United States Patent

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[33] **Germany**
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[54] **SKI BOOT**
12 Claims, 10 Drawing Figs.

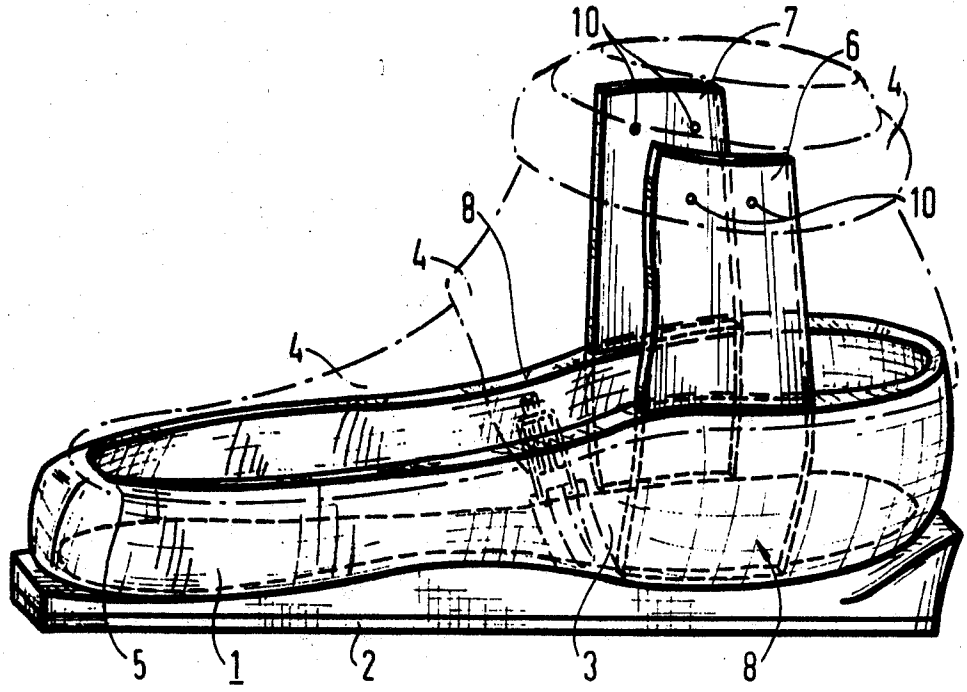
[52] **U.S. Cl.** **36/2.5**
[51] **Int. Cl.** **A43b 00/00**
[50] **Field of Search** 36/2.5, 69

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Primary Examiner—Patrick D. Lawson

ABSTRACT: A plastic ski boot is provided with lateral reinforcing means in the ankle region, an elastic cuff connected with the reinforcing means, and with a waterproof bat tongue which makes possible a wide opening of the boot and closing of the boot so as to facilitate removal of the boot from the mold in production.



Patented Aug. 10, 1971 3,597,862

6 Sheets-Sheet 1

Fig.1

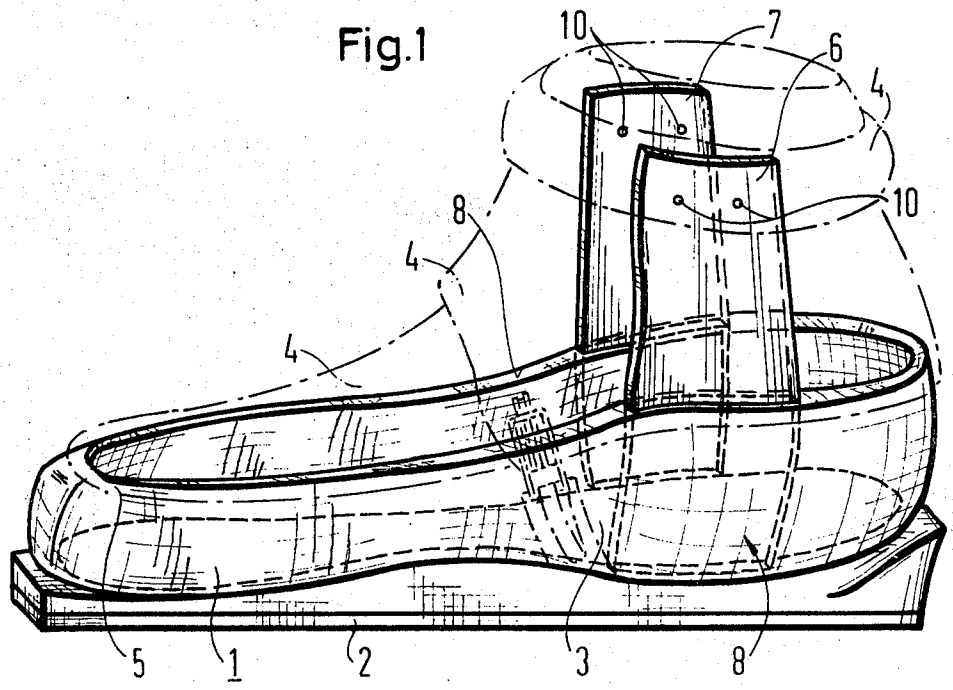
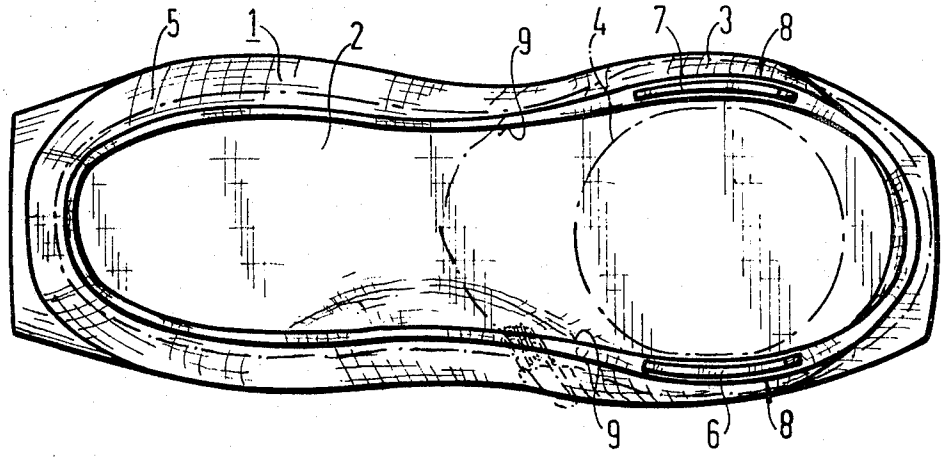


Fig.2



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Fig. 3

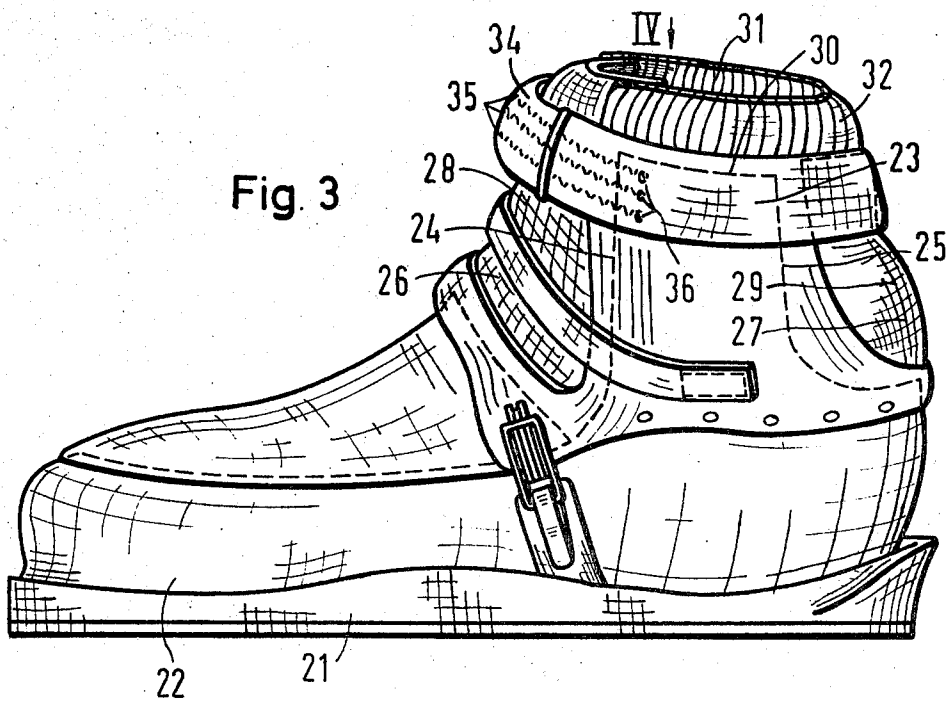
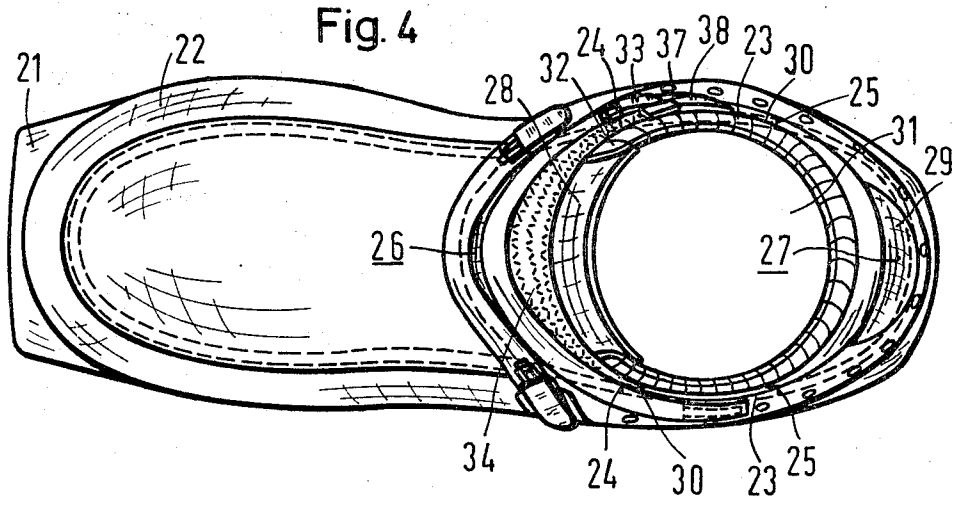


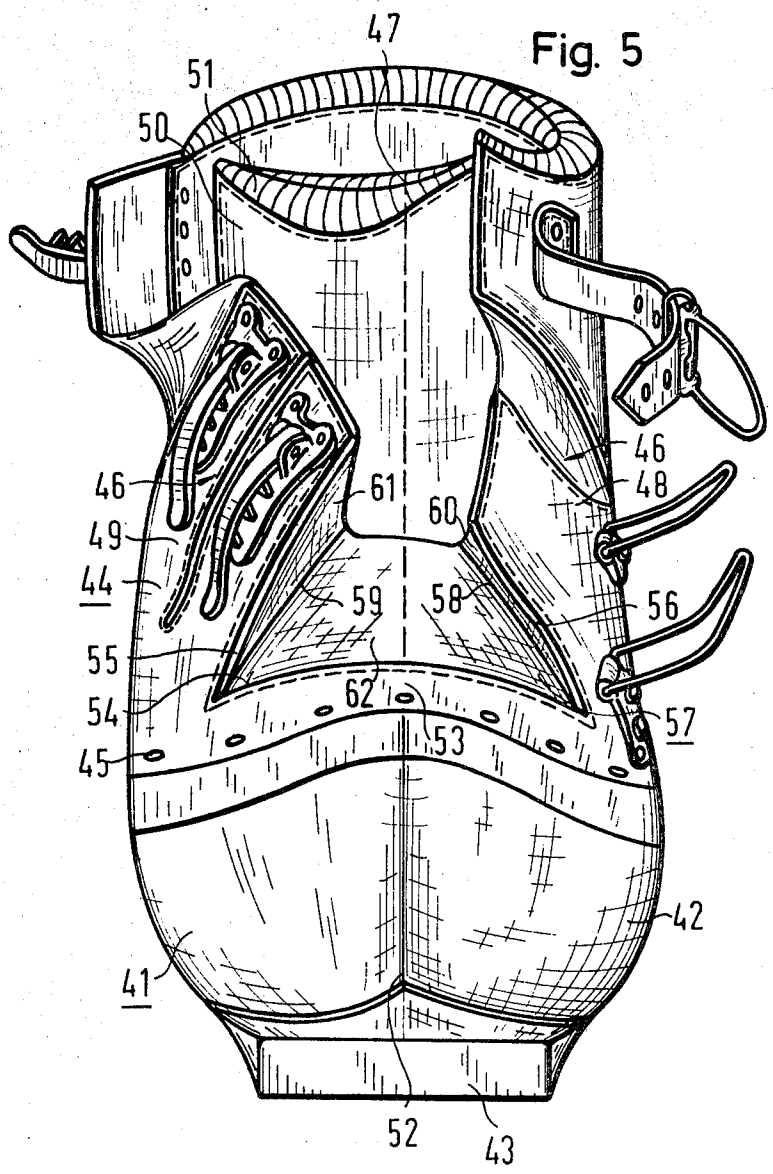
Fig. 4



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Fig. 5



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Fig. 6

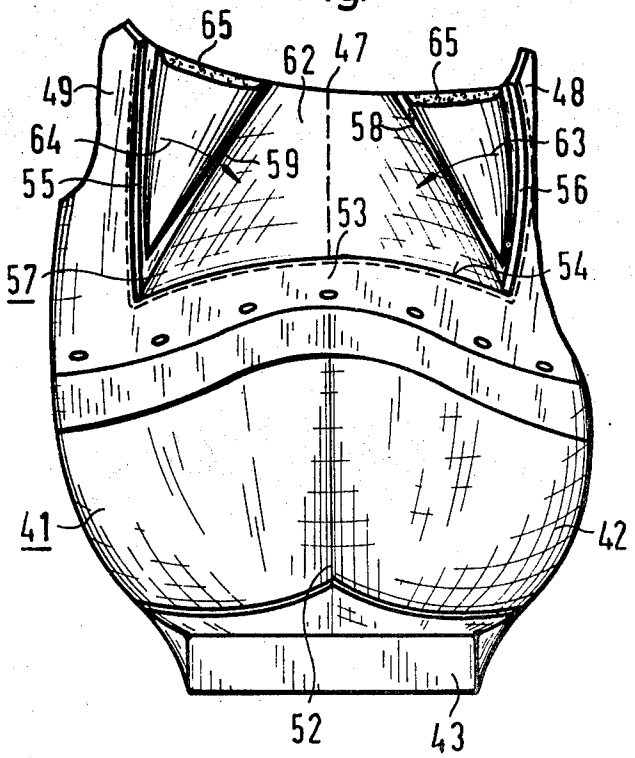
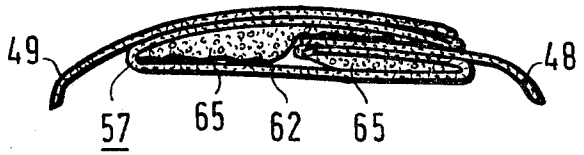


Fig. 7



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Fig. 8

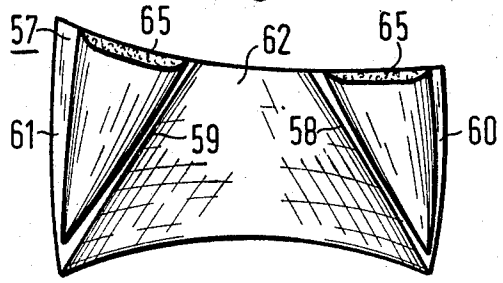
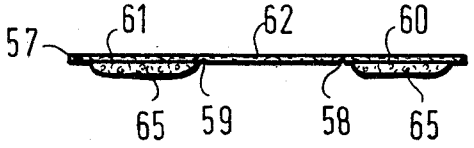


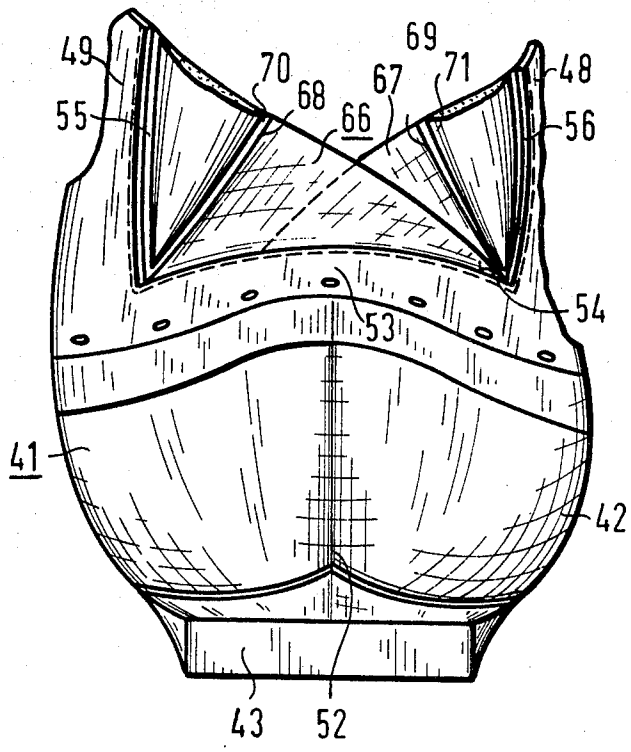
Fig. 9



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Fig. 10



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SKI BOOT

BACKGROUND OF THE INVENTION

The present invention relates to plastic ski boots and more particularly to such boots comprising a main body made in one piece.

Plastic ski boots whose main body consists of a single piece as known in the prior art are generally decidedly uncomfortable since they are rigid from all sides and exert a pressing or squeezing action on the feet of a skier. Such boots have been difficult to produce owing to the problem of removing a single-piece, that is to say undivided, mold core.

BRIEF SUMMARY OF THE INVENTION

One object of the invention is to overcome these disadvantages of the prior art.

A further object of the invention is to provide a ski boot which is laterally stiffened but in the front part is resiliently elastic so that the main body of the plastic boot can be removed from a simple, that is to say nondivided core.

In accordance with one aspect the invention provides such a laterally stiffened boot which in its upper front foot region can be opened wide while waterproof sealing is provided by a bat tongue.

BRIEF DESCRIPTION OF SEVERAL VIEWS OF THE DRAWING

The invention is now described in the form of embodiment, given by way of example only, as shown the attached drawings.

FIGS. 1 and 2 show reinforcing or stiffening means in the ankle region of a plastic ski boot.

FIGS. 3 and 4 show a resiliently elastic band or belt which is connected with the reinforcing or stiffening means in the ankle region.

FIGS. 5 to 10 show a ski boot closure which makes possible the use of a simple mold core in production and provides for a comfortable putting on and taking off of the boot while giving a watertight seal in the upper part of the boot.

DETAILED DESCRIPTION

FIGS. 1 and 2 show in a perspective side view and plan view a plastic ski boot with a boot sole 2 and a plastic upper 3 and 4. Reference numeral 5 denotes an overlap of the more elastic upper 4 on a stiffer dish-shaped plastic bowl 1.

In order to achieve a favorable side support or guiding action for the foot in the boot, the bowl 1 in the ankle region of the foot is provided with lateral guiding rods 6 and 7 which hold or support parts at least of the upper. The guide rods 6 and 7 are substantially perpendicular to the plane of the sole 2 and are in the form of bands or straps. In the production of the support rods 6 and 7 it is preferred to use spring steel strap material. In the embodiment shown the guiding rods are embedded in the wall 8 of the bowl 1. It is, however, also possible to fix, for instance by means of rivets, the guiding rods 6 and 7 on the inner faces 9 of the bowl 1 elsewhere.

In order to keep the wall thicknesses of the guide rods 6 and 7 as small as possible, the projecting ends of the guiding rods 6 and 7 can be profiled, that is to say provided with longitudinally running dished parts or the like.

In order to receive parts of the upper part of boot upper 4 the free projecting ends of the guide rods 6 and 7 are provided with recesses 10, for example holes or the like.

The reinforcing means shown have the advantage that the ski boot in accordance with the invention has a comparatively low weight because the wall thicknesses of the upper part of boot upper can be kept low and, on the other hand, owing to the use of resiliently elastic guide rods, the boot can be easily put on and taken off.

The plastic ski boot shown in side view in FIG. 3 and in plan view in FIG. 4 diagrammatically comprises a sole 21 and an upper 22 which is rigid or stiff. The upper 22 has on both sides of the boot a rod 23 which is stiff and laterally stable, reinforced fabric inserts or the like being possibly used for this. The foot in the boot is supported laterally by the rods 23 as far as the lower part of the leg above the ankle. U-shaped recesses 26 and 27, which are covered over with rubber-elastic covering means 28 and 29, are limited at the front by edges 24 of rods 23 while to the rear they are limited by edges 25 of the rods 23.

The free ends 30 of the rods 23 are covered by a cuff 32 surrounding the upper opening 31, the cuff being resiliently elastic. The cuff can be for example of leather which while stretched is provided with rubber-elastic foam material stuck on it.

After the setting of the points at which adhesive is applied, the foam material contracts again and causes the leather to be conkled together evenly. The cuff 32 is divided and at the point of division is provided with a toggle-lever closure 33. A rubber-elastic band 34 is connected with the cuff and is attached to one of the rods 23. The rubber-elastic band 34 is formed by three parallel helical springs 35 whose free ends 36 are connected rigidly with one of the rods 33 and whose other ends 37 are connected together on a toggle-lever closure 38 which is attached to the other rod 23. As is apparent, the helical springs 35 are enclosed as a whole by a tube or hoselike protective casing which forms the rubber-elastic band 34 itself.

It is naturally possible to make the cuff 32 and the rubber-elastic band 34 in one part.

The plastic ski boot in accordance with the invention thus has a preferred condition for the lower leg part owing to the loading of the helical springs 35. The lower leg part when once brought into position usually comes at least partially into the front U-shaped recess 26 and thus tensions both the helical springs 35 and also the rubber-elastic covering means 28. The greater the forward position of the lower leg part, the greater the force exerted on the shin by the helical springs 35.

This manner of operation is required because an increase in the tension force of the helical springs 35 by increasing the forwarding position corresponds to an increase in speed in skiing down a descent.

The plastic ski boot 41 shown in FIG. 5 consists essentially of a stiff plastic bowl 42 enclosing the foot laterally with a sole 43 and a divided upper 44. Reference numeral 45 denotes decorative rivets or studs adjacent to the light more elastic upper part of boot upper 44 which is mounted on the upper bowl 42 in an overlapping manner. The upper side 46 of the boot has a division 47 running along the general axis of the boot in order to facilitate the insertion of liners, on the one hand, and the removal of tools such as mold cores during production on the other. Preferably a broad projecting tongue 50 extends for the whole length of the division 47 within the upper parts of boot upper 48, 49. The upper end 51 of the tongue can be folded outwards towards the tip of the boot 52 when the division 47 is opened. The upper side 53 of the boot tip 52 has an opening edge 54 running in the direction transverse to the division 47 and is aligned with at least the edge 55 of the upper part of boot upper 49 when the division 47 is closed. The upper part of boot upper 48 has an edge 56 which does not need to be aligned with the opening edge 54 because the upper part of boot upper 48 lies below the upper part of boot upper 49 when the division 47 is closed.

In order to prevent the entry of snow, moisture and dirt the edges 55 and 56 and the opening edge 54 are provided with a bat or batwing tongue 57. The bat tongue 57 is made with four corners of comparatively flexible material such as plastic. The bat tongue 57 is connected at three of its edges 54, 55, and 56 for instance by sewing.

It can also be cast from plastic in a single piece with the upper part of boot upper 44 or it can be made by injection molding. As is apparent, the bat tongue 57 has two folding lines 58,59 which delimit two laterally outwards directed triangular surfaces 60 and 61 and a central trapezoidal surface 62.

This appears particularly from FIG. 6 which shows the manner of operation of the bat tongue 57 in a partial view. In order to close division 47, the upper part of boot upper 48 is folded in so that the edges 56 are moved in the direction of the arrow 63. The triangular surface 60 lies against the upper part of boot upper 48, on the one hand, and against the trapezoidal surface 62 on the other. Following this, the upper part of boot upper 49 is folded in so that the edge 55 is aligned with the opening flap 54. During the accompanying movement of the edge 55 in the direction of the arrow 64 the triangular surface 61 comes to lie between the upper part of boot upper 48 and the trapezoidal surface 52.

In order to improve the sealing function of the batwing tongue 57 when the division 47 is closed, the triangular surfaces 60 and 61 are each provided with a rubber-elastic cushion 65 which is preferably made of foam material. The construction of the cushion 65 can be seen as a detail in FIGS. 7 and 8.

FIG. 9 shows a section of the construction shown in FIG. 6, in which the division 47 is closed. Otherwise like parts are provided with like reference numerals.

In the case of the somewhat modified embodiment of the invention shown in FIG. 10, the edges 55 and 56 are each connected by means of a batwing tongue 66, 67 with the opening edge 54. In this case as well it is particularly advantageous to provide the lateral triangular surfaces 70, 71 divided by the folding lines 68, 69, with a foam material cushion.

I claim:

1. A plastic ski boot comprising:

a. a boot sole, a boot upper connected with the sole, rod stable in all directions which are rigid and are provided on the upper at least above the foot joint region, the rods delimiting, at least in a forward direction a U-shaped recess, and

b. an elastically resilient cuff covering the rods and surrounding the recess, the cuff being connected rigidly with at least one of free ends of the rods and being adapted to exert a force on the shin of a wearer when shin is inclined.

2. A plastic ski boot in accordance with claim 1, in which the guide rods are made of spring steel band adapted to suit the shape of the ankle.

3. A plastic ski boot in accordance with claim 1, comprising at least one resiliently elastic band which is fixed to one of the rods and is connected with the cuff.

4. A plastic ski boot in accordance with claim 1, comprising at least two parallel helical springs which at least partly constitute the resiliently elastic band.

5. A plastic ski boot in accordance with claim 4, comprising a flexible tubelike protective casing surrounding the helical springs together.

6. A plastic ski boot in accordance with claim 4, comprising a flexible tubelike protective casing surrounding the helical springs individually.

7. A plastic ski boot, with a median plane, comprising a sole, an upper having two overlapping upper parts forming a division and having edges perpendicular to the division, and a batwing tongue joining these edges with the upper side of the boot tip, the edges being perpendicular to the median plane.

8. A plastic ski boot in accordance with claim 7, in which the batwing tongue consists of a flexible covering means which is attached to the edges which is attached to upper parts of the boot upper and to the upper side of the boot tip.

9. A plastic ski boot in accordance with claim 7, in which the batwing tongue has two fold lines which delimit at least two lateral triangular surfaces.

10. A plastic ski boot in accordance with claim 7, in which each of the edges of the upper parts of the boot upper are provided with a triangular flexible batwing tongue which is fixed to the upper side of the boot tip.

11. A plastic ski boot in accordance with claim 10, in which each flexible triangular batwing tongue has a fold line which delimits at least one lateral triangular face.

12. A plastic ski boot in accordance with claim 7, in which the sole is rigid.