the storage compartment 130 including various plastic, leather, and cloth materials. In the embodiment shown, the storage compartment 130 is made of the same material as the retractor mechanism housing 110. The storage container can be sealed with any known latches, zippers, etc.

[0027] Referring to FIG. 2, the attachable device 100 may be coupled to a camera 210 using the camera’s tripod socket using a screw 120 that is dimensioned to threadably engage a standard camera tripod socket. Thus, the attachable device 100 can be secured to a camera via the camera’s tripod socket, and then secured to the user via the coupling device 150. In alternate embodiments other means for coupling to the camera may be used, including but not limited to fastening to camera strap ties that may already exist on the camera. In still other embodiments, the camera may be fabricated to include a built in retractor assembly.

[0028] FIG. 4 is an exploded view of an example embodiment of the attachable device. Many retractor configurations are useable, however, a preferred embodiment is shown in this figure. The functional components of the retractable tether apparatus include a spool 440 onto which the tether 140 is wound. The retractor spring 450 provides the spring force required to automatically rewind the tether 140 back onto the spool 440. The retractor spring 450, spool 440, and tether 140 are enclosed within a casing 460 having a cap 430. The casing 460 and cap 430 are then placed within the housing 110, and the housing is sealed with the screw 120 that passes through the lid 415, cap 430, spool 440, retractor spring 450, casing 460, and base 470, as shown. The lid 410 has a hole 415 to allow the screw to pass through, as well as a slot 420 to allow the tether 140 to pass through. Similarly, the base 470 has a hole 480 to allow the screw 120 to pass through, as well as a slot 485 to allow the tether 140 to pass through.

[0029] In the embodiment shown in FIG. 4, the screw 120 passes through the lid 410 and base 470 of the housing 110, extending beyond the base 470 to engage a camera’s tripod socket. However, in alternate embodiments the screw need not necessarily pass through the housing 110 to engage the
camera 210, and instead, other known means for coupling the attachable device 100 to the camera 210 may be used.

[0030] The retractor mechanism may be configured to include a tether retraction control mechanism such as a locking mechanism, brake mechanism, or ratchet mechanism locking mechanism for the tether. Such a mechanism allows for the operator to use the camera 210 without exerting a counter force on the retraction mechanism during camera use, but would preferably not allow a potentially uncontrolled retraction back toward the user. When done using the camera, the operator disengages the locking mechanism. One advantage of having the tethering mechanism attached to the camera is that the user may access the locking mechanism without releasing the camera 210 because the tethering mechanism and camera are attached together. Such mechanisms are known in the art and may be easily adapted by one skilled in the art for use in the invention. In one embodiment, the tether retraction control mechanism may require the operator to disengage the mechanism and hold the mechanism disengaged while the camera 210 is retracted.

[0031] As an alternative to the locking mechanism, a brake mechanism may be substituted which would allow the camera to be extended away from the anchor point, but would not allow a potentially uncontrolled retraction back toward the user. A preferred embodiment of a brake mechanism would require the operator to disengage the ratchet mechanism and to hold the mechanism disengaged while the camera is retracted.

[0032] In another embodiment, the retraction mechanism may be configured so that tension applied to the tether is varied when the tether is unwound from the retraction mechanism. For example, the tension may be high when the camera is near the coupling device 150 attached to the operator in order to prevent the camera from bouncing on the tether when the operator is walking. The tension may fall as the camera is moved away from the coupling device 150 in order to reduce resistance to the operators handling and use of the camera.

[0033] FIG. 5 is a perspective view of an embodiment of the attachable device of the invention, including a retractor mechanism, but not a storage compartment.

[0034] To use the attachable storage container with a retractable tether 100, the user drives the screw 120 into a camera’s tripod socket as seen in FIG. 2. Then, the user secures the coupling device 150 to an anchor. Most often, a convenient anchoring point will be a clothing article such as the user’s belt. However, the user may alternatively anchor the invention to other objects place, to store the camera safely and yet allow the camera to be easily accessible for use, such as a bicycle, boat, or backpack. When the user desires to use the camera, he grasps the camera and pulls the camera into position for use, extending the tether to the length necessary. When the user is finished with the camera, the tether is allowed to retract. In embodiments with a locking system of braking mechanism, the user may need to operate the locking system of braking mechanism to allow the tether to retract.

[0035] Although exemplary embodiments of the invention have been described in detail above, those skilled in the art will readily appreciate that many additional modifications are possible without departing materially from the novel teachings and advantages of the invention. For example, the camera bag with a retractable tether may be attached to a camera in some other way roughly equivalent to the tripod socket.

What is claimed is:

1. A camera-attachable device for attaching to a camera, said camera-attachable device, comprising:
   a retractor assembly, and
   a connector connecting said retractor assembly to the camera
2. The camera-attachable device of claim 1, wherein said means for attaching said retractor assembly to the camera comprises a tripod socket.
3. The camera-attachable device of claim 2, wherein said means for attaching said retractor assembly to said tripod socket comprises a screw.
4. The camera-attachable device of claim 1, further comprising a storage compartment.
5. The camera-attachable device of claim 1, wherein said retractor assembly comprises a retractable tether, and a retractor coupled to a first end of said tether.
6. The camera-attachable device of claim 5, further comprising a securing means for securing said retractable tether to an anchor structure.
7. The camera-attachable device of claim 5, further comprising an apparatus for controlling a rate of retraction of said retractable tether.
8. The camera-attachable device of claim 7, wherein said apparatus for controlling said rate of retraction of said retractable tether comprises a lock.
9. The camera-attachable device of claim 7, wherein said apparatus for controlling said rate of retraction of said retractable tether comprises a brake.
10. A camera and retractor in combination comprising:
   a camera,
   a retractor, and a connector connecting said retractor to a camera, and
   a retractable tether having a first end and a second end, said first end of said tether attached to said retractor.
11. The camera retractor of claim 10, wherein said means for attaching said retractor to said camera comprises a tripod socket on said camera.
12. The camera retractor of claim 12, wherein said means for attaching said retractor assembly to said tripod socket on said camera comprises a screw.
13. The camera retractor of claim 11, further comprising a storage compartment.
14. The camera retractor of claim 11, further comprising a coupling device for securing said retractable tether to an anchor structure.
15. The camera retractor of claim 10, further comprising an apparatus for controlling a rate of retraction of said retractable tether.
16. The camera retractor of claim 15, wherein said apparatus for controlling said rate of retraction of said retractable tether comprises a lock.
17. The camera retractor of claim 15, wherein said apparatus for controlling said rate of retraction of said retractable tether comprises a brake.
18. The method of using the camera retractor of claim 15, comprising the steps:
attaching said coupling device to said anchor structure;
moving said camera away from a retracted position into a use position, thereby extending said tether;
using said camera; and
allowing said retractor to retract said tether to move said camera from said use position to said retracted position.

19. The method of claim 19 wherein said step of moving said camera, away from a retracted position into a use position, thereby extending said tether, further includes the step of:
activating a retraction control mechanism to prevent unwanted retraction of said tether.

20. The method of claim 19 wherein said step of allowing said retractor to move said camera from said use position to said retracted position further includes the step of:
releasing said retraction control mechanism to allow retraction of said tether.