United States Patent [19]

Matsuda

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[45] **Oct. 28, 1975**

[54] **ADJUSTABLE SKI-BINDING ASSEMBLY HAVING A SKI EMBEDDED GUIDE RAIL**

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[21] Appl. No.: **383,387**

[30] **Foreign Application Priority Data**

Aug. 2, 1972 Japan ..... 47-90925[U]

[52] **U.S. Cl.** ..... **280/11.35 C;** 280/11.13 W

[51] **Int. Cl.²** **A63C 9/22**

[58] **Field of Search** 280/11.35 R, 11.35 W, 11.35 T, 280/11.35 C, 11.13 W, 11.13 N; 9/310 AA, 301 E

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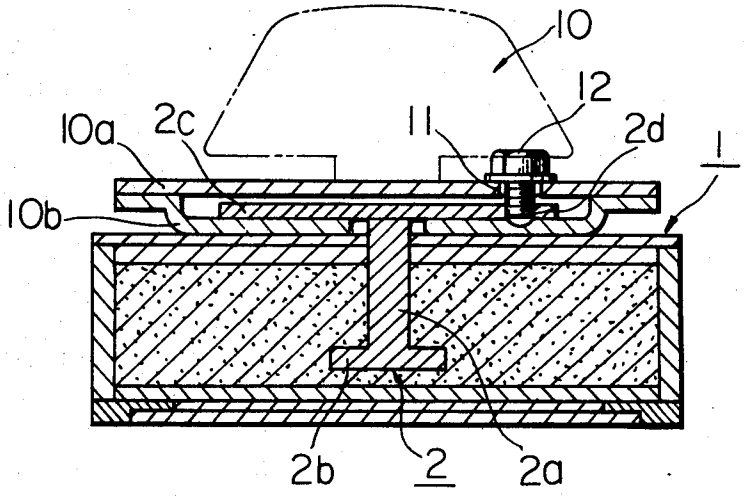
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Assistant Examiner—Charles A. Marmor
Attorney, Agent, or Firm—Burgess, Ryan and Wayne

[57] **ABSTRACT**

A ski binding for boots is detachably and adjustably mounted in the set positions thereof to the main body of a ski via an intermediate guide rail. The lower part of the guide rail is embedded in and keyed to the main body, while the top end of the guide rail supports the ski-binding outside the main body.

9 Claims, 3 Drawing Figures



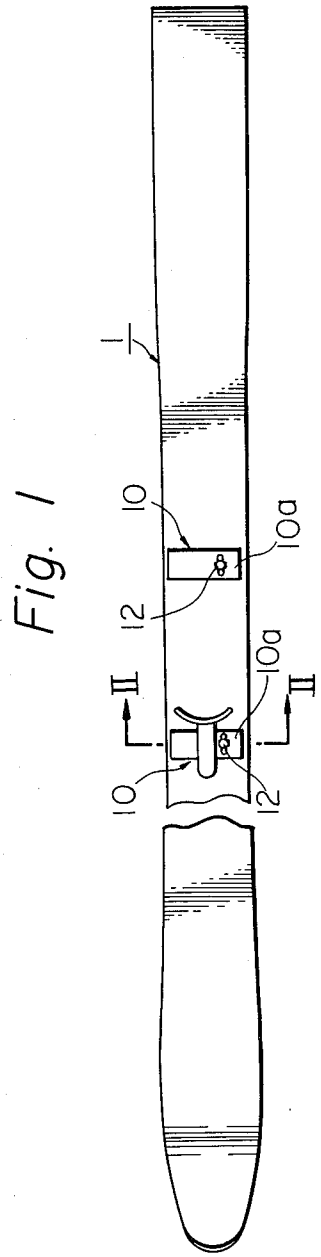


Fig. 1

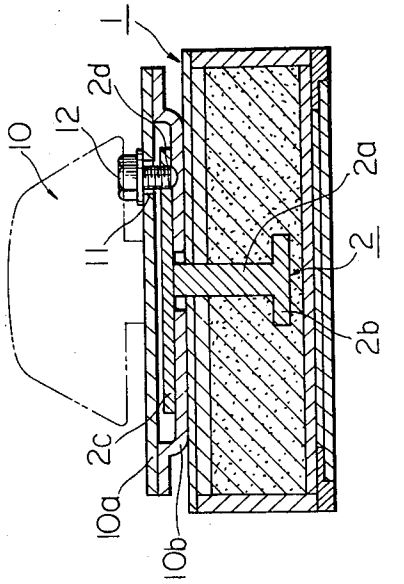


Fig. 3

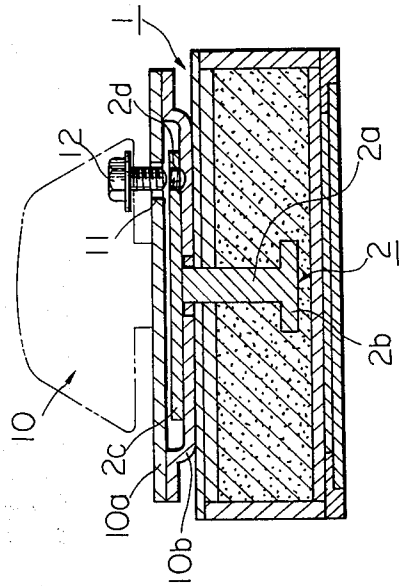


Fig. 2

ADJUSTABLE SKI-BINDING ASSEMBLY HAVING A SKI EMBEDDED GUIDE RAIL

The present invention relates to an improved ski-binding assembly. More particularly, the invention relates to an assembly for detachably and adjustably positioning a ski-binding to the main body of a ski.

In the structure of conventional skis, the ski-bindings for boots are fixed directly to the main body of the skis depending on the size and type of the boot.

Due to this direct mounting system, the ski-bindings of conventional skis lack the universality desirable for use with a wide variety of sizes and/or types of boots.

It is the principal object of the present invention to provide a ski-binding assembly that can be universally used for a wide variety of sizes and/or types of boots.

Specifically, in the structure of the ski-binding assembly of the present invention, there is provided an intermediate guide rail partly embedded within and keyed to the main body of the ski, and partly connected in a detachable and adjustable manner to the base plates of the ski-binding.

Further features and advantages of the present invention will be made clearer from the ensuing description, reference being made to an embodiment shown in the accompanying drawings, in which;

FIG. 1 is a top plan view of a ski provided with the ski-binding assembly according to the present invention,

FIG. 2 is a transverse cross sectional plan view of an embodiment of the ski-binding assembly according to the present invention before fastening of the ski-binding, and

FIG. 3 is a transverse cross sectional plan view of the ski-binding assembly shown in FIG. 2 after fastening of the ski-binding.

A typical embodiment of the ski-binding assembly according to the present invention is shown in FIGS. 1 and 2, in which a guide rail 2 having an inversed T-shaped transverse cross section, is embedded within the main body of the ski. The guide rail 2 is provided with laterally extending projections 2*b* formed integrally with the lower end of its vertical stem 2*a*. Above the top of the main body 1 of the ski, a horizontal rail 2*c* is disposed at the upper end of the vertical stem 2*a* leaving a gap between its surface and the upper surface of the main body 1 of the ski. This horizontal rail 2*c* is provided with one or more threaded holes 2*d* formed in the thickness direction thereof.

The ski-binding 10 is accompanied with a base plate 10*a* for carrying the same, and this base plate 10*a* is accompanied with a pair of guard plates 10*a* each of which is disposed at its outer fringe to the undersurface of one outer fringe part of the base plate 10*a* for carrying the ski-binding 10. At a position somewhat inner-side of the outer end thereof, the guard plate 10*b* is stepped downwardly so that the inner part of the guard plate 10*b* can be positioned in the gap *g* formed in between the horizontal rail 2*c* and the upper surface of the main body 1 of the ski. At positions coinciding with the threaded holes 2*d* of the horizontal rail 2*c*, the inner part of the guard plate 10*b* is provided with indentations formed on the upper surface thereof for receiving points of set screws 12. Also at positions coinciding with the threaded holes 2*d* of the horizontal rail 2*c*, the base plate 10*a* is provided with spare holes 11 for allowing the insertion of the set screws 12.

In the assembled condition shown in FIG. 3, the base plate 10*a* together with the ski-binding 10 is fixedly attached to the main body 1 of the ski by the set screw 12 screwed into the screw hole 2*d* of the horizontal rail 2*c* with its accompanying guard plates 10*b* being fixedly clamped in between the horizontal rail 2*c* and the upper surface of the main body 1 of the ski. In addition to this clamping, one of the guard plates 10*b*, is pressed firmly against the upper surface of the main body 1 of the ski by the tip of the set screw 12.

Although the foregoing description is directed primarily to the mounting of the front ski-clamp, the same can also be for use with the rear ski-clamp.

Through employment of the present invention, the set position of the ski-binding can be very easily and optimally adjusted in various directions in accordance with various sizes of the ski boots used in practice.

What I claim is:

1. An improved ski-binding assembly comprising, in combination, a guide rail having a lower foot portion fixed to a ski, a horizontal rail disposed atop said guide rail and spaced from the top of said ski, a base plate carrying a ski-binding mounted thereon and guard plates disposed on the underside of said base plate of said ski-binding, said guard plates extending inwardly into the spaces between said horizontal rail and the top of said ski, and at least one set screw screwed into a threaded hole formed through said horizontal rail via a corresponding hole formed through said base plate of said ski-binding, the tip of said set screw pressing one of said guard plates against the top of said ski.

2. An improved ski-binding assembly comprising, in combination, a guide rail extending longitudinally of the ski and having one longitudinal edge embedded in the ski and the opposite longitudinal edge projecting above the ski centrally between the sides thereof, means for anchoring said guide rail to said ski in order to prevent separation of said guide rail from said ski, a horizontal rail affixed to said opposite longitudinal edge of said guide rail being spaced from the top of said ski and having at least a threaded hole extending therethrough, a base plate carrying a ski-binding disposed atop said horizontal rail and having at least a hole which extends therethrough in alignment with said threaded hole of said horizontal rail, guard plates extending inwardly from the outer longitudinal edges of said base plate into the spaces between the top of said ski and the under surface of said horizontal rail, and at least a set screw extending through said hole of said base plate and screwed into said threaded hole of said horizontal rail, whereby said set screw presses firmly one of said guard plates against the top of said ski.

3. An improved ski-binding assembly comprising in combination, a guide rail having a lower foot portion comprised of a vertical stem portion of a smaller width and a lateral stem portion of a bigger width formed at the bottom of said vertical portion, the lateral stem portion being fully embedded within said ski and the vertical stem portion being partially embedded in said ski and projecting partially from an upper ski surface, a horizontal rail disposed atop said guide rail and spaced from the top of said ski, a base plate carrying a ski-binding mounted thereon a guard plates disposed on the underside of said base plate of said ski-binding, said guard plates extending inwardly into the spaces between said horizontal rail and the top of said ski, and

means for detachably fixing said base plate of said ski-binding to said ski.

4. An improved ski-binding assembly as claimed in claim **3** in which said fixing means comprises at least one set screw screwed into a threaded hole formed through said horizontal rail via a corresponding hole formed through said base plate of said ski-binding.

5. An improved ski-binding as claimed in claim **4** in which the tip of said set screw presses one of said guard plates against the top of said ski.

6. An improved ski-binding as claimed in claim **3** in which said lower foot portion of said guide rail has an inverted T-shaped transverse cross sectional profile and said guide rail extends longitudinally of said ski.

7. An improved ski-binding assembly comprising, in combination, a guide rail having a lower foot portion almost fully embedded within a ski and having part of said embedded portion extending between an upper and a lower surface of said ski, a horizontal rail disposed atop said guide rail and spaced from the top of said ski, a base plate carrying a ski-binding mounted thereon and guard plates disposed on the underside of said base plate, said guard plates extending inwardly into the spaces between said horizontal rail and the top of said ski, and at least a set screw screwed into a threaded hole formed through said horizontal rail via a corresponding hole formed through said base plate of said ski-binding, said set screw engaging with the inwardly extending portion of one of said guard plates.

8. An improved ski-binding assembly as claimed in claim **7** in which said set screw engages with one of said guard plates in such a manner that the tip thereof presses said one of said guard plates against the top of said ski.

9. An improved ski-binding assembly as claimed in claim **7** in which said lower foot portion of said guide rail has an inverted T-shaped transverse cross sectional profile and said guide rail extends longitudinally of said ski.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,915,466 Dated October 28, 1975

Inventor(s) HIDEKI MATSUDA

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On cover sheet,

Assignee: "Saisha" should read -- Kaisha --.

Signed and Sealed this

sixth Day of *April 1976*

[SEAL]

Attest:

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