

[54] BRAKING DEVICE FOR A SKI

[76] Inventors: Reinhold Spieldiener, Vorhaldenstrasse 95, CH-8045 Zurich; Alphons Saiko, Weinbergstrasse 54, CH-8802 Kilchberg; Robert Spieldiener, Trottenstrasse 95, CH-8037 Zurich, all of Switzerland

[22] Filed: Apr. 20, 1972

[21] Appl. No.: 245,746

[30] Foreign Application Priority Data Apr. 23, 1971 Switzerland..... 5919/71

[52] U.S. Cl. 280/11.13 B, 188/8

[51] Int. Cl. A63c 7/10

[58] Field of Search 188/8; 280/11.13 B, 280/11.13 C, 11.13 D, 11.13 G, 11.13 Z, 12 AB

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Primary Examiner—Duane A. Reger
Attorney—Michael S. Striker

[57] ABSTRACT

A braking device for a ski to stop its eventual escaping, comprising a braking unit adapted to be moved, due to an unexpected separation of ski and ski-boot, from a resting position flush with the ski trunk into a braking position by spring action, in which position a member of the braking unit projects beyond the sliding surface of the ski trunk in a transverse direction thereto, the braking unit being releasably held in resting position by a disengageable release element preventing the spring action only in engaged position and being disengageable by the separation of ski and ski-boot.

10 Claims, 9 Drawing Figures

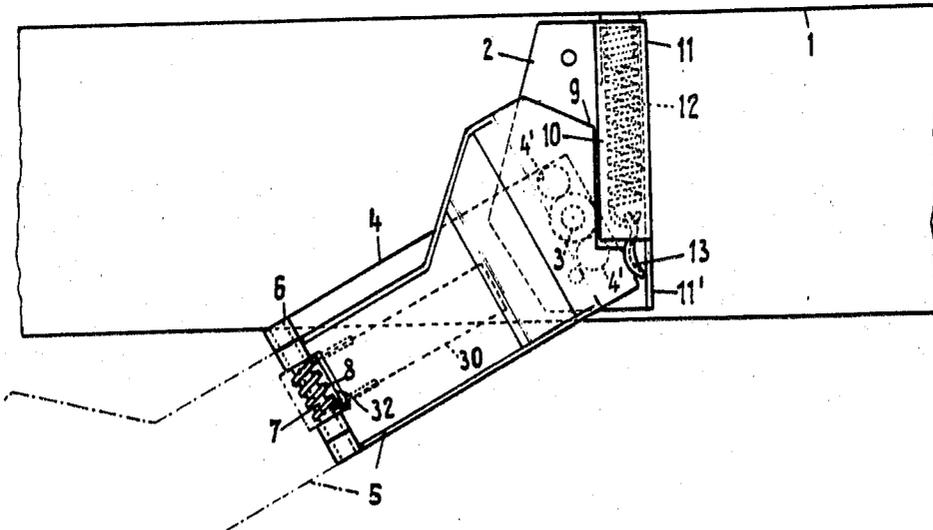


FIG. 1

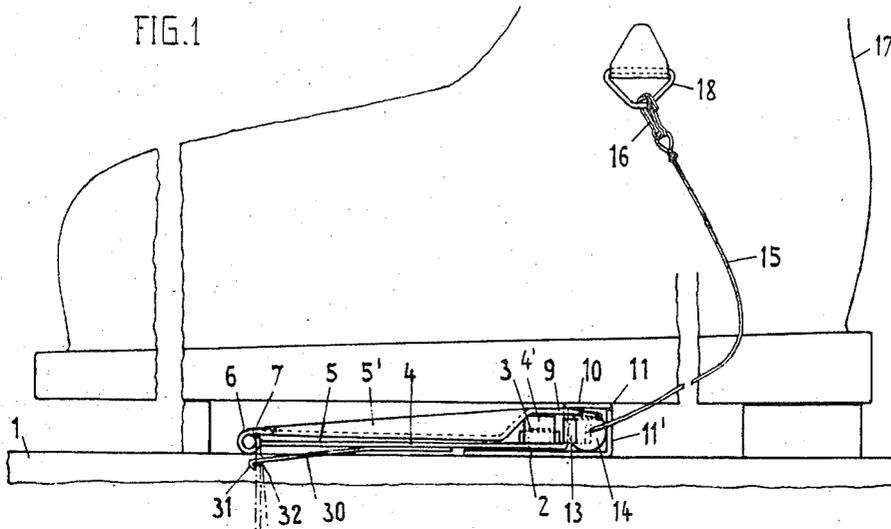


FIG. 2

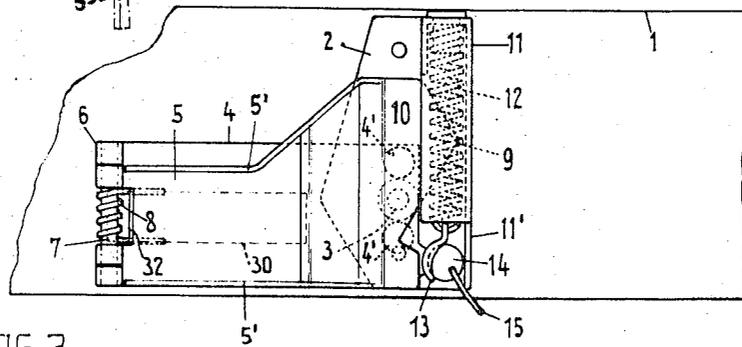
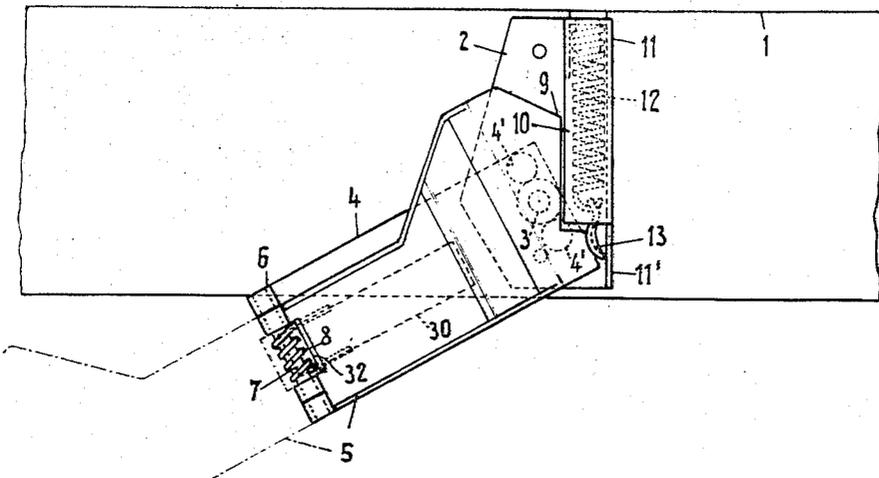
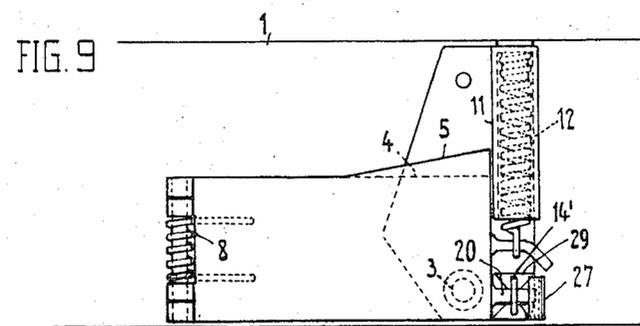
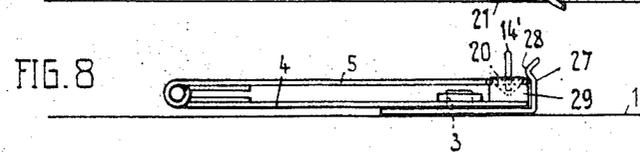
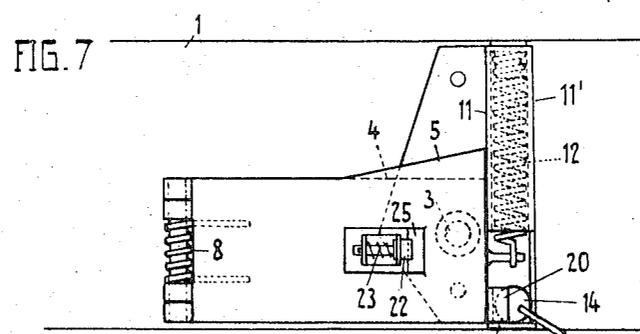
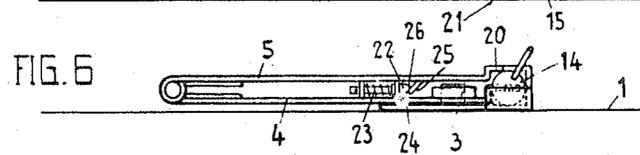
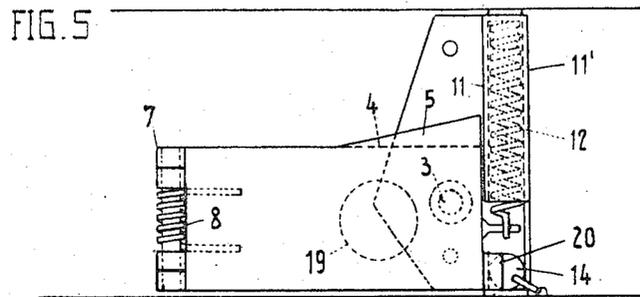
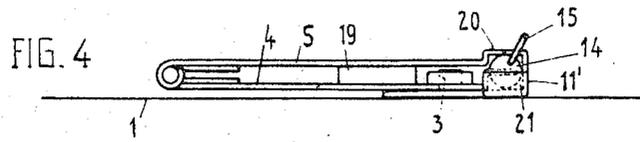


FIG. 3



SHEET 2 OF 2



BRAKING DEVICE FOR A SKI

BACKGROUND OF THE INVENTION

The problem of stopping an escaping ski having come loose from the ski-boot has become very important due the use of expensive skis and by the preferred skiing at high speed on prepared snow tracks and downhill runs. The hitherto used attaching straps for maintaining a loose connection between the skier and his ski which has, for instance due to a fall, come loose from his boot, are rather dangerous because of the fact that the loosely captive ski remains in reach of the skier who is thus exposed to the risk of serious injury from his ski. Therefore, a braking device on a ski has been proposed comprising a braking unit which snaps into the braking position every time the ski-boot is detached from the binding, that is to say, even when the ski is taken off in the normal way. Thus, before stepping into the binding, the braking unit must be restored each time into its resting position, this being again a disadvantage.

SUMMARY

It is an object of the present invention to avoid the above mentioned disadvantages and to solve the problem of stopping an escaping ski in that a braking device is mounted on the ski trunk, which comprises a releasably locked braking unit being submitted to tensioned spring means for moving the released braking unit from its resting position flush with the top of the ski trunk into its braking position in which a braking member of the unit projects beyond the sliding surface of the ski trunk in a transverse direction thereto, a disengageable release element being provided to lock the braking unit in its resting position and being adapted to be brought in pulling connection with the ski-boot or leg of the skier, so as to be disengaged by an unexpected separation of the ski and ski-boot.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an elevational lengthwise view of a first embodiment of the braking device with parts of the ski trunk and ski-boot;

FIG. 2 and 3 are each a top view of the braking device of FIG. 1, seen in its resting and braking positions, respectively;

FIG. 4 and 5 are an elevational lengthwise view and a top view, respectively, of a second embodiment of the braking device; and

FIG. 6 to 9 show additional embodiments or modifications of the braking device, each in elevational view and in top view, respectively.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the case of the braking device shown in FIG. 1 to 3, between the non-visible front and back binding-parts for the ski-boot 17 there is secured below the same on the ski trunk 1 a base plate 2 having an upright pin 3 on which a swivelling plate 4 is pivotally mounted flush with the top side of the ski trunk 1. The front end of the plate 4 forms, along with the adjacent end of a braking wing 5 lying on it in the resting position shown in FIG. 1 and 2, a hinge 6 on the axis 7 of which a torsion spring 8 is mounted for urging the wing 5 to be swung into its braking position partly shown by

dash-and-dot lines in FIG. 1. In resting position, the wing engages with its end 9 which is opposite to the hinge 6 and bent slightly downwards, beneath the upper wall 10 of a housing 11 provided on the base plate 2. In the housing 11, a tension spring 12 is arranged perpendicularly to the pin 3 and engages the plate 4 for turning it in counterclockwise direction about the pin 3 into the operating position shown in FIG. 3. However, in the resting position there is an interspace between the braking wing 5 and the rear wall 11' of the housing 11, in which space a spherical release element or ball 14 is clamped by the action of the spring 12 and is fastened to a rip-wire 15 which permits the ball 14 to be torn out of the device. In its engaged position, the ball 14 is partially inserted into a concave part 13 fastened on the plate 4 so that a disengagement of the ball by itself is not possible.

If the release ball 14 is torn out of the described clamped position, first of all, owing to the emergence of the ball from the concave part 13, the swivelling plate 4 accordingly is somewhat displaced, so that the braking wing 5 with its bent end 9 at the housing wall 10 is pressed against two buffers 4' on the plate 4, and this action shatters any ice that may have formed there and that could impede the functioning of the device. As soon as the ball 14 is fully withdrawn, the plate 4 together with the wing 5 is turned by the tension of spring 12 into the operating position shown in FIG. 3. At the same time, the wing 5 with its end 9 is swung away from the wall 10 and is opened up by the torsion spring 8 into the braking position wherein the wing 5 extends considerably beneath the plane of the sliding surface of the ski trunk 1 in a transversal direction thereto.

The rip-wire 15 of the release ball 14 can be detachably connected, for example by means of a spring snap 16, to a ring 18 fastened on the leg portion of the ski-boot 17, and this is done upon stepping with the boot into the ski-binding; it can be easily detached again before stepping out of the binding.

In order that the braking wing 5 cannot be turned out of its braking position, against the action of the spring 8, in case that the escaping ski is running backwards, a pawl 30 formed by a leaf spring is mounted on the lower side of the plate 4 and extends beneath the axle 7 where the pawl nose 31 is downwardly directed for engaging the wing 5 at a rim 32 adjacent to the axle 7 as soon as the wing reaches its braking position. If the wing 5 is to be restored into the resting position, the pawl nose 31 must be disengaged from the rim 32 by pressing the pawl slightly against the plate 4.

With the embodiment of the braking device shown in FIG. 4 and 5, the braking wing 5 is held down on plate 4 in resting position by a permanent magnet 19 fastened onto plate 4. The wing 5 has a projection 20 which overlaps the release ball 14 being set in place between the end of plate 4 and the rear wall 11' of the spring housing 11. This is to prevent plate 4 from being subjected to the tension of the spring 12, and wing 5 from swinging out. If by means of the wire 15 the release ball 14 is torn out of the device, a narrow housing wall 21 allows the ball to emerge only in upward direction, so that in this way the braking wing 5 with the projection 20 is displaced upwards, this breaking the magnetic contact with the plate 4, so that the torsion spring 8 will open up the wing 5, while simultaneously

the plate is swung out about the pin 3 by the tension of spring 12.

The modification shown in FIG. 6 and 7 differs from the embodiment just described only in that instead of the magnetic connection between the wing 5 and the plate 4, there is fixed to the latter a snap-bolt 22 held in locked position by a screw-spring 23, in which position the lower edge surface 24 of the bolt 22 engages a correspondingly inclined tongue 25 of the wing 5. The tearing out of the release ball 14 displaces the projection 20 with the rest of the braking wing 5 upwards, so that the bolt 22 recedes from the tongue 25 and releases the wing. When the wing 5 is folded back into its resting position, the tongue 25 with its free end comes to rest on an upper wedge surface 26 of the snap-bolt 22, so that the latter, when the wing 5 is pushed down onto the swivelling plate 4, is shoved back and, under the effect of the spring 23, afterwards again engages the tongue 25.

Instead of the described snap-bolt arrangement, in the modification shown in FIG. 8 and 9, there is affixed on the base plate 2 a catcher 27 against which the projection 20 of the braking wing 5 abuts in its resting position under the tension of spring 12, thus preventing the plate 4 from swinging out about the axial pin 3. The top of the catcher 27 forms a resilient nose 28 which overlaps the projection 20 for preventing an opening up of the wing 5 by itself. The release element is constituted by a ring 14' which is loosely pushed on the pin-like projection 20 and is connected by a non-visible wire with the leg portion of the ski-boot as is the ball 14 according to FIG. 1. Equally, it is the purpose of the wire and ring to tear the braking wing 5 out of its resting position when the ski is escaping from the ski-boot. In order that even a lateral pull upon the release ring 14' will cause the required upward movement on the projection 20, there is fastened beneath the ring a hollow conical bed 29 on the base plate 2. The four inclined inner walls of this bed impart to the ring the necessary upward movement. When the release ring 14' is torn out of the device, the projection 20 together with the wing 5 is lifted sufficiently to displace the flexible nose 28, whereupon the braking wing is opened up by the action of the torsion spring 8, the ring escapes from the projection 20 and the plate 4 is swung out by the spring 12.

For stiffening the almost flat wing 5 it is advantageous to provide it with one or two longitudinal side walls 5' shown in FIG. 1 and 2.

We claim:

1. A braking device for stopping the escape of a ski, comprising a base piece mounted on an upper side of the ski; a pivot fixed in said base piece and projecting upwards therefrom; a braking unit including a support member pivotally mounted on said pivot and a braking member hinged to said support member and adapted to lie thereon in resting position and to be displaced into a braking position wherein said braking member projects downwardly beyond the sliding surface of the ski, first spring means connected between said support

member and said braking member for resiliently urging the latter into said braking position, a catch retaining said braking member in resting position against the action of said first spring means, second spring means connected between said base piece and said support member for resiliently urging the latter to an operative position permitting said braking member to move to said braking position, and a stop on said base piece for maintaining said support member against movement to said operating position under the urging of said second spring means; a releasing element normally engaging and maintaining said braking member against displacement to said braking position; and means connected with said releasing element and operative for withdrawing said releasing element from such contact only in response to an unintended separation of the ski and the ski-boot from each other.

2. A braking device as claimed in claim 1, wherein said releasing element is positioned between said stop and one of said members of said braking unit.

3. A braking device as claimed in claim 1, wherein said means comprises a pulling member adapted to be connected to the ski-boot or leg of the skier.

4. A braking device as claimed in claim 1, wherein said releasing element is a ball-like body, and said braking unit in resting position resiliently projects into the path of disengagement of said releasing element.

5. A braking device as claimed in claim 1, wherein said releasing element is a ring-like body which, in resting position of said braking unit, is engaged by said braking member.

6. A braking device as claimed in claim 1, wherein said catch is a permanent magnet device mounted on said support member and said braking member, respectively, for maintaining the latter in resting position.

7. A braking device as claimed in claim 1, wherein said catch is a snap-bolt device mounted on said support member and said braking member, respectively, for resiliently maintaining the latter in resting position.

8. A braking device as claimed in claim 1, wherein said catch is a resilient pawl formed by said stop, said braking member having a pin-like projection engaged by said pawl for resiliently maintaining said braking unit in resting position, and said releasing element being a ring removably placed on said projection for disengaging the latter from said pawl and said stop.

9. A braking device as claimed in claim 1, wherein said catch is a rigid wall portion of said base piece which engages said braking member in resting position, and buffer means arranged between said support member and said braking member and compressed by the latter in the resting position of said braking unit.

10. A braking device as claimed in claim 1, a resilient pawl being mounted at the bottom side of said support member and engaging said braking member adjacent to its hinged end in braking position against any outer force counteracting the force of said first spring means.

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