Aug. 1, 1950 V. M. HEWETT 2,517,486

SKI BINDING

Filed Feb. 14, 1948

FIG_1

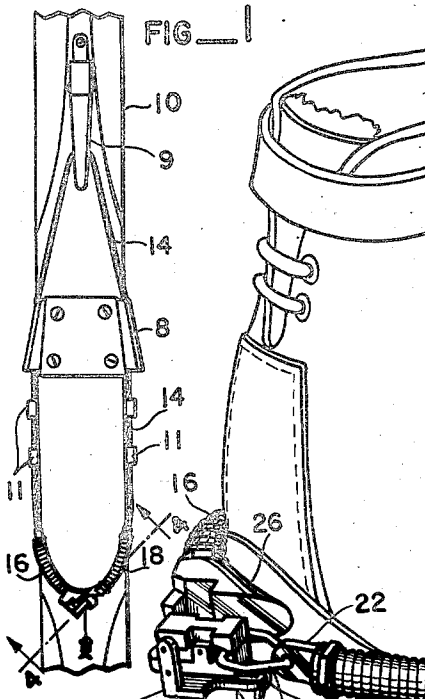
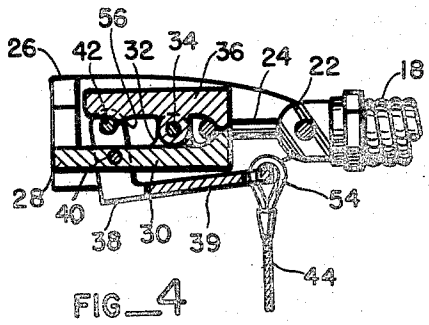


FIG_2

FIG_3

FIG_4



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SKI BINDING

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2 Claims. (Cl. 280—11.35)

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My invention relates to a ski-binding useful to secure a skier's boot to a ski and, more particularly, relates to a safety release mechanism for such ski-bindings.

It is conventional to securely attach the skier's boot to a ski in order that the skier will have a high degree of control over the ski without lost-motion between the boot and ski. It appears that the tighter and more securely the two are joined the better is the result. For such reasons ski-boots are heavily constructed of several sole layers of leather occasionally including metallic or other stiffeners between the layers. The bindings usually include toe-irons to receive the forward portion of the boot sole and a strap or strand element which passes around the heel and is tensioned forwardly to draw the boot toward the toe-irons. A common form of strand includes an endless cable having a resilient spring-like portion to encircle the heel. Such cable extends forward of the boot to where it is hooked to a toggle device on the ski for tensioning. Ordinarily the tensioned member or the toggle device or both are subject to adjustment in order that high pressures may be obtained on the heel of the boot to drive the latter into the toe-irons and under a toe-strap or sole lugs. In addition, the tensioned member is often passed thru guiding tie-down members on either side of the ski to insure a downward pull on the boot to keep the skier's heel close to the ski. By the use of such equipment the skier is quite rigidly joined to his skis. Under such circumstances a skilled skier or a novice is subject to injury where mobility exists in either the skier or the ski while immobility exists in the other. In the event of a tumble, for example, where the body turns and the skis are held as in the snow, or where the skier comes to a stop while his skies are still turning or twisting, with the conventional binding the skier is very likely to suffer serious injury.

Having in mind the circumstances above, it is an important object of this invention to provide a ski-binding including a safety release mechanism that will operate automatically upon the occurrence of certain conditions between the ski and the skier to release the boot from the ski.

Another object of the invention resides in the provision of a ski-binding, including a safety release mechanism, that will operate when the skier's heel is raised beyond a predetermined amount from the ski.

A further object of the invention is the provision of a ski-binding having a release mechanism which is adjustable with a fine degree of precision.

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A further object of the invention has been to provide an automatically releasable ski-binding which will not increase the snow draw or cause the accumulation of snow masses to interfere with or impede skiing.

Other objects of the invention reside in the provision of an automatically releasable ski-binding that can be used with the majority of the presently used toe-irons and toggle mechanisms without alteration thereof; which can be used in conjunction with present safety devices associated with the toe-irons or the toes of the boots without interference with the latter; which can be simply and inexpensively constructed and incorporated in presently used tensioning strands; and which is simple and easy to use by skilled skiers or novices for down-hill skiing, racing, jumping or the like.

Other objects and advantages of the invention will be more apparent to those skilled in the art from the following description taken in view of the accompanying drawings in which:

Figure 1 is a plan view of a tensioned member of a ski-binding incorporating my safety release mechanism;

Figure 2 is an enlarged fragmentary perspective view of the heel of a ski-boot held to a ski by my safety binding;

Figure 3 is a further enlarged view of the release mechanism of my safety binding; and

Figure 4 is a sectional view taken on line 4—4 of Figure 1.

Referring to Figures 1 and 2, a ski 10 is shown as having a boot 12 secured thereto by means of toe-irons 8 and the tensioned cable 14. Forwardly of the boot the cable 14 is tensioned and secured to the ski by means of a toggle mechanism 9 of conventional and well-known form and mode of operation. The cable is guided and held to the ski-sides by hitches 11. The separable section of the tensioned cable which passes around the heel of the boot 12 includes a pair of coiled spring-like portions 16 and 18, which are joined by my release mechanism, and are secured by fastenings 20 to the cable ends. The separable section usually lies in a groove 15 provided in the boot heel for that purpose.

Heel portion 18 has a pierced ear 22 anchored to its end and D-ring 24 is mounted in the ear to swing. Heel portion 16 has suitably joined thereto the base member 26 which is shaped to fit snugly into groove 15 of the boot heel. Base member 26 supports a gripping or pincer mechanism that engages and releasably holds the D-ring when portions 16 and 18 are joined as shown in Fig. 2.

An off-set arm 28, outstanding to the rear of base member 26, supports a lower fixed jaw 30. Upstanding ears 32 receive pivot pin 34 on which is mounted intermediate its ends the upper movable jaw 36. The gripping portions of jaws 30 and 36 close together in a pincer manner to receive the D-ring 24 as shown in Figs. 2 and 4. The inner faces of the pincer jaws are sloped for quick release of D-ring 24.

A bell-crank 38, pivotally mounted at 40 to fixed arm 30, carries a presser member such as crank pin 42 which is disposed, on occasion, under the overhanging end of jaw 36 to the rear of pivot 34. When the link or arm 39 of bell-crank 38 is upward or close to jaw 30 the presser pin 42 is disposed so as to hold jaw 36 to the gripping position. When the arm 39 is swung to the position of Fig. 3, the jaws 30 and 36 may open to release D-ring 24, since presser member 42 is then swung to its inoperative position.

Swinging of the arm 39 to release jaws 30 and 36 is accomplished by a trip strand 44 attached at one end to arm 39 and at the other end to an anchor device comprising screw 46 that passes thru bracket 48 and is adjusted by wing-nuts 50. A guide-eye 52 aids in directing the trip strand so as to insure a pull on arm 39 from the right direction.

The trip strand 44 may be removably attached to arm 39 by means of clasp 54 or any other similar quick-detachable coupling.

In Fig. 4 I show a slight raise or hump 56 on jaw 36 just ahead of the normal locked position of presser pin 42. In passing from the position of Fig. 3 to that of Fig. 4, or vice versa, presser pin 42 rides over hump 56. During skiing, when vibration often occurs, presser pin 42 is precluded from "creeping" forward or out of the jaw-locking position to thus prevent an unwanted freeing of the gripping jaws.

The operation of the safety-release mechanism is quite simple. The skier adjusts his cable 14 so that its length when tensioned by the usual toggle device will be such as to firmly draw the skier's boot into the toe-irons. In such case the D-ring 24 will be gripped between jaws 30 and 36 and there held by the action of presser pin 42 on the overhanging portion of jaw 34. The trip strand 44 is adjusted as to length so that it will operate to downwardly swing arm 39 when the skier raises the boot beyond a predetermined degree with relation to the ski. At such time as the skier tumbles or, in deviation from normal skiing practices, raises his foot above the predetermined permissible amount, trip strand 44 acts upon arm 39 freeing jaw 36 to swing away from jaw 30. The pull on D-ring 24 occasioned by the tension on the cable binding will cause the ring to quickly pull free from the gripping jaws 30, 36 and the heel portion of the binding will be divided. Either the toe of the ski boot slips free of the toe-irons or lateral twisting is permitted to such an extent that injury to the skier is precluded.

An important advantage of this invention is had when the skier wishes to remove his skis quickly. All that need be done is to forcibly rise on the toes sufficiently to raise the heels above the amount permitted by the trip strand 44. Such will cause the jaws to open and relieve tension on the cable binding permitting the boots to be withdrawn from the toe-irons, all without bending over or any manual manipulation of the toggle or other mechanism of the binding.

While this description refers to the safety release mechanism being associated with cable bindings it will be apparent that the device is equally useful with strap-type bindings and also with bindings in which the heel-encircling portion is not spring-like but a cable alone with resiliency being incorporated at some point other than at the heel of the boot.

It will be apparent that changes and modifications of various elements and the substitution of various materials may be made without departing from the spirit of the invention as defined in the appended claims.

I claim as my invention:

1. In a ski-binding of the type wherein a tensioned strand member anchored to the ski encircles the heel of the skier, a safety release mechanism, comprising: a divided heel element formed in said tensioned loop member, a base member carried by one of the portions of said divided heel element and including a fixed jaw, a movable jaw pivotally carried by said base member to close with said fixed jaw, a link pivotally mounted on said fixed jaw and lying therebelow, a presser member carried by said link and operable on said movable jaw to close the same to said fixed jaw, an anchor fixed to the ski to the rear of the normal position of the heel of a boot, between said anchor and said link a trip strand to cause the swinging of the link upon undue upward movement of the heel from the ski to move said presser member to a position inoperative upon said movable jaw, and an element to be gripped between said jaws and carried by the other portion of said heel element.

2. In a ski-binding of the type wherein a tensioned strand anchored to the ski encircles the heel of the skier, a safety release mechanism, comprising: a divided heel portion in said tensioned strand, a double jaw pincer device carried by one of the parts of the divided heel portion, a member to be gripped in said double jaw pincer device and carried by the other part of said divided heel portion, means for holding said pincer device in gripping relation about said member to be gripped, bell-crank link means for movably supporting said pincer holding means and a strand anchored to the ski and operable to swing said bell crank link means and to release said holding means upon the raising of the pincer device above a predetermined degree relative to the ski.

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REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Country	Date
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