

Sept. 9, 1969

A. E. HEYERDAHL

3,466,056

SKI BINDING

Filed Nov. 24, 1967

2 Sheets-Sheet 1

FIG. 1

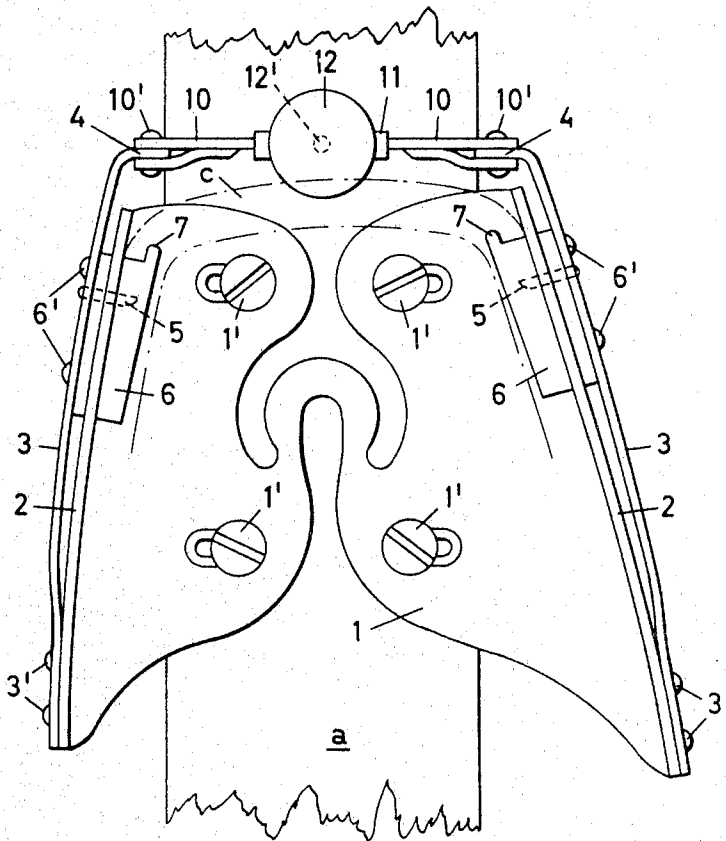


FIG. 2

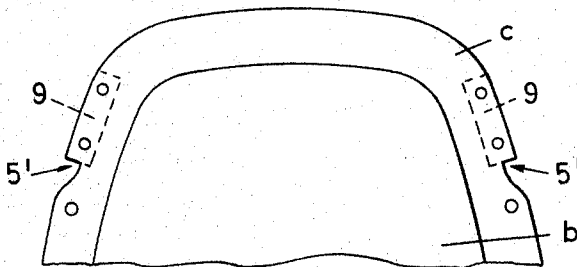


FIG.3



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FIG. 4

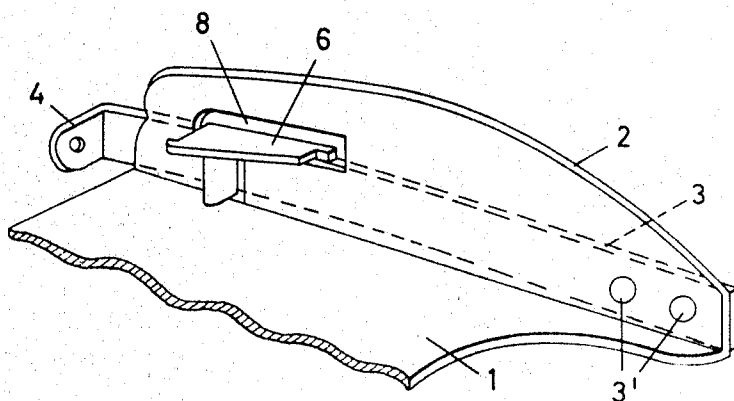
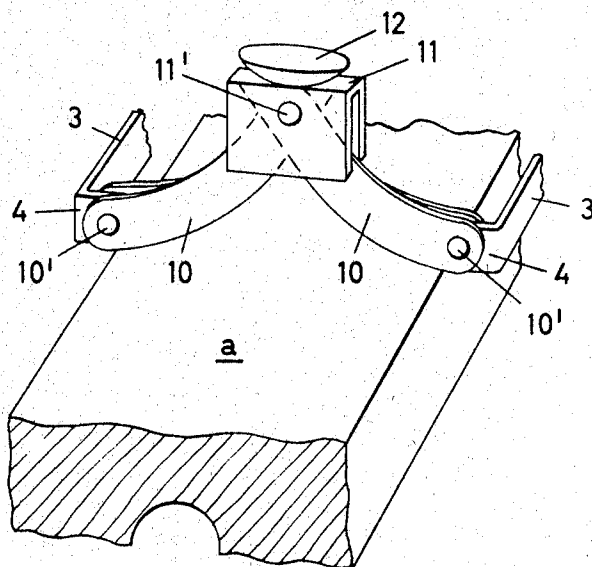


FIG. 5



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SKI BINDING

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2 Claims

ABSTRACT OF THE DISCLOSURE

A pair of toe brackets (1, 2) have side springs (3) riveted thereto; the side springs (3) have inwardly extending brackets (6) to extend over the welt of the sole of the ski boot and further catches (5) to engage into recesses or notches (5') in the sole of the boot (FIG. 2); links (10, FIG. 5) interconnect the springs which, when depressed for example by a ski pole, spread the springs to release the boot from the catches on the springs.

The present invention relates to a ski binding, and more particularly to a ski binding in which only the toe of the boot is firmly held, both against lateral movement, as well as against longitudinal movement, and more particularly to the binding in which the heel is free of the ski.

Various safety bindings are known, in which the ski boot engages a toe member to hold the toe down. The ski boot is then held against lateral movement, as well as against the ski, by a heel catch member, which engages over the projecting welt formed of the heel portion of the sole of the ski boot, or with an additional metal engagement member. Such bindings, known as "step-in" bindings have the advantage that cables around the heel of the boot are avoided, thus making it unnecessary to bend over when securing the boot to the ski in the binding. To release such bindings, pressure members have been proposed which can be operated by a ski pole. Avoiding the necessity of having to bend when fastening the skis improves the usefulness of the binding to the user, and avoids possible shifting of loads being carried on the back.

The "step-in" bindings heretofore proposed all use a toe piece and a heel piece, to secure the heel to the ski and provide for lateral control of the skis. Such bindings are undesirable when used for cross-country skiing where the heel should be able to lift off the ski. Lateral control of the skis must, however, be assured as before.

It is an object of the present invention to provide a safety ski binding of the step-in type in which the heel of the boot is not secured to the ski.

Subject matter of the present invention.—Briefly, in accordance with the present invention, the boot is formed with a recess or notch. It fits into a pair of toe-brackets, to provide for lateral guidance of the boot. Mounted alongside the toe-brackets, for example at the outside thereof, are a pair of spring members which have inwardly projecting flanges gripping over the welt of the toe of the ski boot and a projecting catch, which engages in the notches formed in the sole of the boot. The flanges and the catch pass through a slot formed in the toe-brackets.

In order to permit quick release, for example by pressure from a ski pole, the forward ends of the springs are extended beyond the ski boot and interconnected by a pair of links, extending upwardly, and being together slightly longer than the distance between the springs. When the links are depressed, the springs are spread thus releasing the catches from the ski boot so that the boot

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can be slid out from under the flanges covering the welt.

If a dangerous spill is taken, lateral pressure of the boot against the brackets will stress the catches sufficiently so that the spring pressure will be overcome, and the boot can be released from beneath the toe-brackets. The boot is thus held securely to the ski—lateral control of the boot to the ski is provided by the toe-brackets, the boot being held down by the projecting flanges on the springs and prevented from movement, under normal stresses, within the brackets by the catches engaging the recesses or notches in the ski boot. At the same time, the heel is free to lift off the ski, as desired for cross-country skiing.

The structure, organization, and operation of the invention will now be described more specifically with reference to the accompanying drawings, wherein:

FIG. 1 is a schematic top view of the binding in accordance with the present invention;

FIG. 2 is a schematic view of the toe piece of a ski boot with the notches formed therein;

FIG. 3 is a perspective view of a reinforcing element;

FIG. 4 is a perspective view of one toe-bracket; and

FIG. 5 is a top-perspective view of a top-release arrangement in accordance with the present invention.

Referring now to the drawings and particularly to FIG. 1: A ski, a portion of which is shown at *a*, has the binding secured thereto. A bottom holding plate 1 is formed into brackets 2. The holding plate 1, formed in two parts, is secured to the ski for example by holding screws 1'. Elongated spring rails 3 are secured to the rear-most portion of the toe-brackets 2, for example by rivets 3'. The spring rails 3 are carried along the brackets 2 beyond the front ends, with respect to the ski, of the brackets 2. The forward ends are bent inwardly, to form inwardly extending brackets 4, having a hole punched therethrough (see FIG. 4). A holding member 6, having a catch hook 5 is riveted to the side springs 3 by means of rivets 6' (FIG. 1). The inwardly extending bracket 6 is mounted on the springs in such a manner that it will cover the upper side of the sole *c* of a ski boot *b*, see particularly FIG. 2. The catch hooks 5 fit into a pair of notches or recesses 5', formed into the toe piece of the ski boot. Preferably, the front side of the ski boot is reinforced by means of metal covers or plates 9, set into the sole of the ski boot and riveted through from the top.

To engage the boot with a ski, the boot is pushed beneath the brackets 6 until the catch 5 engages into the notches 5'. This permits the springs, spread as the shoe is pushed inwardly, to snap towards each other, so that the projections 5 will engage behind notches 5' and hold the boot against removal from the ski. At the same time, the toe of the boot is held downwardly, leaving the heel free to move. Lateral excursions of the boot with respect to the ski are prevented to a certain extent by the stiffness of the springs 3, to an additional extent by the presence of the brackets 2. Excessive stress, sideways, can release the catches 5 from recesses 5'.

In order to release the binding easily, and without bending, the inwardly bent over brackets 4 of the two side rails 5 are linked to a pair of arms 10 (FIG. 5), which arms 10 together are longer than the normal distance between the spring rails 5. The arms 10 form, centrally, a joint which extends with the arms upwardly. Upon pressure downwardly, the effective distance of the two links in a horizontal direction is increased, thus spreading the springs 3 apart to release catches 5 from notches 5' in a boot, so that the ski boot can be pulled out from beneath brackets 6. Projections 7, at the inside of the brackets 6 (FIG. 1) prevent release of the brackets from notches 8 (FIG. 4) in the side brackets 2 and prevent excessive lateral extension of the springs.

Arms 10 are riveted to inwardly turn brackets 4 by

means of rivets 10'; at the center, they are movably connected by a rivet 11', preferably covered by an inverted U-shaped cover 11, to which a cup 12 can be riveted or welded. The tip of a ski pole can be placed into the cup 12 to spread spring rails 3.

The present invention has been illustrated in combination with a ski binding in which a pair of front-brackets provide for lateral guidance of the boot. These brackets could, however, be omitted if the springs themselves are strong and stiff enough. Further, the toe piece of the binding can be combined with other attachments, if desired, for use as a ski binding for downhill running, when it is desired to have the heel retained closer to the ski, than customary for cross-country use.

I claim:

1. Ski binding to hold a ski boot to a ski, the boot having recesses formed at opposite sides near the toe thereof, said binding comprising

a pair of elongated spring members (3) adapted to have one end thereof secured to the ski (a) and extending longitudinally of the ski adjacent the toe of the boot (b), said spring members (3) being biased towards each other;

inwardly extending brackets (5, 6) secured to said elongated spring members (3) at the other ends thereof, said brackets including a holding plate (6) essentially parallel to the top surface of the ski to grip over the welt (c) of the sole of the boot (b), and means (5) engaging said recesses (5') in the sole of the boot, and

a pair of elongated spreader link members (10), each one having a first end connected to said other ends

of said spring members, both said link members being movably connected together (11') at the second end thereof, said link members together being longer than the distance between said spring members (3) when the boot is engaged in the binding, said link members extending in a plane transversely to the major surface of the ski so that, upon depression of said common connection of said link members (10), said link members will spread said spring members to release a boot from said brackets.

2. Ski binding as claimed in claim 1, including release engagement means including a cover (11, 12) having an upwardly facing engagement surface mounted over the common connection (11') of said link members (10) to provide for engagement of a ski pole to spread said link members and release a ski boot.

References Cited

UNITED STATES PATENTS

1,845,588	2/1932	Durmer	280—11.35
2,022,580	11/1935	Utterstrom	280—11.35

FOREIGN PATENTS

109,756	2/1944	Sweden.
111,330	7/1944	Sweden.
113,817	4/1945	Sweden.
212,392	4/1967	Sweden.
147,184	8/1931	Switzerland.

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