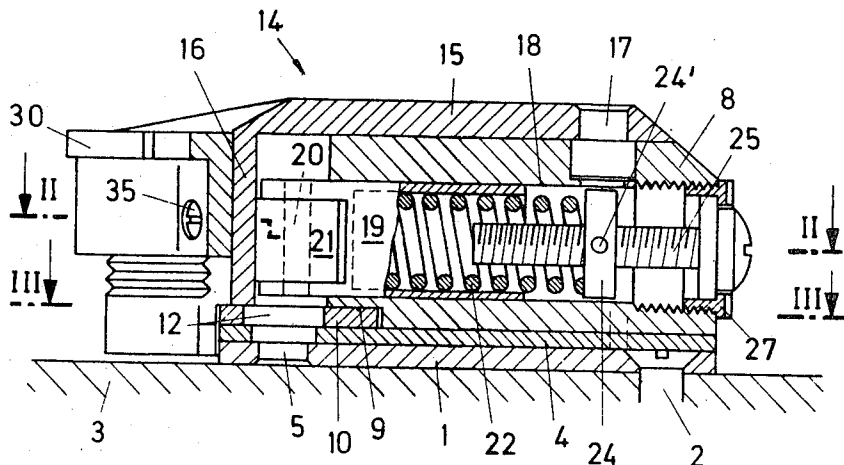
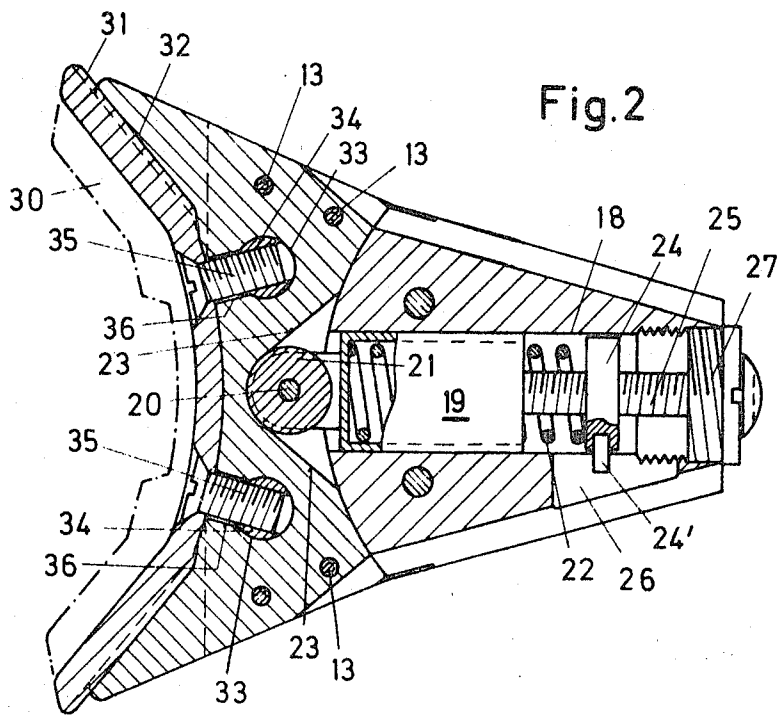
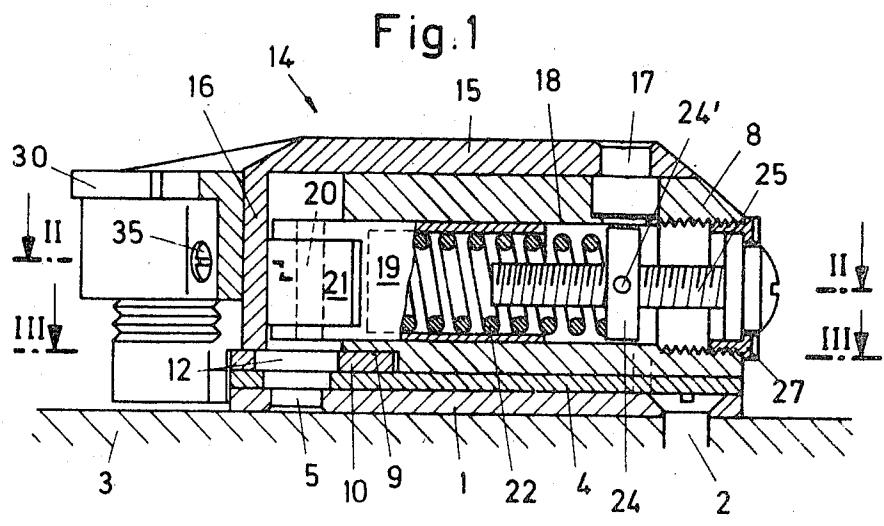
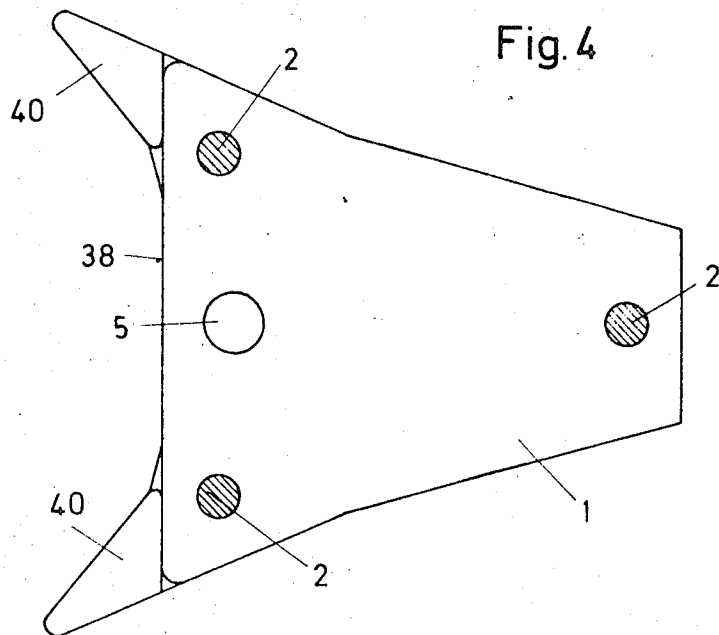
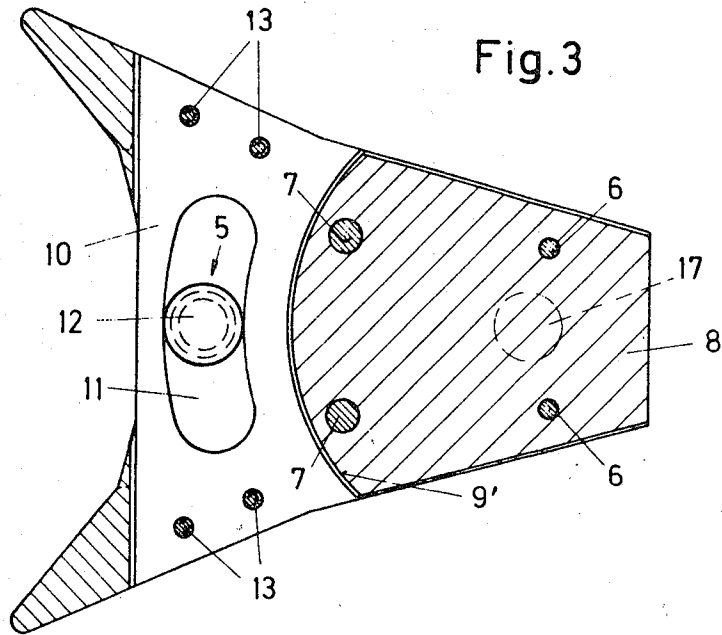


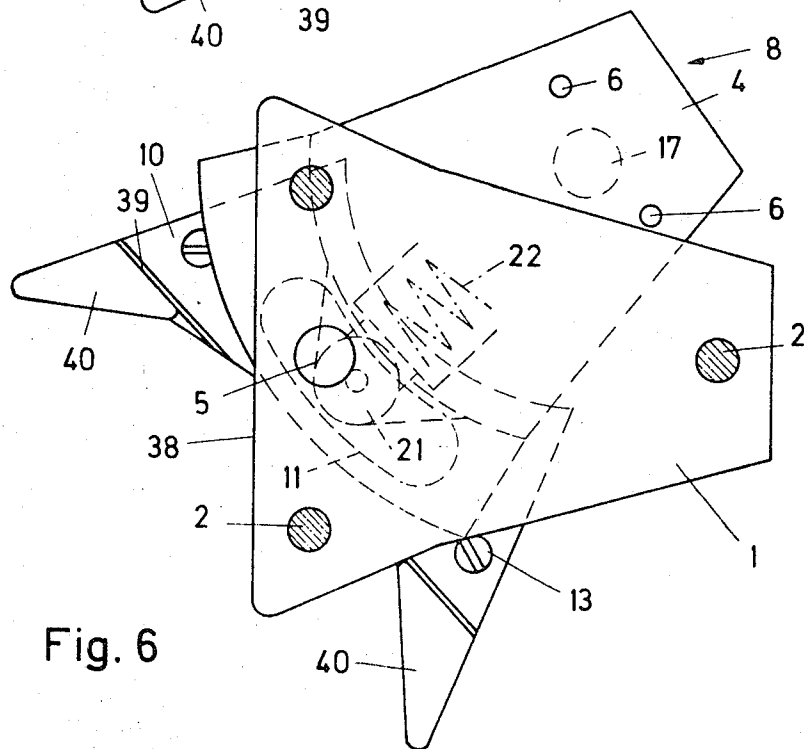
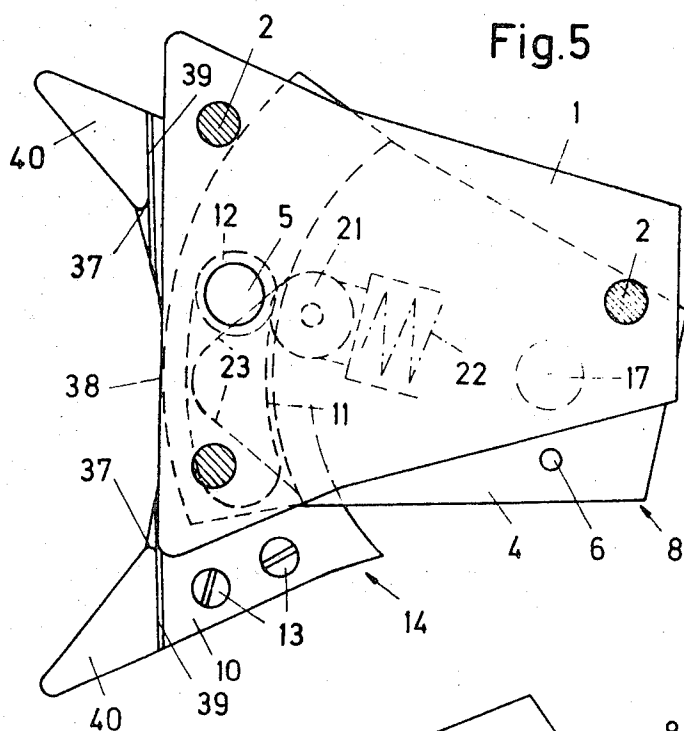
Dobler

[45] Feb. 1, 1972









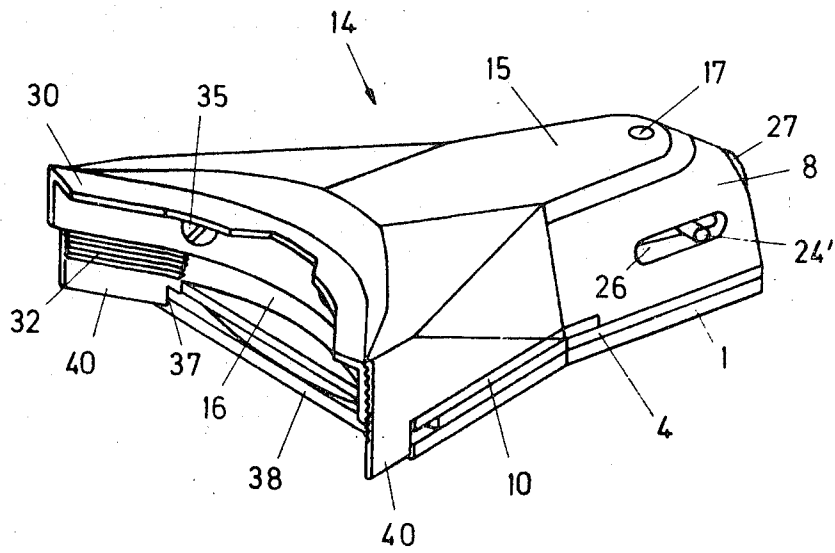


Fig. 7

FRONT JAW FOR SAFETY SKI BINDINGS

The object of the present invention is a front jaw for safety ski bindings, which is provided with a sole holder overlapping the shoe sole.

Known front jaws have partially the disadvantage that they loosen too easily, in that a shock is sufficient to release a spring-loaded ball or the like and opens the binding. Compared with the same, the new front jaw of the present invention attempts to attain an opening of the binding only after a previously increased resistance has been overcome, and only then the release takes place at once.

For this purpose the new front jaw according to the invention is characterized in this, that a swivel jaw carrying the sole holder is pivotally connected at its front end with a spring housing and at its rear end with two downwardly projecting continuations is guided laterally slidably over a limited path on a baseplate fixedly secured to the ski, whereby the spring housing contains a spring-loaded roller, which cooperates with a guide face of the swivel jaw facing it and aims at holding the same in its center position, whereby this guide face is formed by two surface portions disposed at an angle to one another, and that the spring housing on its part is pivotally at its rear end about a pin fixedly secured to the baseplate.

The drawings illustrate by way of example the invention.

In the drawings

FIG. 1 is a central vertical longitudinal section of a front jaw;

FIG. 2 is a horizontal section along the line II—II of FIG. 1;

FIG. 3 is a horizontal section along the line III—III of FIG. 1;

FIG. 4 is a bottom view of the front jaw in its rest position;

FIG. 5 is a bottom view of the front jaw in which the sole holder has been slidably moved transversely to the longitudinal direction of the ski;

FIG. 6 illustrates a pivotally moved front jaw in bottom view; and

FIG. 7 is a perspective view of the front jaw in its rest position.

Referring to the FIGS. 1 to 6, illustrated front jaw comprises a baseplate 1, which by means of screws 2 (FIGS. 1 and 4) is secured on the ski 3. In this baseplate 1 is riveted a bolt 5 from below in such manner, that it projects upwardly from the plate 1.

On the baseplate 1 is seated a spring containing housing 8, whose baseplate 4 is fixedly attached to the housing by means of rivets 6 or 7, respectively (FIG. 3). The baseplate 4 projects rearwardly over the part of the spring containing housing located thereover, and has in this part protecting rearwardly a hole, in which enters the bolt 5. About the latter, the spring containing housing is pivotally in a manner to be described later. Above the baseplate 4 is disposed on the rear—in the drawing on the left-hand side of the spring housing 8—a recess 9, whose vertical wall 9' (FIG. 3) is curved according to an arc of a circle. The center point of this arc lies in the axis of a vertical bolt 17 secured to the swivel jaw 14 still to be described, which bolt enters with its lower end into a corresponding bore in the upper side of the housing 8.

In a horizontal central bore 18 of the spring containing housing 8 is slidably guided a sleeve 19, on one end of which by means of a vertical pin 20 a roller 21 is rotatably mounted. A pressure spring 22 extending into the sleeve 19 aims at pressing the sleeve 19 and therewith the roller 21 backwards, that is, to the left in the drawing. This spring 22 engages, on the one hand, a transverse wall in the sleeve 22 and, on the other hand, a disc 24 outside the sleeve. The disc 24 is seated on the threaded spindle 25 and carries a radially projecting pin 24', which is slidable in a slotlike window 26 of the spring housing 8. By means of rotating the threaded spindle 25 which has a slotted head and which is accessible from the outside, the disc 24 may be axially adjusted and therewith the effective pressure of the spring 22 be changed. The pin 24' projecting into the window 26 serves at the same time for indication of the spring tension. As apparent from FIGS. 1 and 2, the head

of the threaded spindle 25 rests on a cap 27 threaded into the front end of the central bore 18.

The spring containing housing 8 is covered by a swivel jaw 14. The latter enters with its bolt 17 mentioned above into the bore in the upper side of the spring housing 8. The swivel jaw 14 comprises an upper cover plate 15 to which the mentioned bolt 17 is riveted, and a curved jaw 16 disposed rearwardly (to the left in the drawing), which is provided on its rear side with a series of vertical horizontally extending teeth 32 (FIG. 7). A sole holder 30 is provided on its side facing the jaw 16 with corresponding teeth 31 (FIG. 2) which engage the teeth 32 and may be fastened by means of the screws 35 at different positions as to height. The front ends of the screws 35 enter thereby into vertically disposed cylindrical holders 34, which are slidably disposed in vertical bores 33 of the jaw 16. Slots 36 in the jaw 16 make the passage of the screws 35 possible and insure a vertical adjustability of the sole holder 30 on the jaw.

The swivel jaw 14 has below the cove plate 15 approximately vertically extending guide faces 23 (FIG. 2) for engagement with the roller 21, arranged set back in relation to the bolt 17. This guide face 23 is V-shaped and comprises two surface parts extending at least approximately at a right angle to one another, which meet in the longitudinal axis of the swivel jaw 14 over a curve, in which latter in the rest position of the front jaw shown in FIG. 2, the roller 21 is disposed.

The swivel jaw 14 has behind its part having the guide face 23, downwardly projecting lateral continuations 40. The latter lie with their front faces 39 (FIG. 5) against the rear edge 38 of the baseplate 1. On the front side of the same and below the part of the swivel jaw 14 having the guide face 23, a holddown plate 10 is fixedly connected by means of screws 13 with the swivel jaw 14. This holddown plate 10 is arc-shaped on its front side and, indeed, the arc of the same corresponds to the above-mentioned vertical wall 9' of the recess 9. The holddown plate 10 enters into this latter recess and prevents thereby an undesired raising of the swivel jaw 14. As apparent from FIGS. 3, 5, and 6, the holddown plate 10 has an arc-shaped slot 11, into which enters the head 12 of the above-mentioned bolt 5.

The operation of the described front jaw is the following:

In the normal position, the front jaw will be in the rest position shown in FIGS. 1 to 4. The spring 22 urges the roller 21 into the recess formed by the two parts of the guide face 23. The shoe of the skier, whose sole-front part is gripped by the sole holder 30 and by means known per se, as for example, cable pull, heel-automat, or the like, is pressed on the same, is held thereby in the longitudinal axis of the ski.

If a slight shifting of the tip of the sole takes place and therewith of the sole holder 30, then the swivel jaw 14 carrying the latter may be shifted sideways. In this operation it is guided with its downwardly projecting continuations 40 on the rear edge 38 of the baseplate 1. With this translatory movement of the swivel jaw 14, the bolt 17 is actuated of course in the same degree. The bolt 17 actuates the spring housing 8, to which by this movement is forcibly imparted a pivotal movement about the bolt 17, since the rearward end of the baseplate 4 is held tight by means of the bolt 5. The head 12 of the latter moves thereby in the slot 11 of the holddown plate 10 connected fixedly with the swivel jaw 14. The roller 21 travels onto one part of the guide face 23 and the spring 22 opposes to this movement with an increasing resistance.

In practice, the front jaw shown is constructed in such manner, that the swivel jaw may be shifted in the manner predescribed on each side out of the center position by a distance of 8 mm. At the end of this limited deflection, it will be found in the position according to FIG. 5. The head 12 of the bolt 5 has reached its end position in the slot 11 of the holddown plate 10 and can no longer move any further. Simultaneously the end of the edge 38 has been pushed so far, that it comes to lie over the inner corner 37 of the one continuation 40 and may move past on the same. Now, the swivel jaw 14 may move about the bolt 5 into the position shown in FIG. 6, whereby the shoe of the skier is released.

From the foregoing description of the course of movement which obviously may take place from the center position shown in FIG. 2 to both sides of the same, it is apparent that over a limited path, in the example shown, over the mentioned distance of 8 mm. solely a lateral shifting of the swivel jaw 14 and therewith of the sole holder 30 takes place, of course, against the resistance of the spring 22, whose pressure, as a result of the inclination of the two walls of the swivel jaw 14 forming the guide face 23 is the greater, the stronger is the shifting movement. The spring 22 and the roller 21 have in this connection the aim of guiding back the parts into their normal position according to FIG. 2. Only if the shifting exceeds the predetermined distance, for example, the mentioned distance of 8 mm., the shifting mentioned above about the bolt 5 can take place, whereupon the shoe is immediately released. Lighter shocks, transversely to the direction of travel, are accordingly taken up by the described front edge without the binding opening, to the contrary, this opening takes place immediately and without difficulty, if the force which is exerted by the shoe of the skier on the front jaw, exceeds a determined amount.

From the position shown in FIG. 6, the front jaw must be rotated back again by hand so far until the position according to FIG. 5 is reached. Then the roller 21 again engages the outer end of the guide face 23 and urges the parts back into the position shown in FIG. 2.

What I claim is:

1. In a safety ski binding, a toe holding device comprising a baseplate secured to the top surface of the ski and having a front end and a rear end, a pivot pin projecting upwardly from said baseplate adjacent the rear end thereof, housing means mounted on said pivot pin and extending generally forwardly thereof and having a horizontal bore therethrough and a bottom curved slot into which said pivot pin extends, a swivel jaw having a top portion disposed above said housing means, vertically extending pivot means connecting said top portion of the swivel jaw to said housing means adjacent the front end thereof, said swivel jaw having a rear portion extending downwardly from said top portion at the rear end thereof, lateral projections on said rear portion of the swivel jaw extending downwardly therefrom and normally engaging the rear end of said baseplate, a sole holder secured to the rear

side of said downwardly extending portion of the swivel jaw, a V-shaped guide surface in the front side of said downwardly extending portion of the swivel jaw, spring means in said bore in the housing means, and a roller rotatably mounted at the rear end of said spring means and being biased by said spring means into engagement with said V-shaped guide surface, said roller normally occupying a position in engagement with the apex-portion of said V-shaped guide surface and being shiftable in relation thereto in either direction under the influence of an extraneous force on said swivel jaw not exceeding a predetermined amount during movement of said pivot pin in said curved slot and increase of the bias force of said spring means, whereupon one of said lateral projections snaps over the respective rear end corner of said baseplate and thereby causes said swivel jaw to suddenly release the sole holder with said roller resuming its position at the apex of said guide surface under the action of said spring means.

2. Device according to claim 1, including a holddown plate disposed below said V-shaped guide surface in a recess in the spring containing housing means and adapted to prevent removal of the swivel jaw.

3. Device according to claim 2, in which said holddown plate is provided with said curved slot for receiving said vertical pivot pin.

4. Device according to claim 1, in which said V-shaped guide surface comprises two parts forming between them an angle of about 90°, said apex portion of the guide surface being curved and disposed in the center of the guide surface.

5. Device according to claim 1, in which all parts are constructed and arranged symmetrically with respect to the longitudinal center axis of the swivel jaw when in its normal position.

6. Device according to claim 1, including means for adjusting the pressure acting on the spring operated roller, said means including a threaded spindle attached to said housing means and a nonrotatable disc on said spindle which engages one of said spring means, while the other end of said spring means engages a slidable member carrying said roller.

7. Device according to claim 6, including a pin on said disc, said pin being slidable in a window of said spring containing housing means.

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