

June 1, 1965

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3,186,727

SKI BINDING

Filed April 25, 1962

3 Sheets-Sheet 1

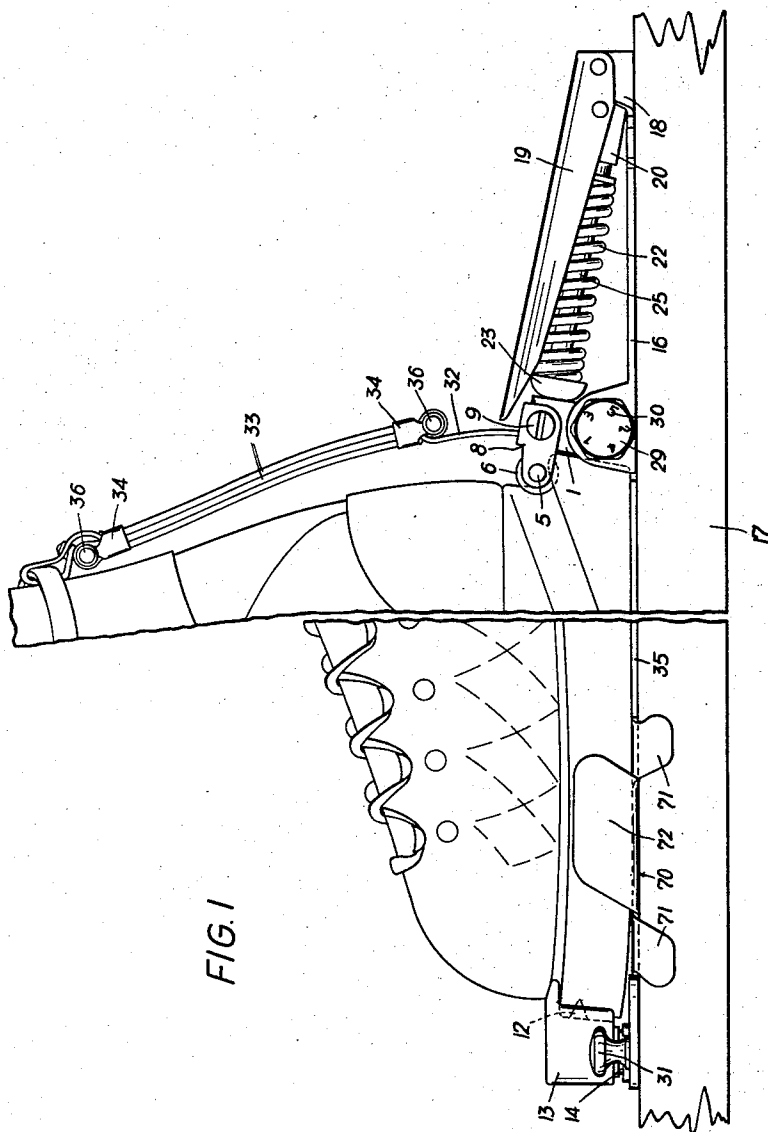


FIG. 1

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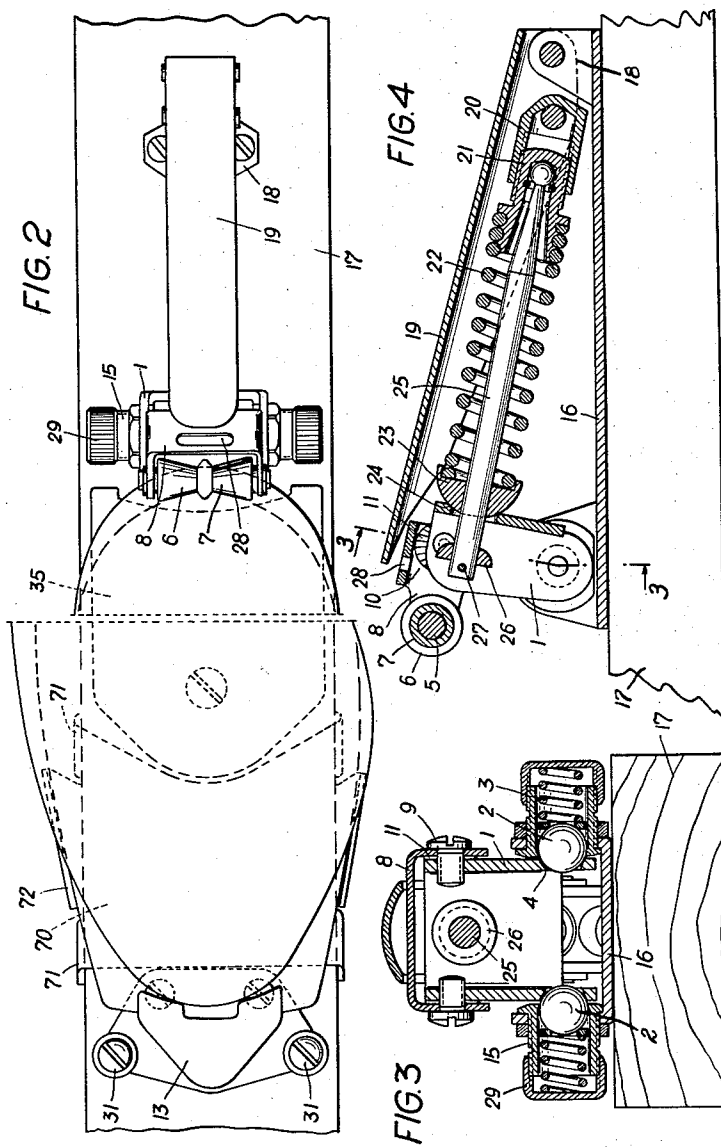
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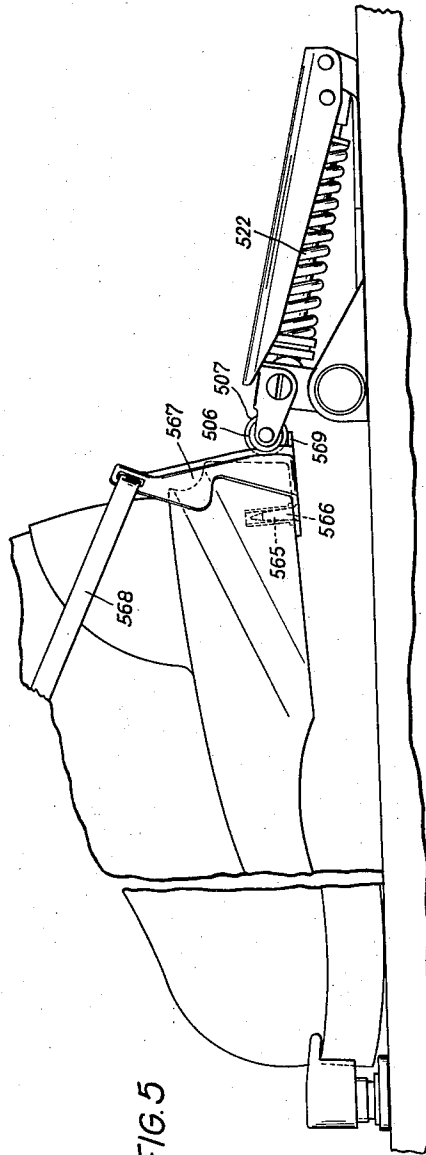


FIG. 5

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3,186,727

SKI BINDING

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H 42,534

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The present invention relates to a ski binding for connecting the skis with the boot.

Various bindings are known for this purpose. For instance, cables slung around the heel, rocker arms with tension fork gripping over the rear edge of the heel, telescopic guided tension forks and similar provisions have been proposed before. These constructions are mostly provided with spring members, lifting flanks and so on, which are arranged to automatically release the binding in case of overstrain.

Most of these constructions comply with this purpose insufficiently only; this is due to the disturbing frictional forces usually arising in the cable guides, sliding blocks, telescopes and on the boot soles; these frictional forces bring about the result that the binding either does not hold or in case of emergency does not correctly open. Nearly all these bindings have only one degree of freedom for opening when overloaded, thus two different bindings at a time must be coupled together. Mostly a binding for tightening down the heel opening at a vertical overstrain and a binding of the boot tip opening at a horizontal excessive torsional load are used in combination. A heavy construction, non-balanced adjustable members or necessary fittings on the boot are further disadvantageous of bindings of this kind.

It is, therefore, one object of the present invention to provide a ski binding which avoids these drawbacks.

It is another object of the present invention to provide a ski binding wherein a holder, gripping the boot, is connected with the ski, on the one hand, by a snap bearing opening at a vertical as well as at a torsional overstrain and, on the other hand, by an elastic, universally movable tension connection. This tension connection, according to the present invention, comprises a rotatable pressure spring which is fixed between the holder, according to one embodiment of the present invention being a rocker, and the bent-lever pivoted at the bearing block of the ski; the rotatable pressure spring becomes a flexible tension member when the binding is released.

With these and other objects in view, which will become apparent in the following detailed description, the present invention will be clearly understood in connection with the accompanying drawings, in which:

FIGURE 1 is a side elevation of a first embodiment of the ski binding;

FIG. 2 is a top plan view thereof;

FIG. 3 is a section along the lines 3—3 of FIG. 4;

FIG. 4 is a fragmentary longitudinal section of the rear portion of the ski binding; and

FIG. 5 is a side elevation of the first embodiment of FIG. 1 including an additional device.

Referring now to the drawings, and in particular to FIGS. 1-4, in the first embodiment of the present invention, a rocker 1 is used for a holder which disengages at the occurrence of an overstrain. The rocker 1 turns about the balls 2 which form abutments biased by springs 3 and which engage the seats 4 of the rocker 1. On the shaft 5 the rocker 1 carries the rollers 6 and 7 which grip over the rear edge of the boot. The rollers 6 and 7 can be adjusted as to their height by the rocker 1 which is formed as a two-part adjustable angular member. The fork part 8 of the angular member can be adjusted and

locked by means of screws 9 and a star-shaped boss 11 pressed in on the friction surfaces 10. The rollers 6 and 7 press down the heel of the boot and at the same time push the boot against the front swivel jaw 13 which is pivoted on the threaded pin 14 and constitutes the holding down device.

The balls 2 are embedded in threaded sleeves 15 of the base plate 16 which is screwed to the ski 17. A bent-lever 19 is pivoted to a bearing block 18 of the base plate 16, to which lever 19 a spring abutment 20 is hinged. A screw cap 21, to which a pressure spring 22 is clamped, is screwed into the abutment 20. The pressure spring 22 abuts a ball portion of hemispherical shape 23 and biases the ball portion 23 against the seat 24 of the rocker 1. If the spring 22 is rotated with the screw cap 21 its length is varied; thereby the pressure exerted on the boot by the bent-lever 19 through the pressure spring 22, the rocker 1 and the rollers 6 and 7 is likewise varied. A lateral movement of the spring 22 perpendicularly to its longitudinal axis is prevented by a guiding pin 25, which is universally coupled to the screw cap 21, passes through the ball portion of hemispherical shape 23 and is secured to the rocker 1 by means of a washer 26 and a pin 27.

If overloaded, either by tension or by torsion, the rocker 1 either is drawn out upwardly, the balls 2 giving away or it is turned around the axis 3—3 due to the component force acting on the rollers 6 and 7; thereby, the rocker 1 springs out also of the balls 2 and releases the boot. In a slot 28 of the fork 8 is suspended an ankle catch strap 32. The strap 32 connects the boot with the rocker 1, which in turn is connected with the ski 17 by means of the spring 22 and the guiding pin 25.

Pre-stressing of the springs 3 is effected by means of screw caps 29; the latter have index marks 30 which permit a predetermined maximum adjustment.

The rocker 1 can be taken off the spring abutment 20 by completely unscrewing the spring 22. On both sides of the front swivel jaw 13 stop studs 31 are arranged which prevent an unintentional lateral swinging of the front swivel jaw 13. The cones 12 center the boot in the swivel jaw 13.

For touring, the rocker 1 as described above, is taken off and a long-run-strap (not shown) is hooked into the stop studs 31 and is put under stress around the edge of the heel by means of a heel tightener or heel clamp. Thereby, the sliding rest 70, 71 and 72, which can be inserted, renders a lateral guidance.

The catch strap 32 is bent in the form of an S and two loops 34 are put around the layers 33, the loops 34 compressing the layers 33. If the boot, as described, disengages itself from the ski in case of a sudden fall, the layers 33 contract and the catch strap 32 elongates like the rope of a tackle, the loops 34 approaching each other. By pulling on the rollers 36 of the loops 34 the ankle catch strap 32 can be shortened again after the fall. The layers 33 provide a restraining friction brake, when the catch strap 32 is drawn out; thus they prevent the strap 32 from being ruptured, as well as the trailing ski from hitting.

A swivel plate 35 is arranged beneath the sole of the boot; the fulcrum of the plate 35 is under the ball of the foot and the plate 35 is directed backwards; the plate 35 facilitates the heel to be turned out of the binding in case of a fall.

In FIG. 5 of the drawings, a simple additional device is shown by means of which the binding, according to the first embodiment, can be modified for touring. Two pins 566 are fed into two tubular rivets 565 which are inserted in the heel from below. The pins 566 are parts of a slide bar 567, which is additionally secured at its top to the boot by means of straps 568. As the rollers

506 and 507 slide with low friction on the slide bar 567, the heel of the boot, when touring, can be lifted and lowered in spite of the pressure of the spring 522 which for this purpose can be adjusted to a lesser tension. A ledge 569 of the slide bar 567 prevents the rollers 506 and 507 from disengaging from the bar.

While I have disclosed several embodiments of the present invention, it is to be understood that these embodiments are given by example only and not in a limiting sense, the scope of the present invention being determined by the objects and the claims.

I claim:

1. A ski binding comprising a holder adapted to grip a ski boot, means for securing said holder to a ski, said securing means including spring-biased supports yieldable turnably about the front portion of the ski boot in response to an adjustable overstrain in the upward direction of the heel of the boot and in both lateral directions thereof, said holder comprising a rocker, base plate means adapted to be secured to a ski, spring biased pressure balls cooperatively associated with said base plate means for releasably securing said rocker to said base plate means by abutment with said rocker, so that said rocker disengages from said base plate means at a vertical as well as at a horizontal overstrain, and an adjustable pressure spring disposed longitudinally behind the ski boot and releasably secured to the ski, and said rocker engaging on the one hand the boot heel and on the other hand abutting against the front end of said adjustable and releasable spring.
2. The ski binding, as set forth in claim 1, which includes a plurality of rollers, one of said rollers being disposed at the center and being double conic and two of said rollers being conic tapering toward said center roller, said rollers being rotatably mounted at the front end of said rocker and adapted to grip over the rear heel edge, and said center roller pressing itself into the boot leather.
3. The ski binding, as set forth in claim 1, which includes a bent-lever, a bearing block securing said bent-lever to the ski, and said bent-lever having a spring abutment for tightening said rocker against the boot by means of said adjustable pressure spring.
4. The ski binding, as set forth in claim 3, which includes a guiding pin resting in said pressure spring, means for universally coupling said guiding pin in the spring abutment of said bent-lever, and a ball seat permitting telescopic sliding of said guide pin in said ball seat against which the spring of said rocker is abutted.
5. The ski binding, as set forth in claim 4, wherein said pressure spring together with said guiding pin constitute the sole connecting means between said rocker and the ski, and said bent-lever, respectively.
6. The ski binding, as set forth in claim 3, which includes a screw cap, one end of said pressure spring being rigidly clamped to said screw cap, the latter being rotatable with the spring and screwed

into the spring abutment of said bent-lever, so that the tension of said pressure spring is adjustable and the rocker with said pressure spring is completely releasable from the ski upon turning said cap.

7. The ski binding, as set forth in claim 1, wherein said seats include screw caps turnably mounted thereon, in order to vary the pressure of said pressure balls serving as abutments, and said screw caps have engraved indication marks to set said screw-caps in accordance with predetermined pressure of said pressure balls.
8. A ski binding comprising a holder adapted to grip a ski boot, means for securing said holder to a ski, said securing means including spring-biased supports which are yieldable turnably about the front portion of the ski boot in response to an adjustable overstrain in the upward direction of the heel of the ski boot and in both lateral directions thereof. said holder comprising rocker means, base plate means adapted to be secured to a ski, and spring-biased pressure balls cooperatively associated with said base plate means for releasably securing said rocker means to said base plate means by abutment with said rocker means, so that said rocker means disengages from said base plate means as a result of a vertical as well as horizontal overstrain.
9. The ski binding, as set forth in claim 8, wherein said spring-biased supports yield more readily in the lateral direction than in the upward direction.
10. The ski binding, as set forth in claim 8, which includes an arch rail adapted to be strapped on behind the heel, said arch rail engaging in cylindrical recesses under the heel by means of two tapered pins and adapted to be strapped at its top by straps to the ankle, said holder comprising a rear tightener having pressing rollers, said arch rail having a profile for frictionless movement of the pressing rollers of said rear tightener, and said arch rail carrying at its lower end a transversal ledge in order to prevent the rollers from riding off completely from said arch rail.

References Cited by the Examiner

UNITED STATES PATENTS

2,693,967	11/54	Jones	280—11.35
2,705,150	3/55	Hansen	280—11.35
2,745,672	5/56	Meier	280—11.35
2,793,869	5/57	Braun	280—11.35
2,836,428	5/58	Marker	280—11.35
2,854,242	9/58	Pratt	280—11.35
2,868,555	1/59	Barnett et al.	280—11.35
2,950,119	8/60	Gembruch	280—11.35

FOREIGN PATENTS

206,339	11/39	Austria.
172,281	8/52	Austria.
192,308	10/57	Austria.
1,176,999	12/58	France.
1,222,897	2/60	France.
1,240,519	8/60	France.
407,471	12/24	Germany.
584,108	10/58	Italy.
134,284	10/29	Switzerland.

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