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[31] **16334/67 and 8694/67**

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[54] **SKI BINDING WITH AUTOMATIC RELEASE**
4 Claims, 10 Drawing Figs.

[52] U.S. Cl..... **280/11.35**
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[50] Field of Search..... **280/11.35,**
11.35 (HA)

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ABSTRACT: A ski binding to enable automatic release of the boot on falling, has a front stop element and a heel element each including a ball joint. The ball joint has a cavity into which a suitably shaped piston or piston and roller are urged by a spring, the tension of which is adjustable by a screw. The ball joint may have a second ball and socket detent in the heel element, also adjustable by means of a spring and a screw. The heel element includes a release lever, arranged so that pressure on the lever counteracts the action of the spring urged piston or roller.

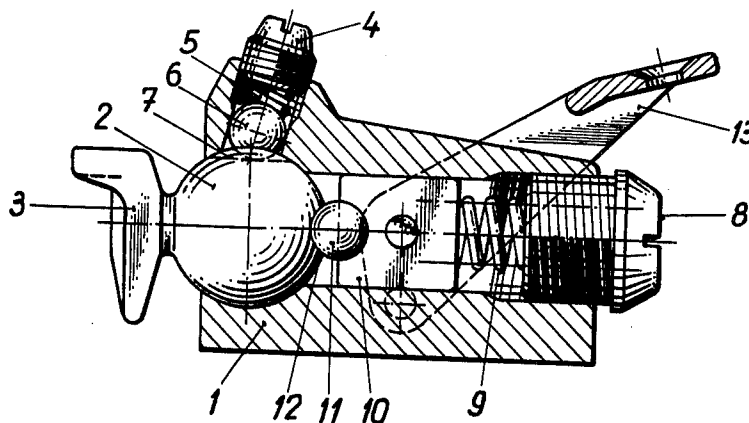


Fig. 1

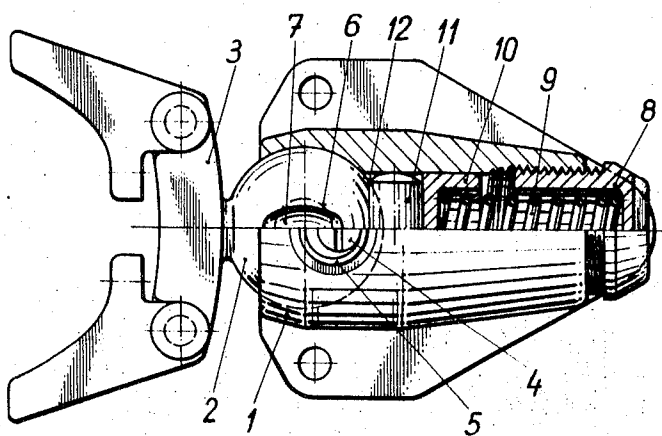
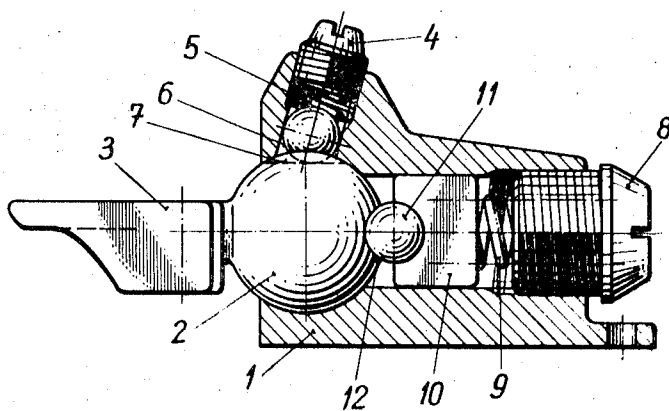


Fig. 2



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Fig. 3

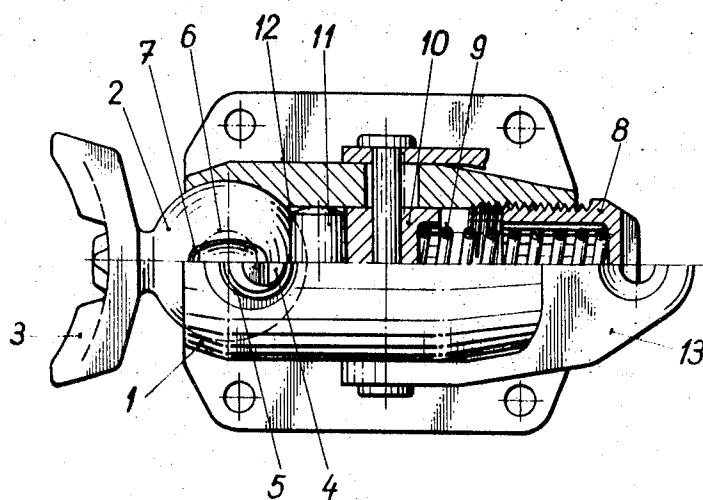
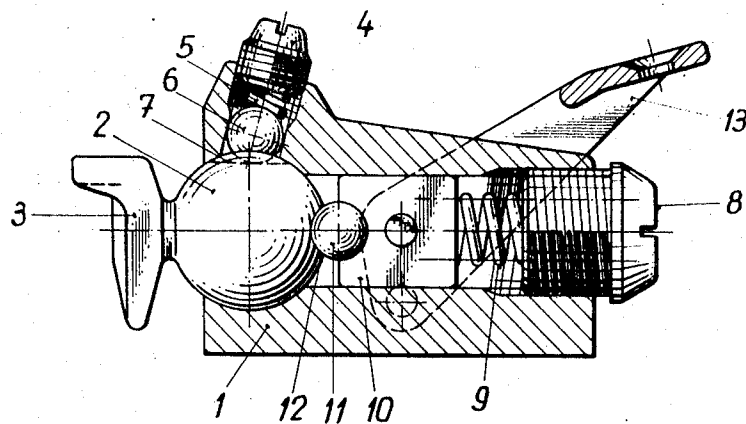
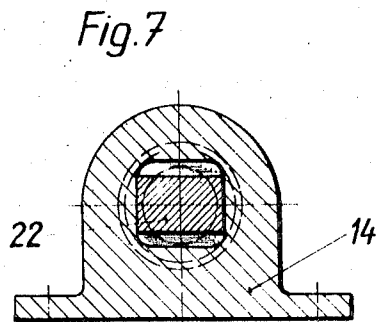
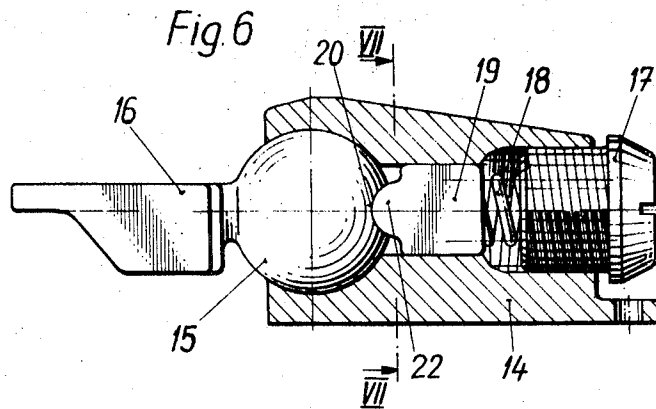
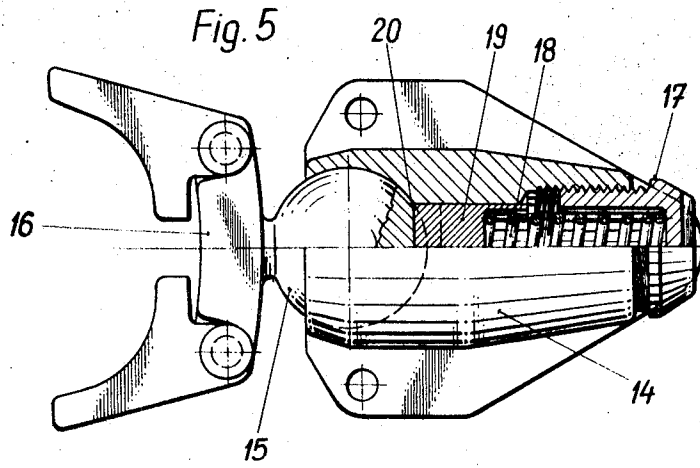


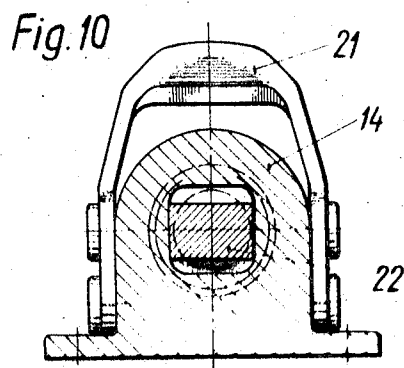
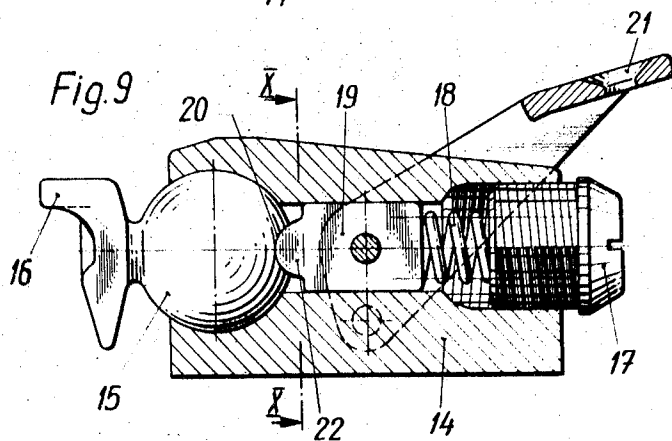
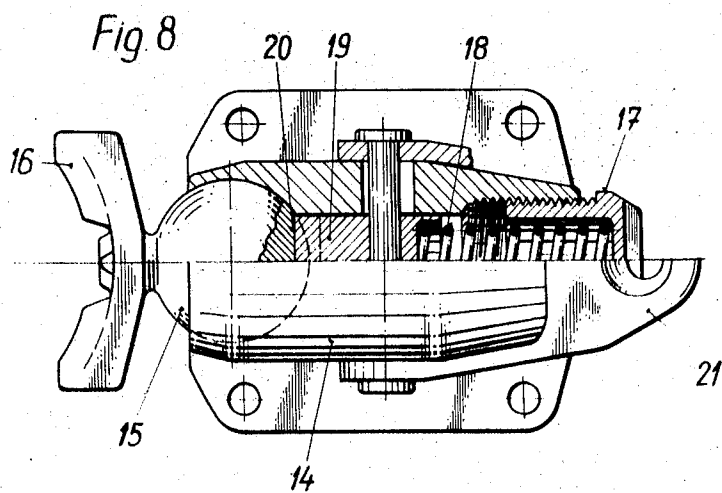
Fig. 4



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SKI BINDING WITH AUTOMATIC RELEASE

The present invention relates to a ski binding with automatic release and more particularly to a ski binding comprising a front stop and a heel, these two elements enabling the automatic release of the boot in the case of fall.

Previous ski bindings have been found to be inadequate to obtain release at all angles of twist over the ski.

It is an object of the present invention to provide an improved ski binding which overcomes this disadvantage.

According to the invention there is provided a ski binding comprising a front stop and a heel element, said elements enabling the automatic release of the boot in case of fall and each comprising a ball joint in which a cavity is fashioned, and detent means urged with adjustable force into said cavity.

In order that the invention may be more clearly understood two embodiments are described below purely by way of illustrative but non-limiting example, with reference to the accompanying drawings in which:

FIG. 1 is a cross section of the front stop, seen from above, in closed position, of a first embodiment of a ski binding according to the invention;

FIG. 2 is a cross section of the front stop of FIG. 1 seen from the side, in closed position;

FIG. 3 is a cross section of the heel element of said first embodiment in closed position, seen from above;

FIG. 4 is a cross section of the heel of FIG. 3, in closed position, seen from the side.

FIG. 5 is a cross section of the front stop, seen from above, in closed position, of a second embodiment;

FIG. 6 is a cross section of the front stop of FIG. 5, seen from the side, in closed position;

FIG. 7 is a cross section along the line 7—7 of FIG. 6;

FIG. 8 is a cross section of the heel of said second embodiment, in closed position seen from above;

FIG. 9 is a cross section of the heel of FIG. 8 in closed position, seen from the side; and

FIG. 10 is a cross section along the line 10—10 of FIG. 9.

Referring now to the drawings, the front stop and the heel shown in FIGS. 1 to 4 comprise a casing 1 in which is housed a ball joint 2 on which is fixed an adjustable stirrup 3 serving to maintain the boot on the ski with more or less strength, according to the adjustments made, on the one hand, on a screw 4 which comprises a spring 5 which pushes a small ball 6 into a groove 7 and, on the other hand, on a screw 8 which comprises a spring 9 which pushes a piston 10 in which is lodged a roller 11 which rests in a slot 12. For the heel, there is a release lever 13 which acts on the spring 9 through the piston 10.

The operation of this binding is as follows: the ski boot is held on the ski by the stirrup 3. If a twisting occurs, which causes with more or less force a displacement of the boot, this movement is communicated to the stirrup 3 which transmits it to the ball joint 2 which is held with more or less strength according to the adjustment effected by means of the screws 4 and 8.

For the heel, the lever 13 is added which by pressing thereon frees the boot voluntarily. It pushes the piston 10 against the spring 9 and thus frees the roller 11, which enables thus withdrawal of the boot in the vertical direction, due to the fact that the ball joint 2 is freed from said roller.

In a variation, in place of the stirrup 3 holding the boot on

the ski and which is directly fixed on the ball joint 2, the ball joint 2 can be fixed directly on the ski, and the casing 1 would replace the stirrup 3 in which the adjusting device 4, 5, 6, and 8, 9, 10, 11 would be introduced serving for adjustment of the release of the boot.

The front stop and the heel shown in FIGS. 5 to 10 comprise a casing 14 in which is located a ball joint 15 on which is fixed an adjustable stirrup 16 serving to maintain the boot on the ski with more or less strength, according to the adjustment effected on a screw 17 which compresses a spring 18 which pushes a piston 19 mating by its part 22, with the shape of a slot provided in the ball joint 15. For the heel, there is a release lever 21 which acts on the spring 18 through the shaped piston 19.

The operation of this binding is as follows: The ski boot is held on the ski by the stirrup 16. If a twist occurs, which causes with more or less force a displacement of the boot, this movement is communicated through the stirrup 16 to the ball joint 15 which is held with more or less force according to the adjustment effected by means of the screw 17.

For the heel, there is added the lever 21 which by pressing on top releases the boot at will.

In the second embodiment according to FIGS. 5 to 10, it is to be noted that the screw 4, the spring 5 and the ball 6 have been eliminated. Practice has shown that this arrangement is not essential for the good operation of the ski binding. Also, in this embodiment, the part 22, provided at the end of the piston 19 and which mates with the shape of the slot 20 machined in the ball joint 15, replaces advantageously the roller 19 of the embodiment according to FIGS. 1 to 4. This last construction is simpler and, hence, much less expensive.

It will be apparent that various changes and modifications may be made in the embodiments described without departing from the invention as defined in scope by the appended claims.

I claim:

1. A ski binding comprising a front stop element and a heel element, each said element including a casing, a ball rotatably positioned in said casing with a small portion of said ball extending from said casing, a stirrup attached to said ball small portion outside said casing, said ball having a slot positioned inside said casing, a piston slideable in said casing, a spring tending to move said piston towards said ball, a screw in threaded engagement with said casing and adjustably pressing said spring towards said piston, a member between said piston and said ball and detachably held in said slot by said piston and said heel element having a lever pivotally connected to said casing and said piston whereby said piston can be manually moved from said ball by operation of said lever.

2. A ski binding as claimed in claim 1 wherein said member is a roller and said piston has a recess in which said roller is partially positioned.

3. A ski binding as claimed in claim 1 wherein said member is a projection on said piston.

4. A ski binding as claimed in claim 1 wherein said heel element has a second ball slideably mounted in said casing, said first ball having a groove for partially receiving said second ball, a second screw in threaded engagement with said casing and a second spring between said second screw and said second ball tending to retain said second ball in said first ball groove.