United States Patent [19]

Smolka et al.

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[54] **SKI BINDING**

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[30] **Foreign Application Priority Data**

Oct. 8, 1970 Austria 9063/70

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

[51] **Int. Cl.** **A63c 9/00**

[58] **Field of Search** .....280/11.35 C, 11.35 Y, 280/11.35 K, 11.35 R, 11.35 D, 280/11.35 A

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[57] **ABSTRACT**

Means for fixing bindings to a ski for permitting free flexing of the ski without adversely effecting the relationship of the bindings to the ski boot. A plate is mounted on the upper side of the ski and there is provided one and only one zone of mounting therebetween. The ski bindings are then mounted on said plate for normal engagement with a ski boot. The plate is sufficiently rigid so that the bindings maintain their normal position with respect to the ski boot in spite of the flexing of the ski. Thus, as the ski flexes, the plate is fixed at one point with respect thereto and other portions thereof are free to slide longitudinally of the ski.

10 Claims, 4 Drawing Figures

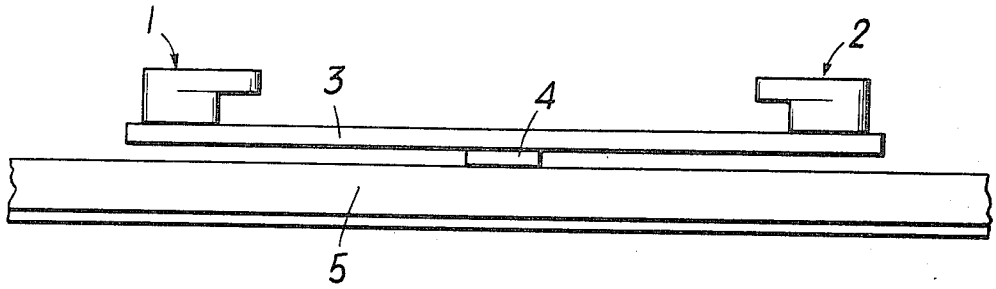


FIG. 1

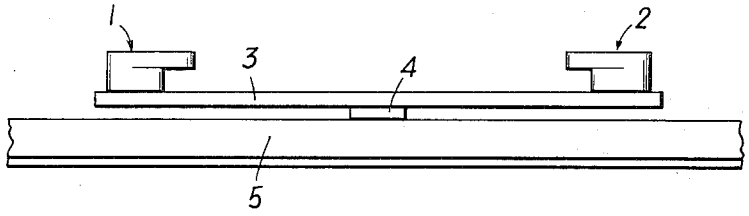


FIG. 2

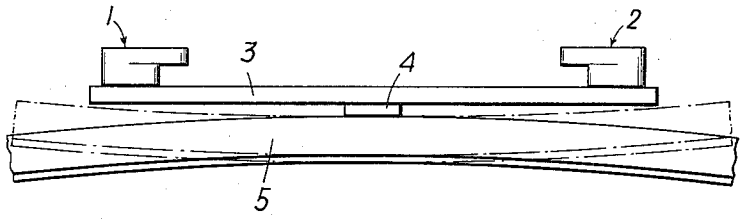


FIG. 3

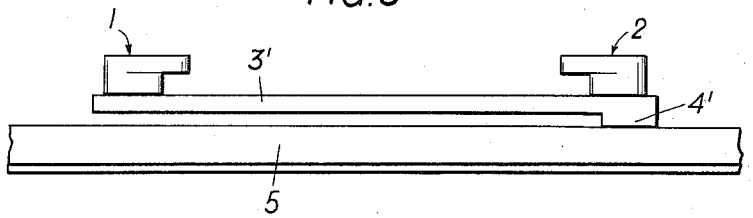
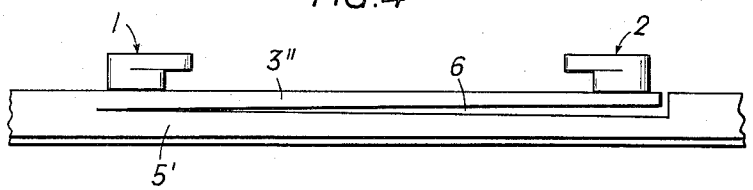


FIG. 4



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SKI BINDING

The invention relates to a ski binding which is mounted onto a plate and the plate in turn mounted onto the ski in spaced relationship therewith so that the ski can be flexed without changing the distance between the ski binding components.

In most cases ski bindings are mounted directly onto the ski. However, if during use one skis over a rough terrain, the ski bends downwardly and upwardly. Thus, the distance between the ski binding components changes so that, if the ski binding parts are not moveable in longitudinal direction, the ski boot tends part of the time to be compressed and damaged and part of the time to be held only loosely and possibly actually to be released from the binding.

Therefore ski bindings have already been produced in which one ski binding part, particularly the heel holder, is arranged to move in the longitudinal direction in response to the force of a compression spring. While this spirng effectively balances the distance variations of the ski binding parts, nevertheless, the holding forces still vary sufficiently that there is continuing danger of an opening of the binding occurring too soon or too late and thus a continuing risk of injury.

It is also known to mount the ski binding parts on a plate secured to the ski. This plate, however, either follows the curvatures of the ski through which the distance between the ski binding parts is still changed in the same manner as above mentioned or the ski is stiffened and its elasticity is affected.

Applicant has therefore already suggested, in a previously filed application, Ser. No. 17,553, filed Aug. 13, 1971, that the ski binding be mounted on a plate which is in turn supported on the ski but spaced slightly therefrom. Said plate is supported at two points on the ski of which at least one support means permits movement of the plate relative to the longitudinal direction of the ski, for example by means of a pin and slotted hole arrangement. This structure fulfills its purpose effectively but the present invention arises from a continuing effort to further improve the product and to reduce its cost.

This is here achieved by connecting the plate to the ski only at one point.

The subject matter of the invention is illustrated by the several embodiments set forth in the drawing, in which:

FIGS. 1 and 2 illustrate one embodiment with the ski respectively in straight and curved condition.

FIGS. 3 and 4 illustrate further possible embodiments.

As shown in FIG. 1, the ski binding parts 1,2 are mounted on the plate 3 through a single interposed spacer 4 and is secured to the ski 5 only in the central portion of the plate to define a T-shape. A space between ski 5 and plate 3 is thus provided which permits curvatures of the ski 5 without influencing the distance between the ski binding parts 1,2. Such flexing of the ski as indicated in FIG. 2, occur particularly when skiing on rough terrain.

As shown in FIG. 3, the spacer 4' is integral with the plate 3', is located at only one end of the plate, here the rearward end to define an L-shape, and is secured to the ski only at this end.

In FIG. 4, the plate 3'' has one end thereof integral with the ski 5 and is received in a recess 6 of the ski 5'.

A spacing is provided between the plate and the bottom surface of the recess 6 which spacing here commences at the connecting point of plate 3'' and ski 5', here the forward end of plate 3'', and enlarges continuously toward the other end of recess 6. Said plate, as in the other embodiments, carries the binding parts 1,2 so that the ski 5' can flex upwardly or downwardly without affecting the plate 3'' or the distance between the ski binding parts 1,2.

In FIGS. 1–3 the supports 4 and 4' are obviously to be made as short longitudinally of the ski as mechanically feasible in order to have minimum influence on the flexing of the ski. Thus, while a single point support is the ideal insofar as the flexing of the ski is concerned, the actual longitudinal dimension of the support is determined by the minimum amount required for effective support and connection. However, at least some of the benefits of the invention can be secured if the longitudinal dimension of said supports exceeds said minimum so long as it is shorter than the plate. Nevertheless if such exceeding is appreciable, the free flexing of the ski will be adversely affected. Normally, the length of the support 4 and 4' will be less than one-fourth the length of the plate.

Similarly, in FIG. 4, some benefit will be obtained even if the toe piece 1 is placed ahead of the recess 6 and the plate 3'' correspondingly shortened. However, such modification will adversely affect the flexing of the ski from the ideal condition shown in FIG. 4, and should be practiced to only a limited extent, if at all.

The plates 3, 3' and 3'' should be of sufficient stiffness to maintain the relationship of the binding plates 1,2 to the ski boot in spite of the flexing of the ski.

The invention is not limited to the illustrated embodiments.

For example in the constructions according to FIGS. 1 and 2, the plate, spacer and ski can also be made of one part. There is also in this embodiment the possibility of arranging the plate 3 or 3' with the spacer 4 or 4' in a recess of the ski 5, similar to the recess 6 of FIG. 4. Furthermore it would be possible in FIG. 4 to make the distance of the plate 3'' from the bottom surface of the recess 6 the same over its entire length.

There are many further possible embodiments which lie within the scope of the invention.

The embodiments of the invention in which an exclusive property of privilege is claimed are defined as follows:

1. A ski binding arrangement, comprising:

an elongated rigid plate, said rigid plate having ski binding components mounted thereon adjacent the opposite longitudinal ends thereof;

securement means for fixedly securing said rigid plate to said ski, said securement means consisting of only a single connecting member engaging said ski at a single location for supporting a majority of said rigid plate in a manner to define a cantilever portion extending away from said single connecting member in said vertically spaced relation and generally parallel to the longitudinal axis of said ski, said cantilever portion being completely free and out of direct engagement with said ski, said connecting member having a longitudinal dimension which is less than said rigid plate so that said flexible ski is free to flex immediately adjacent said connecting member on opposite longitudinal sides thereof.

2. The improvement according to claim 1, wherein said connecting member consists of a support separate from said ski and said rigid plate secured between said rigid plate and said ski adjacent the longitudinal midpoint of said rigid plate.

3. The improvement according to claim 2, wherein said support comprises a spacer member having flat upper and lower surfaces, said rigid plate being secured to said upper surface.

4. The improvement according to claim 1, wherein said connecting member consists of a support integral with said rigid plate at one longitudinal end thereof, said support being positioned between said rigid plate and said ski so that said rigid plate is supported in a cantilevered manner above said ski.

5. The improvement according to claim 1, wherein said connecting member consists of a support integral with said rigid plate.

6. The improvement according to claim 1, wherein said longitudinal dimension of said connecting member is less than one-fourth the longitudinal dimension of said rigid plate.

7. The improvement according to claim 1, wherein said rigid plate and said connecting member define a T-shape.

8. The improvement according to claim 1, wherein said rigid plate and said connecting member define an L-shape.

9. In a ski binding arrangement having ski binding components mounted on a rigid plate, said rigid plate being secured to a flexible ski in vertically spaced relation, the improvement comprising:

means defining a recess in the upper surface of said ski;

securement means for fixedly securing said rigid plate to said ski, said securement means consisting of only a single connecting member for supporting a majority of said rigid plate in said vertically spaced relation, said connecting member having a longitudinal dimension which is less than said rigid plate so that said flexible ski is free to flex immediately adjacent said connecting member, said connecting member being defined by an integral connection between said ski and said rigid plate, said rigid plate projecting over said recess and being vertically spaced from the bottom thereof.

10. The improvement according to claim 9, wherein said spacing between said rigid plate and said bottom of said recess enlarges from one longitudinal end of said recess whereat said rigid plate is integrally joined to said ski toward the opposite longitudinal end of said recess.

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