

Dec. 21, 1965

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3,224,786

SAFETY STOP FOR SKI ATTACHMENT

Filed June 3, 1963

3 Sheets-Sheet 1

Fig. 1.

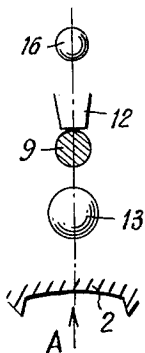


Fig. 2.

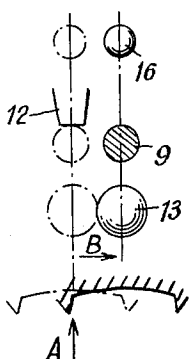


Fig. 3.

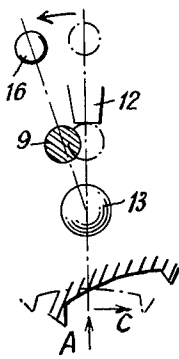


Fig. 4.

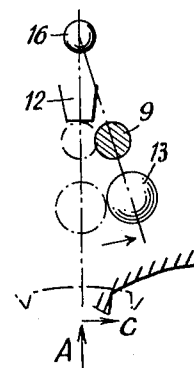


Fig. 5.

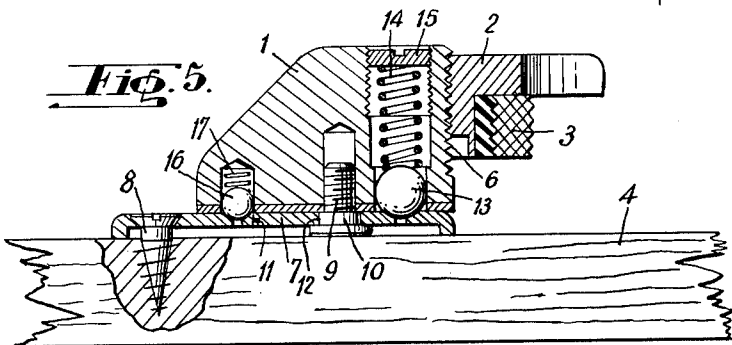
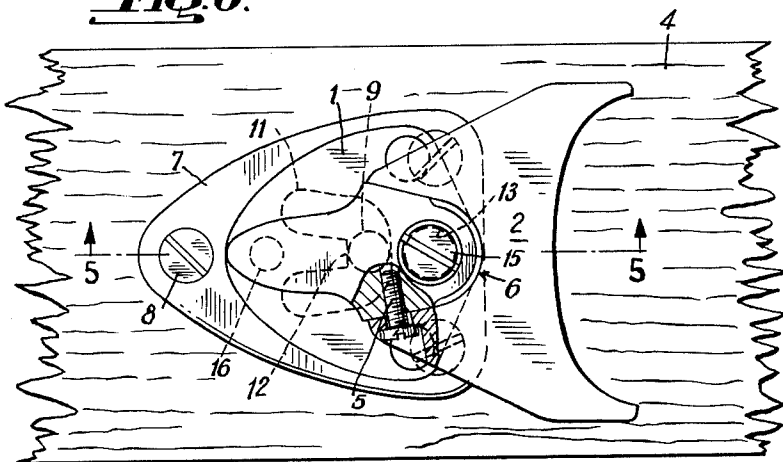


Fig. 6.



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Fig. 7.

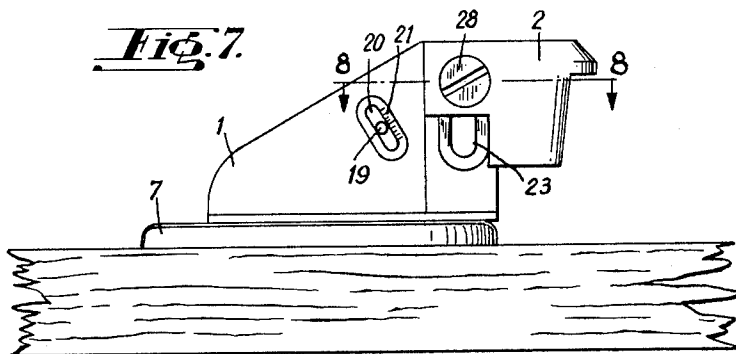


Fig. 8.

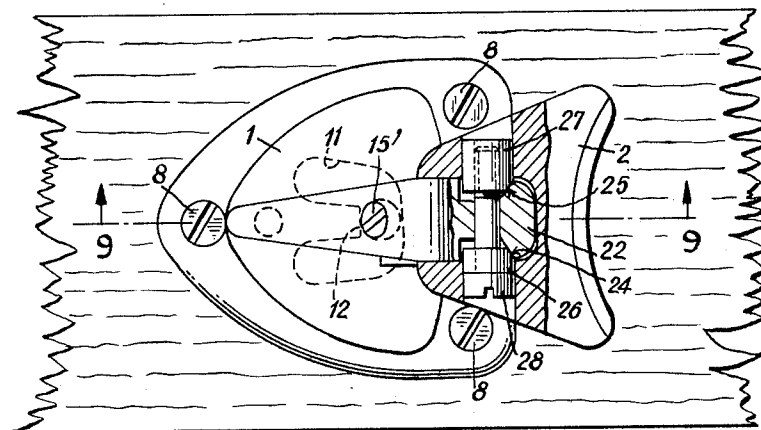
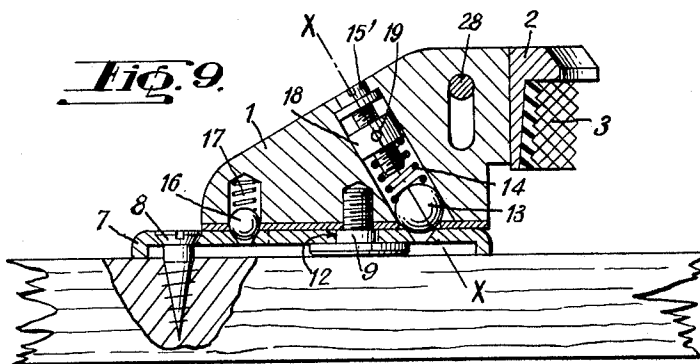


Fig. 9.



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Fig. 10.

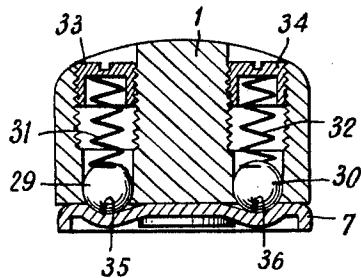
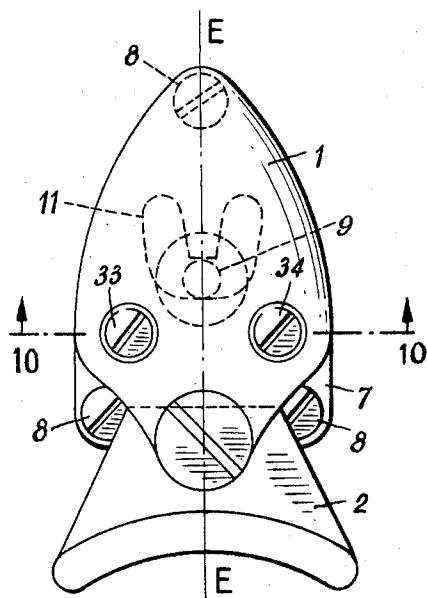


Fig. 11.



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SAFETY STOP FOR SKI ATTACHMENT

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7,136/62

4 Claims. (Cl. 280—11.35)

The present invention concerns a safety stop for ski attachment, comprising a body movably mounted on a base plate secured to the ski, guiding means and means for locking the body relative to the base plate, including two ball detents disposed on either side of the guiding means.

The accompanying drawing shows, by way of example, two embodiments of the stop according to the present invention.

FIGS. 1 to 4 are diagrams showing the principle of operation of the stop.

FIG. 5 is a section through line 5—5 of FIG. 6.

FIG. 6 is a view in plan of FIG. 5.

FIG. 7 is a view in side elevation of a modification of the first embodiment.

FIG. 8 is a plan view partly in section along line 8—8 of FIG. 7.

FIG. 9 is a section along line 9—9 of FIG. 8.

FIG. 10 is a section along line 10—10 of FIG. 11.

FIG. 11 is a view in plan of the second embodiment.

The safety stop for ski attachment shown in FIGS. 5 and 6 includes a body 1 having a detachable rear part 2 provided with a lining 3, for example of rubber, against which the front end of the sole of the boot (not shown) is designed to bear. This detachable part 2 is adjustable in height relative to the ski 4, by means of screws 5 one of which is shown in the section of FIG. 6. A set of teeth 6 is provided on the rounded rear end of the body 1 and meshes with a corresponding set of teeth on the detachable part 2. The body 1 is mounted on a base plate 7 secured to the ski 4 by means of screws 8 and may move relatively to this plate as will be described hereafter.

Guiding means are provided between the body 1 and the base plate 7 and include a supporting spindle 9 with a holding head 10 screwed into the body 1 and engaging in a groove 11 made in the base plate 7. This groove 11 has two side branches connected by a curved inner part, the two branches being separated by a nose 12 against which bears the spindle 9. The stop body 1 is locked on the base plate 7 by means of a rear ball detent 13 urged against the plate 7 by a spring 14 the tension of which is adjustable by means of a screw 15. A second front ball detent 16 elastically secures the body 1 in front relative to the plate 7. The ball 16 is urged against this plate 7 by a spring 17 the tension of which is determined by testing. Obviously one could also provide adjusting means for the tension of this spring 17.

The operation of the safety stop described is the following:

When the front end of the sole of the boot bears normally against the supporting element 2 of the stop, that is to say by exerting a force along the axis of the ski as shown by the arrow A in FIG. 1, the two balls 13 and 16 are held in their respective seats provided in the plate 7 and the supporting spindle 9 is applied against the nose 12. In the case of a fall, there is created, for example, a transverse torque reaction producing a couple capable of forcing at least one of the balls out of its housing.

If the tensions of the springs urging the balls 13 and

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16 are equal, the stop may, under the action of a shock, move sideways in the direction of the arrow B, as shown in FIG. 2, the two balls being then freed simultaneously from their seats and the supporting spindle 9 leaving the nose 12. In this position, the stop body may advance to free the front end of the sole of the boot, the supporting spindle 9 being guided in the groove 11.

In the diagram of FIG. 3, the ball 13 is subjected to a greater force than that urging the ball 16. Under the effect of a stress directed along C on the element 2, the ball 16 is disengaged in the direction of the arrow and the supporting spindle 9 is moved sideways relatively to the nose 12 into the left-hand branch of the groove 11, thus allowing the stop body to advance and thus disengage the front end of the sole of the boot.

In the diagram of FIG. 4, it is the ball 16 which is urged by a greater force than that acting on the ball 13. The stress exerted on the stop takes place in the direction of the arrow C as in the case of FIG. 3. The stop pivots about the ball 16 and the supporting spindle 9 moves away from the nose 12 so as to move forwardly into the right-hand branch of the groove 11 thus permitting the stop body to advance and thus disengage the front end of the sole.

The arrangement of the two locking balls on each side of the supporting point permits of obtaining a stabilization of the stop along the longitudinal axis in the normal position, these balls tending, due to the reverse reaction which they produce relatively to the supporting point, to bring back the stop into this normal position. It has been established in particular that the stop described is particularly stable in the case of vibrations or shocks of short duration. It is indeed important for the skier that the stop should not disconnect itself under the effect of such vibrations or shocks.

The stability of the stop also depends upon the shape of the nose 12. In the example shown, this nose is provided with a flat surface of appreciable extent relative to the diameter of the ball 13, thus permitting of obtaining great stability. This surface could be concave in order further to increase the stability or on the contrary, a convex surface or of small extent would reduce this stability. The diameter of the supporting spindle 9 is also a determining factor for the stability of the stop. Satisfactory results have been obtained by employing a spindle having a diameter of 8 mm. and an extent of supporting surface of 5 mm.

In the modification shown in FIGS. 7 to 9, the same reference numbers designate the same members as in the preceding embodiment. The axis X—X of the rear ball detent 13 is inclined relatively to the plane of the base plate 7 and the screw 15' carries a slide 18 provided with a lug 19 projecting through an elongated opening 20 provided in the body 1 of the stop. This lug 19 may move in front of a scale 21 indicating the compression force of the spring 14 urging the ball 13, a transparent protecting member (not shown) being disposed on the opening 20.

The element 2 carrying the lining 3 designed to engage the front end of the sole of the boot, is movably secured vertically on the rear part 22 of the stop body. To this end, this part 22 is provided with a vertical elongated opening 23 with inclined sides 24 and 25 against which bear cut faces of corresponding blocking members 26 and 27 carried by a screw 28. By tightening this screw 28, the members 26 and 27 are brought closed together and exert a jamming action between the inclined sides 24, 25 and the element 2, blocking the latter in the desired position.

The operation of the modification described is the same as that of the preceding embodiment.

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The stop according to the second embodiment shown in FIGS. 10 and 11 includes two ball detents 29 and 30 disposed on either side of the front-rear axis E—E of the stop body 1. Each ball is urged by a spring 31 and 32 the tension of which is adjustable by means of a threaded stopper 33 and 34 respectively. The balls 29, 30 are applied in corresponding seats 35 and 36 provided in the base plate 7. The side walls of these housings have different slants, the inwardly directed slant of the stop body being less abrupt than the outwardly directed one.

This arrangement permits of adjusting the tightening of the stop so that it opens more easily on one side than on the other.

What I claim is:

1. A safety toe-holding device for ski binding comprising a base plate attached to a ski and provided with a U-shaped groove, a thrust block cooperating with said base plate, means for detaining said thrust block relative to said base plate, guiding means enabling said thrust block to move and pivot, wherein said guide means comprise a spindle secured to said thrust block guided into said groove, said groove being symmetrical with respect to the lengthwise axis of the ski and having its arms directed towards the point of the ski, and wherein said detaining means comprise two releasable spring ball detents adjacent said spindle for positioning and retaining said thrust block on said base plate under normal forces from the foot of the skier.

2. A safety toe-holding device according to claim 1, wherein two jamming members are provided for cooperation with a rear projection of said thrust block, said jamming members being pressed through a screw upon said block against said projection to detachably connect the rear end of said thrust block thereto.

3. A safety toe-holding device according to claim 1, wherein said ball detents comprise recesses provided in said base plate on each side of the longitudinal axis of the ski, said recesses receiving spring biased balls and being provided at the rear and laterally of said spindle,

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and said recesses each having differently sloped lateral sides so that said thrust block will open more easily on one side than on the other.

4. A safety toe-holding device for ski binding comprising a base plate attached to a ski and provided with a U-shaped groove, a thrust block cooperating with said base plate, means for detaining said thrust block relative to said base plate, guiding means enabling said thrust block to move and pivot, wherein said guide means comprise a spindle secured to said thrust block guided into said groove, said groove being symmetrical with respect to the lengthwise axis of the ski and having its arms directed towards the point of the ski, wherein said detaining means comprise two releasable spring ball detents adjacent said spindle for positioning and retaining said thrust block on said base plate under normal forces from the foot of the skier, and wherein said thrust block is provided with an indicator device to indicate the force of the spring acting on one of said ball detents, said indicator device comprising an opening provided in said thrust block and a lug cooperating with a tensioning screw so as to move with respect to a scale provided in said opening.

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