United States Patent [19]

Vaccari

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[54] **SKI BOOT**

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[52] **U.S. Cl.** ..... **36/2.5 AL**
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[58] **Field of Search** ..... 36/2.5 R, 2.5 AL

[56] **References Cited**

UNITED STATES PATENTS

3,570,148	3/1971	Morgan	36/2.5 AL

FOREIGN PATENTS OR APPLICATIONS

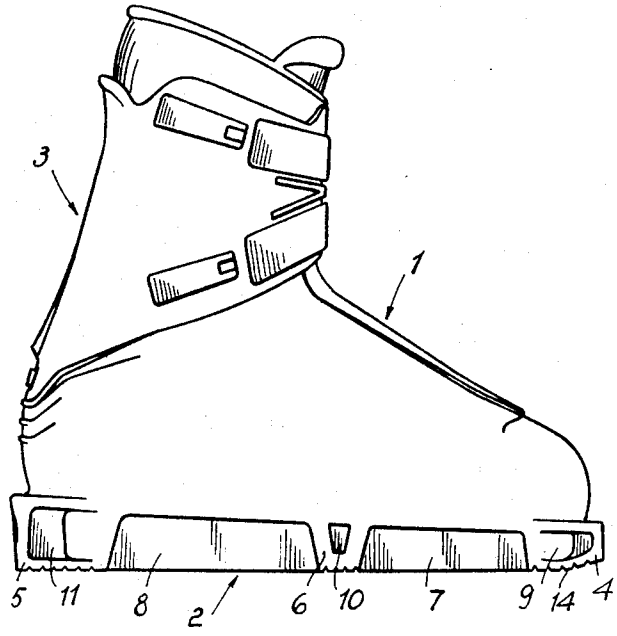
1,806,109	5/1970	Germany	36/2.5 AL
2,018,704	10/1971	Germany	36/2.5 AL
1,963,342	6/1971	Germany	36/2.5 AL

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[57] **ABSTRACT**

This invention discloses a ski boot consisting of an upper and a sole integral with one another. The sole is formed with a plurality of recesses at the outer border thereof. The ski boot also includes a leg piece or ankle section connected to the upper at an articulation point arranged on the rear part of the boot.

2 Claims, 4 Drawing Figures



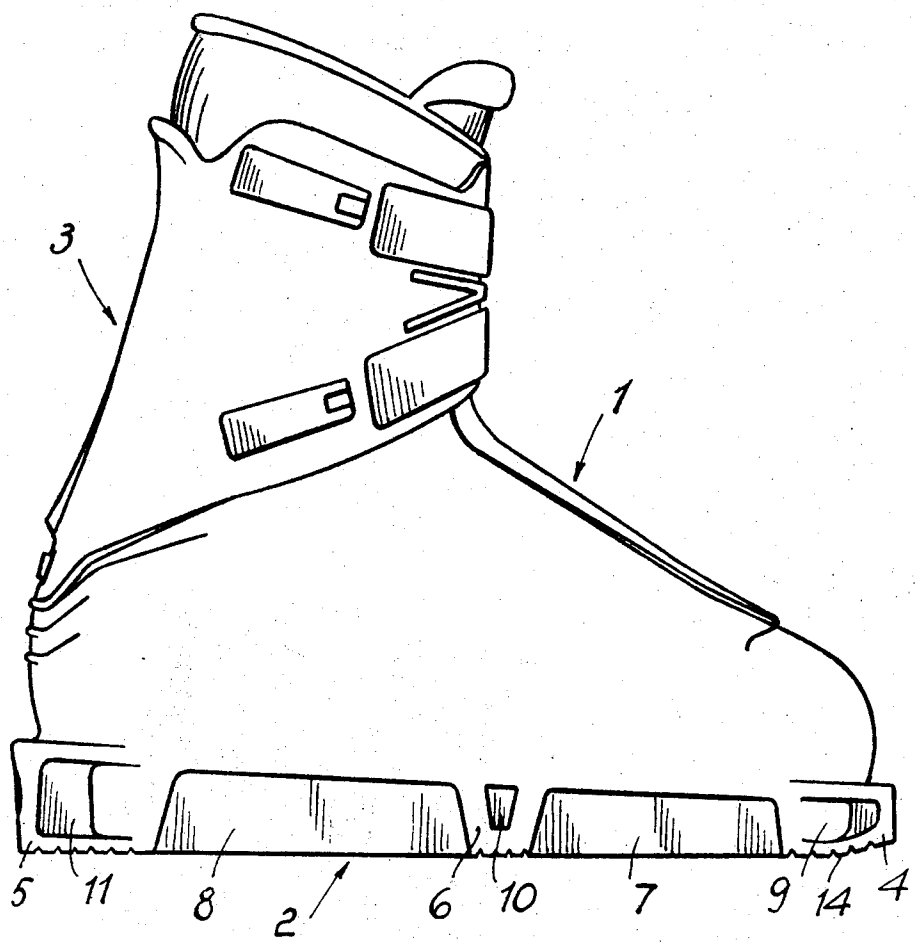


Fig. 1

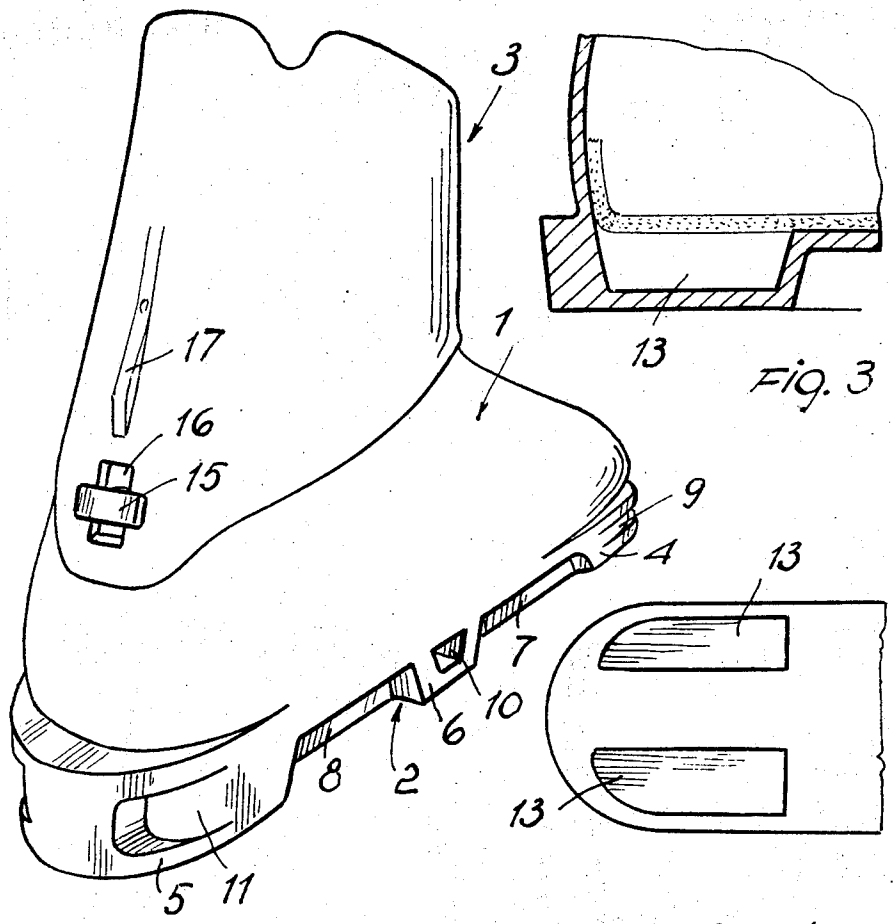


Fig. 2

Fig. 3

Fig. 4

SKI BOOT

BACKGROUND OF THE INVENTION

The present invention relates to an improved ski boot.

With the now well confirmed acceptance of plastic ski boots, which at present constitute a large part of the market for this type of article, the problem of improving the manufacturing techniques so as to reduce both the manufacturing times and the costs, in particular those deriving from the materials used, has become increasingly felt. This requirement is now felt to a much greater extent than previously, because of the fact that the large quentities of ski boots produced, governed by industrial criteria of manufacture, require the maximum possible reduction in the costs of each unit produced, taking into account the fact that these economies are amplified by the very high production rate which is maintained by the main industries in this field.

SUMMARY OF THE INVENTION

An object of the present invention is consequently to provide a ski boot of new conception which satisfies these requirements, by costing less than ski boots of the same class while maintaining, and to a certain extent increasing, the intrinsic qualities of solidity, rigidity and strength, qualities which are indispensable in these products.

Another object of the invention is to enable the ski boot to be easily adapted to various conditions of use by a comfortable and rapid interchangeability of certain of its parts, with the further advantage that this interchangeability does not deter from the capacity of the boot to give at its leg part or ankle section that certain adaptability to the position of the foot with respect to the leg during use.

These objects and others which will be more evident hereinafter are attained by a ski boot according to the invention, consisting of a vamp made in a single piece in plastic with the sole, and a detachable ankle section or cuff, connected to the vamp, in which the ankle section is connected to the vamp only in one point of articulation situated on the rear part of the boot.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages will be more evident from the description of a ski boot according to the invention described by way of example in the accompanying drawings in which:

FIG. 1 is a side elevational view of the ski boot according to the invention;

FIG. 2 is a three-quarter rear perspective view of the same boot;

FIG. 3 is a section through the heel of the ski boot on a vertical longitudinal plane;

FIG. 4 is a diagrammatic plan view of the detail shown in section in FIG. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The ski boot according to the present invention belongs to the category of those made of plastic synthetic resin, in which the vamp and sole are integrated in a single block. Moreover, the boot described hereinafter is of the type in which the upper part of the vamp (or leg) is mounted on the upper so that it may undergo slight articulated movement. This boot comprises the vamp **1**, sole **2** and leg or cuff or ankle section **3**.

As can be clearly seen in FIGS. **1** and **2**, the sole **2** does not consist, as is usual, of an approximately parallelopiped slab with parallel straight side edges, but instead consists of a longitudinal middle zone which runs from the toe to the heel of the shoe, and is flanked by edge zones consisting of alternating solid and empty spaces. In the embodiment shown the solid spaces or projecting parts are formed at the toe **4**, heel **5** and an intermediate zone **6**. Between the zones **4** and **6**, and **6** and **5**, recesses, **7** and **8** respectively are formed in the sole (on both sides) which considerably lighten the weight of the shoe and in addition allow the material used during moulding to be considerably reduced. For the same reason a series of lightening recesses, **9**, **10** and **11**, respectively, are formed in the laterally projecting zones **4**, **6** and **5**.

It should be noted that the particular construction and arrangement of the hollow zones, between the solid zones, while considerably reducing as stated both the weight of the boot and the amount resin necessary for its manufacture in no way lessens the rigidity characteristics of the sole which are required in boots of this type.

In order to further increase said rigidity, the solid longitudinal middle zone of the sole may be traversed over its entire length by a longitudinal strengthening element, for example a metal element (plate, tube).

In order to lighten as far as possible the structure of the sole (which, as stated, has been made up to the present time as a heavy block) inside the heel **5** and to the sides of the solid continuous zone of the sole there are two symmetrical slot-type apertures **13**, the upper openings of which are then covered either by an inserted sole or by the sock which is generally inserted into the vamp.

Again the sole **2** is constructed so that it comprises at its toe a chamfer **14** in the forward direction, in order to facilitate walking by the user of the boot.

The detachable leg piece or ankle section **3** will now be described. This is of the type articulatedly coupled to the vamp **1**, but contrary to most of the sbi boots used up to the present time for providing this articulation, instead of using pairs of hinges on opposing sides of the shoe for the coupling between the ankle section and vamp, it uses an articulated joint only at the rear of the boots i.e. at the rear zone of the vamp and at the back portion of the ankle section which faces the heel and the Achilles' tendon leg part of the user. Thus the leg piece is completely free over its entire perimeter, and is only restrained in the proximity of the heel. In this manner the discomfort and disadvantages which are characteristic of boots with legs with side coupling are avoided, because the uncomfortable swelling towards the outside of the boot, and the presence of hard surfaces inside the boot precisely at those projecting parts of the foot which because of this are exposed to abrasion or injury, are eliminated.

The type of pin coupling proposed for linking the leg to the vamp also gives the considerable advantage of allowing one leg to be replaced by another with extreme ease and rapidity, as required by the user. In fact, leg pieces are employed which are inclined to a greater or lesser extent, or are more or less high at their rear, according to the type of use for which the ski boot is

intended. Thus for example for sporting activities the leg piece must be provided at its rear with an upper appendix or tongue which supports the calf, whereas for normal skiing activities this appendix gives rise to annoyance and discomfort. From the aforegoing, the advantage of being able to apply leg pieces of different construction to the same vamp, in turn, so that the user does not need a number of pairs of boots of different configuration, is evident.

The boot according to the invention is provided at its rear with a projecting pin, the head **15** of which is of elongated horizontal form. The pin with its elongated head **15** may consist of an element fixed on to the vamp **1** or may be formed during moulding of the vamp as a single piece with it, in plastics material. The leg piece **3** is provided at its lower rear end with an elongated aperture or slot **16** of such a size as to enable the head **15** to pass through it, but which extends normally in a vertical direction i.e. transverse to the longitudinal extension of the elongated head **15.** Consequently, taking into account the relative rigidity of the leg **3,** it may be deformed, when the shoe is open, to the extent necessary to enable it to be rotated through 90°, so that the head **15** may be disengaged from the aperture **16** and the leg **3** separated from the vamp **1.** This enables the leg to be replaced by a different one, repeating the operation in the opposite direction. When assembled, the leg is firmly fixed on the vamp **1,** while being able to make limited oscillations in a forward direction because of the structural formations allowing limited play between the pin **15** and slot **16.**

In practice the materials used and dimensions may be varied according to requirements.

I claim:

1. A ski boot including a vamp having a rear zone, a sole of plastics integral with the vamp, a detachable ankle section having a back portion adapted to face the heel and Achilles' tendon leg part of the user and connection means for connecting said ankle section to said vamp, wherein according to the improvement said connection means are entirely arranged in the rear zone of the vamp and the back portion of the ankle section and comprise a pin coupling having structural formations allowing play therebetween in the direction of the boot height.

2. A ski boot according to claim **1,** wherein said pin coupling comprises a pin rigid with and projecting outwardly from said rear zone of the vamp, said pin having a shaft and an elongated head, and means in said back portion of the ankle section defining an elongated slot, said elongated slot extending in a direction normally transverse to the longitudinal extension of said elongated head, said elongated slot allowing slidable movement of said pin shaft when inserted therein and allowing insertion therein of said elongated pin head when the longitudinal extension of said slot and said pin head are arranged parallel to each other.

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