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SAFETY ATTACHMENT DEVICE FOR SKIS

Filed Nov. 1, 1963

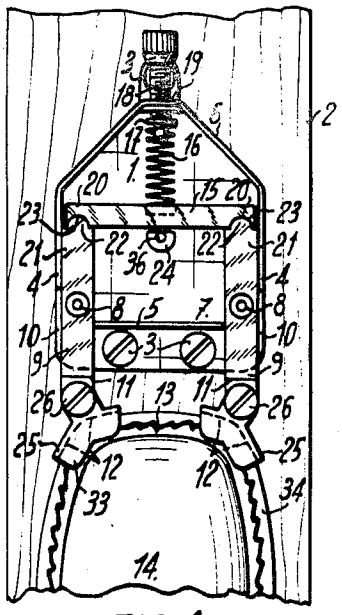

FIG. 1

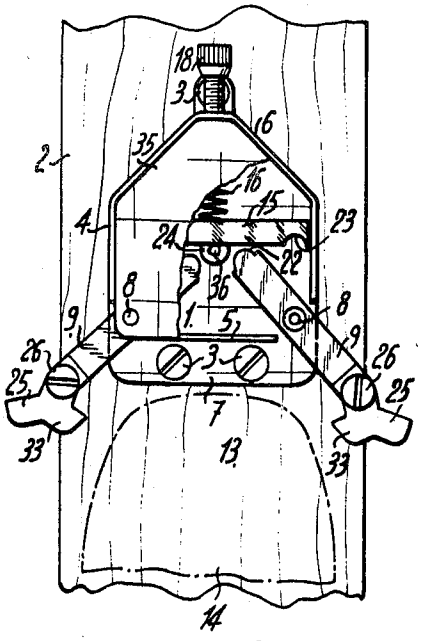

FIG. 2

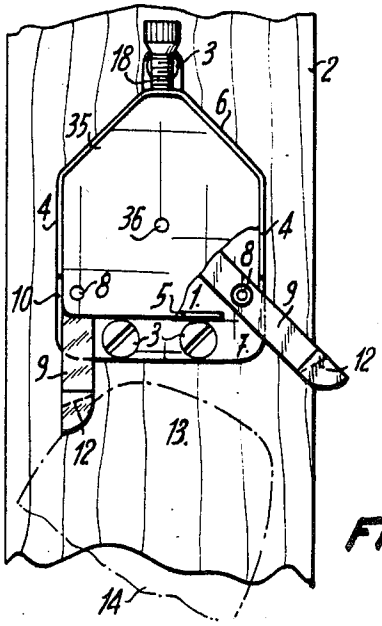

FIG. 4

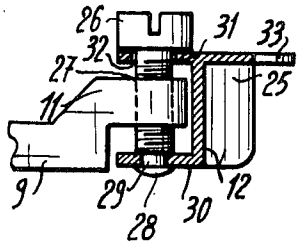

FIG. 3

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SAFETY ATTACHMENT DEVICE FOR SKIS

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The present invention has for its object a safety attachment device for skis, characterized in that it comprises two levers pivotly mounted on a support along two spindles perpendicular to the surface of the ski and situated on either side of the longitudinal median plane of the ski, one end of the said levers carrying a bearing surface against which is adapted to bear the front portion of the boot, a resilient locking device holding the two levers poised in a definite position of utilization and releasing these levers in the case of exaggerated stresses of the boot against the said bearing surfaces, exerted as well in a lateral and a longitudinal direction relative to the ski.

The accompanying drawing shows, diagrammatically and by way of example, two embodiments of this safety attachment device for skis according to the invention.

FIG. 1 is a plan view showing the attachment device in the position of utilization on a ski.

FIG. 2 is a view similar to the preceding one showing the device in the position of release of the boot under the effect of an axial shock.

FIG. 3 is a view of a detail of this attachment device.

FIG. 4 shows a second embodiment of the attachment device in the position of release of the boot under the effect of an exaggerated stress, exerted transversely to the axis of the ski.

The safety attachment device for skis shown in FIGS. 1 to 3 comprises a support 1 adapted to be fixed against the upper face of the ski 2 by screws 3. This support 1 has vertical side walls 4, as well as a rear wall 5 and a substantially inverted V-shaped front wall 6. These walls 4 to 6 give the support 1 the shape of a casing. The base plate 7 of the support 1 carries two vertical spindles 8 on each of which is hinged a lever 9. Openings 10 are left between the vertical walls 4 and 5 for the passage of these levers 9. These spindles 8 are therefore perpendicular to the main surface or bearing surface of the ski and situated on either side of the longitudinal median plane of the ski.

The rear ends 11 of the levers 9 carry a bearing surface 12 against which is adapted to bear the front portion 13 of the boot 14.

A resilient locking device is designed to hold the two levers 9 in a definite initial position of utilization, and to release the levers 9 in the case of an exaggerated stress of the boot 14 against the boot bearing surfaces 12. This locking device comprises a latching bar 15 in the form of a rocking lever subjected to the action of a spring 16 bearing, on the one hand, on the middle portion of the latching bar 15 and, on the other hand, against the point 17 of a screw 18 screwed in a tapped bore 19 on the support 1. The screwing or unscrewing of this screw 18 permits the adjustment of the force of the spring 16.

The ends 20 of the bar 15 cooperate with the respective ends 21 of the levers 9 due to corresponding boss 22 and groove 23 engagement devices. In the example shown, the bosses are formed at the ends 21 of the levers 9, while the groove 23 is provided at the corresponding end 20 of the lever 15. Obviously, the reverse arrangement would also be possible and the boss 22, instead of having a semi-cylindrical shape could be conical, rounded or even semi-spherical and formed by a ball portion embedded or welded in the corresponding end 21 of the lever 9, or in the end 20 of the lever 15.

Retaining means are provided on the support 1 to hold the lever 15 in place, when the levers 9 are brought to released position (see FIG. 2). In the example shown, this retaining means is constituted by an abutment in the form of a boss 24 integral with the base plate 7 of the support 1, against which bears the rocking lever 15 through its central portion, in the release position of the lever 9.

The boot bearing surfaces 12 are provided by elements 25 hinged at the respective ends 11 of the levers 9 by screws 26 permitting their height adjustment. In fact, as is shown in FIG. 3, a tapped bore 27 is provided vertically in the end 11 of each lever 9 and this screw 26 screws into the said bore 27. The point 28 of the screw 26 is riveted in a hole 29 of a flange 30 of the element 25. This element 25 has a second flange 31 also provided with a hole 32 for the passage of the portion of the screw near to its head. This flange 31 is prolonged rearwardly at 33 so as to constitute a retaining surface abutting against the upper part of the sole 34 of the boot 14.

It will readily be understood that by screwing or unscrewing this screw 26, there is produced an elevational movement of the element 25 permitting to adapt the latter to the thickness of the sole 34 of the boot 14.

The operation of the safety attachment device for skis described above occurs in the following manner:

The boot 14 is placed on the ski so that its front portion 13 bears against the bearing surfaces 12 of the elements 25, as shown in FIG. 1. Securing means of any known type, for example a traction cable, a large strap or a stop acting against the heel of the boot, ensures the maintaining of the latter in place against the bearing surfaces 12 of the elements 25 at the ends 11 of the levers 9.

Should exaggerated stress be exerted on the boot 14 in a transverse direction relative to the ski 2, the lever 9 situated on the side opposite to that from which arises the stress pivots by moving the rocking lever 15 away from its end 21 against the action of the spring 16. This pivoting of the lever 9 releases the boot 14 which separates itself from the ski. This release effect of the boot obviously occurs through a transverse force, either from left to right or from right to left, a force generally indicated by a torsional stress on the leg of the skier. However, this safety attachment device does not operate solely in the case of exaggerated torsional stress, but also when a violent axial shock is produced against the ski, for example when encountering a rock, a root or a tree trunk. FIG. 2 actually shows what occurs in the event of such a shock: the front portion 13 of the boot 14 then occasions the separation of the two abutment elements 25 one from the other, which produces an oscillating movement in the opposite direction of the two levers 9 the ends 11 of which move away one from the other. The boot 14 is thus released as soon as the violent shock occurs. It is to be noted that this release of the boot in the case of an axial shock takes place independently of the mounting of a so-called longitudinal safety attachment device acting on the cables or attachment belts of the heel of the boot against the ski.

The second embodiment of the safety attachment device shown in FIG. 4 is a simplified embodiment in which the boot bearing surfaces 12 are formed directly on the front end 11 of each lever 9, instead of being provided on intermediate elements 25, as is the case in the first embodiment. In this modified form, no height adjustment of the bearing surfaces 12 is possible relative to the levers 9, but, on the other hand, such a height adjust-

ment may be effected by interposing thickness plates between the support **1** or more accurately its base plate **7** and the upper face of the ski **2**.

The operation of this second embodiment of the safety device is similar to the one indicated for the first embodiment, this second embodiment being constituted by the same main elements as those constituting the first embodiment.

In the two embodiments described, the casing or housing constituting the support **1** is closed at its upper end by a lid **35** which, in the examples shown, is riveted through the upper end of the spindles **8** and through an extension **36** of the boss **24**. Obviously, this lid **35** could also be removably secured to the support **1** by one or more screws.

It is clear from the preceding description that the described safety attachment device for skis offers, relative to known devices of the same kind, the advantage of additional safety in the case of axial shocks.

I claim:

1. A safety attachment for ski boots comprising,

a support **(1)**,

spaced spindles **(8)** on the support perpendicular to the surface of the ski **(2)** and situated on either side of the longitudinal median plane of the ski,

boot controlled levers **(9—9)** spaced apart and medially pivoted on said spindles **(8)**, one end of the said levers having a boot engaging surface adapted to bear on the front portion of the boot **(12** or **25)**,

and an automatically releasable locking device **(15)** normally holding the said boot controlled levers **(9—9)** in an initial position of utilization and subsequently releasing the same in the event of abnormal stresses of the boot against the said boot engaging surfaces,

said locking device comprising a spring pressed latch bar **(15)** on the support **(1)** and having end portions cooperating with related ends of the said levers opposite said boot bearing surfaces, said surfaces having complemental interfitting boss and groove portions **(22–23)**,

and abutment means **(24–26)** on the support adapted to be engaged by said latch bar when the boot engaging portions of said levers are in boot releasing position.

2. A safety device for skis according to claim **1** in which the locking device also includes,

abutment means **(24)** on the support for restraining the bar **(15)** when the levers **(21)** are in boot releasing position.

3. A safety attachment for skis operable automatically upon excessive accidental force imparted to the ski, comprising,

a support **(1)** having side walls **(4—4)**, a rear wall **(5)**, and a front wall **(6)**,

an abutment **(24)** on the support disposed between the rear wall **(5)** and the front wall **(6)**,

a latching bar **(15)** spring urged **(16)** away from the front wall toward said abutment **(24)**,

spindles **(8)** on the support adjacent the ends of the rear wall **(5)**,

boot controlled levers **(9)** medially pivoted on said spindles, said levers having boot engaging means at their rear ends and their front ends normally detachably interlocked with the ends of the latching bar **(15)** to hold the same away from the said abutment **(24)**,

whereby, when the rear ends of the levers are spread apart in response to excessive emergency force supplied by the boot, the said inner ends thereof automatically disengage the said bar **(15)** and are urged toward each other and permit the latching bar **(15)** to engage said abutment **(24)** until the boot controlled levers **(9)** are reset.

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