April 16, 1968 R. E. LEWIS ET AL 3,378,273

SAFETY RELEASABLE SKI POLE STRAP MEANS

Filed Dec. 3, 1965 2 Sheets-Sheet 1

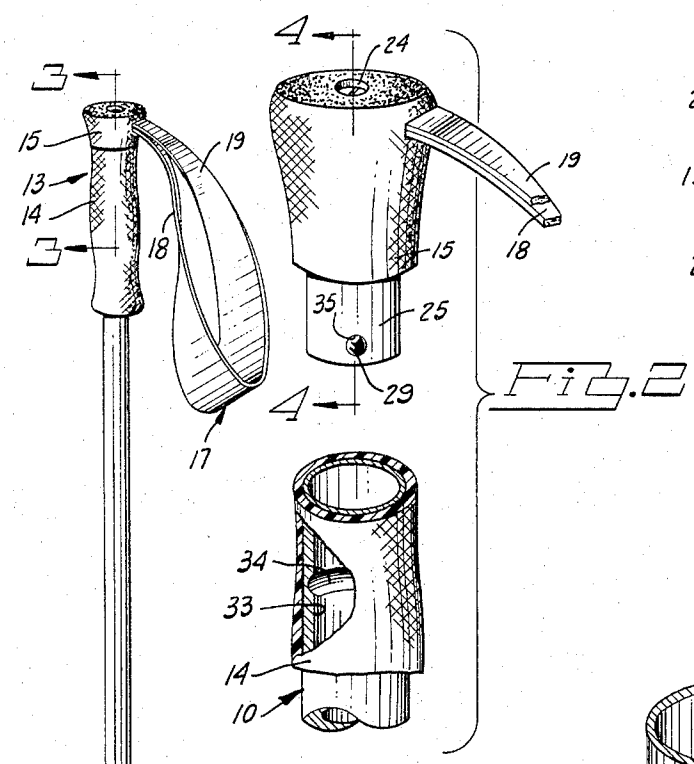


Fig. 2

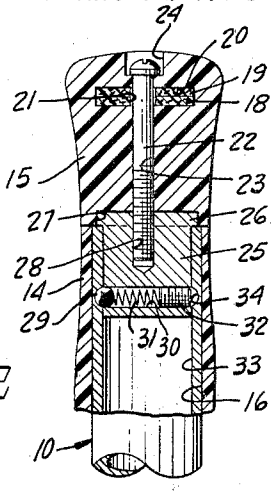


Fig. 3

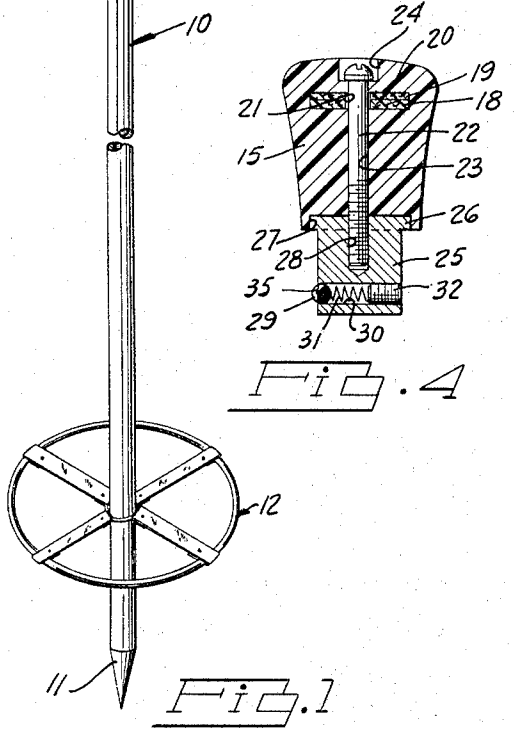


Fig. 1

Fig. 4

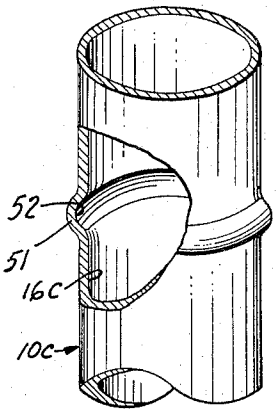


Fig. 10

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SAFETY RELEASABLE SKI POLE STRAP MEANS

Filed Dec. 3, 1965 2 Sheets-Sheet 2

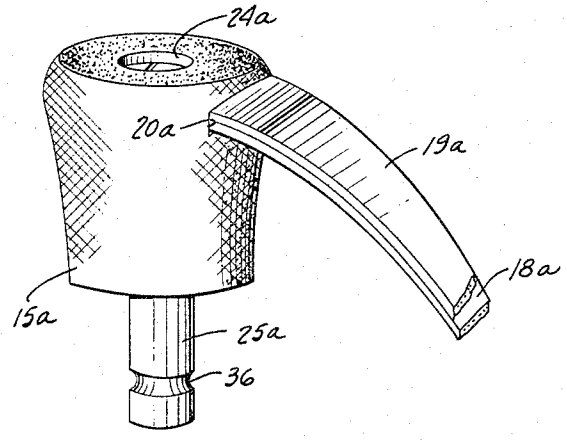


Fig. 5

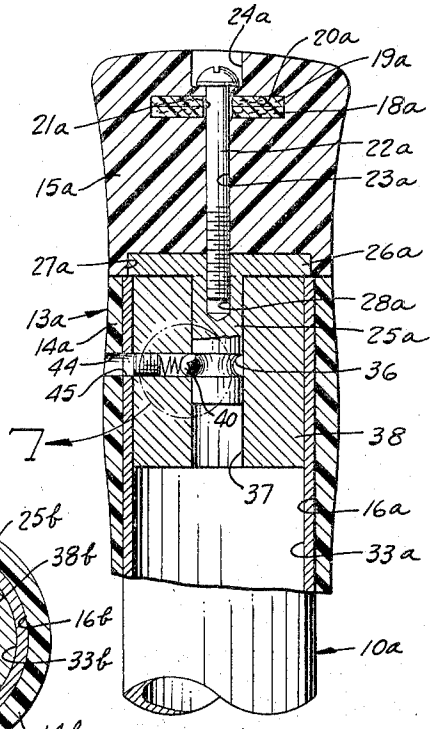


Fig. 6

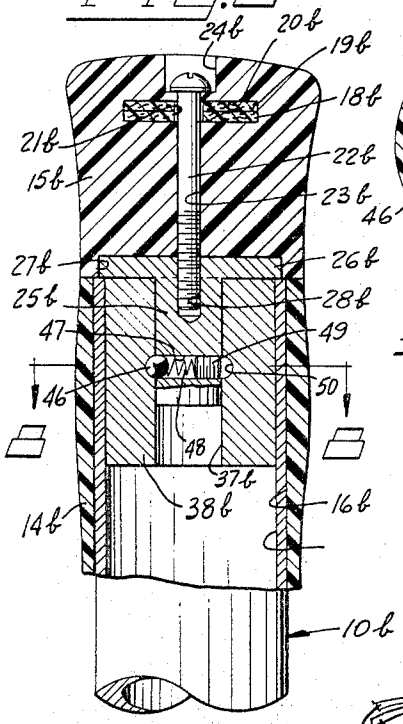


Fig. 9

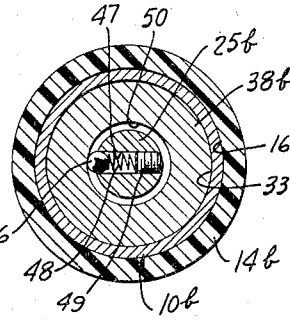


Fig. 8

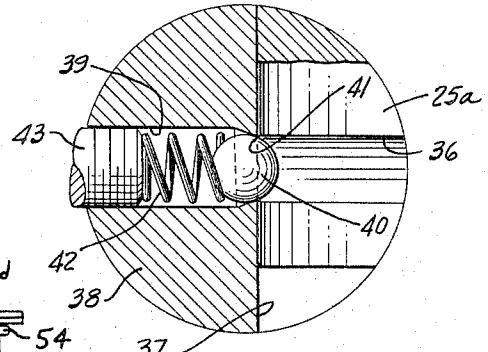


Fig. 7

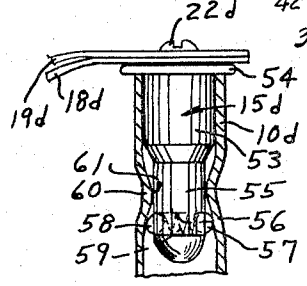


Fig. 11

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SAFETY RELEASABLE SKI POLE STRAP MEANS

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6 Claims. (Cl. 280—11.37)

ABSTRACT OF THE DISCLOSURE

A safety attachment for a ski pole including a strap carrier member mounted on the upper open end of a ski pole and having an extension slidably mounted in said open end of the ski pole, and a self-releasable detent means detachably connecting the strap carrier member extension to the ski pole, whereby if the ski pole is accidently engaged with an obstruction, the pole will be detached from the strap carrier member and prevent injury to the skier.

This invention relates generally to the ski art, and more particularly, to a novel and improved ski pole provided with a ski pole strap self-releasing safety means.

It is well known that ski poles are provided with looped straps which are adapted to provide means for securely holding the poles. The skier's hands are inserted through the loops and the straps are wound around the wrists of the skier. The looped straps disposed around the wrists of a skier creates a condition which is hazardous, since if a ski pole is caught accidentally in some obstruction such as a rock or tree branch, the skier may be thrown to the ground and injured. Accordingly, it is an important object of the present invention to provide a novel and improved self-releasable ski pole strap safety means which is adapted to overcome the aforementioned disadvantages of the prior art ski poles.

It is another object of the present invention to provide a means whereby a skier may detach his hand from the pole without the cumbersome process of the skier taking his hand out of the strap loop.

It is still another object of the present invention to provide a novel and improved safety attachment means for a ski pole strap which is adapted to permit use of conventional loop straps for securing ski poles to the wrists of a skier, yet which will permit the loop straps to be quickly and easily detached from the ski poles if the poles are caught in obstructions during a skiing operation.

It is a further object of the present invention to provide a novel and improved safety means for a ski pole whereby the ski pole loop strap attached to the pole may be self-released if the pole is accidentally retained by an obstruction.

It is still another object of the present invention to provide a novel and improved self-releasable ski pole strap safety attachment means which is simple and compact in construction, economical to manufacture and efficient in operation.

It is still a further object of the present invention to provide a novel and improved ski pole provided with a safety means for attaching a ski pole strap to the pole and wherein the connecting point of the safety attachment means is centrally located on the pole for convenience of attaching a strap, and no reference point is necessary about the perimeter of the pole handle as is required in some prior art ski poles.

It is still another object of the present invention to provide a novel and improved ski pole provided with a safety attachment means for attaching a ski strap to the pole, whereby when the ski pole strap is disconnected from the pole the portion of the strap attachment means attached to the wrist of the skier is held to a minimum size for maximum safety in the event of a fall by the skier.

It is still a further object of the present invention to provide a novel and improved ski pole which includes, a hand grip attached to the upper end of the ski pole, a plug on the open upper end of the ski pole and hand grip, a ski pole strap attached to said plug, and, a self-releasing means for detachably securing the plug to the pole.

Other objects, features and advantages of this invention will be apparent from the following detailed description, appended claims, and the accompanying drawings.

In the drawings:

FIG. 1 is a broken, elevational view of a ski pole provided with a self-releasable ski pole strap safety means made in accordance with the principles of the present invention;

FIG. 2 is a fragmentary, enlarged, exploded view of the upper end of the ski pole structure shown in FIG. 1 and illustrating the self-releasable method of securing the ski pole strap to the ski pole;

FIG. 3 is a fragmentary, enlarged, elevational section view of the structure illustrated in FIG. 1, taken along the line 3—3 thereof, and looking in the direction of the arrows;

FIG. 4 is an elevational section view of the structure illustrated in FIG. 2, taken along the line 4—4 thereof, and looking in the direction of the arrows;

FIG. 5 is a perspective view of a modified ski pole strap attachment plug made in accordance with the principles of the present invention;

FIG. 6 is a fragmentary, elevational section view of the strap attachment plug illustrated in FIG. 5, and showing the plug detachably mounted in the upper end of a ski pole;

FIG. 7 is an enlarged view of the structure illustrated in FIG. 6, taken within the circle marked by the numeral "7";

FIG. 8 is a horizontal, section view of the structure illustrated in FIG. 9, taken along the line 8—8 thereof, and looking in the direction of the arrows;

FIG. 9 is a fragmentary, elevational section view of another embodiment of the invention, and showing a further means for detachably mounting a ski pole strap on a ski pole;

FIG. 10 is a fragmentary, perspective view of the upper end of a modified ski pole for use with the embodiment of FIGS. 1 through 4; and

FIG. 11 is a fragmentary, elevational section view of the upper end of a ski pole provided with another embodiment of the invention.

Referring now to the drawings, and in particular to FIGS. 1 through 4, the numeral **10** generally designates a conventional ski pole provided with a ski pole strap attachment safety means made in accordance with the principles of the present invention. The ski pole **10** is provided with the usual pointed lower end **11** and the basket means **12**. The numeral **13** generally indicates a ski pole handle which comprises the lower hand grip portion **14** and the detachable upper end plug portion **15** made in accordance with the principles of the present invention. The hand grip portion **14** is secured to the upper end of the pole **10** in the usual manner and may be made of any suitable material. The plug **15** is made from the same material as the hand grip portion **14** for matching pur-

poses. As shown in FIG. 3, the hand grip portion **14** is provided with the inner bore **16** in which is slidably mounted the upper end of the ski pole **10** and which is secured thereto by any suitable means as by a suitable adhesive.

In FIG. 1, the numeral **17** generally indicates the usual looped ski strap comprising the integrally connected strap portions **18** and **19**. As shown in FIG. 3, the ends of the strap portions **18** and **19** are seated in a transverse, inwardly extended recess **20** and are secured therein and to the releasable handle plug **15** by the screw **22**. The screw **22** extends through the holes **21** formed through the ends of the strap portions **18** and **19** and into the hole **23** formed in the plug **15**. The upper end or head of the screw **22** is seated in the axial recess **24** of the plug **15**. The recess **24** forms the enlarged upper end of the hole **23**.

As best seen in FIGS. 3 and 4, the plug **15** is provided with a reduced detachably mounted lower end portion or extension **25**. The upper end of the reduced plug portion **25** is enlarged, as indicated by the numeral **26**, and is seated in the axially inward extended annular recess **27** formed on the lower end of the plug **15**. The reduced plug extension **25** is secured to the main body of the plug **15** by the screw **22** which extends downwardly out of the hole **23** and into the bore **28** which is axially disposed in the plug extension **25**. The screw **22** thus functions to retain the strap portions **18** and **19** and the plug extension **25** to the main body of the plug **15**.

As shown in FIGS. 3 and 4, the plug extension **25** carries a detent means including a ball **29** which is movably mounted in the transverse bore **30**. One end of the bore **30** is slightly crimped or reduced around the edge thereof to permit the detent ball **29** to extend outwardly beyond the surface of the plug extension **25** without being discharged from the bore **30**. The detent ball **29** is normally biased outwardly to the position shown in FIG. 4 by means of a spring **31** which is disposed in the slot **30**. A threaded mounted screw plug **32** is adjustably mounted in the other end of the slot **30** and the pressure on the spring **31** may be adjusted by threading the screw plug **32** inwardly or outwardly, as desired.

As shown in FIG. 3, the plug **15** carrying the looped ski strap **17** may be quickly and easily mounted in the pole **10**. The outer diameter of the plug extension **25** is of a size to permit a slidable mounting of the plug extension **25** into the upper end of the bore **33** of the pole **10**. When the plug extension **25** reaches the position shown in FIG. 3, the detent ball **29** will move outwardly into the annular groove **34** formed in the inner surface of the bore **33** of the pole **10**. The annular groove **34** is provided with a cross sectional shape which mates with the rounded surface of the ball **29**. The reference numeral **35** in FIG. 4 indicates the crimped lip formed around the one outer end of the hole **30** to maintain the ball **29** in the bore **30** when the plug **15** is detached from the pole **10**.

In use, the plug **15** may be quickly and easily mounted on the upper end of the ski pole **10**. The plug **15** may be self-released or manually released from the pole **10**. It will be seen that the spring biased detent ball **29** will releasably secure the plug **15** in the bore **33** of the pole **10**. If the pole **10** is accidentally caught in an obstruction, such as a rock or a tree branch, the plug **15** will be automatically self-released from the pole **10**, and the pole **10** will be pulled out of the hand of the skier with the ski strap **17** and the plug **15** remaining attached to the wrist of the skier.

FIGS. 5, 6 and 7 illustrate a second embodiment of the invention and the parts of the second embodiment which are the same as the parts of the first embodiment of FIGS. 1 through 4 have been marked with the same reference numerals followed by the small letter *a*. In this embodiment the plug extension **25***a* is reduced in cross sectional diameter relative to the diameter or size of the reduced plug extension **25** of the first embodiment. Also the detent means has been mounted in the pole **10***a*. As shown in FIGS. 5, 6 and 7, the reduced plug extension **25***a* has been provided with a peripherally disposed, hemispherically shaped groove **36** which is adapted to releasably receive the detent ball **40** as shown in FIG. 6. The reduced plug extension **25***a* is adapted to be slidably received in the axial bore **37** of an annular or cylindrical plug or insert **38** that is fixed in the upper end of the ski pole **10***a*. The plug **38** may be secured in the ski pole **10***a* by any suitable means, as by a press fit.

As shown in FIG. 7, the insert **38** is provided with the transverse bore **39** in which is movably mounted the detent ball **40**. The detent ball **40** extends out beyond the inner end of the bore **39** but is prevented from passing out of the bore **39** by the reduced diameter outer end **41** formed by any suitable method. The detent ball **40** is normally biased inwardly toward the plug extension **25***a* by means of the spring **42** which abuts the threadably mounted screw plug **43**. It will be seen that the tension on the spring **42** may be adjusted by threading the screw plug **43** inwardly or outwardly in the outer threaded end of the bore **39**, as desired. Access to the outer end of the adjusting screw plug **43** is attained through the aligned bores **44** and **45** formed through the handle portion **13***a* and the upper end of the ski pole **10***a*, as shown in FIG. 6.

The self-releasable strap carrying plug **15***a* may be quickly and easily inserted into the upper end of the pole **10***a*, or removed therefrom, in a minimum of time. The plug **15***a* is manually releasable from the ski pole **10***a*, or self-releasable to function as a safety means in case the pole **10***a* gets caught accidentally in a rock, a tree branch or other obstruction, in the same manner as the embodiment of FIG. 1.

FIGS. 8 and 9 illustrate a third embodiment of the invention and the parts of this embodiment which are similar to the parts of the first embodiment of FIGS. 1 through 4 have been marked with the same reference numerals followed by the small letter *b*. The embodiment of FIGS. 8 and 9 is substantially the same as the embodiment of FIGS. 5 through 7 but the positions of the detent ball and the detent ball receiving groove have been reversed.

As shown in FIG. 9, the reduced plug extension member **25***b* is provided with the transverse bore **47** in which is movably mounted the detent ball **46**, the spring **48** and the spring pressure adjusting screw plug **49**. The detent ball **46** is retained in the bore **47** in the same manner as illustrated in FIG. 7 for the second embodiment. The cylindrical plug or insert **38***b* is provided with a peripheral groove **50** formed in the surface of the axial bore **37***b* for the self-releasable reception of the detent ball **46**. In use, the embodiment of FIGS. 8 and 9 operates in the same manner as the embodiment of FIGS. 5 through 7.

FIG. 10 illustrates a slightly modified upper end of a ski pole **10***c* which is adapted to be used with the embodiments of FIGS. 1 through 4. As shown in FIG. 10, the upper end of the ski pole **10***c* is provided with a peripheral groove **52** which is formed in the surface of the inner face of the tubular body of the pole **10***c*. The groove **52** is formed in the outwardly extended annular portion **51**. In use, the detent ball **29** would be self-releasably secured in the groove **52** in the same manner as in the groove **34** of the pole structure of FIGS. 1 through 4.

FIG. 11 illustrates a further embodiment of the invention. The parts of the embodiment of FIG. 11 which are the same as the embodiment of FIGS. 1 through 4 have been marked with the same reference numerals followed by the small letter *d*. In this embodiment the self-releasably mounted strap attachment plug **15***d* is formed with an upper end outer diameter portion of a size which permits the plug **15***d* to be slidably mounted inside of the upper end of the ski pole **10***d*. The plug **15***d* is provided with an enlarged flange **54** to limit the axial inward movement of the plug **15***d* into the ski pole **10***d*.

The lower end portion of the plug **15***d* is indicated by the numeral **55** and it is reduced in diameter relative to the

upper end 53 of the plug. The lower reduced plug portion 55 is provided with the transverse bore 56 in which is movably mounted a pair of detent balls 57 and 58. The balls 57 and 58 have a spring 59 mounted between these balls so as to normally force or bias them outwardly into engagement with the inner surface of the tubular ski pole 10*d*. The detent balls 57 and 58 are maintained in the bore 56 by reduced outer bore ends in the same manner as shown in FIG. 7 for the second embodiment.

The upper end of the ski pole 10*d* is provided with a circumferential, radially inward extended portion 60 to provide a narrowed or neck portion 61. It will be seen that when the plug 15*d* is inserted into the upper end of the ski pole 10*d* that the detent balls 57 and 58 will be cammed inwardly into the bore 56 when the plug lower portion 55 passes through the restricted neck portion 61. After the detent balls 57 and 58 have passed the restricted neck portion 61, the spring 59 moves the detent balls 57 and 58 outwardly into a self-releasable gripping engagement with the pole 10*d* at a point below the restriction 61. It will be seen that the plug 15*d* may be manually removed from the pole 10*d* or it may be self-released if the pole 10*d* is caught on an obstruction during a skiing operation. It will be seen, that the embodiment of FIG. 11 functions in the same manner as the embodiment of FIG. 1.

It will be seen that the ski pole strap safety attachment means of the present invention provides a safety device and at the same time makes it possible to use this safety device as a means of disconnecting the ski pole straps from the ski poles without making it necessary to pull each hand out of each ski pole strap loop to release the poles. When a skier finds it necessary to take the ski poles off, he can readily pull upwards against a strap while holding the particular pole with the other hand. In this manner, the safety attachment means will be disengaged from the pole. It is believed that skiers will disengage the strap from the pole in the last described manner in preference to the cumbersome process of pulling his hand through the loop of the strap as is necessary with a conventional loop strap. However, with the structure of the present invention, the skier will have the option of using either method while still retaining the safety feature of the self-releasing function when a pole becomes inadvertently retained by an obstruction.

It will also be seen that if the option of disconnecting the straps by means of the safety attachment means is used, that an easy reference point is provided if the skier wishes to re-connect or re-attach the strap to the pole. The connection point is located centrally on the upper end of the pole as compared to a connecting point disposed on the perimeter of the pole. If the connecting point were on the perimeter of the pole, the skier would have to turn the pole around until he located the connection point.

It will be further seen that it would not be desirable for the portion of the pole that is detachable with the strap to be bulky because a falling skier might be injured if his hand landed on a bulky object attached to the strap. It will be seen that the ski strap safety attachment means of the present invention provides a safety means wherein the attachment structure is held to a minimum size.

While it will be apparent that the preferred embodiments of the invention herein disclosed are well calculated to fulfill the objects above stated, it will be appreciated that the invention is susceptible to modification, variation and change without departing from the proper scope or fair meaning of the subjoined claims.

What we claim is:

1. In the combination, a pole having a tubular, open handle end; a strap carrier member mounted on said pole open end and having an extension slidably mounted therein; a strap connected to said strap carrier member; a detent means detachably connecting said strap carrier member extension to said pole, including a first detent member on said strap carrier member extension, and a second detent member on said pole, whereby when opposite axially directed forces are exerted on the strap carrier member and pole, said strap carrier member will be detached from said pole and, one of said detent members comprising at least one detent ball and a transversely disposed spring engaging said ball and biasing it transversely outward into operative engagement with the other detent member.

2. The structure defined in claim 1, wherein: said first detent member comprises said spring biased detent ball operatively mounted on said strap carrier member extension; and, said second detent member comprises an annular groove formed around the inside surface of said pole open end which is adapted to releasably receive therein said detent ball.

3. The structure defined in claim 2, wherein: said annular groove formed in said pole open end is formed in an integral portion of said pole which is extended radially outward beyond the plane of the outer surface of the pole.

4. The structure defined in claim 1, wherein: said second detent member comprises said spring biased detent ball operatively mounted on said pole open upper end; and, said first detent member comprises a peripheral groove formed around the periphery of said strap carrier member extension.

5. The structure defined in claim 1, wherein: said first detent member comprises said spring biased detent ball operatively mounted in said strap carrier member extension; and, said second detent member comprises an annular groove formed on an insert mounted in said pole open upper end.

6. The structure defined in claim 1, wherein: said strap carrier member extension is provided with a stepped peripheral surface having a reduced diameter inner end; said first detent member comprises said spring biased detent ball means operatively mounted on said reduced diameter inner end; and, said second detent member comprises a radially inward extended integral neck portion formed in the pole open end and adapted to slidably engage said strap carrier member extension reduced diameter inner end, and to releasably retain the strap carrier member extension in said pole open upper end by engagement with said spring biased detent ball means.

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