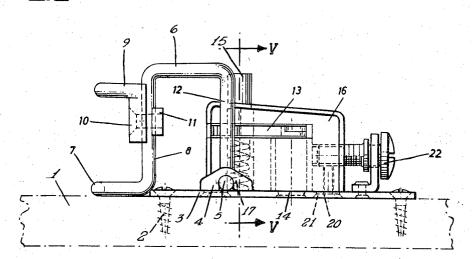
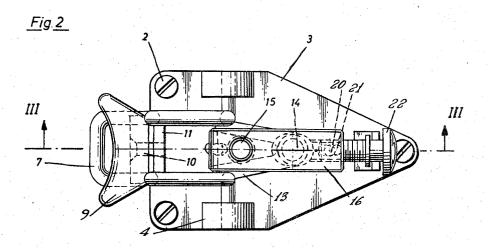
HEEL HOLDER FOR SAFETY SKI BINDINGS

Filed July 26, 1966

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Fig.1

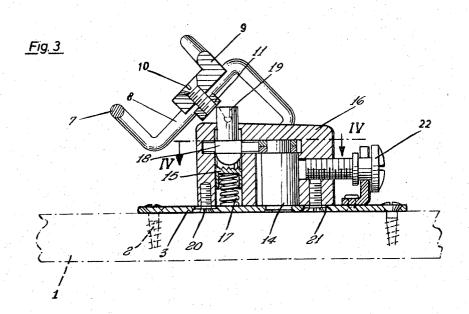


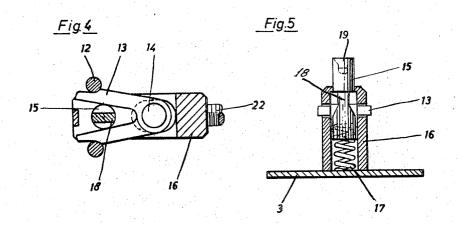


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HEEL HOLDER FOR SAFETY SKI BINDINGS
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Filed July 26, 1966, Ser. No. 567,978 Claims priority, application Germany, Oct. 5, 1965, M 66,857 6 Claims. (Cl. 280—11,35)

Known heel holders for safety ski bindings comprise a member which is pivoted to the ski and which comprises a sole holder, which in position for use engages the top of the sole adjacent to the heel, and a closing pedal, and which pivoted member is pivotally movable to the rear in response to an excessive tensile force having an approximately vertical upward direction. The known, so-called step-in bindings of this type have the disadvantage that their manufacture is generally highly expensive and that they are complicated in many cases because a whole system of levers is provided. Many known bindings of this kind are susceptible to icing.

It is an object of the invention to provide a step-in heel holder which can be manufactured at very low cost. is straightforward because it has only a very small number of moving parts, and is not susceptible to icing. In a heel holder of the kind defined initially hereinbefore, this object is accomplished in that the pivoted member consists of a U-shaped member of strong spring steel wire, which member has parallel limbs and is mounted at one end on a baseplate, which is secured to the ski, whereas the free end of the U-shaped member has a Ushaped portion, which in position for use is horizontal and engages the surface of the ski, the two limbs of the member extend approximately vertically upwardly behind said U-shaped portion and carry the sole holder, which is preferably vertically adjustable relative to said limbs, those portions of the limbs which extend from the sole holder to the pivot are arranged to engage a rearwardly enlarged detent element, and the resiliency of the Ushaped member is selected so that it is pivotally movable past the detent element with elastic deformation in response to the excessive tensile force. The U-shaped member of spring steel wire is at the same time a lever element, a closing pedal and a spring member and it is the 45 only part of the heel holder which moves in response to a forward fall that causes a release of the heel of the boot.

In a preferred embodiment of the invention, the detent element may comprise two pivoted levers, which are provided each with detent notches or the like for one limb and are held in their detent position by a spreading pin, which is parallel to the pivot of the levers and is axially movably mounted and has a tapered portion. When the skier desires to step out of the binding, it is sufficient to impart to the spreading pin an axial movement to such an extent that the tapered portion of said pin is on the level of the detent levers. An upward pivotal movement of the U-shaped spring will then cause an inward movement of the detent levers so that a detent resistance need not be overcome. The spreading pin can suitably be held in its normal position by a spring and may have in its top end face a depression for receiving the tip of a ski stick. When the skier desires to step out of the binding, the ski stick may be used to depress the spreading pin against the spring action with the aid of the ski stick. The spring action will subsequently return the spreading pin to its normal position. When the skier is stepping into the binding, the two spring limbs ride on the outer edges of the detent levers until the limbs snap into the detent notches. The outer edges of the detent levers are arranged at an angle to each other. During stepping in, the spreading

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pin may also be depressed with the ski stick so that a spring resistance need not be overcome.

According to another feature of the invention, the distance between the spreading pin and the pivot for the detent levers is variable. A reduction of this distance has the result that the two detent levers are moved further outwardly so that the detent resistance is increased. This enables a very simple adjustment of the binding in dependence on the height, the skiing skill and the style of the skier.

The invention will be explained more fully in the following description with reference to the drawing, in which FIG. 1 is a side elevation showing the heel holder according to the invention,

FIG. 2 is a top plan view showing the heel holder according to FIG. 1,

FIG. 3 is a sectional view taken on line III—III of FIG. 2 and showing the heel holder according to the invention in released position,

FIG. 4 is a sectional view taken on line IV—IV of FIG. 3 and

FIG. 5 is a sectional view taken on line V—V of FIG. 1.

A baseplate 3 is secured by screws 2 to the ski 1 and has bearing eyes 4 for the two wire ends 5 of the U-5 shaped member 6 consisting of strong spring wire. The U-shaped wire member 6 has a U-shaped free end portion 7, which constitutes a closing pedal, which is engaged on top by the skier with its heel when the binding is to be closed. In each of the two limbs, the portion 7 is continued by a vertically upwardly directed portion 8. By means of a screw 10 and an abutment 11, a sole holder member 9 can be fixed to the two limb portions 8 in any desired height.

Vertically upwardly extending portions 12 of the U-shaped spring 6 are adjacent to the bearing ends 5 and are held in position by detent levers 13, which are apparent particularly from FIG. 4. The detent levers 13 are rearwardly enlarged immediately behind the portions 12 of the U-shaped spring 6 so that detent notches are formed. The detent levers 13 are mounted for a mutually independent, pivotal movement on a common pivot pin 14.

As is particularly apparent from FIG. 5, the detent levers 13 are usually held by a spreading pin 15 in their detent position, shown in FIG. 4. The spreading pin is axially displaceable in the housing 16 against the action of the spring 17. The spreading pin has a tapered portion 18 and is provided in its top end face with a depression 19 for receiving the tip of a ski stick.

By means of screws 20, the housing 16 is movably mounted in slots 21 of the baseplate. The position of the housing can be selected by means of the adjusting screw 22. The spreading pin 15 follows the movements of the housing 16. During such adjusting movement, the pivot pin 14 for the detent levers 13 remains stationary so that the adjustment results in a relative movement between the spreading pin 15 and the detent levers 13.

When an excessive tension force at right angles to the surface of the ski acts on the sole holder 9, the entire U-shaped spring 6 is pivotally moved to its release position, which is shown in FIG. 3. During this movement, the spring 6 is elastically deformed so as to move its portions 12 further apart and overcomes the detent resistance which is due to the detent levers 13. The amount of this detent resistance depends on the position of the housing 16, which is adjusted by the adjusting screw 22. The smaller the distance between the spreading pin 15 and the pivot pin 14, the more will the detent levers 13 be spread apart and the higher will be the detent resistance.

For a stepping out of the heel holder without an ef-

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fort, the skier may insert the tip of a ski stick into the depression 19 and may depress the spreading pin 15 against the spring force. The tapered portion of the pin 15 will then assume a position adjacent to the detent levers 13 so that the inward movement of these detent levers during a pivotal movement of the U-shaped spring 6 will not be opposed by the spreading pin 15.

The drawing shows by way of example a preferred embodiment of the invention, but this embodiment may be modified. For instance, the sole holder and the closing pedal might be a single, bent portion of the U-shaped spring. In this case, the sole holder will not be adjustable and different sole heights must be compensated by spacers or similar means.

What is claimed is:

1. A heel holder for safety ski bindings of the type including a release member pivotally movable to the rear of the ski in response to an excessive tensile force having an approximate vertical, upward direction comprising a ski, a release member of inverted U configuration composed of spring steel with the legs of the U arranged spaced longitudinally of the ski, means pivotally mounting the end of the rear leg of the release member to the ski, the forward leg of the release member terminating in a pedal element which in position for use is horizontal 25 and engages the surface of the ski, a sole-retaining element adjustably mounted on the forward leg of the release member, and detent means releasably engaging the rear leg of the release member which possesses selected resiliency so that the release member is pivotally mov- 30 able past said detent means with elastic deformation in response to excessive tensile force.

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2. A heel holder according to claim 1, wherein the release member is fashioned from spring steel wire and consists of parallel inverted U-shaped limbs, the rear legs of which are pivotally mounted to the ski, and forward legs of which are integral with the pedal element which also is fashioned from the same spring steel wire and is of U shape.

3. A heel holder according to claim 2, characterized in that the detent means comprises two pivoted levers, which are provided each with a detent notch for engaging a limb, said levers being held in their detent position by a spreading pin, which is parallel to the pivot of the levers and is axially movably mounted and has a tapered por-

tion.

15 4. A heel holder according to claim 3, characterized in that the spreading pin is held in its normal position by a spring.

5. A heel holder according to claim 4, characterized in that the spreading pin has in its top end face a depression

20 for receiving the tip of a ski stick.

6. A heel holder according to claim 3, characterized in that the distance between the spreading pin and the pivot for the detent levers is variable.

References Cited

UNITED STATES PATENTS

3.125.349 3/1964 Schweizer ____ 280—11.35

BENJAMIN HERSH, Primary Examiner.

J. H. BRANNEN, Assistant Examiner.