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(54) **RETRACTABLE CARRYING DEVICE FOR AN OPTICAL DEVICE**

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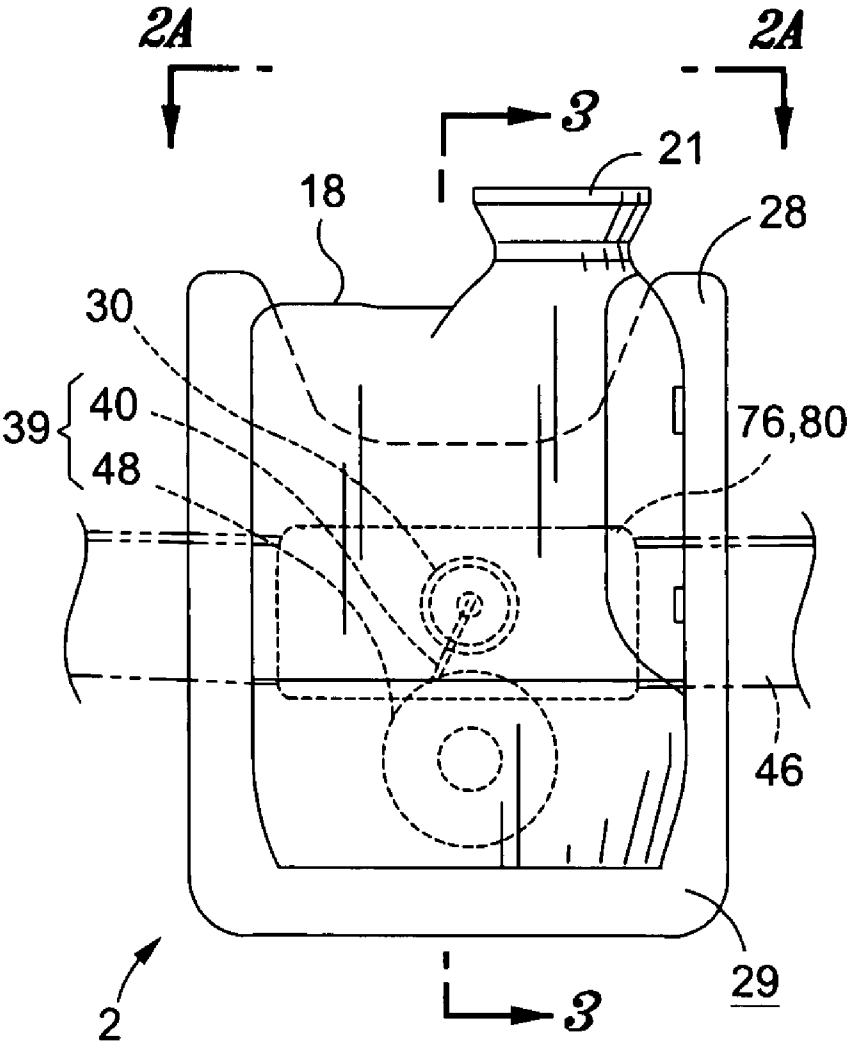
(57) **ABSTRACT**

There is provided a retractable carrying device for an optical device. The carrying device includes a support member including an alignment contact element configured to dispose the optical device in a stowed position in fixed orientation relative to the support member. The carrying device further comprises a retraction assembly including a tether attachable to the optical device and a retraction mechanism attached to the tether. The retraction mechanism applies a longitudinal biasing force along an exposed segment of the tether upon extension of the exposed segment. A locking mechanism is engagable with the retraction assembly to prevent application of the longitudinal biasing force along the exposed segment. Further extension of the exposed segment beyond an operative length disengages the locking mechanism with the retraction assembly to allow application of the longitudinal biasing force along the exposed segment.



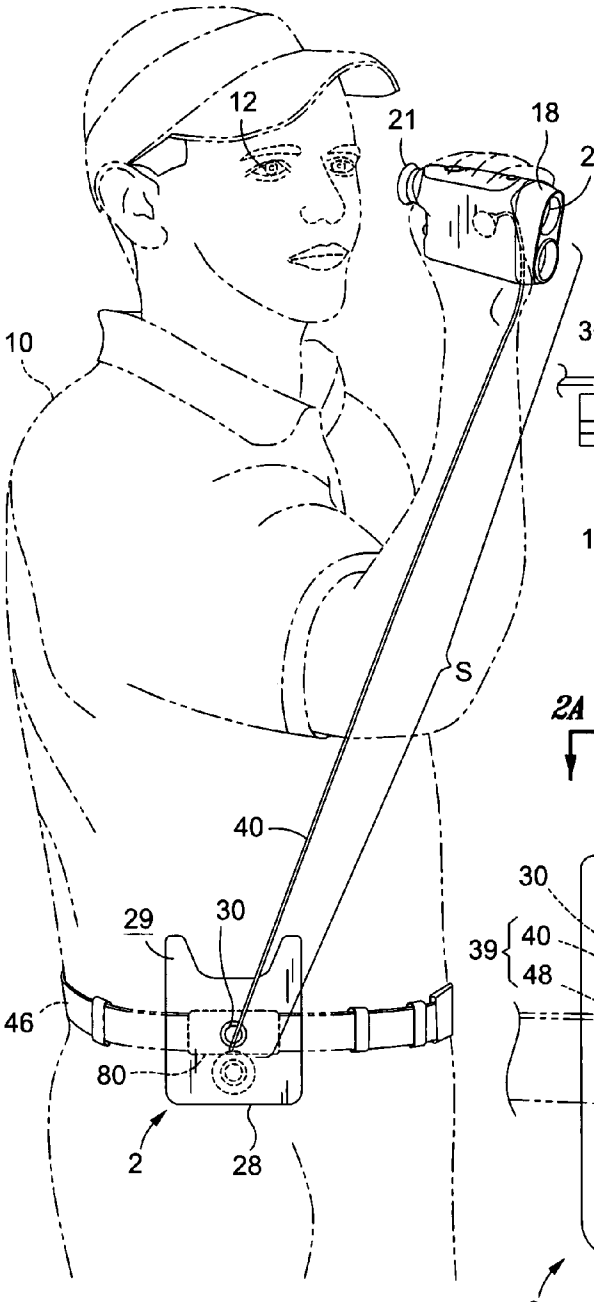


Fig. 1

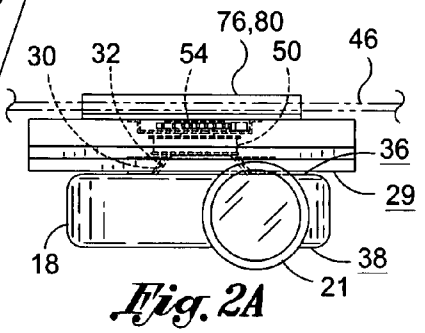


Fig. 2A

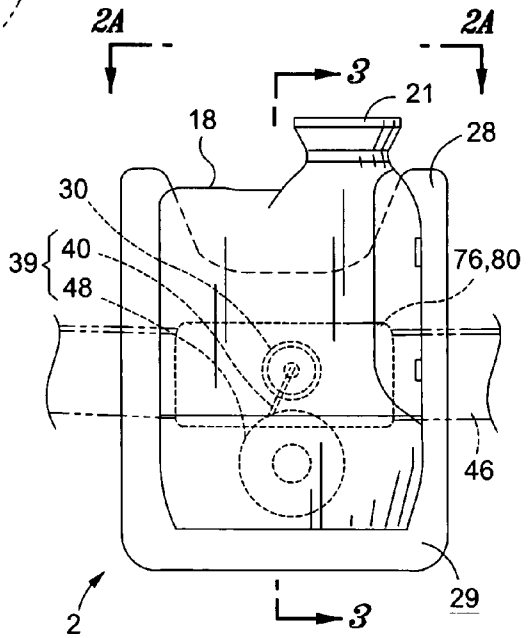


Fig. 2

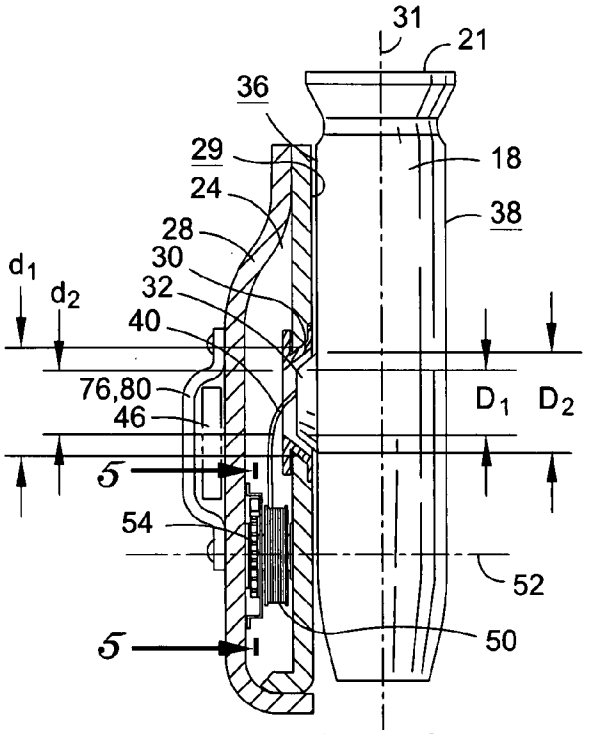


Fig. 3

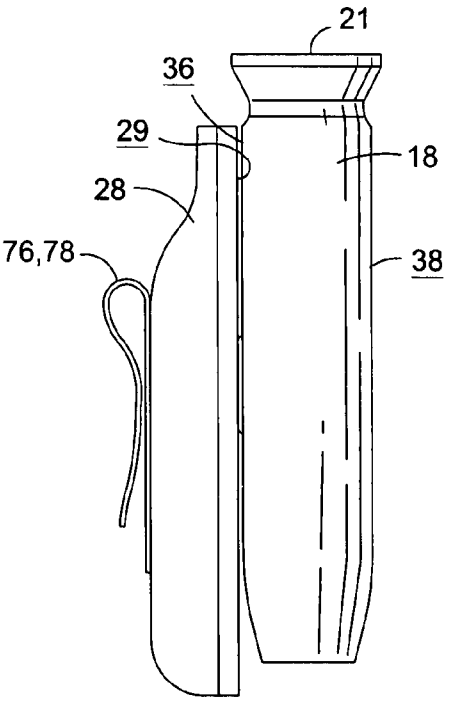


Fig. 4

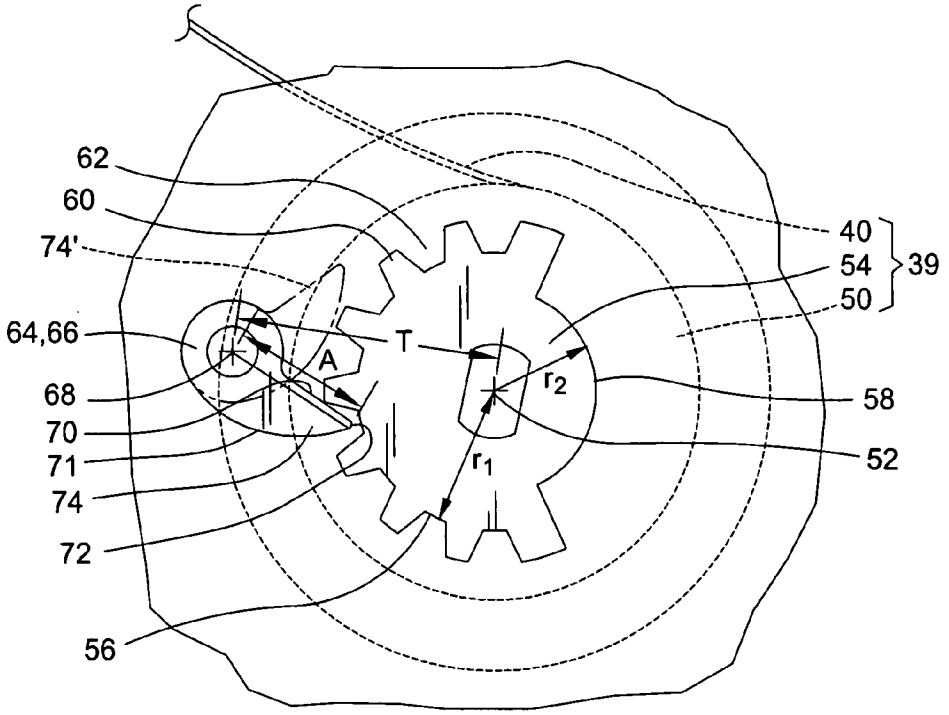


Fig. 5

RETRACTABLE CARRYING DEVICE FOR AN OPTICAL DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] (Not Applicable)

STATEMENT RE: FEDERALLY SPONSORED RESEARCH/DEVELOPMENT

[0002] (Not Applicable)

BACKGROUND OF THE INVENTION

[0003] 1. Field of the Invention

[0004] The present invention relates generally to a retractable carrying device and more particularly, to a retractable device mountable on a host member to enable carrying of an optical device commonly used for hunting and other sporting activities.

[0005] 2. Description of the Related Art

[0006] It is well known among hunters and target shooters that gravity influences the trajectory of a projectile, whether it be a bullet, arrow, or other hunting ammunition. Consequently, it is very important for a hunter to know the distance to a particular target. As the distance between the hunter and his target increases, the hunter must make a larger adjustment to account for the influence of gravity on his shot. Some hunters draw on past experience to estimate the distance to the target. However, there is inherent inaccuracy involved with estimation which leads to undesirable results.

[0007] Improvements in hunting technology have lead to range-finding devices that provide the hunter with a more accurate determination of the distance between the hunter and the target. The range-finding devices provide the hunter with valuable information which the hunter uses to adjust his shot, accordingly.

[0008] Although range-finding devices may be a useful tool to a hunter, the hunter may be required to carry the range-finding device while he searches for a target. Hunters typically hunt in remote locations which are only accessible by foot. Therefore, many of the range-finding devices are designed to be compact and easily carried. Many range-finding devices fit into a carrying case which may include a strap wearable around the neck or shoulder of the hunter. Other carrying cases are mountable directly to a belt, shoulder strap or the like which may be worn or carried by the user.

[0009] Despite the fact that carrying cases alleviate transport of the range-finding devices, the carrying cases may hinder access and operability of the devices. For instance, the range-finding device may be tightly or compactly stored within the carrying case thereby making removal a loud and time consuming endeavor. Furthermore, once the device is removed from the case, the hunter may spend time positioning the range-finder within his hand to enable proper operation of the device (i.e. positioned such that the eyepiece is adjacent to a hunter's eye and the trigger button is depressed). Hunting is a sport that requires quick and quiet movements in order to take advantage of a brief window in which the target is attainable. This retrieval process consumes valuable time and may produce noise which is likely to scare away the game.

[0010] As such, there is a need in the art for a carrying case for a rangefinder that provides quick and easy access thereto. Furthermore, there is a need for a carrying device which repeatedly positions the range-finder in a ready-to-use orientation.

BRIEF SUMMARY OF THE INVENTION

[0011] According to an aspect of the present invention, there is provided a retractable carrying device for an optical device. The retractable carrying device includes a support member including an alignment contact element being engageable with the optical device. The alignment contact element is configured to dispose the optical device in a stowed position in fixed orientation relative to the support member upon engagement with the optical device. The retractable carrying device further comprises a retraction assembly connected to the support member. The retraction assembly includes a tether attachable to the optical device and a retraction mechanism attached to the tether. An exposed segment of tether extends between the retraction mechanism and the optical device. The exposed segment is free of lateral support from the retraction mechanism and the optical device. The exposed segment is also extendable upon removal of the optical device from the stowed position. The retraction mechanism is operative to apply a longitudinal biasing force along the exposed segment of the tether upon extension of the exposed segment. The retractable carrying device also includes a locking mechanism having locked and unlocked configurations. The locking mechanism is engaged with the retraction assembly to prevent application of the longitudinal biasing force along the exposed segment in the locked configuration. The exposed segment defines an operative length when the locking mechanism is in the locked configuration. Upon further extension of the exposed segment beyond the operative length the locking mechanism assumes the unlocked configuration with the locking mechanism disengaged with the retraction assembly to allow application of the longitudinal biasing force along the exposed segment.

[0012] The retraction mechanism may include a roller being biased to rotate in a first direction to apply the longitudinal biasing force along the exposed segment. The retraction mechanism may also include a ratchet gear attached to the roller. The ratchet gear may include a plurality of gear teeth extending therefrom. The ratchet gear may include a first portion having a first radius and a second portion having a second radius smaller than the first radius. The plurality of teeth may extend from the first portion.

[0013] The locking mechanism may include a pawl being pivotable about a pivot axis. The pawl may be engageable with respective ones of the plurality of teeth in the locked configuration. The pawl may include a locking portion having an engagement end. The pawl may also have an arm length defined by the pivot axis and the engagement end. A threshold length being defined by the rotation and pivot axes, the combined arm length and first radius being greater than the threshold length to enable lockable engagement between the locking portion and respective ones of the gear teeth, the combined arm length and second radius being less than the threshold length to enable disengagement between the locking portion and the gear teeth.

[0014] The retractable carrying device of the present invention provides an efficient and reliable means of carrying an optical device. It is contemplated that the carrying device may be mounted on a belt, strap or other equipment employed by a user. When the user desires to utilize the optical device, the user simply reaches for and grabs the optical device and

moves it from the stowed position into an operable position. As the user moves the rangefinder from the stowed position and into the operable position, the exposed segment of tether increases in length. The tether becomes locked to define an operative length when the locking mechanism is in the locked configuration. In this regard, the tension in the tether is reduced, which mitigates the shaking of the optical device during operation. When the user desires to return the optical device to the stowed position, the user simply pulls on the tether to slightly extend it beyond the operative length to disengage the locking mechanism. Thereafter, the tether retracts to return the optical device to the stowed position.

[0015] The present invention is best understood by reference to the following detailed description when read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] These and other features and advantages of the various embodiments disclosed herein will be better understood with respect to the following description and drawings in which like numbers refer to like parts throughout and in which:

[0017] FIG. **1** is a perspective view of a retractable carrying device secured to a user's belt, wherein the retractable carrying device includes a tether that is attachable to an optical device;

[0018] FIG. **2** is a front elevational view illustrating the carrying device of FIG. **1** in the stowed position;

[0019] FIG. **2**A is a top elevational view of the carrying device as illustrated in FIG. **2**;

[0020] FIG. **3** is a sectional side elevational view of the carrying device with a mounting member attached to a strap worn by the user;

[0021] FIG. **4** is a side elevational view of the carrying device with a clip that is attachable to a strap worn by the user; and

[0022] FIG. **5** is a side elevational view of a roller, a ratchet gear attached to the side of the roller, and a pawl that is engageable with the ratchet gear.

DETAILED DESCRIPTION OF THE INVENTION

[0023] Referring now to the drawings wherein the showings are for purposes of illustrating a preferred embodiment of the present invention only, and not for purposes of limiting the same, FIGS. **1-5** depict a retractable carrying device **2** constructed in accordance with the present invention. Referring specifically to FIG. **1**, a user **10** is shown in phantom utilizing a specific embodiment of the retractable carrying device **2**. It is contemplated that the retractable carrying device **2** may be used to carry an optical device **18**. As used herein, an optical device **18** is a tool or accessory that is temporarily positioned adjacent a user's eye **12** during operation. The optical device **18** shown in FIG. **1** is a rangefinder commonly used by shooters and hunters to determine the distance to a particular target. However, it is understood that other optical devices **18** including, but not limited to telescopes, binoculars, night vision goggles, and cameras may be used in connection with the carrying device **2** without exceeding the spirit and scope of the present invention. The optical device **18** shown in FIG. **1** includes an eyepiece **21** that is positionable adjacent an eye **12** of a user **10**, and a lens **26** that is in optical communication with the eyepiece **21**. The optical device **18** also includes an optical housing **19** having opposing contact and gripping surfaces **36**, **38**.

[0024] According to a particular embodiment, the retractable carrying device **2** includes a support member **28**. As shown in FIGS. **1-4**, the support member **28** includes a cavity **24** and an aligning surface **29**. Several carrying device components may be contained within the cavity **24**, as discussed in more detail below. However, it is understood that other embodiments of the present invention include a support member **28** that simply provides an external framework which the components may attach to. In such an embodiment, the components may not be contained within a cavity **24**.

[0025] The support member **28** shown in FIGS. **1-4** further includes an alignment contact element **30** that is engageable with the optical device **2**. The alignment contact element **30** is configured to dispose the optical device **18** in a stowed position in fixed orientation relative to the support member **28** upon engagement with the optical device **18**. In this regard, the alignment contact element **30** disposes the optical device **18** in the same position and orientation upon engagement with the optical device **18**. This enables the user **10** to confidently reach for the optical device **18** and know that it will be in an ergonomic, ready-to-use position. In other words, the optical device **18** is positioned to enable the user **10** to easily grab onto the gripping surface **38**. Consequently, the user **10** may not be required to look down to find the optical device **18**. This may be particularly beneficial for hunters who have to maintain eyesight with the target. If the user **10** is required to look down to locate the optical device **18**, he may lose sight of the target. In one embodiment, the alignment contact element **30** is a female connection portion **34**, such as a hole, and the optical device **18** includes a male connection portion **32**, such as a protrusion, connected to the optical housing **19**. The male connection portion **32** may be a feature that is designed into the optical device **18**, and is permanently attached thereto, or the male connection portion **32** may be temporarily attached to the optical device **18** to enable use with the carrying device **2**.

[0026] FIGS. **2-4** show the optical device **18** in the stowed position. In the embodiment illustrated in FIGS. **2-4**, the contact surface **36** of the optical device **18** is disposed substantially adjacent to the aligning surface **29** of the support member **28** when the optical device **18** is in the stowed position. In this regard, the contact surface **36** may abut the aligning surface **29**; however, abutment is not required. Furthermore, the gripping surface **38** is easily accessible to the user **10**.

[0027] Referring now specifically to the embodiment illustrated in FIG. **3**, the alignment contact element **30** is disposed within the aligning surface **29** of the support member **28**. The alignment contact element **30** includes a female connection portion **34** disposed within the aligning surface **29** that cooperatively engages with a male connection portion **32** on the optical device **18**. The engagement of the male connection portion **32** with the female connection portion **34** disposes the optical device **18** in the stowed position. The optical device **18** defines a longitudinal axis **31** as shown in FIG. **3**. According to a particular embodiment, the longitudinal axis **31** is substantially parallel to the aligning surface **29** of the support member **28**. When the male connection portion **32** is engaged with the female connection portion **34**, the position of the optical device **18** is fixed along the longitudinal axis **31**. In other words, the engagement of the male connection portion **32** and the female connection portion **34** prevents the optical

device **18** from moving along the longitudinal axis **31**. As such, the optical device **18** is in fixed orientation relative to the support member **28**.

[0028] According to one embodiment of the invention, and as shown in FIG. **3**, the diameter of the female connection portion **34** varies through the aligning surface **29**. The female connection portion **34** includes an outer diameter d_1 that is larger than the inner diameter d_2. In this regard, the female connection portion diameter tapers inwardly from the aligning surface **29** toward the cavity **24**. Similarly, the diameter of the male connection portion **32** varies to compliment the diameter of the female connection portion **34**. The male connection portion **32** includes a distal diameter D_1 that is smaller than a proximal diameter D_2 to enable complimentary engagement with the female connection portion **34**. Although the male and female connection portions **32**, **34** are shown in FIGS. **1-3** as being substantially circular, it is contemplated that they may be sized and configured to be any shape, so long as they cooperatively engage with each other.

[0029] The retractable carrying device **2** further comprises a retraction assembly **39** connected to the support member **28**. The retraction assembly **39** includes a tether **40** that is attachable to the optical device **18**. The tether **40** may be attached to the optical device **18** via an adhesive, strap, hook and loop fasteners, or other similar attachment mechanisms known by those having skill in the art. The embodiment illustrated in FIGS. **1-3** show the tether **40** attached to the male connection portion **32** on the optical housing **19**. However, the attachment of the tether **40** to the optical device **18** is not limited thereto. In one particular implementation, the tether **40** is releasably attached to the optical device **18**. In this regard, the tether **40** may be removed from one optical device **18** and attached to another optical device **18**. Therefore, if one optical device **18** breaks, or if the user **10** owns a number of different optical devices **18**, the same carrying device **2** may be used with multiple optical devices **18**.

[0030] The retraction assembly **39** further includes a retraction mechanism **48** attachable to the tether **40**. Therefore, according to one embodiment, the tether **40** is attachable to the optical device **18** on one end is attachable to the retraction mechanism **48** on the opposing end. An exposed segment "S" of tether **40** extends between the retraction mechanism **48** and the optical device **18**. The exposed segment S is free of lateral support from the retraction mechanism **48** and the optical device **18**. In this regard, the portions of the tether **40** on either side of the exposed segment S touch and receive lateral support from the optical device **18** and the retraction mechanism **48**. However, the exposed segment S freely extends between the optical device **18** and the retraction mechanism **48** without receiving lateral support therefrom.

[0031] The exposed segment S is extendable upon removal of the optical device **18** from the stowed position. In other words, as the user **10** removes the optical device **18** from the stowed position, the length of the exposed segment S increases. The retraction mechanism **48** is operative to apply a longitudinal biasing force along the exposed segment S of the tether **40** upon extension of the exposed segment S. In this regard, the biasing force urges the exposed segment S toward the support member **28** which, in turn, urges the optical device **18** toward the stowed position. In the embodiment depicted in FIGS. **1-3** the tether **40** extends between the optical device **18** and the retraction mechanism **48** through the female connection portion **34**. Therefore, the female connection portion **34** may guide the tether **40** toward the retraction mechanism **48** as the exposed segment S is shortened.

[0032] According to one embodiment, and as shown in FIGS. **1-3**, and **5**, the retraction mechanism **48** includes a roller **50** connected to the tether **40**. The roller **50** rotates about a rotation axis **52** as the length of the exposed segment S varies. The roller **50** is biased to apply the longitudinal biasing force to the exposed segment S as the optical device **18** is removed from the stowed position. A biasing spring may be coupled to the roller **50** to create the biasing force.

[0033] In one particular implementation of the invention, the tether **40** is attached to and winds about the roller **50** as the length of the exposed segment S is shortened. Therefore, when the optical device **18** is in the stowed position, a substantial amount of tether **40** is wound about the roller **50**. This provides efficient storage of the tether **40** and mitigates the likelihood that the tether **40** will become tangled. As the exposed segment S is extended, the tether **40** is unwound from the roller **50**. According to a specific embodiment, the roller **50** is disposed within the cavity **24** of the support member **28**, thereby protecting it from debris external to the carrying device **2** which could hinder the rotation and operation of the roller **50**. The tether **40** is also disposed within the cavity **24** when the optical device **18** is in the stowed position, thereby protecting the tether **40** from prolonged exposure from outside elements, which may shorten the lifespan of the tether **40**.

[0034] According to various embodiments of the present invention, the retractable carrying device **2** further includes a locking mechanism **64** having locked and unlocked configurations. The locking mechanism **64** engages with the retraction assembly **39** to prevent application of the longitudinal biasing force along the exposed segment S in the locked configuration. The exposed segment S defines an operative length when the locking mechanism **64** is in the locked configuration. Upon further extension of the exposed segment S beyond the operative length, the locking mechanism **64** assumes the unlocked configuration with the locking mechanism **64** disengaged with the retraction assembly **39** to allow application of the longitudinal biasing force along the exposed segment S.

[0035] It is contemplated that proper usage of the optical device **18** typically requires placement of the optical device **18** adjacent the eye **12** of a user **10**. Therefore, the user **10** may remove the optical device **18** from the stowed position and dispose the optical device **18** adjacent his eye **12**. When the optical device **18** is positioned adjacent the user's eye **12**, the locking mechanism **64** is configured to engage with the retraction assembly **39** to prevent the longitudinal biasing force from being applied along the exposed segment S. This enables the user **10** to position the optical device **18** in an operable position without it being biased toward the stowed position. Such a biasing force may cause unsteady operation of the optical device **18** which decreases the effectiveness thereof.

[0036] Referring now to FIG. **5**, one particular embodiment of the invention includes a ratchet gear **54** attached to the roller **50**. In the embodiment depicted in FIG. **5**, the ratchet gear **54** is disposed on the side of the roller **50** and rotates about a common rotation axis **52**. The ratchet gear **54** includes a first portion **56** having a first radius r_1 and a second portion **58** having a second radius r_2. The first radius r_1 is larger than the second radius r_2. Furthermore, the first portion **56** includes a plurality of gear teeth **60** disposed about the first

radius r_1. The plurality of gear teeth **60** define a plurality of notches **62**. Adjacent gear teeth **60** define a respective notch **62**.

[0037] According to another embodiment, the carrying device **2** further includes a pawl **66** that is engageable with the ratchet gear **54**. The pawl **66** pivots about a pivot axis **68** between a locked position **74** and an unlocked position **74'**. FIG. **5** shows the pawl **66** in phantom in the unlocked position **74'**. The pawl **66** includes a locking portion **70** having an engagement end **72**. The pawl **66** also includes an arm length "A" defined by the pivot axis **68** and the engagement end **72**. In the locked position **74** the pawl **66** is engaged with the first portion **56** of the ratchet gear **54**.

[0038] The roller **50** is biased to rotate in a first direction in order to shorten the length of the exposed segment S of tether **40**. The roller **50** rotates in a second direction when the exposed segment S of tether **40** is extended. As shown in FIG. **5**, the first direction is clockwise and the second direction is counterclockwise. In order for the roller **50** to rotate in the first direction, the pawl **66** pivots into the unlocked position **74'**. When the pawl **66** is in the locked position **74** and engaged with the first portion **56** of the ratchet gear **54**, the roller **50** is prevented from rotating in the first direction. According to the embodiment shown in FIG. **5**, the combined arm length A and first radius r_1 is larger than the threshold length "T". As used herein, the threshold length T is defined as the distance between the pivot axis **68** and the rotation axis **52**. Therefore, when the first portion **56** of the ratchet gear **54** is adjacent the engagement end **72** of the pawl **66**, the pawl **66** is restricted from pivoting into the unlocked position **74'**. In this regard, the greater combined arm length A and first radius r, relative to the threshold length T causes locked engagement between the locking portion **70** of the pawl **66** and the gear teeth **60**. Consequently, rotation of the ratchet gear **54** in the first direction is restricted.

[0039] However, in the embodiment depicted, it is important to note that engagement between the pawl **66** and the ratchet gear **54** does not inhibit rotation of the ratchet gear **54** in the second direction. When the ratchet gear **54** rotates in the second direction, and the first portion **56** is adjacent the engagement end **72**, the locking portion **70** of the pawl **66** contacts a respective gear tooth **60**. The tooth **60** slides along the surface of the locking portion **70** until it reaches the engagement end **72** and disengages with the pawl **66**. Upon disengagement, the pawl **66** begins to pivot toward the unlocked position **74'**. However, another gear tooth **60** contacts the locking portion **70** to prevent the pawl **66** from pivoting into the unlocked position **74'**. The pawl **66** continues to engage with the gear teeth **60** until the second portion **58** is positioned adjacent the engagement end **72**.

[0040] The pawl **66** is configured to pivot into the unlocked position **74'** when the second portion **58** is positioned adjacent the engagement end **72** due to the combined arm length A and second radius r_2 being less than the threshold length T. This enables locking portion **70** of the pawl **66** to disengage from the gear teeth **60**. When the pawl **66** disengages from the gear teeth **60**, the roller **50** may rotate in the first direction, thereby shortening the length of the exposed segment S of tether **40**.

[0041] Therefore, when the pawl **66** is engaged with the ratchet gear **54**, and the user **10** desires to shorten the length of the exposed portion S, the user **10** extends the exposed segment S to cause the ratchet gear **54** to rotate to position the second portion **58** of the ratchet gear **54** adjacent the pivot end **72** of the pawl **66**. This enables the pawl **66** to disengage from the ratchet gear **54** and allows rotation of the roller **50** in the first direction.

[0042] According to one embodiment, the pawl **66** includes a curved portion **71** which contacts the gear teeth **60** as the gear **54** rotates in the first direction. In this regard, the teeth **60** slide along the curved portion **71** and prevent the pawl **66** from pivoting back into the locked position **74**. When the user **10** desires to extend the exposed segment S, the gear **54** begins to rotate in the second direction. When the second portion **58** of the gear **54** is disposed adjacent the engagement end **72** during rotation in the second direction, the pawl **66** pivots into the locked position **74** and the locking portion **70** of the pawl **66** engages with the gear teeth **60** upon subsequent rotation of the gear **54**.

[0043] As stated above, it is contemplated that the carrying device **2** of the present invention may be particularly useful in connection with an optical device **18** commonly used by hunters. It is understood that hunting may require a substantial amount of gear, including weapons, ammunition, and possibly food and water. Furthermore, hunting is primarily done on foot. Therefore, a hunter may carry most of the gear that will be needed on a particular hunting excursion. Consequently, it is desirable that the carrying device **2** be mountable to the gear or clothing worn by the hunter. According to various embodiments, the carrying device **2** includes a mounting element **76** connected to the support member **28**. The mounting element **76** may be comprised of a clip **78**, bracket **80** or other similar mounting means known by those having skill in the art. The embodiment shown in FIG. **3** shows the carrying device **2** mounted upon a host member **46**, such as a belt or shoulder strap worn by the hunter. It is contemplated that the host member **46** may be fed through the mounting element **76** to secure the device **2** thereto. The mounting element **76** depicted in FIG. **4** is a clip **78** that is coupled to the support member **28**. The clip **78** may also be attached to a belt or strap worn by the hunter. It may be particularly useful for bow and arrow hunters to mount the carrying device **2** onto a shoulder strap. It is important that the carrying device **2** does not interfere with the hunter as he draws the arrow back before releasing it. As described above, the carrying device **2** may also be mounted onto a belt worn on the hunter. This particular configuration may be favorable for hunters using guns. Although the above describes mounting the carrying device **2** on a shoulder strap or a belt, the device **2** may be mounted onto any conveniently placed host member **46**, such as a piece of equipment that is positioned near the hunter, such as a tree stand harness.

[0044] The following describes the operation of a particular embodiment of the present invention. In operation, the carrying device **2** is mounted onto a shoulder strap or belt worn on the user **10** as discussed above. As the user **10** approaches the target, he reaches for his optical device **18** which is oriented in the stowed position. After the user **10** has a firm grip on the optical device **18**, he pulls it up to eyelevel such that the eyepiece **21** is disposed adjacent the user's eye **12** to enable the user **10** to look through the viewfinder and perceive his target. The carrying device **2** is configured to mitigate noise upon extension and/or retraction of the tether **40** so as to facilitate a near silent operation of the device **2**. When the eyepiece **21** is disposed adjacent the user's eye **12**, the tether **40** is extended to the operative length and the locking mechanism **64** prevents the tether **40** from being retracted by the retraction mechanism **48**, as discussed above. When the user

10 is done with the optical device 18, the user 10 pulls the tether 40 a slight amount to disengage the locking mechanism 64. This causes the tether 40 to quietly retract into the carrying device 2. As the tether 40 is being retracted, the alignment contact element 30 positions the optical device 18 in the stowed position for the next usage.

[0045] The above description is given by way of example, and not limitation. Given the above disclosure, one skilled in the art could devise variations that are within the scope and spirit of the invention disclosed herein. Further, the various features of the embodiments disclosed herein can be used alone, or in varying combinations with each other and are not intended to be limited to the specific combination described herein. Thus, the scope of the claims is not to be limited by the illustrated embodiments.

What is claimed is:

1. A retractable carrying device for an optical device, the retractable carrying device comprising:

a support member including an alignment contact element being engageable with the optical device, the alignment contact element being configured to dispose the optical device in a stowed position in fixed orientation relative to the support member upon engagement with the optical device;

a retraction assembly connected to the support member including:

a tether being attachable to the optical device; and

a retraction mechanism attached to the tether, an exposed segment of tether extending between the retraction mechanism and the optical device, the exposed segment being free of lateral support from the retraction mechanism and the optical device, the exposed segment being extendable upon removal of the optical device from the stowed position, the retraction mechanism being operative to apply a longitudinal biasing force along the exposed segment of the tether upon extension of the exposed segment; and

a locking mechanism having locked and unlocked configurations, the locking mechanism being engaged with the retraction assembly to prevent application of the longitudinal biasing force along the exposed segment in the locked configuration, the exposed segment defining an operative length when the locking mechanism is in the locked configuration, upon further extension of the exposed segment beyond the operative length the locking mechanism assumes the unlocked configuration with the locking mechanism disengaged with the retraction assembly to allow application of the longitudinal biasing force along the exposed segment.

2. The device of claim 1 wherein the retraction mechanism includes a roller being biased to rotate in a first direction to apply the longitudinal biasing force along the exposed segment.

3. The device of claim 2 wherein the tether winds about the roller as the length of the exposed segment decreases.

4. The device of claim 3 wherein the locking mechanism includes a ratchet gear attached to the roller, the ratchet gear having a plurality of gear teeth extending therefrom.

5. The device of claim 4 wherein the ratchet gear includes a first portion having a first radius and a second portion having a second radius smaller than the first radius, the plurality of teeth extending from the first portion.

6. The device of claim 5 wherein the locking mechanism further includes a pawl being pivotable about a pivot axis, the pawl being engageable with respective ones of the plurality of teeth in the locked configuration.

7. The device of claim 6 wherein the pawl includes a locking portion having a engagement end, the pawl having an arm length defined by the pivot axis and the engagement end, a threshold length being defined by the rotation and pivot axes, the combined arm length and first radius being greater than the threshold length to enable lockable engagement between the locking portion and respective ones of the gear teeth, the combined arm length and second radius being less than the threshold length to enable disengagement between the locking portion and the gear teeth.

8. The device of claim 2 wherein the locking mechanism includes a ratchet gear attached to the roller, the ratchet gear having a plurality of gear teeth extending therefrom.

9. The device of claim 8 wherein roller and ratchet gear are rotatable about a rotation axis.

10. The device of claim 9 wherein the ratchet gear includes a first portion having a first radius and a second portion having a second radius smaller than the first radius, the ratchet gear having a plurality of teeth extending from the first portion.

11. The device of claim 10, wherein the locking mechanism further includes a pawl being pivotable about a pivot axis, the pawl being engageable with respective ones of the plurality of teeth in the locked configuration.

12. The device of claim 11 wherein the pawl includes a locking portion having a engagement end, the pawl having an arm length defined by the pivot axis and the engagement end, a threshold length being defined by the rotation and pivot axes, the combined arm length and first radius being greater than the threshold length to enable lockable engagement between the locking portion and respective ones of the gear teeth, the combined arm length and second radius being less than the threshold length to enable disengagement between the locking portion and the gear teeth.

13. The device of claim 1 further comprising a mounting element connected to the support member, the mounting element being attachable to a host member.

14. The device of claim 13 wherein the mounting element is a clip.

15. The device of claim 13 wherein the mounting element is a bracket.

16. A optical tool comprising:

an optical device; and

a support member including an alignment contact element being engageable with the optical device, the alignment contact element being configured to dispose the optical device in a stowed position in fixed orientation relative to the support member upon engagement with the optical device;

a retraction assembly connected to the support member including:

a tether being attachable to the optical device; and

a retraction mechanism attached to the tether, an exposed segment of tether extending between the retraction mechanism and optical device, the exposed segment being free of lateral support from the retraction mechanism and the optical device, the exposed segment being extendable upon removal of the optical device from the stowed position, the retraction mechanism being operative to apply a longitudinal biasing force along an exposed segment of the tether upon extension of the exposed segment; and

a locking mechanism having locked and unlocked configurations, the locking mechanism being engaged with the retraction assembly to prevent application of the longitudinal biasing force along the exposed segment in the locked configuration, the exposed segment defining an operative length when the locking mechanism is in the locked configuration, and upon further extension of the exposed segment beyond the operative length the locking mechanism assumes the unlocked configuration with the locking mechanism disengaged with the retraction assembly to allow application of the longitudinal biasing force along the exposed segment.

17. The device of claim **16** wherein the alignment contact element includes a female connection portion and the optical device includes a male connection portion, the male and female connection portions being cooperatively engageable to dispose the optical device in the stowed position.

18. The device of claim **16** wherein the retraction mechanism includes a roller being biased to rotate in a first direction to apply the longitudinal biasing force along the exposed segment.

19. The device of claim **18** wherein the locking mechanism includes a ratchet gear attached to the roller, the ratchet gear having a plurality of gear teeth extending therefrom.

20. The device of claim **19** wherein the locking mechanism further includes a pawl being pivotable about a pivot axis, the pawl being engageable with respective ones of the plurality of teeth in the locked configuration

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