

United States Patent

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[54] **TENSIONING LEVER LOCK ON SKI BOOTS**

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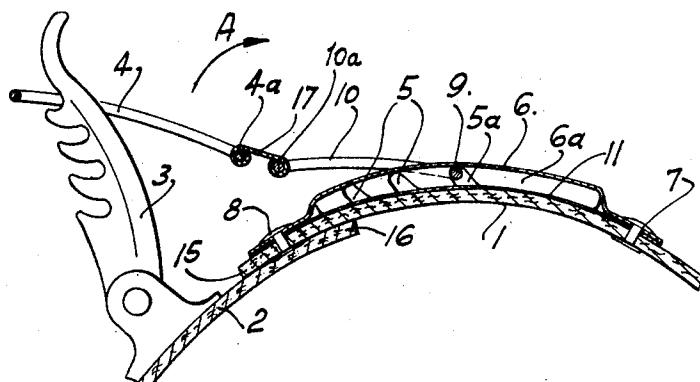
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[57] **ABSTRACT**

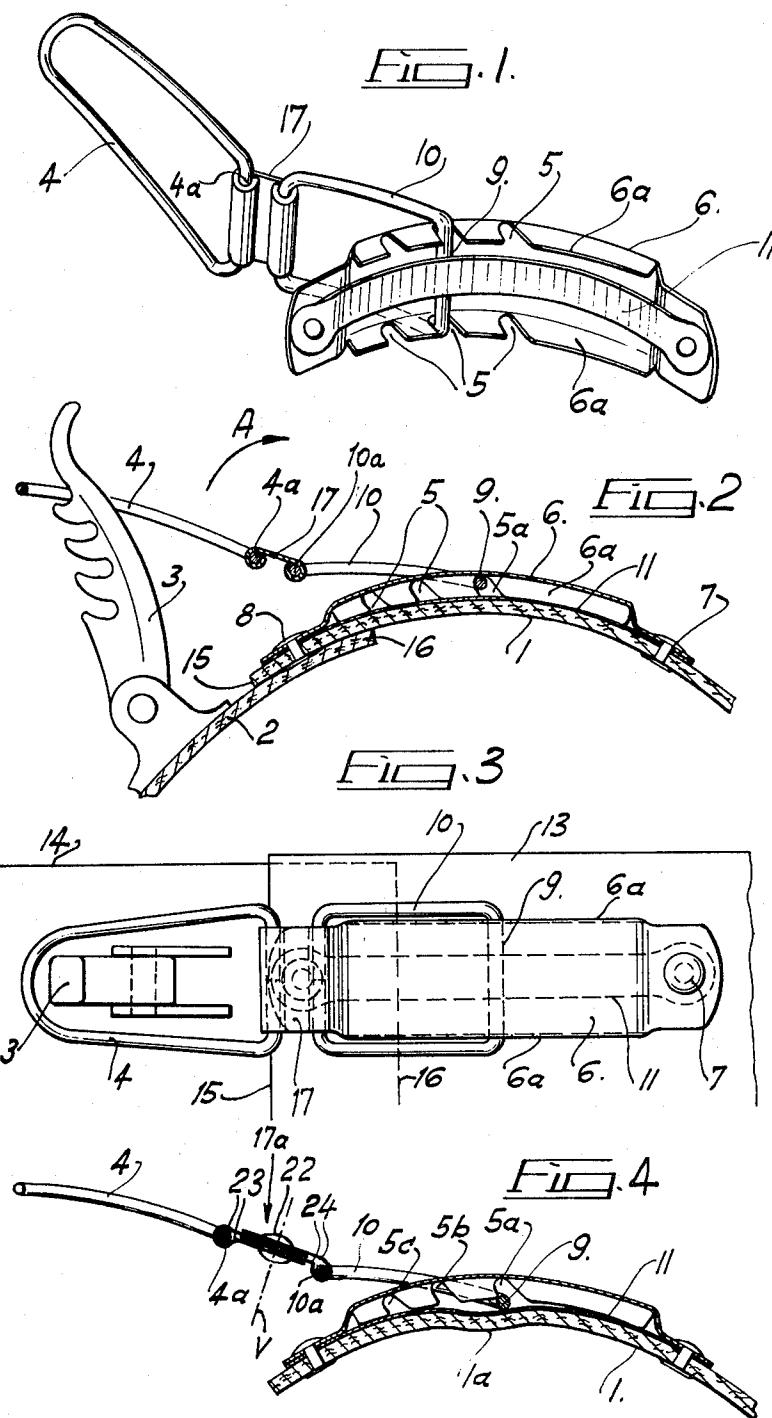
A clamping device for a ski boot is provided wherein the clamping device utilizes a loop connected to one side of the boot and received into a selected one of a plurality of suitably oriented slots in a fitting connected to the other side of the boot. The fitting is arranged in cooperation with resilient means which tend to close the slots and thereby hold the loop normally therein but which will yield sufficiently to enable the loop to be shifted from one slot to another.

5 Claims, 4 Drawing Figures



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TENSIONING LEVER LOCK ON SKI BOOTS

The invention relates to a tensioning lever lock on ski boots in which a tensioning lever is arranged on the one instep part and a clamping loop cooperating with this lever is arranged longitudinally movably on the other instep part.

In known tensioning lever locks of this type there is provided a curved holding plate which must be secured to the instep part, which holding plate is constructed as a guide for a slide which latter is also curved, provided with grooves and connected to the holding plate through an elastic locking device. The clamping loop which cooperates with the tensioning lever is hingedly connected to the slide. This known lock is complicated and not reliable in its operation since the slide can be pulled out from the holding plate with the clamping loop and can thus be lost. Furthermore, this type of construction has the disadvantage that the rigid slide projects over the edge of the instep part and thus hinders the stepping of the foot both into and out of the ski boot.

The basic purpose of the invention is to produce a tensioning lever lock avoiding the above-mentioned disadvantages, which lock is simple in construction and manufacture, yet is reliable in operation and permits an easy entry into and exit from the boot. The last-named condition is particularly important for plastic boots since these are made of rigid material.

This purpose is attained according to the invention by a tensioning lever lock characterized by a holding plate provided with two or more cross slots and secured at its ends to the instep part of the boot, a clamping loop with a crossbar engaging these cross slots and an elastically resilient part closing the cross slots of the holding plate.

The invention will be discussed hereinafter in connection with exemplary embodiments illustrated in the drawings, in which:

FIG. 1 is a diagrammatic illustration of the lock;

FIG. 2 is a longitudinal cross-sectional view of this lock arranged on a ski boot;

FIG. 3 is the front view of this lock on the ski boot; and

FIG. 4 is a longitudinal cross-sectional view according to FIG. 2 during the longitudinal adjustment of the clamping loop.

Overlapping instep parts of a ski boot are identified at 1 and 2 in the drawings. A toothed tensioning lever 3 is swingably arranged in a conventional manner on the part 2, which tensioning lever cooperates with a clamping loop 4. This clamping loop is arranged longitudinally adjustably on the instep part 1. For this purpose there is provided a holding plate 6 which has two or more cross slots 5. The holding plate is secured at its ends at 7 and 8 on the instep part 1 by means of rivets or the like. The crossbar 9 of a clamping loop 10 engages the slots 5. As illustrated, the cross slots 5 are advantageously inclined to the base of the holding plate 6. In order to prevent sliding of the crossbar 9 out from a slot 5, there is provided an elastically resilient part which closes these slots. In the embodiment according to FIGS. 1 to 4, the cross slots 5 are open toward the instep part 1. The elastically resilient part which closes the cross slots 5 is formed by the instep part 1. The elasticity of the material of the instep parts is used normally to close the slots 5 and thus to prevent escape

therefrom of the bar 9 and permits, as is illustrated in FIG. 4, the pressing of the bar 9 out from a slot 5a and the moving of same into a different slot 5b or 5c. The instep part 1 is thereby, as indicated at 1a, pressed elastically inwardly. In order to reduce the friction which occurs during such movement along the instep part, a slide strip 11 can be provided between instep part 1 and holding plate 6, which slide strip 11 may consist of thin spring plate or plastic (like for example Teflon). This slide strip can, as illustrated, also be secured to the part 1 by means of the rivets 7 and 8.

In FIG. 4, the holding plate 6 which consists of sheet metal comprises a flat box which is open only on the side facing the instep part and the sidewalls 6a of which are provided with the cross slots 5. As will be seen in the drawings, this box-shaped construction prevents the entry of snow and the like. The locks illustrated in the drawings are mainly suitable for the ankle portion, that is the upper part of the shoe, as illustrated in FIG. 3.

Compared with this in FIG. 3, the upper edges of both instep parts 1 and 2 are indicated at 13 and 14 and the vertical edges of said instep parts are identified with 15 and 16. The two instep parts 1 and 2 must be opened to step into the ski boot. In order that the lock will not hinder this entry into the boot, the clamping loop consists substantially of two hingedly connected parts, namely a clamping loop 4 which cooperates with the tensioning lever 3 and a loop extension 10 which is here formed as a rectangular ring. The member which hingedly connects the parts 4 and 10 is identified with 17. The boot opening which is needed for entry into the boot is obtained by swinging back the clamping loop 4 in direction A. If the tensioning lever lock is arranged in the lower instep zone, then the loop extension 10 is not needed so that then the crossbar 4a of the clamping loop 4 engages the cross slots 5.

The two-part clamping loop 4, 10 which is connected through the double joint 17 has the advantage that this clamping loop can adjust without any force to the curved instep parts 1, 2. Further, the double joint 17a can advantageously, as illustrated in FIG. 4, consist of two sheet-metal flaps 23, 24 which are swingably connected through a rivet 22. The crossbars 4a, 10a of clamping loop 4 and loop extension 10 are hingedly supported on said sheet metal flaps 23, 24. The clamping loop can thus be pivoted not only about the cross-bars 4a, 10a but also about the rivet axis v.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. In a tensioning lever lock for ski boots having a tensioning lever arranged on one instep part of the boot and a clamping loop cooperating with said lever arranged longitudinally adjustably on the other instep part, the improvement comprising a holding plate having a plurality of cross slots therein opening toward said other instep part and being secured at its ends to said other instep part, a clamping loop having a crossbar engaging said cross slots said other instep part being elastically resilient and closing the cross slots in said holding plate.

2. A tensioning lever according to claim 1, including a slide strip positioned between said other instep part and said holding plate.

3. A tensioning lever lock according to claim 1, wherein said holding plate which consists of sheet metal comprises a flat box which opens only on the side facing said other instep part and wherein said cross slots are provided in the sidewalls of said box.

4. A tensioning lever lock according to claim 1, wherein said clamping loop means is composed substantially of two parts connected by a double joint, namely a clamping loop cooperating with said tension-

ing lever and a loop extension forming a rectangular ring.

5. A tensioning lever lock according to claim 4, wherein said double joint is composed of two sheet-metal flaps swingably connected by a rivet and includes means hingedly supporting said cross-bar of said clamping loop and said loop extension.

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