United States Patent

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[33] **France**
[31] **135563**

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[54] **SAFETY SKI BOOT FRONT BINDING**
8 Claims, 7 Drawing Figs.

[52] **U.S. Cl.** **280/11.35**
[51] **Int. Cl.** **A63c 9/00**
[50] **Field of Search** 280/11.35HA

[56] **References Cited**

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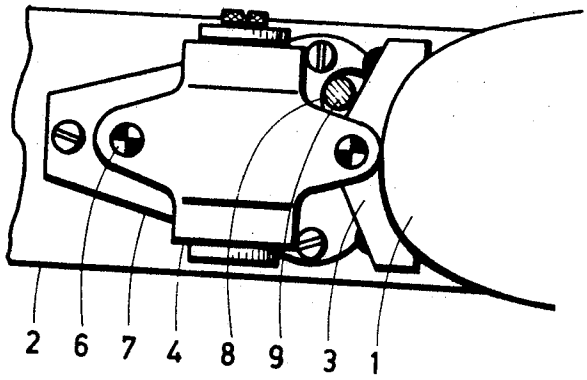
ABSTRACT: A ski boot front binding which can be opened to release the ski boot by means of a ski pole acting as a lever and which produces forces substantially equal to the forces necessary for the safety release of the binding.



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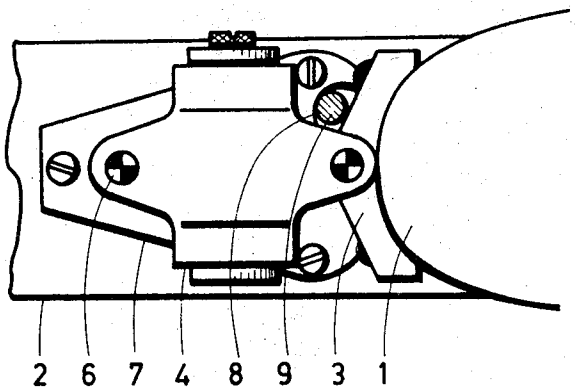

FIG.1

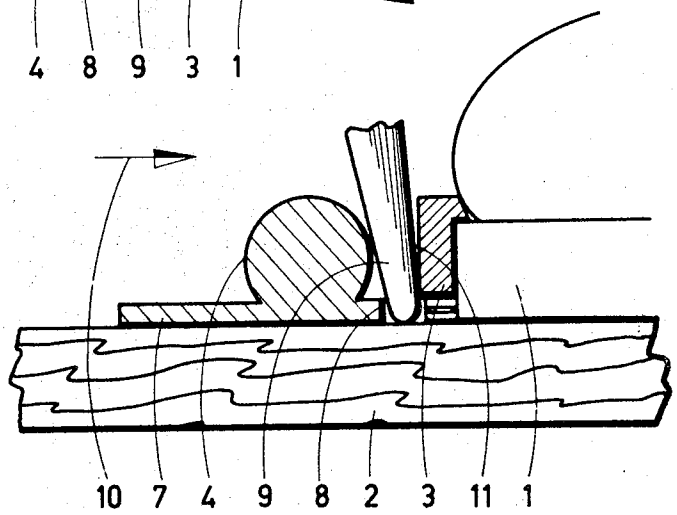

FIG.2

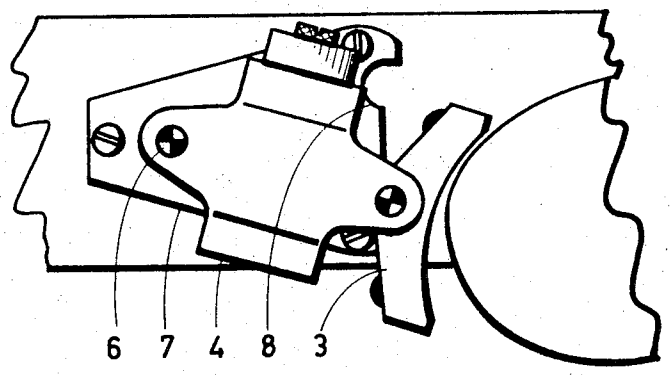

FIG.3

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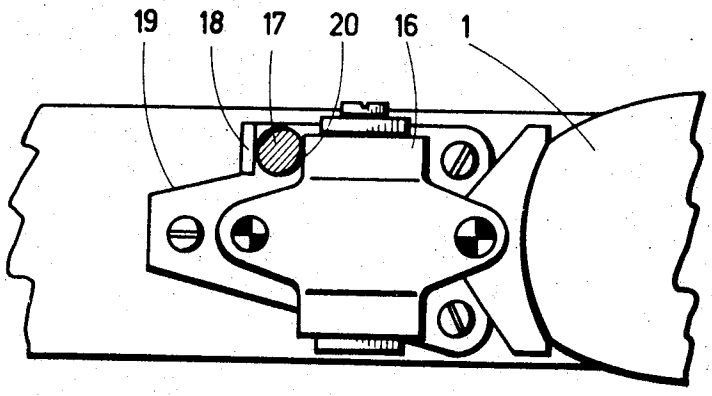
FIG. 4



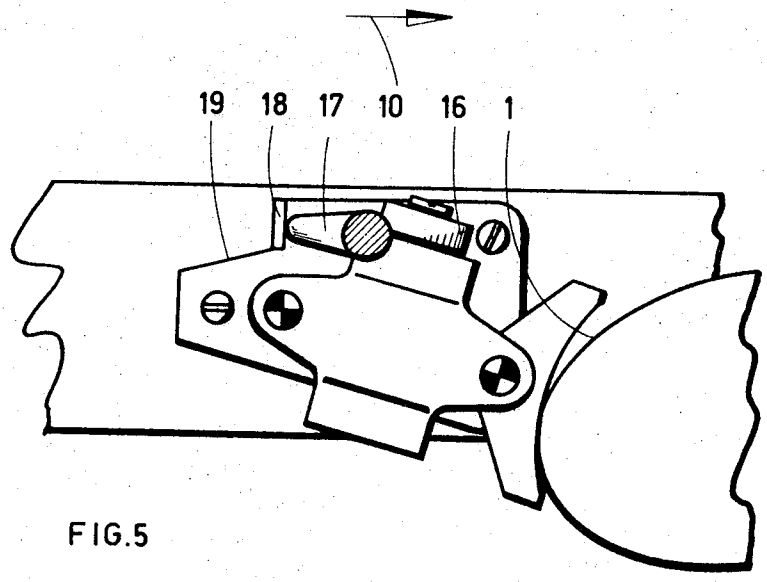


FIG.5

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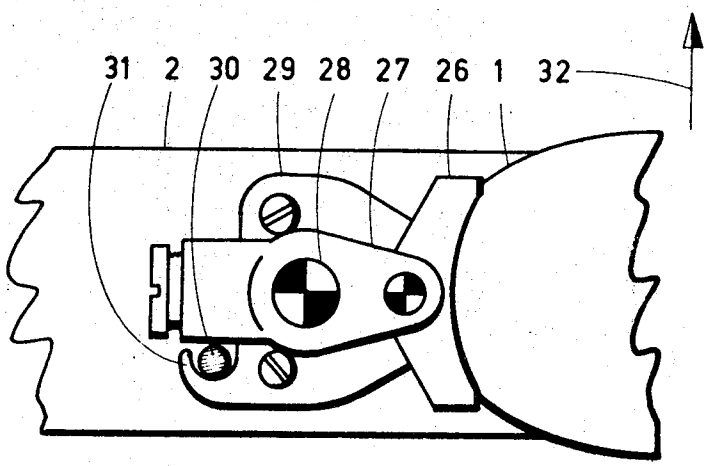
FIG. 6



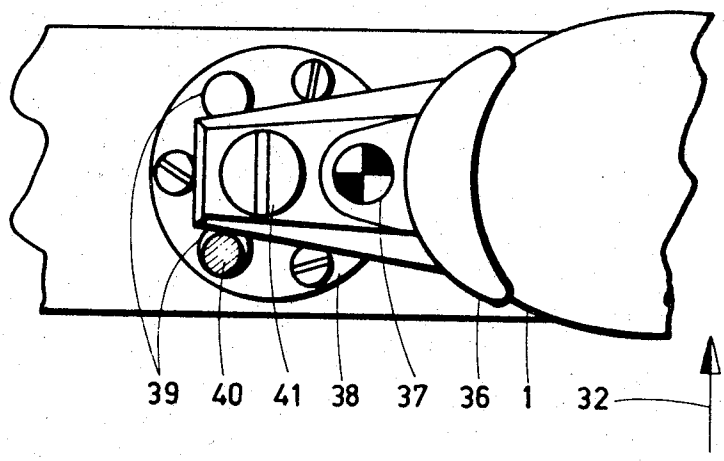


FIG 7

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SAFETY SKI BOOT FRONT BINDING

Most known safety bindings for ski boots and, more particularly, front safety bindings, cannot be opened manually to release the boot from the ski or if they provide a mechanism to release the boot; this mechanism is usually complicated, bulky and nonesthetic. Moreover, these mechanisms are expensive and therefore substantially increase the manufacturing cost of the binding.

The present invention has for its object to obviate the above-noted disadvantages in a simple and efficient manner.

In accordance with the invention, the opening of the binding to release the ski boot is obtained by means of a ski pole acting as a lever and producing forces corresponding to those necessary for the safety release of the binding.

To open the binding, the tip of a ski pole is inserted within a suitable stationary notch or cavity formed, for example, on the baseplate of the binding, whereas the portion of the ski pole comprised between the tip and the disc member, bears against a part of the pivotable assembly of the binding and transmits thereon forces exerted by the user on the said ski pole, thereby causing the safety opening of the binding.

The invention will become clearer by referring to the following description and to the annexed schematic drawings, which illustrate in a nonlimitative manner preferred embodiments of the invention.

In the drawings,

FIG. 1 is a top plan view of a first embodiment of the binding in accordance with the invention, the ski pole being shown in cross section;

FIG. 2 is a schematic longitudinal partial section of the binding in accordance with FIG. 1, the tip of a ski pole being inserted in a cavity allowing opening action by said ski pole;

FIG. 3 is a top plan view of the binding of FIG. 1 in open position;

FIG. 4 is a top plan view of a second embodiment of the invention;

FIG. 5 is a top plan view of the embodiment of FIG. 4 in open position, the opening being obtained by a ski pole which is partially shown; and

FIGS. 6 and 7 are top plan views of third and fourth embodiments in accordance with the invention.

In FIGS. 1 and 2, the ski boot toe portion 1 is retained on a ski 2 by a jaw 3 of a boot retaining safety assembly 4 pivotable on a fixed stud shaft 6 secured to a baseplate 7.

The assembly or housing 4 includes spring means to urge pivotable movement of the assembly into a closed position, shown in FIG. 1, retaining the ski boot on the ski. The assembly 4 is pivotable transversely of the ski boot 2 to open position, as shown in FIG. 3, and against the action of the spring means when the ski boot exerts a lateral opening action on the binding.

In accordance with the invention, the baseplate 7 is formed with a notch 8 forming a bearing surface against which may be positioned the tip of a ski pole 9, said bearing surface cooperating with a bearing surface formed at the back of jaw 3 and spaced therefrom in the direction of the pivotal axis 6. The bearing surface on the jaw 3 is engageable by a portion of the ski pole between the tip and the disc of said ski pole to cause safety opening of the binding, as shown in FIG. 3, and therefore release of the ski boot to remove the ski. It is sufficient for the user to exert on the ski pole a pivotal movement in the direction of arrow 10, and the portion 11 of the ski pole stem bearing against the aforementioned surface of the jaw 3 will force opening of the assembly 4 against the action of its spring means, the open position being shown in FIG. 3.

Because of the high lever ratio existing between the various points of rest, reaction and pivotal action of the forces exerted on and by the ski pole, the user can, without much effort, cause the safety opening of the binding.

In FIGS. 4 and 5, the ski boot toe retaining assembly 16 is substantially identical to that of the first embodiment and includes safety spring means, not shown, to urge the same into closed position. However, in this embodiment, the tip of a ski pole 17 is inserted against an upwardly bent leg 18 of the baseplate 19 of the binding and bears on a part 20 of the assembly 16 when the ski pole is pivoted in the direction of arrow 10, thereby causing safety opening of the binding and therefore release of the ski boot 1.

In FIG. 6, the ski boot 1 is retained on the ski 2 by a jaw 26 pivoted on a housing 27 which is mounted for rotation transversely of the ski boot on a stud shaft 28 secured to a baseplate 29.

For releasing the ski boot, the user inserts the tip of a ski pole 30 into a notch 31 of the base plate 29 and pivots the ski pole in the direction of arrow 32, to thereby produce the safety opening of the binding and therefore the release of the ski boot.

In FIG. 7, the boot retaining member 36 for retaining a ski boot 1 is pivotally mounted on a pivot 37 carried by the baseplate 38 . This baseplate has two holes 39 disposed on each side of the boot retaining member 36. The tip of a ski pole 40 can be inserted into one or the other of the holes 39, and when the ski pole is pivoted about its tip in the suitable direction, in the case illustrated in the direction of arrow 32, release of the safety locking means 41 of the binding is obtained and, consequently, release of the boot 1.

The shape, dimensions, proportions or presentations of the different constitutive elements of the invention can be varied and the constitutive elements can be made in any material or combination of materials and these materials subjected to any treatment without departing from the scope of the present invention.

Moreover, the improvement in accordance with the invention can be adapted in any manner and to any type of safety binding for skis and can allow opening of these bindings by any means without departing from the scope of the invention.

I claim:

1. In a front ski boot safety binding of the type including a baseplate and a ski boot toe retaining assembly pivotally mounted on said baseplate for movement transversely of a ski boot toe between a closed position retaining a ski boot on a ski and a laterally inclined open position for the safety release of said ski boot, said baseplate and said assembly providing cooperable abutment surfaces spaced from each other in the direction of the pivotal axis of said assembly and respectively engageable by two spaced portions of a pole or rod, whereby said pole or rod is used as a lever to cause safety opening of said assembly and thus release of said ski boot.

2. In a binding as claimed in claim 1, wherein said pole or rod is a ski pole and said spaced portions of the pole or rod are the tip of a ski pole and a portion of said ski pole intermediate said tip and the disc member of said ski pole.

3. In a binding as claimed in claim 1, wherein said baseplate has a notch providing said abutment surface of said baseplate.

4. In a binding as claimed in claim 1, wherein said baseplate has a hole made therein and providing said abutment surface.

5. In a binding as claimed in claim 1, wherein said assembly includes a ski boot toe engaging jaw and a housing, said housing pivotally mounted on said baseplate and said jaw pivotally mounted on said housing, said cooperable abutment surfaces including a notch made in said baseplate and a surface portion at the back of said jaw.

6. In a binding as claimed in claim 1, wherein said assembly includes a boot toe engaging jaw and a housing, said jaw pivotally mounted on said housing and the latter pivotally mounted on said baseplate, said abutment surfaces including a notch made in said baseplate and a surface of said housing opposite to said jaw with respect to the pivotal mounting of said housing on said baseplate.

7. In a binding as claimed in claim 1, wherein said baseplate has an upstanding ear providing said abutment surface of said baseplate.

8. A binding as claimed in claim 1, wherein said baseplate has two holes made therein on each side of said assembly, close to said assembly and spaced from said pivotal axis, said holes providing alternative abutment surfaces allowing safety opening of the binding in one or the other direction.