

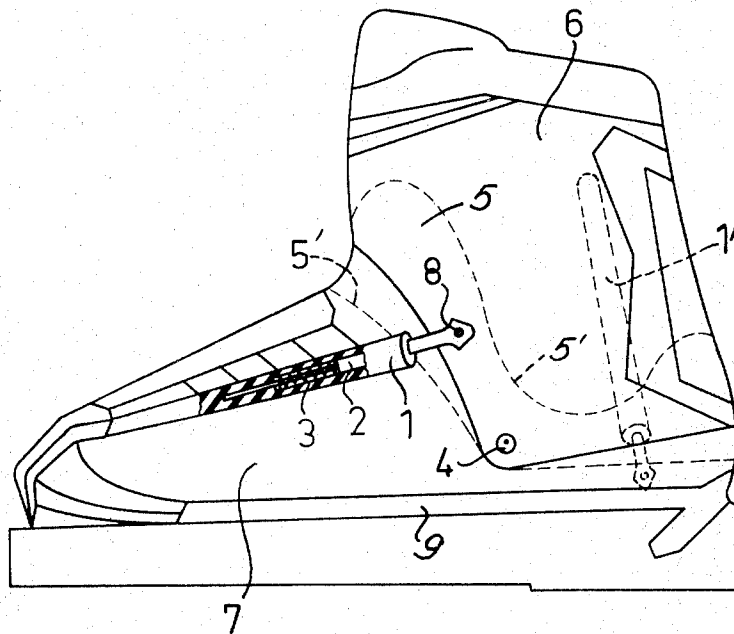
March 6, 1973

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3,718,995

HINGE BOOT

Filed June 21, 1971



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3,718,995
HINGE BOOT
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Filed June 21, 1971, Ser. No. 154,845
Claims priority, application Austria, June 23, 1970,
A 5,626/70
Int. Cl. A43b

U.S. Cl. 36—2.5 AL

8 Claims

ABSTRACT OF THE DISCLOSURE

A ski boot, especially of synthetic material, having a first upper section comprising the tip portion of the boot and at least a part of the heel portion of the boot and also having a second upper section overlapping with said first upper section and being adapted to receive the ankle portion of a foot, said first and second upper sections being pivotally connected to each other with the pivot axis located near the sole while cushioning means are interposed between and connected to said first and second upper sections.

The present invention relates to a ski boot, preferably of synthetic material, the upper of which comprises two parts which are pivotable relative to each other about a common axis. Boots, so-called hinge boots, comprising two interlinked uppers are known in various forms. These two uppers or upper portions may be fixed relative to each other for skiing position so that the skier will have his feet firmly held therein. Inversely, the loosening of the locking arrangement facilitates the walking of the user or skier, since otherwise due to the relatively stiff upper portions of the boot the walking would be rather difficult or inconvenient.

The fixing of the two upper portions with regard to each other has, however, the drawback that a pressure or shock in or against the skiing direction is abruptly conveyed to the ski which fact similar to the sudden braking of a motor vehicle results in a lateral deviation of the skis and thus in a certain skidding danger. Moreover, with designs of this type, it is not possible successively to convey pressure compensating exercises onto the ski in a cushioned manner in conformity with the wishes of the skier as it would be desired for a quiet danger-free and uniform ride.

Thus, it is an object of the present invention to provide a hinge boot which will overcome the above mentioned drawbacks and which will offer the possibility of elasticity controlling the ski by pressure movements exerted by the skier while hard shocks in the longitudinal direction of the ski will be avoided by the skier.

These and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawing diagrammatically illustrating a ski boot according to the present invention. The ski boot according to the present invention is characterized primarily in that for absorbing a pressure or shock movement of the upper portion surrounding the joint of the skier there are in forward and rearward direction provided cushioning elements which are located on one of the two upper portions, which are pivotable relative to each other, and are by a joint connected to the other part of the boot.

With the design according to the present invention, shocks are in a considerably reduced manner conveyed to the ski, which latter will not lose in its direction in which it is moved and which will assure a safe skiing in view of the elastic pressure conveyed by the skier in a continuous manner from the foot along the longitudinal extension of the ski.

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According to a preferred embodiment of the invention, it is intended as cushioning elements to employ springs, for instance, telescopically designed springs, of which each respective spring is pivotable on an upper portion about an axis bolt and is guided on the other upper portion in the longitudinal direction of the spring and more specifically in holding means. The holding means may consist in a sleeve which, for instance, is firmly connected to the boot upper portion, while in said sleeve a telescopic spring is displacably arranged on a pushrod. The pushrod pivotally mounted on an axle bolt on the other hinge portion has in the sleeve a play in pushing direction. Advantageous embodiments of the invention provide a spring each on both sides of the upper portion surrounding the foot and in the direction toward the tip of the boot.

For purposes of absorbing pressure or shock in a direction counter to the skiing direction, it is suggested according to the present invention to provide at least one, preferably, however, two springs which are guided in a sleeve and are located behind or adjacent the heel section of the upper portion of the boot which surrounds the joint or ankle.

A particularly advantageous embodiment for realizing the objects according to the invention consists in that the axis for pivoting the two upper portions relative to each other is arranged in a plane which is inclined to the plane of the sole by approximately 60° and which extends through the overlapping range of the two upper portions which surround the joint or ankle and the front portion of the foot respectively. The pivot axis for pivoting the two upper portions relative to each other is located near the bottom edge of the first mentioned upper portion. In view of this low pivot point of the pivot pin holding together the two upper portions, it will be evident that, when pivoting forwardly that upper portion which surrounds the angle of the skier, a pressure is exerted upon the ski at a very flat angle, and this pressure is continuously conveyed from the resting surface of the boot on the ski toward the front in a soft manner so that, as described above, a lateral deviation of the ski is prevented and the danger of skidding is excluded.

Referring now to the drawing in detail, the ski boot diagrammatically illustrated therein comprises the two upper portions or uppers 6 and 7 which are pivotally interconnected by a pin 4 about which they are pivotable. The overlapping range 5 of said two uppers is defined by the dot-dash lines 5'. As will be seen from the drawing, the pivot pin 4 is located rather low and close to the boot sole 9. When the uppers or upper portion 6 is inclined forwardly, a thrust is exerted which is directed nearly parallel to the surface of the ski and which thus continues toward the tip of the boot and will, in contrast to a pin located at a relatively high elevation, not be pressed from the top toward the surface of the ski.

In order to assure a soft and smooth transfer of a forwardly directed pressure or shock, sleeves 1 are provided on both sides of the lower upper portion 7 and firmly connected thereto. Longitudinally slidably guided in said sleeves 1 is a pushrod 2 which is pivotable about a bolt 8 extending through the upper portion 6. Around the upper part of pushrod 2 in a widened portion of the interior of the sleeve there is provided a helical spring 3 which rests against the bottom of said widened portion. The other side of said pushrod 2 which has the same diameter as the widened portion presses against spring 3 when the upper portion 6 bends forwardly so that the pushrod 2 will be pivoted about the pin 4 and will be displaced within the play of the hollow chamber of the sleeve. In view of this design, pressure or shock directed forwardly is again elastically conveyed to the ski while in view of the

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flat angle defined by the sleeve 1 with the plane of the ski, the pressure or shock is not abruptly or instantaneously conveyed to the ski but is continued gradually toward the front. A similar arrangement is provided at the rear end of the hinge boot, which arrangement is shown in the drawing in the form of the dash line sleeve 1'. The dash lined structure is merely to indicate that within the scope of the invention it is also possible to provide such spring arrangement in the interior of an upper 6 or 7.

In conformity with the shock absorption provided at the rear end of the boot, it should be noted that in contrast to the shock absorption at the front end, there is not provided a pressure direction which is flat to the surface of the ski, but it will be evident that also in this instance with a correspondingly strong spring, it is possible to control the pressure or shock within a desirable range. Such spring devices at the rear end of the boot can be provided only within the range of the heel or may be provided on both sides of the uppers.

It may also be mentioned that the sleeve arrangements, as shown in the drawing, may, if desired, be reversed so that the bolt 8 and the sleeve 1 are arranged at the respective other uppers as indicated in dash lines for the spring section at the rear end of the boot.

It is, of course, to be understood that the present invention is, by no means, limited to the specific structure shown in the drawing, but also comprises any modifications within the scope of the appended claims. Thus, different spring arrangements are possible, and the springs themselves may be exchangeably arranged in order to assure the respective desired spring pressure and to enable the skier at will to exert strong pressures in forward direction or rearward direction upon the ski and to guide the ski in a fine tempered manner.

What I claim is:

1. A ski boot which includes: a sole, a first upper section connected to said sole and comprising the tip portion of the boot and at least a part of the heel portion thereof, and a second upper section overlapping said first upper section and being adapted to receive the ankle portion of a foot, pivot means pivotally connecting said first and second upper sections to permit said second section to pivot relative to said first upper section in a direction toward and away from said tip portion, and cushioning means interconnecting said first and second upper sections for cushioning push and shock movements of said second upper sections in a direction toward and away from said tip portion, said cushioning means including a sleeve defining a spring receiving chamber and having one end portion connected to one of said upper sections, a helical spring elastically arranged in said chamber, and push rod means slidably arranged in said sleeve and engaging one end portion of said spring and having its free end linked to the other upper section, said push rod including a wider section engaging one end of said spring and also including a section having a shorter diameter than said wider section and extending into and guiding said spring.

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2. A ski boot according to claim 1, in which said cushioning means include spring means and holding means yieldably and pivotally interconnecting said first and second upper sections to each other.

3. A ski boot which includes: a sole, a first upper section connected to said sole and comprising the tip portion of the boot and at least a part of the heel portion thereof, and a second upper section overlapping said first upper section and being adapted to receive the ankle portion of a foot, pivot means pivotally connecting said first and second upper sections to permit said second upper section to pivot relative to said first upper section in a direction toward and away from said tip portion, and cushioning means interconnecting said first and second upper sections for cushioning push and shock movements of said second upper sections in a direction toward and away from said tip portion, said cushioning means including spring means and holding means yieldably and pivotally interconnecting said first and second upper sections to each other and spring means on each side of the boot, said spring means extending in a direction toward the tip of the boot.

4. A ski boot according to claim 3, in which said cushioning means include a sleeve defining a spring receiving chamber and having one end portion connected to one of said upper sections, a helical spring elastically arranged in said chamber, and push rod means slidably arranged in said sleeve and engaging one end portion of said spring and having its free end linked to the other upper section.

5. A ski boot according to claim 3, in which said cushioning means are respectively arranged on opposite sides of said boot, and in which each of said cushioning means has one end portion connected to one of said upper sections adjacent said heel portion and has its other end portion connected to the other upper section in the region of said heel portion, at least one of said connections being a pivot connection.

6. A ski boot according to claim 5, in which each of said cushioning means includes a cylinder with a pressure spring therein.

7. A ski boot according to claim 3, in which the axis of said pivot means is located approximately in the plane defined by said pivot means and the overlapping area of said two upper sections in the vicinity of the instep of the boot, said plane forming with said sole an angle of approximately 60°.

8. A ski boot according to claim 3, in which the pivot means is located near the sole of the boot.

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