LOOSE SKI ARRESTING DEVICE

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5 Claims. (Cl. 288—11.11)

This invention relates to skis, and, more particularly, to an automatic braking or halting device adapted to arrest the unintentional movement of a ski should the latter be accidentally detached from the user's boot.

The sport of skiing has greatly increased in recent years. Due to this, various kinds of means for attaching skis to the boots of the user have been developed. To reduce the hazards of the sport, many of such attachment devices are of the type which, under abnormal stresses and strains, will detach a skier's boot from normal coupled relation to the ski. When this occurs, the detached ski is free to slide away, especially when released on ski slopes. Such escaping loose ski is not only a hazard to other skiers on the slope, and thus a cause of possible accident to other skiers, but also puts the user of the loose escaped ski to considerable trouble and loss of time when striving to retrieve such loose ski, which has slid more or less far away from the place where it is detached from the skier's boot. In view of this, it is desirable to provide skis with means operative to stop an escaping flight of a loose ski.

Having the above in view, it is an object of the present invention to provide a device adapted to be mounted on a ski so as to be held in an initial out-of-service position by the skier's boot, when the ski is normally attached to the latter for use, but which is automatically released for movement to a service position should the ski, in use, become accidentally detached from the boot, and thereby freed to slide away; in which service position it will, by digging into the snow, arrest and halt escape movement of the loose ski, and thus reduce hazard of injury to other skiers and allow the ski to be quickly retrieved by the user.

Another object of this invention is to provide a ski with a novel automatic braking or halting device, operative when the ski is detached from the skier's boot and thus becomes loose, which device is of very simple construction, involving a minimum number of parts, and one that can be easily applied to a ski, and easily manipulated so as to be normally held in out-of-service position by the skier's boot, when the latter is in normal attached relation to the ski, and in a position that offers no impediment to the ski in use, but is freed to move to operative service position should the skier's boot be accidentally detached from the ski.

The above and other objects will be understood from a reading of the following description of an illustrative embodiment of a loose ski arresting device according to this invention in connection with the accompanying drawings thereof, in which drawings:

FIG. 1 is a fragmentary plan view of a ski equipped with the arresting device of this invention, the latter being shown in out-of-service position as held therein by the skier's boot, when the latter is coupled to the ski by attaching means; and FIG. 2 is a side elevational view of the same.

FIG. 3 is a side elevational view, similar to that of FIG. 2, but after the skier's boot has become detached from a ski in use, and the arresting device has moved to its in-service loose ski braking or halting position.

FIG. 4 is a fragmentary plan view, showing means for holding the arresting device in out-of-service position when the tie-down means are not in use, whereby to facilitate storing, stacking and transportation of the skis; and FIG. 5 is a plan view of the tie-down means.

The braking or halting devices according to this invention are furnished in pairs comprising one for use on the right foot ski and the other for use on the left foot ski; the one for use on the right foot ski being shown in the drawings by way of illustration.

Referring now to the drawings, in which like characters of reference indicate corresponding parts, the reference character 10 indicates a fragmentary portion of the body of a right foot ski, which is equipped with a skier's boot toe attachment device A and a boot heel attachment device (not shown) operative to couple the ski to a skier's boot for use.

The loose ski braking or halting device according to this invention is mounted on the top surface of the ski body 10 forwardly of the boot toe attachment device A, and so as to operate at the right hand or outer margin of said ski body, and comprises a base plate 11 adapted to be affixed to the ski body by fastening screws 12.

Said base plate 11 is provided with longitudinally aligned and spaced apart, upstanding perforate bearing plates unitary therewith and comprising an outer bearing plate 13 and an inner bearing plate 14. Preferably these bearing plates upstanding from the base plate 11, of a hollow plate 15 which is superposed upon the base plate 11, and is affixed thereto. The base plate 11 is mounted on the ski body in an oblique position relative to the outer longitudinal edge of the latter, at an internal or rearward angle thereto approximating 125°. The outer end of said base plate 11 is formed in like angular relation to its longitudinal axis, so as to be aligned in register with said outer edge of the ski body 10 when mounted thereon. Said outer end of the base plate 11 is provided with a stop lug projection 16, which exteriorly overhangs the outer edge of the ski body 10.

Swingably supported in connection with the base plate 11 is a loose ski arrester or halting means comprising a brake arm 17 having a journal stem 18 extruding angularly therefrom at an internal angle of approximately 125°, and connected thereto by an offsetting elbow 19.

The journal stem 18 is journaled in and through the perforate bearing plates 13 and 14, and so that the brake arm 17 is pivotally supported in connection with the base plate 11. Formed in connection with the free end of the brake arm 17 is a suitably shaped flattened brake blade 20. Mounted around the journal stem 18, between the bearing plates 13 and 14 or of the base plate 11, is a helical torsion spring 21. One end 22 of this spring 21 is anchored by impingement against the base plate structure, while its other end 23 is thrustingly engaged into the journal stem 18, as by insertion through a slot 24 with which the rear end of said journal stem is provided. The torsion spring 21 is such that, under tension, the same exercises rotative thrust upon said journal stem which is operative to swing the brake arm 17 in clockwise direction as shown in the drawing from an out-of-service position to an in-service position, as will be presently further described.

Due to the angular relation of the brake arm 17 to its pivoting journal stem 18, when said brake arm is swung upwardly and rearwardly, in counter-clockwise direction as shown in the drawing, the same can be disposed in overlying relation to the top surface of the ski body 10, so as to lie flatly thereon, with its brake blade 20 extending adjacent to the boot toe attachment device A (see FIGS. 1 and 2). Such movement of the brake arm 17 rotates the journal stem 18 so as to exert twisting force upon the torsion spring 21, to thereby bring the latter into a condition of maximum tension. The brake arm 17 is thus disposed in an out-of-service position. When held in such out-of-service position, the ski arrester or halting means will not interfere with normal skiing use.
When the loose ski arrester or halting means is disposed in the described out-of-service position, it will be held therein by the skier's attached boot toe T, whereby to prevent out-swinging movement of the brake arm, under thrust of spring 21, to in-service position, unless the boot becomes detached from the ski body 10 in this connection it will be understood that the ski arrester or halting means of this invention can be used in cooperation with any type of safety ski binding or harness which will permit release and detachment of the skier's boot from the ski under accidental application of abnormal stresses or strains to the binding or attachment harness.

Illustrative of one such type of safety ski binding or attachment harness, the accompanying drawings show one wherein the boot toe attachment device A is of the kind which yields to abnormal stresses or strains, to thereby effect release of the boot toe T therefrom. This illustrative type of safety ski binding or attachment harness is of the kind disclosed in my prior United States Letters Patent No. 2,616,714, wherein the boot toe attachment device A comprises a toe plate 25 which is affixed to the boot toe T, said toe plate having a projecting portion 26 indented by a seating notch 27. Holding means is co-operative with the toe plate 25, and comprises a latching lever 28 and a spring actuated thrust means 29, with a universal joint 30 connecting said latching lever and thrust means in end to end relation. The latching lever 28 is normally engaged in the seating notch 27 of the toe plate 25 in boot toe holding effect. When this engaged end of the latching lever 28 is subjected to transversely applied or uplifting force sufficient to overpower the counterforce of the thrust means 29, said latching lever will swing sufficiently about the joint 30 so as to be displaced from the seating notch 27 of toe plate 25 with boot toe releasing effect, and resultant detachment of the boot from the ski body 10.

When the boot toe T is removed from normal attached relation to ski body 10, the brake arm 17 with its brake blade 20 is released from the restraint of the boot, and is thereupon free to swing, under impulsion of torsion spring 21, in clockwise direction as shown in the drawing from its out-of-service position to its in-service position, the latter position being shown in FIG. 3.

Due to the angular relation of the brake arm 17 to its journal stem 18 and the pivoting support for the latter, when said brake arm 17 with its brake blade 20 swings in clockwise direction as shown in the drawing from out-of-service position to in-service position, the brake arm 17 with the brake blade 20, will move past said ski edge to a downwardly projected extension beyond and more or less perpendicular to the plane of the bottom of the ski; being stopped in such disposition by abutment against the stop lug projection 16 of the mounting base plate 11.

It will be obvious that when the ski is detached from the ski body 10, and becomes loose and free to slide distantly away from the scene of release, the brake arm 17 and its brake blade 20, being then in the described in-service position, will tend to dig into the snow, thereby to arrest sliding away movement of the loose ski, and thus halt escape thereof.

To facilitate storing, stacking, racking and transportation of skis when not in use, it is desirable to provide means for retaining the arresting or halting devices of skis provided therewith in their described ski overlying out-of-service positions. To this end, any suitable tie down means may be used. By way of example, endless tie loops 31 (see FIG. 5) may be provided. In use, one loop end of a tie loop 31 is engaged around the brake blade 29, whereupon the body of the tie loop is passed across the bottom of and around the ski body 10, with its opposite loop end engaged around a projecting portion of the toe attachment device A (see FIG. 4), thus tying down the brake arm 17 in desired out-of-service position against the tension of its torsion spring 21.

Having now described my invention, I claim:

1. In combination with a ski equipped with a safety boot attachment binding adapted to release the boot from the ski under abnormal stresses and strains, means to stop a ski detached from the boot from sliding away movement, said means comprising a base plate affixed to the ski in spaced away relation to a portion of said binding and in oblique angular relation to a longitudinal edge of the ski, said base plate having longitudinally spaced apart standing perforate bearing members to receive the journal stem, whereby to pivotally support the brake arm for swinging movement toward said binding to an out-of-service position overlying the ski inwardly of a side edge thereof and so as to be held therein by a boot releasably attached to the ski, and a torsion spring mounted around said journal stem between said bearing members, one end of said spring impinging said base plate and the other end thereof being engaged with said journal stem, the tension of said spring being operative to bias the brake arm for swinging movement through an arcuate path oblique to the axis of the ski from said inward out-of-service position outwardly across said ski edge to an in-service position, wherein it is exteriorly dependent from the ski when the same is released from the restraint of the boot.

2. A ski stop means according to claim 1, wherein the base plate is provided with a stop lug projecting outwardly from the ski edge and adapted to be engaged by the brake arm, whereby to determine the in-service position thereof.

3. A ski stop means according to claim 2, wherein the brake arm terminates at its free end in a suitably shaped brake blade.

4. In combination with a ski equipped with a safety boot attachment binding including a yieldable boot toe engaging means adapted to release the boot toe and boot from the ski under abnormal stresses and strains, means to stop a ski detached from the boot from sliding away movement, said means comprising a base plate affixed to the ski in forwardly spaced away relation to the boot toe engaging means of the binding and in angular relation to an outer longitudinal edge of the ski and divergent to the axis of said boot toe engaging means of the binding, a brake arm having attached thereto a base plate, the brake arm being pivotally supported on the base plate, the brake arm being pivotally supported on the base plate, having a journal stem at one end angular thereto, said base plate having longitudinally spaced apart standing perforate bearing members to receive the journal stem, whereby to pivotally support the brake arm for swinging movement toward said binding to an out-of-service position overlying the ski inwardly of a side edge thereof and so as to be held therein by a boot releasably attached to the ski, and a torsion spring mounted around said journal stem between said bearing members, one end of said spring impinging said base plate and the other end thereof being engaged with said journal stem, the tension of said spring being operative to bias the brake arm for swinging movement through an arcuate path oblique to the axis of the ski from said inward out-of-service position outwardly across said ski edge to an in-service position, wherein it is exteriorly dependent from the ski when the same is released from the restraint of the boot.

5. A ski stop means according to claim 4, wherein the
base plate is provided with a stop lug projecting outwardly from the ski edge and adapted to be engaged by the brake arm, whereby to determine the in-service position thereof.

References Cited by the Examiner

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| 2,616,714 | 11/52 | Cubberley    | 280   | 11.35

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