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Guttulsrud

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[54] **SKI BINDINGS**

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Oct. 7, 1974 Norway 743612/74

[52] **U.S. Cl.** ..... **280/11.35 B**

[51] **Int. Cl.**[2] **A63C 9/18**

[58] **Field of Search** ..... 280/11.35 B

[56] **References Cited**

UNITED STATES PATENTS

3,823,953	7/1974	With	280/11.35 B
3,850,439	11/1974	Guttulsrud	280/11.35 B

Primary Examiner—M. Henson Wood, Jr.
Assistant Examiner—Milton L. Smith
Attorney, Agent, or Firm—Burns, Doane, Swecker & Mathis

[57] **ABSTRACT**

Ski bindings of the type having a forwardly directed clamping bail pivotally mounted on a toe iron. The clamping bail, with a locking member shaped as a lever having at least one tooth and pivotally mounted at the forward end of said clamping bail, is engaged with a complementary locking member in the form of a upwardly directed bail on the forward portion of the foot plate such that the forward sole portion of the ski boot is pressed into firm contact with the upper face of the foot plate during engagement with the pins provided on the foot plate. The lever is a one-armed lever which extends upwardly from a center of rotation at the forward end of the clamping bail and the free end of the lever is formed into an actuating lug which is located on the upper side of the clamping bail.

5 Claims, 2 Drawing Figures

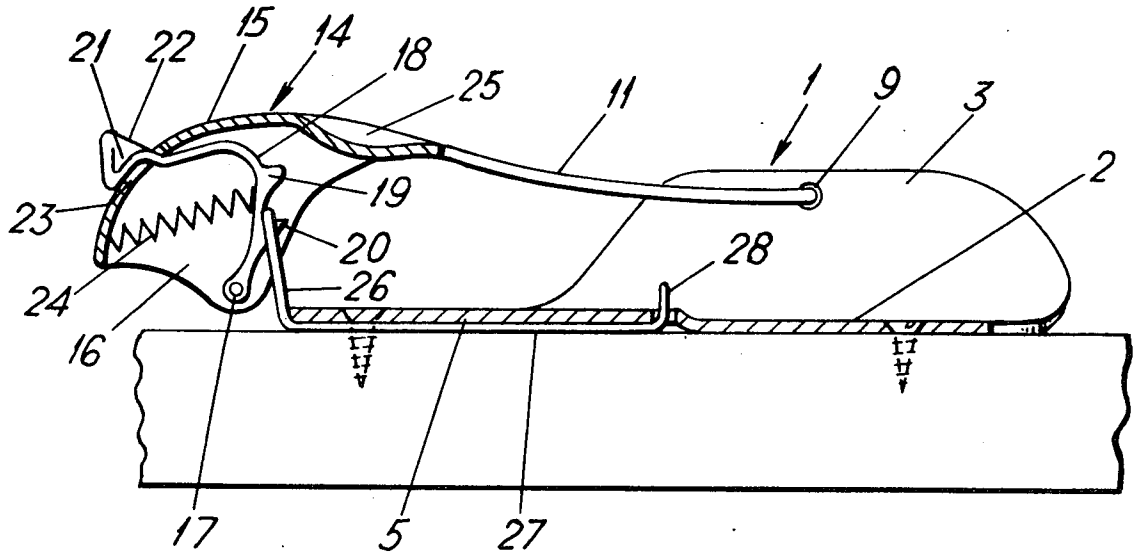

Fig. 1.

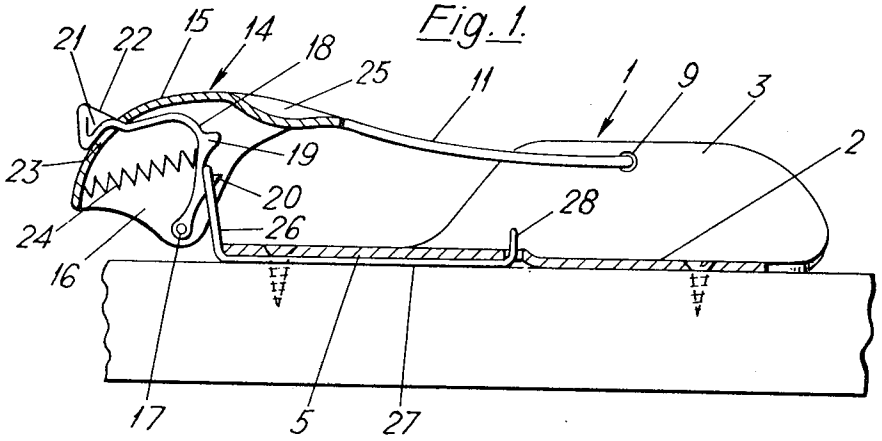
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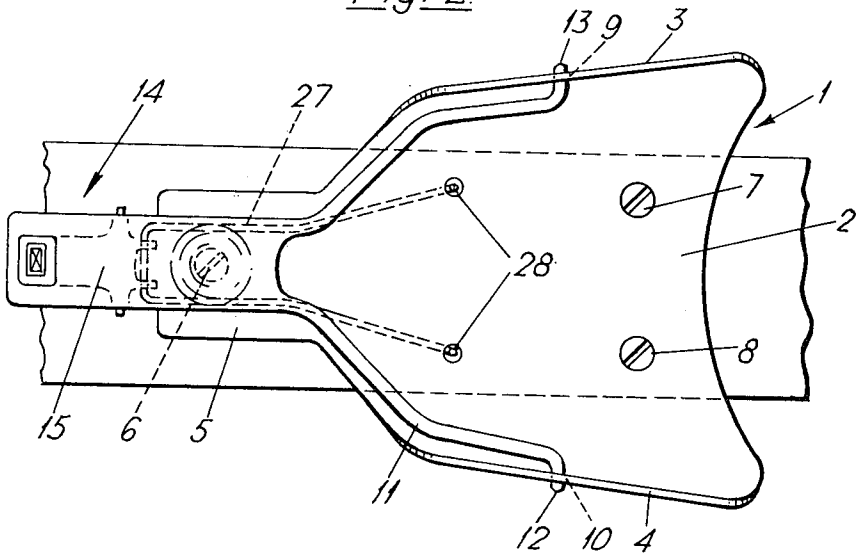
Fig. 2.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SKI BINDINGS

The present invention relates to an improvement in ski bindings of the type having a forwardly directed clamping bail pivotally mounted on a foot plate. The said clamping bail, by means of a lever-shaped locking member having at least one tooth pivotally mounted at the forward end thereof, is adapted to be engaged with a complementary locking member in the form of a upwardly directed bail on the forward portion of the foot plate. Thus, the forward sole-portion of the ski boot is pressed into firm contact with the upper face of the foot plate and is engaged with lugs arranged on the foot plate.

Such a binding is described in U.S. Pat. No. 3,850,439. In this known binding, the lever-shaped locking member is mounted at the forward portion of the clamping bail and is in the form of a housing which, with one arm, extends rearwardly along the upper edge of the clamping bail, the other arm extending downwardly toward the complementary locking member on the forward portion of the binding. It is this housing which is actuated both on attachment and detachment of the binding. The attachment of the binding in particular can cause problems as, in order to secure the forward portion of the clamping bail, it is necessary to press downwardly on the lever. The location of the downwardly-directed pressing force must be relatively exact. If the pressure is too far back on the rearwardly directed lever, it is not possible to attach the binding since the forwardly/downwardly directed lever, together with the rearwardly directed teeth, is then pressed forwardly and is not engaged. If force is brought to bear too far forward, it is possible to press the forwardly directed/downwardly directed lever, together with its teeth, with too much force against the complementary locking member so that it is difficult to press a tooth past the bail-shaped complementary locking member.

The object of the invention is to provide a binding where the above said disadvantage is eliminated and which is simple and inexpensive to produce. A further object of the present invention is to provide a binding which is less sensitive to packing of snow, and icing.

According to the invention, this is achieved by an improvement in ski bindings of the type described hereinabove wherein the lever is a one-armed lever which extends upwardly from a center of rotation on the clamping bail, and the free end is located on the upper side of the clamping bail and is the form of an actuating lug.

In a preferred embodiment or example of the invention, the lever is mounted in a housing arranged at the forward edge of the clamping bail and extends through a slot in the roof of the housing so that the actuating lug is located on the upper side of the said roof. The lever is then mounted at the lower portion of the side walls of the housing. The slot in the roof of the housing has an extent in the pivotal direction of the lever such that the pivotal movement is restricted in rearward direction.

In a further development of the invention, the clamping bail and housing are produced integrally from flat resilient steel.

The invention is further explained in the following with reference to the drawing where

FIG. 1 is an embodiment of the binding according to the invention viewed from the side and in partial section, and

FIG. 2 is the binding in FIG. 1 viewed from above.

The toe iron 1 of the binding consists of a foot plate 2 having ears 3 and 4 projecting upwardly therefrom. When the binding is in use, the boot sole rests against the foot plate 2 and the edges of the boot sole bear closely against the ears 3, 4. The foot plate 2 has a forwardly directed extension 5 and the entire toe iron is secured by means of three screws 6, 7 and 8, whereof one, 6, is secured in the extension 5. Holes 9, 10 are provided at the upper edge of the ears 4, 3. A clamping bail 11 is, with its free outwardly curved ends, mounted pivotally in the holes 9, 10. In the embodiment shown, the clamping bail 11 is produced from a flat, resilient material and the forward end is shaped into a housing 14 with a roof 15 and two side walls of which only one 16 is illustrated in FIG. 1. In the walls of the housing 14 a one-armed lever, formed as a locking member 18, is pivotally mounted about an axis 17. The locking member has two locking teeth 19, 20 directed towards the ears 3, 4 of the binding, and is bent at right angles forwardly underneath the roof of the housing 14. The free end is formed as an actuating lug 21 having a recess 22 at the upper side thereof. The free end of the locking member 18 with actuating lug 21 projects through an opening 23 in the roof 15 of the housing 14 so that the lug 21 is located on the outside of the housing 14. The locking member 18 is actuated by a spring 24 which pushes the locking member in direction towards the ears 3,4. The roof 15 of the housing is provided with a recess 25. At the forwardly directed portion 5 of the foot plate 2, an upwardly directed bail 26 is secured which serves as a complementary locking member to locking member 18. The bail 26 extends with its two legs 27 on the under side of the foot plate 2 and the extension thereof 5 and the free ends are bent at right angles and project upwardly through holes in the foot plate as attachment pins 28. The said pins 28 are engaged in corresponding holes in the sole of the boot when the binding is in use.

When the binding is to be attached, the boot is introduced between the ears 3, 4 of the toe iron with the clamping bail 11 in somewhat upwardly pivoted position. The holes in the boot sole then engage the pins 28 and the edges of the boot sole bear against the inside of the ears 3, 4. Thereafter, the user presses the housing 14 downwardly, for example, by means of his ski stave engaging the recess 25. The locking lever 18 will then, for example, with its tooth 20, snap in below the transverse web of the bail 26 and the binding is locked. As the locking lever 18 is provided with a so-called above center position slot, as illustrated on FIG. 1 of the drawings, the binding will not inadvertently become detached. The harder the pressure exerted by the boot on the clamping bail 11, the stronger the locking engagement between the web of the bail 26 and the teeth 20 on the locking lever.

When the binding is to be detached, the locking lever 18 is pressed towards the left on the drawing in FIG. 1, for example, by introducing the point of the ski stave into the recess 22 on the lug 21. The locking lever 18 is thereby pivoted anti-clock-wise so that the tooth 20 is disengaged from the web on the locking bail 26.

The invention is not restricted to the embodiment illustrated on the drawing and described hereinabove, but can be effected in many different ways within the scope of the invention. For example, it is not necessary to extend the locking bail by legs 27 and to terminate in upwardly curved pins 28. Nor is it necessary in princi-

ple for the locking lever **18** to be provided with teeth directed rearwardly towards the ears **3, 4.** The essential feature of the invention is that the binding is engaged by pressure on the bail **11** or on the upper side **14** of the housing and disengaged by a pressure on the free end of the lever **18** extending beyond the housing **14** or the clamping bail **11.**

Having described my invention, I claim:

1. In a ski binding of the type having a forwardly directed clamping bail pivotally mounted on a toe iron having a foot plate, said foot plate including means for engaging the sole of a ski boot, a locking member comprising a one-armed lever having at least one tooth and pivotally mounted on the forward end of said clamping bail, and a complementary locking member comprising an upwardly directed bail on the forward portion of said foot plate for engaging a tooth on said lever to maintain a ski boot pressed in firm contact with the upper face of said foot plate with said means for engaging in engagement with the sole of the boot, said lever

extending upwardly from its pivotal axis on one side of the forward end of said clamping bail and having its free end formed as an actuating lug located on the other side of said clamping bail.

2. A ski binding as recited in claim **1,** wherein said means for engaging on said foot plate constitute pins.

3. A ski binding as recited in claim **1,** wherein a housing is provided at the forward end of the clamping bail, and said lever is mounted in said housing and extends through an opening in the roof of the housing with its actuating lug located on the upper side of said roof.

4. A ski binding as recited in claim **1,** wherein a housing is provided at the forward end of the clamping bail, and said lever is mounted on the lower portion of the wall of said housing.

5. A ski binding as recited in claim **3,** wherein the opening in the roof of the housing is of such extent in the pivotal direction of said lever as to restrain its pivotal movement in the rearward direction.

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