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3,455,569

HEEL PLATE FOR SKI BINDINGS

Filed April 3, 1967

3 Sheets-Sheet 1

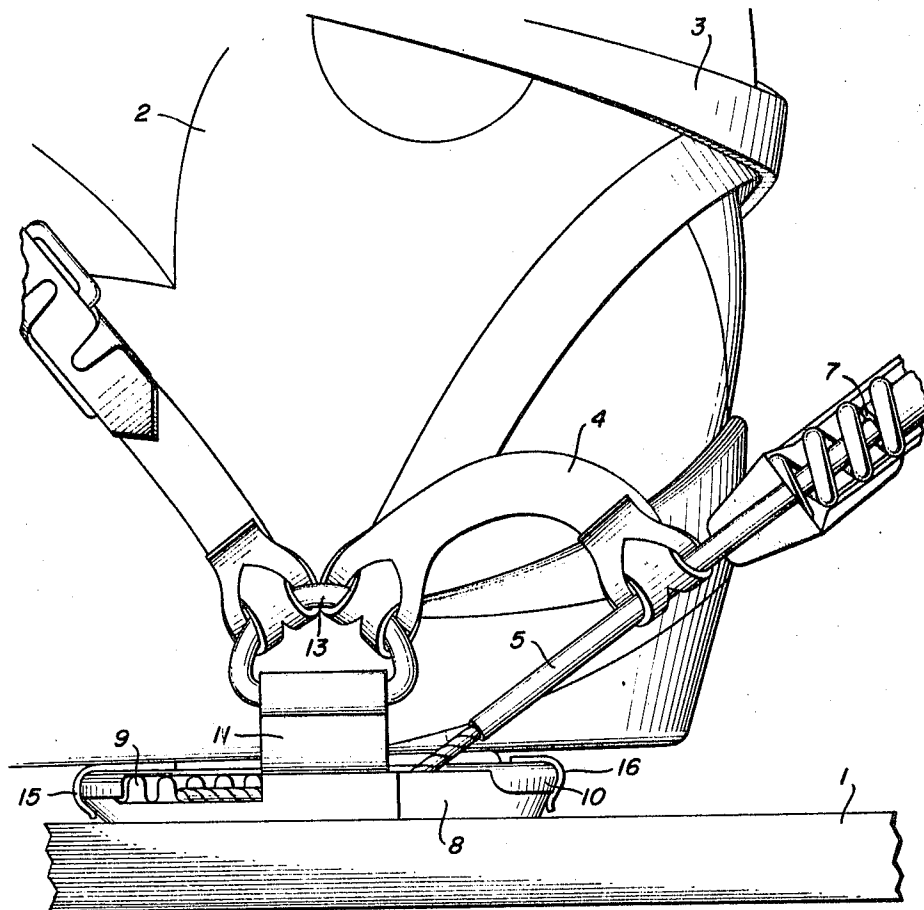


FIG. 1

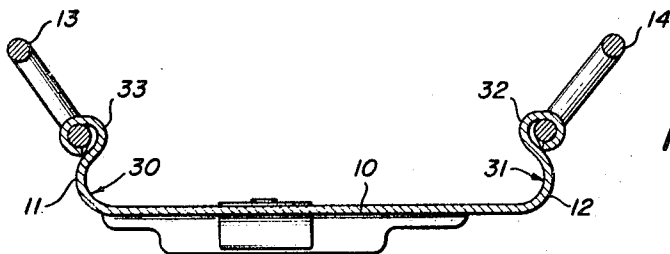


FIG. 2

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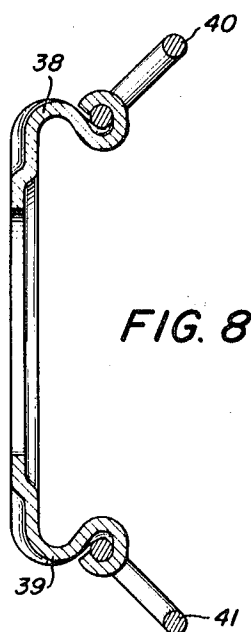
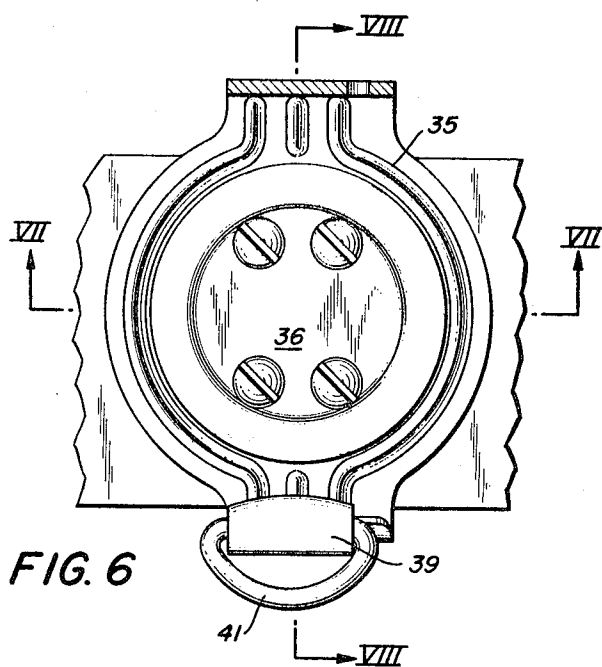
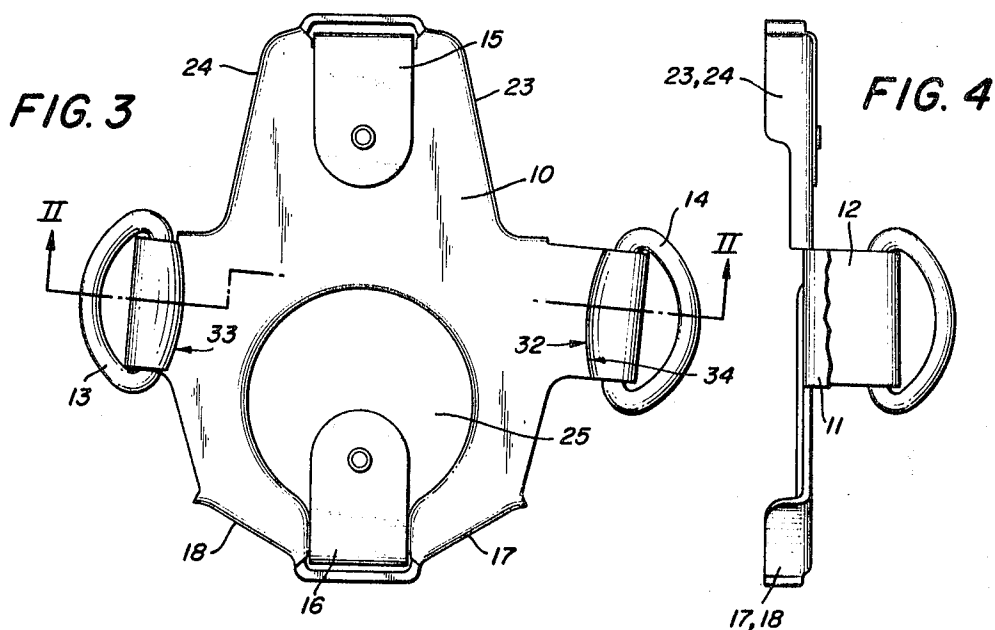
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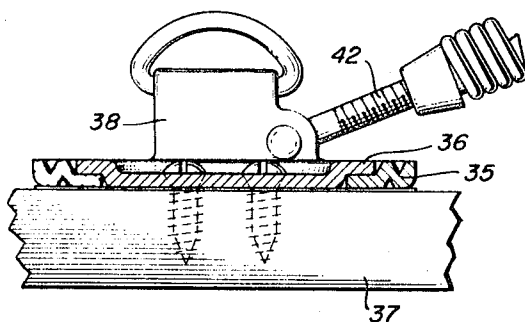
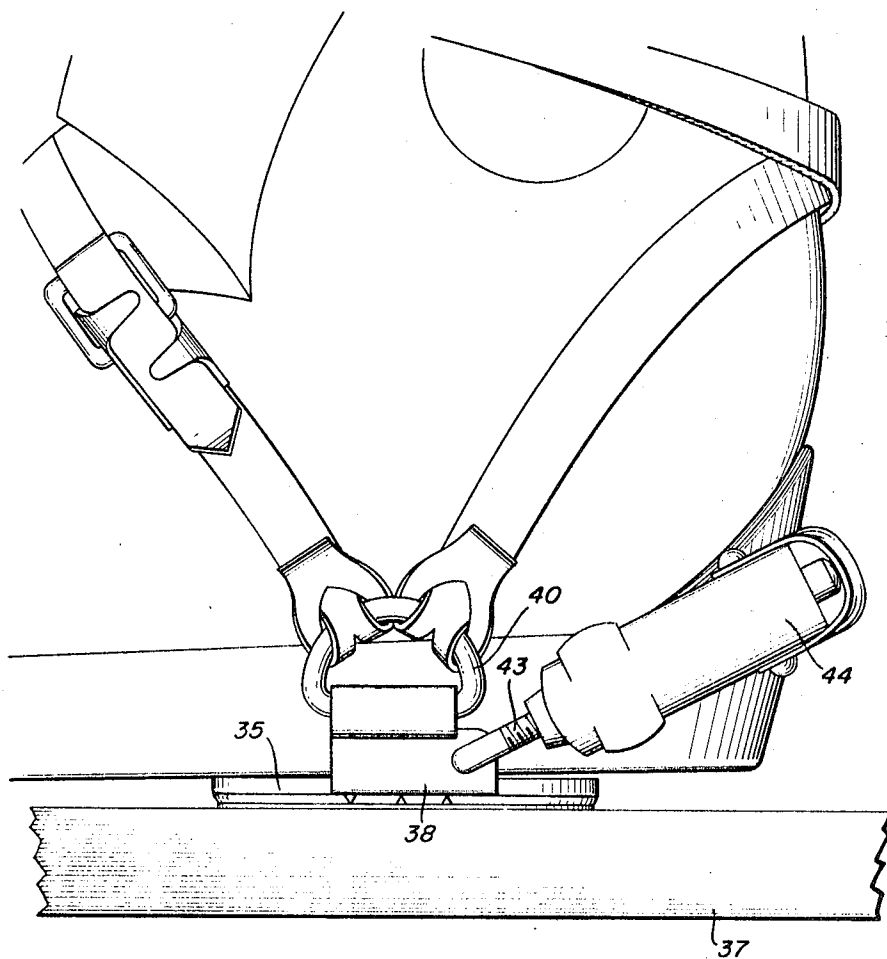
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## HEEL PLATE FOR SKI BINDINGS

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U.S. Cl. 280-11.35

3 Claims

### ABSTRACT OF THE DISCLOSURE

Each of the side jaws of the sheet metal heel plate carries at its upper end an eye for the attachment of a long thong. Each side jaw is integrally connected to the heel plate proper by a connecting portion, which is curved on a large radius.

It has been known for a long time to provide ski bindings, particularly safety ski bindings, with sheet metal heel plates which have side jaws, each of which is provided at its upper portion with an eye for attaching a longthong. In most of these heel plates, the distance between the side jaws is adjustable to the width of the boot of the user. For this purpose, the side jaws are mounted on angle members, which engage the heel plate from below and are provided with serrated strips, which interengage with serrated strips formed on the heel plate. In this way, the angle members are held in position. The known heel holder must be assembled in a plurality of layers, which are held together by threaded fasteners. This results in a highly expensive design particularly if the heel holding plate is to be rotatably mounted on the ski.

Such heel holding plates have been disclosed, e.g., in the German patent specifications Nos. 1,031,191, 1,122,886, 1,133,662, and 1,185,520. In view of the above-mentioned drawbacks thereof, other heel plates have been disclosed, in which the side jaws are integral with the heel plate and have an invariable spacing. In this heel holding plate, which is known from the German patent specification No. 1,189,420, an adaptation to boots of different widths is enabled by an adjustment, transversely to the ski, of the tension elements of a heel tightener, which tension elements are connected to the side jaws. By this adjustment, the distance between the tension elements can be set to the width of the heel so that the tension elements rather than the side jaws closely engage the heel. According to the known suggestion, the tension elements are selectively engaged with the side jaws from the outside or inside. This adjustment enables only an adjustment of the pressure with respect to heels of different widths. Besides, the adjustment is fairly complicated.

For this reason it is an object of the invention so to design a sheet metal heel plate of the type described first hereinbefore that it can be made at very low cost and can easily be adjusted to heels of various widths during the fixation of the binding to the ski so that the manufacturer may supply heel plates set to a uniform distance between the side jaws and this distance can easily be adjusted by the dealer to the width of the boot of the buyer.

According to the invention, this object is accomplished in that the side jaws are integral with the heel plate, as is known per se, and are connected to the heel plate by a connecting portion, which is curved on a large radius. The large curvature of the connecting portion facilitates an inward or outward bending of the side jaws in accordance with the width of the heel so that additional parts, such as slidable jaws, spacers, adjustable tension elements and the like, are no longer required. With the known heel plates, an adjustment to the width of each heel by a bend-

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ing of the side jaws was not possible because their side jaws are sharply right-angled and a bending could create a danger of fracture and in the case of an outward bending the boot could not be placed onto the heel plate but would exert a wedge action on the side jaws close to their lower end.

In a development of the invention, the smallest radius of the curvature of the connecting portion is more than twice the thickness of the sheet metal and is thus generally 5 millimeters or more.

In another desirable embodiment of the invention, the side jaws may have a convex double curvature on their inside, particularly in their upper end portion, which embraces the eyes for the longthong. As a result, the side faces of the heels will always engage the double-curved convex engaging surfaces, even when the heel plate is slightly turned out of position, and the sole of the boot can never become canted and clamped in the jaws.

The invention will now be described with reference to illustrative embodiments, which are shown on the accompanying drawings, in which

FIG. 1 is a side elevation showing a heel holder with a longthong, a tripping device responsive to a forward fall, and a heel plate designed according to the invention.

FIG. 2 is a transverse sectional view taken on line II-II of FIG. 3 and showing the heel holding plate of the heel holder of FIG. 1.

FIG. 3 is a top plan view showing the heel plate of FIG. 2.

FIG. 4 is a corresponding side elevation.

FIG. 5 is a side elevation showing another heel holder and a gripped boot.

FIG. 6 is a top plan view, partly in section, showing the heel holder of FIG. 5 without the boot, the heel tightener and the longthong.

FIG. 7 is a longitudinal sectional view taken on line VII-VII of FIG. 6 and

FIG. 8 is a transverse sectional view taken on line VIII-VIII of FIG. 6.

FIG. 1 shows an illustrative embodiment of a heel support, provided with a heel plate according to the invention, in gripping position at the boot. The turntable 8 is rotatably secured to the ski by a bearing plate, which is disposed in an aperture of the turntable 8 and engages over the same and is firmly screw-connected to the ski 1. This connection is known per se and need not be described in more detail. The turntable is provided with notches or ribs 9, which are spaced apart in the longitudinal direction of the ski, as is also known per se. The tension elements 5,6 consisting of wire cables are engaged with said notches or ribs and are adjustable in the longitudinal direction of the ski by the selection of the corresponding notches or ribs. A safety heel tightener 7, which is also known per se, is secured to the tension elements 5, 6, and is not described in detail here because various designs may be employed. The turntable 8 is covered by a cover plate 10 according to the invention. This cover plate 10 is detachable from the turntable and is only in clamped connection with the turntable under the action of the leaf springs 15, 16. To locate the cover plate relative to the turntable, the cover plate 17 is formed with angled lateral portions 18, 23, 24 and a depression 25, which fits a recess in the bearing plate, not shown. Side jaws 11, 12 are provided on both sides of the heel plate 10 and are engaged by the eyes 13, 14, which serve for attaching the longthong 3. In known manner, the longthong 3 may be slung around the boot 2 so that the end portion 4 of the longthong 3 beyond its fixing point at the eye 13 serves as a retaining strap and is connected to the tension element 5.

As is shown in FIGS. 2-4, the side jaws 11, 12 are bent into an S-shaped profile. The upper ends of the jaws en-

close the eyes 13, 14. The design shown in the drawing might be modified in that the upper portion of each jaw is curled inwardly. The lower portion of each side jaw 11 or 12 is joined to the heel plate 10 by connecting portions curved on a large radius. Owing to the large radius of the curvature, the side jaws can be adjusted without difficulty to heels differing greatly in width if the jaws 28, 29 are bent inwardly or outwardly with a suitable tool. The S-shaped profile of the side jaws affords the advantage that the side faces of the sole of the boot will always engage the proper engaging faces 32, 33 of the jaws 11, 12, even when the jaws have been bent outwardly for adaptation to very wide shoes, and that the lower portions of the side faces of the sole of the boot will be clear of the side jaws so that the sole of the boot can not become clamped in the side jaws 11, 12.

In a development of the invention, the inside engaging faces 32, 33 of the jaws have a convex double curvature, as is shown at 34. As a result, the side faces of the sole of the boot will always engage the convex engaging surfaces, even when the turntable which carries the heel plate has been slightly turned out of position. As a result, the sole of the boot can never become canted and clamped in the jaws.

The embodiment shown in FIG. 5 lacks a safety heel tightener and a heel plate which is detachable from a turntable. The heel plate 35 is rotatably mounted on the ski 37 by a bearing plate 36, which embraces the inner edge of the heel plate. The heel plate 35 carries the side jaws 38, 39, which carry at the upper end the belt eyes 40, 41. Tension elements 42, 43 are connected to the side jaws 38, 39 and to a conventional heel tightener 44. In their design and their connection to the heel plate 35, the side jaws 38, 39 are similar to those described in connection with the first embodiment.

What is claimed is:

1. A sheet metal heel plate for ski bindings comprising a heel receiving plate and side jaws, each of which carries at its upper end an eye for the attachment of a longthong, the distance between said side jaws being adjustable to the width of the boot of the user, the side jaws being integral with the heel plate and connected to the heel plate by an arcuate connecting portion which is curved on a large radius to facilitate bending of the side jaws relative to one another to obtain the aforesaid adjustment, the portion of the side jaws contacting the skier's boot being spaced inwardly from the arcuate connecting portion whereby only said side jaws contact the sides of the skier's boot.

2. A heel plate according to claim 1, wherein said radius is at least twice the thickness of the sheet metal.

3. A heel plate according to claim 1, wherein the side jaws have convex inside surfaces of double curvature, particularly in their upper end portions, which embrace the eyes for the longthong.

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