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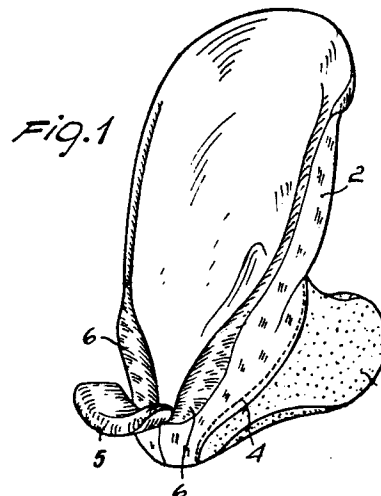
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54 **Ski boot inner shoe structure.**

57 This invention relates to a ski boot inner shoe which comprises a first portion (1) formed from substantially soft plastics material foamed onto an inner lining and spanning substantially the foot region and at least in part the leg front, and a second portion (2), substantially semirigid and associated with said first portion (1) and arranged to span the foot back region and at least in part the user's leg; the second portion (2) at least partly overlapping the first portion (1).



### SKI BOOT INNER SHOE STRUCTURE

This invention relates to a ski boot inner shoe structure.

As is known, currently available are inner shoes for ski boots which could be called traditional and are fabricated by joining together, such as by sewing, a number of padded semirigid elements, to produce a shoe which is quite comfortable to wear and has excellent functional characteristics enabling the wearer's feet to be securely held in the boot.

However, such ski boot inner shoes have the disadvantage that their manufacturing cost is quite high, owing mainly to the high labor input required for their fabrication.

To obviate the above problem, of high manufacturing cost of traditional ski boot inner shoes, inner shoes of foamed plastics have been commercially introduced which afford the significant advantage of being fabricated with a really industrial type of process, and hence at relatively low costs.

Such foam plastics inner shoes, however, have the serious drawback that they fail to combine a good performance standard, as regards foot retention, with an adequate comfort standard for the wearer. In fact, whereas by using a relatively low density foam sufficiently soft and pliable shoes may be obtained which are accordingly more comfortable but unable to provide an adequate retention of the foot, where a higher density foam is used, good technical

features may be achieved but at the expense of an inadequate wearing comfort.

5 It is a primary object of this invention to remove such prior drawbacks by providing a ski boot inner shoe structure which can be produced industrially for most of it, while affording the same degree of performance and comfort as traditional inner shoes.

10 Another object of the invention is to provide a ski boot inner shoe structure which enables the manufacturing time therefor to be reduced considerably, thus contributing toward a significant cost reduction.

15 It is a further object of the invention to provide a ski boot inner shoe structure of a novel design which, by virtue of its peculiar constructional features can give full assurance of being reliable and safe to use.

20 These and other objects, such as will be apparent hereinafter, are achieved by a ski boot inner shoe structure, according to the invention, characterized in that it comprises a first portion formed from substantially soft plastics foamed material onto an inner lining and spanning substantially the foot region, and a second semirigid portion associated with said first portion and spanning the back region of the foot and at least in part the user's leg as well, said second portion at least partially overlapping said first portion.

25

Further features and advantages will be more readily understood from the following detailed description of a ski boot inner shoe structure, illustrated by way of example and not of limitation with reference to the  
5 accompanying drawings, where :

Figure 1 is a perspective view showing schematically a rear entry ski boot inner shoe;

Figure 2 is a side elevation view of a rear entry ski boot inner shoe;

10 Figure 3 shows a front entry ski boot inner shoe;

Figures 4 and 4a are perspective views, taken under two different angles, showing the second portion of the shoe, as formed in a single piece;

15 Figures 5 to 8 illustrate diagrammatically the steps of interconnecting the second portion of Figure 4 with the first shoe portion;

Figure 9 illustrates the shoe in its finished condition;

20 Figure 10 is a partly sectional view of the shoe;  
and

Figure 11 illustrates diagrammatically the forward flex range of the shoe.

25 With reference to the cited drawing figures, the ski boot inner shoe structure, according to the invention, comprises a first portion, indicated at 1, which is formed from relatively soft foamed plastics material which is applied on an inner shoe lining; consequently, the first portion 1 may be fabricated with an industrial type of process.

The portion 1 spans substantially the foot region of the user.

5        Associable with said first portion 1 is a second portion, generally indicated at 2, which is fabricated in a conventional way and may be made semirigid or rigid throughout, in accordance with the desired wearer's foot retention capability.

10        With reference to Figures 1 and 2, the second portion 2 spans substantially the back region of the foot, i.e. the heel region thereof, and the ankle, as well as a forward area of the leg.

15        This embodiment lends itself to application on a rear entry ski boot, wherein the padding for the leg rear may advantageously be provided directly on the rear quarter comprising the boot.

In the event that application of the boot quarter padding is to be avoided, the second portion 2 may be provided at its rear area with a sideways-projecting flap which upon bending can span the leg rear.

20        The cited second portion 2 is associated, as by seams 4, with the first portion 1 so as to combine the comfort characteristics which are inherent to a relatively soft foamed part with the technical characteristics of foot retention which are to be  
25        obtained through the use of a semirigid part of conventional construction.

30        To further improve the retentive action, on the shoe rear area, at the area spanned by the second portion 2, there may be provided a flap 5 which may be attached directly to the portion 2 to contribute

in retaining the heel, said heel retaining element being optionally provided on the ski boot itself.

At the bottom edges of the rearwardly open portion of the inner shoe, in the proximities of the area of  
5 attachment of the flap 5, there are provided on the second portion 2 padded lips 6 which also cooperate with the flap 5 to produce a comfortable retention of the foot and facilitate the insertion of the foot at the time of wearing.

10 The inner shoe may be completed with the provision, substantially at the instep region of the foot, of a seat or pocket 8, whereinto an element may be inserted which is made of rigid material and adapted to undergo a pressure exerted, for example either by an  
15 air bladder of an air system or by possible pressure elements.

With reference to Figure 3, an inner shoe is shown which is intended for use with front entry ski boots. In this embodiment, the first portion, indicated at 1a,  
20 is formed with a longitudinal cut 11 in the upper area to facilitate wearing, and the second portion, indicated at 2a, has a front flap, indicated at 3a, which may be wrapped around the front region of the instep. Also in this case, the second portion, which may be formed  
25 from semirigid material, overlaps, at least in part, the shoe portion 1a and is joined thereto by means of seams 4a.

As shown in Figure 3, the second portion 2a may include an insert section 15 which encompasses the  
30 first portion 1a downwardly at the foot back region,

whereas the heel back region is only spanned by the first portion 1a.

With reference to Figures 4 to 11, the ski boot inner shoe structure according to the invention  
5 comprises a first portion, now indicated at 20, which is formed from relatively soft plastics foam material applied on an inner lining 21; consequently, the first portion 20 may be fabricated with a completely industrial type of process, known per se.

10 The portion 20 substantially spans the foot of the user, while the inner lining 21 overflows with respect to the first portion 20.

At the front upper end of the inner lining 21, there may be sewn, at the overflowing area on the  
15 portion 20, a border 22.

Associable with the first portion 20 is a second portion, generally designated with the reference numeral 25, which is formed from a semi-rigid or fully rigid material with a single plastics molding  
20 operation, depending on contingent retention requirements for the user's foot.

The cited second portion 25 substantially spans the foot back region, that is the heel and the ankle portions, as well as the front upper region of the foot  
25 and leg front, in the instance of rear entry boots.

To accomplish the joint between the first and second portions, the second portion 25 is sewn to the top portion of the inner lining 21, and the upper area of the second portion 25 is inserted under the border  
30 22, if any, as shown in Figure 5, to be then tilted

to locate its rear strap 26 at the heel back region.

After this positioning step has been completed, the overflowing edges 30 of the inner liner 21 are folded over, and a seam is made which spans

5 substantially the top edges of the second portion 25.

The cited second portion 25 of semirigid, or possibly rigid, material is provided, at the front upper region of the foot, with a weakened area which extends transversely to the foot extension and

10 advantageously comprises a slot 40 effective to provide, as shown better in Figure 11, a degree of flex in the shoe, because that slot, by representing a removed material zone, will weaken its rigidity and ensure its flexing.

15 Furthermore, the area underlying the slot 40, indicated at 40a, practically forms in cooperation with the first portion 20, a seat or pocket for accommodating optional stiffening elements.

Underneath the area 40a, a rigid or semirigid

20 pressure spreading element 40b may be inserted for retaining the foot through any mechanism.

It should be further added that the joint is advantageously effected by means of a sewn seam which allows the creation of overflowing areas at the top

25 edges of the semirigid portion which extend beyond the first portion 20.

It may be appreciated from the foregoing description that the invention achieves its objects, and in particular, it should be emphasized that an

30 inner shoe has been provided which, in a sense,



combines the two shoe fabrication techniques used heretofore together, so as to afford the advantages inherent to the traditional shoe fabrication procedure by sewing, and those of the industrial fabrication of foam shoes, by rationally merging a foamed portion spanning the foot with a portion which may be called sewn and which in practice can provide the required retention characteristics.

In practicing the invention, the materials used, if compatible with the specific intended use, and the dimensions and contingent shapes, may be any suitable ones to meet individual requirements.

CLAIMS

1           1. A ski boot inner shoe structure, characterized  
2 in that it comprises a first portion (1) formed from  
3 substantially soft plastics foamed material onto an in-  
4 ner lining and spanning substantially the foot region  
5 and at least in part the user's leg front, and a second  
6 substantially semirigid portion (2) associated with  
7 said first portion (1) and spanning the back region of  
8 the foot and at least in part the user's leg as well,  
9 said second portion (2) at least partially overlapping  
10 said first portion (1).

1           2. A ski boot inner shoe structure according to  
2 Claim 1, characterized in that said second portion (2)  
3 is associated with said first portion by seams (4).

1           3. A ski boot inner shoe structure according to  
2 the preceding claims, characterized in that said se-  
3 cond portion (2) spans substantially the heel and ankle  
4 areas of the foot as well as the leg front.

1           4. A ski boot inner shoe structure according to  
2 one or more of the preceding claims, characterized in  
3 that at the front upper region of the foot, between  
4 said first portion (1) and said second portion (2),  
5 there is formed a pocket or seat (8) for accommoda-  
6 ting a stiffening element therein.

1           5. A ski boot inner shoe structure according to  
2 one or more of the preceding claims, characterized in  
3 that it comprises, on the rear of said shoe, a flap (5)  
4 arranged for attachment to said second portion (2) for  
5 the purpose of retaining the foot heel.

1           6. A ski boot inner shoe structure according to one

2 or more of the preceding claims, characterized in that  
3 it comprises, at the edges of said second portion (2)  
4 and at the area spanned by said flap (5), padded lips  
5 (6) cooperating with said first-mentioned flap (5) for  
6 the retention of the foot heel and facilitating the  
7 insertion of the foot in fitting the shoe.

1 7. A ski boot inner shoe structure according to  
2 one or more of the preceding claims, characterized in  
3 that said first portion (1) is provided, for front en-  
4 try boots, with a longitudinal cut (11), said second  
5 portion (2) having a front flap (3a) associated there-  
6 with at the user's leg front.

1 8. A ski boot inner shoe structure, characterized  
2 in that it comprises a first portion (20) of substan-  
3 tially soft plastics material foamed onto an inner li-  
4 ning (21) overflowing with respect to said first por-  
5 tion (20) and spanning substantially the foot region,  
6 and a second substantially semirigid portion (25) asso-  
7 ciated with said first portion (20) and said inner li-  
8 ning (21) and spanning the back and front upper regions  
9 of the foot and at least in part the user's leg, said  
10 second portion (25) being provided, at the front upper  
11 area, with a weakened region extending transversely  
12 to the foot extension.

1 9. A ski boot inner shoe structure according to  
2 Claim 8, characterized in that said weakened region  
3 comprises a slot (40) formed in said second portion  
4 (25).

1 10. A ski boot inner shoe structure according to  
2 the preceding claims, characterized in that the edge

3 (40a) of said second portion (25) located below said  
4 slot (40) is adapted to serve as a seat or pocket for  
5 the insertion of stiffening elements therein.

1 11. A ski boot inner shoe structure according  
2 to the preceding claims, characterized in that said  
3 second portion (25) forms, integral therewith, a  
4 rear band (26) for attachment to the back heel re-  
5 gion of the user's foot.

1 12. A ski boot inner shoe structure according  
2 to one or more of the preceding claims, characterized in  
3 that it comprises a border (22) associated with the  
4 front upper area of said inner lining (21) overflow-  
5 ing from said first portion (20).

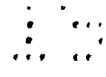


FIG. 1

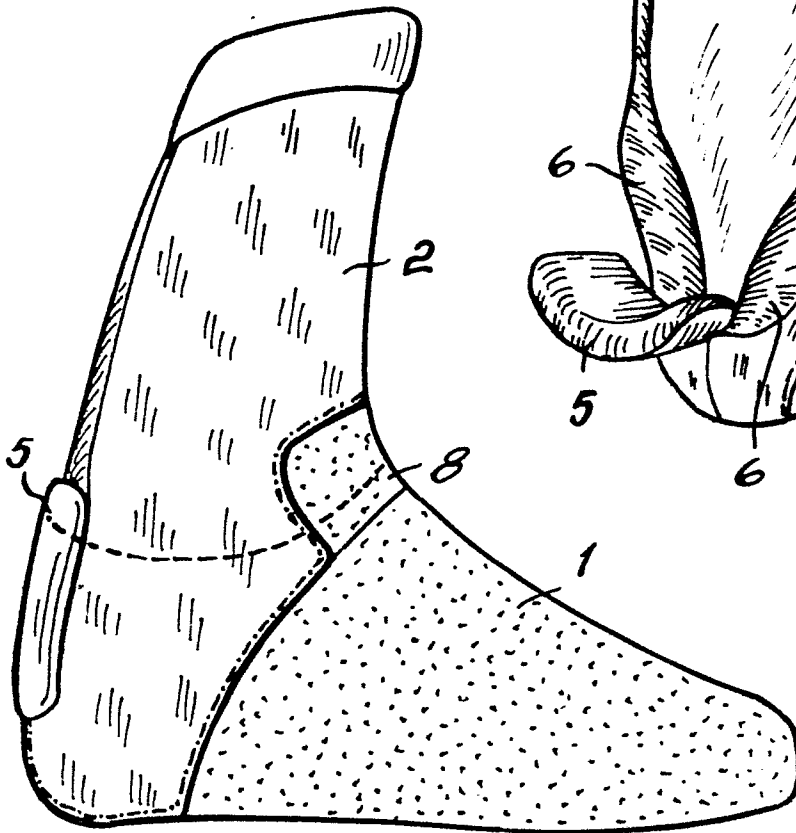
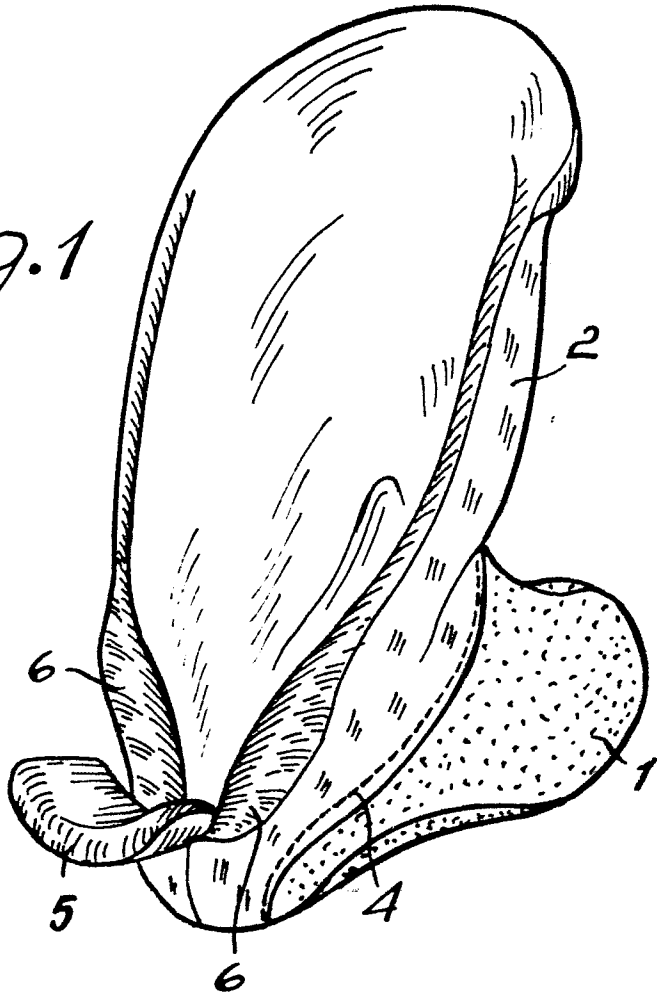
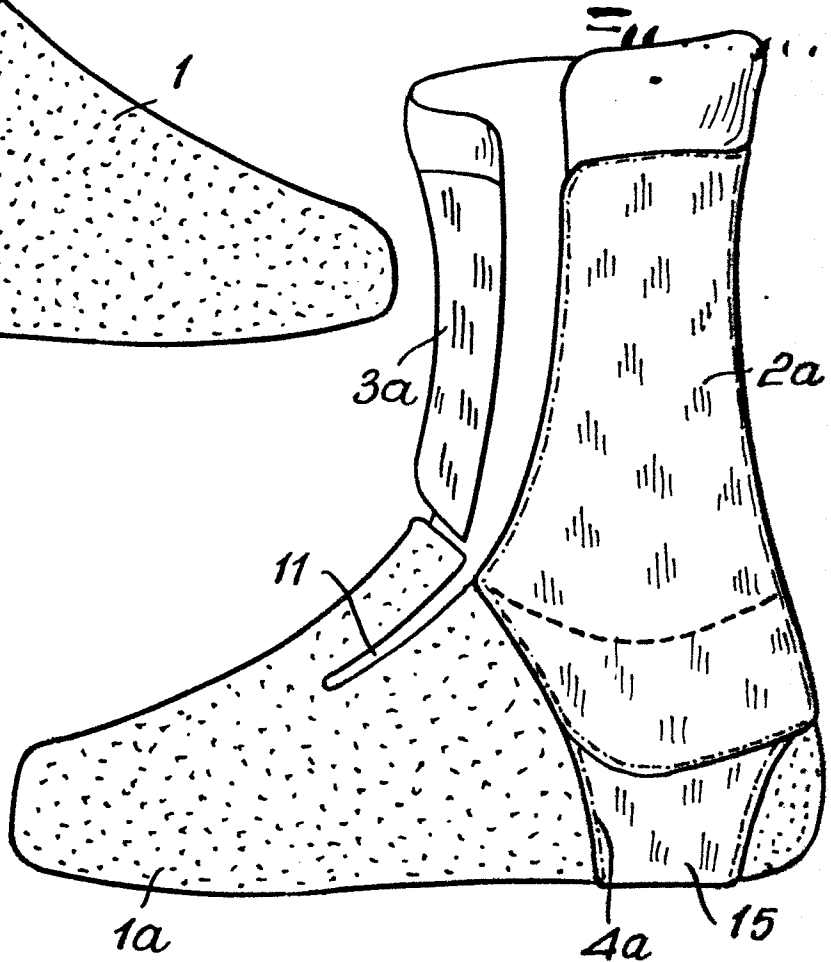


FIG. 2

FIG. 3



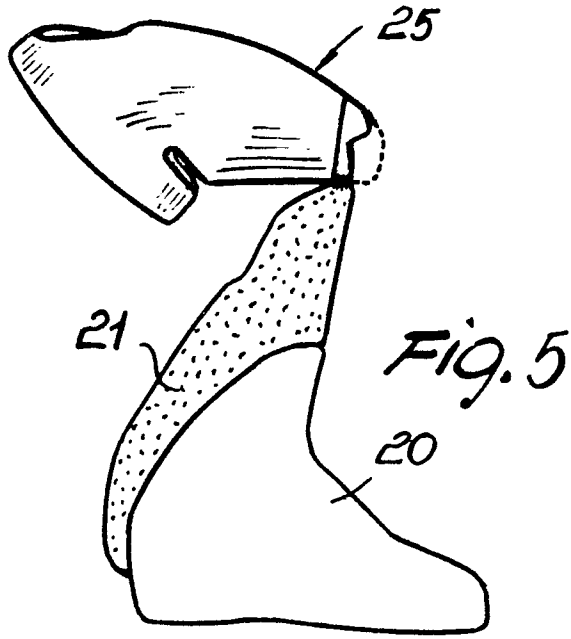


FIG. 5

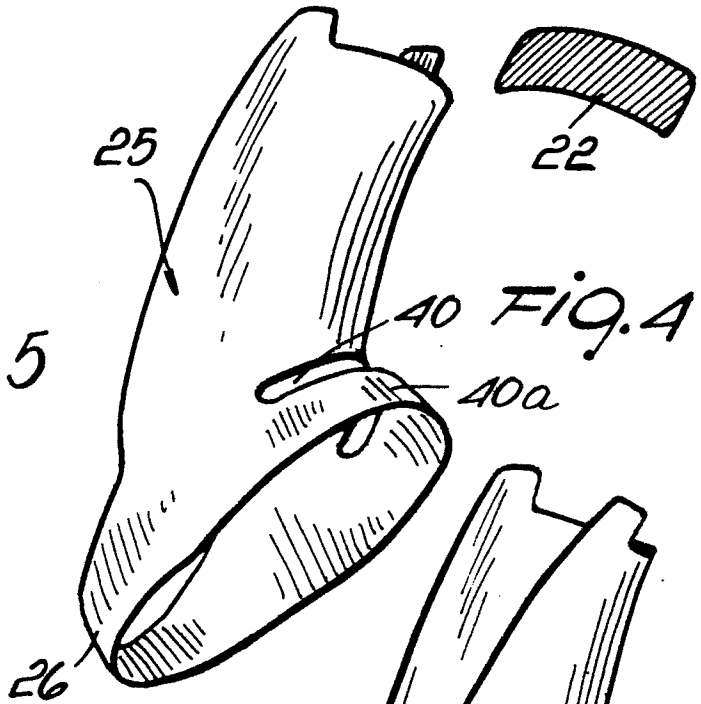


FIG. 4

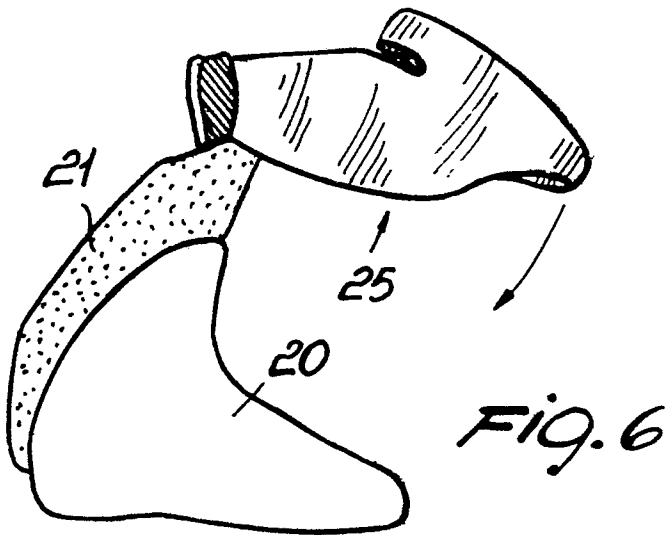


FIG. 6

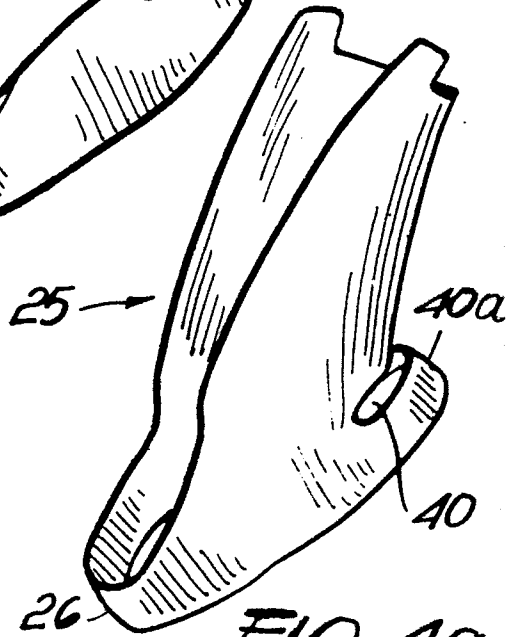


FIG. 4a

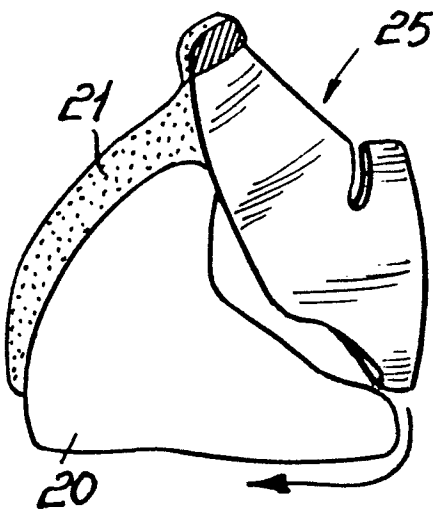


FIG. 7

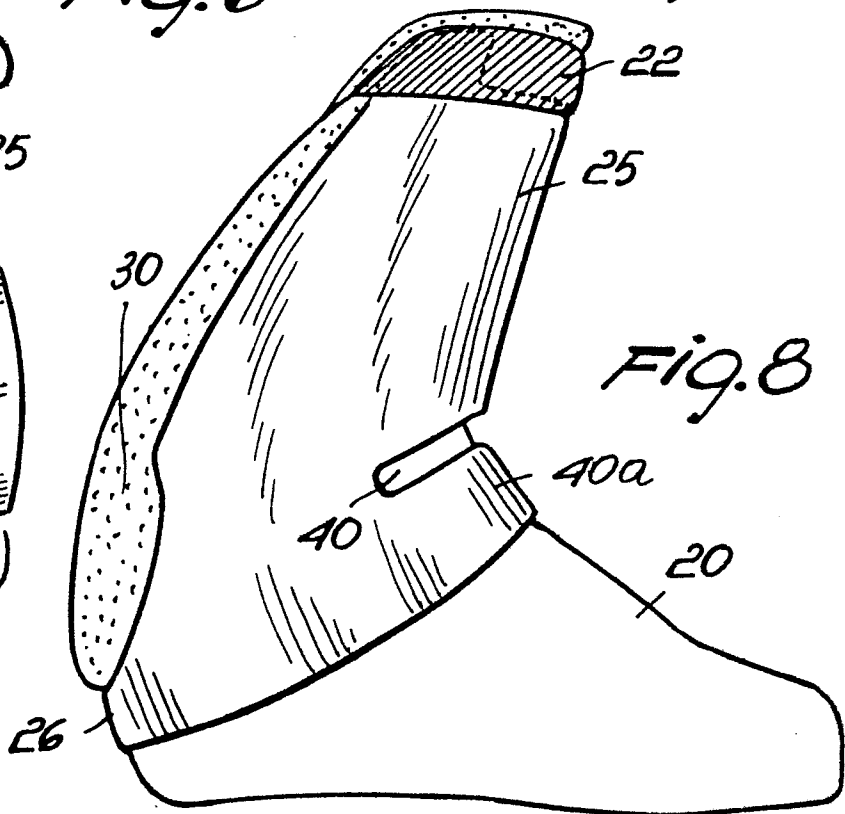


FIG. 8

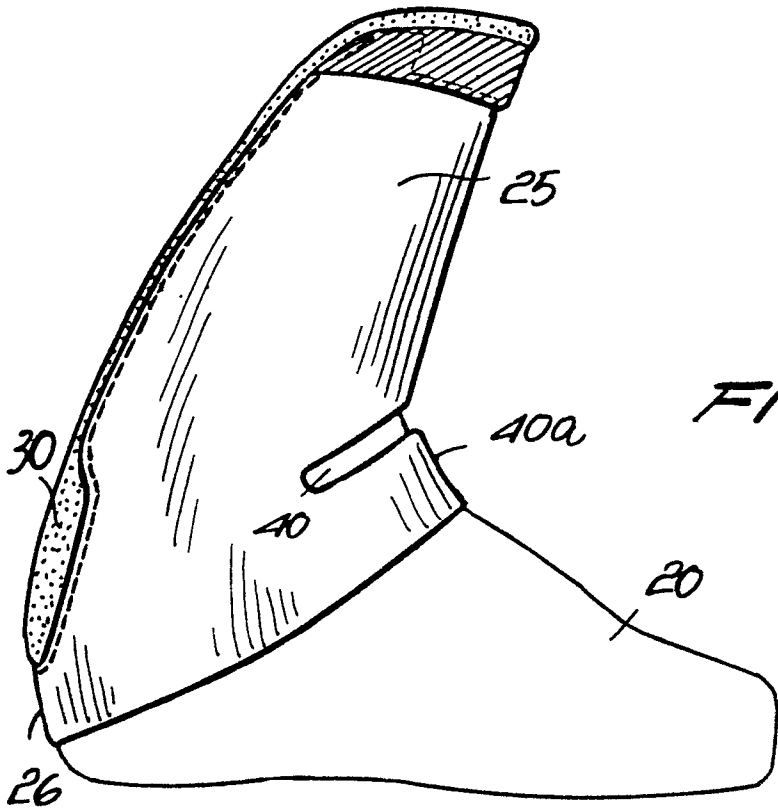


Fig. 9

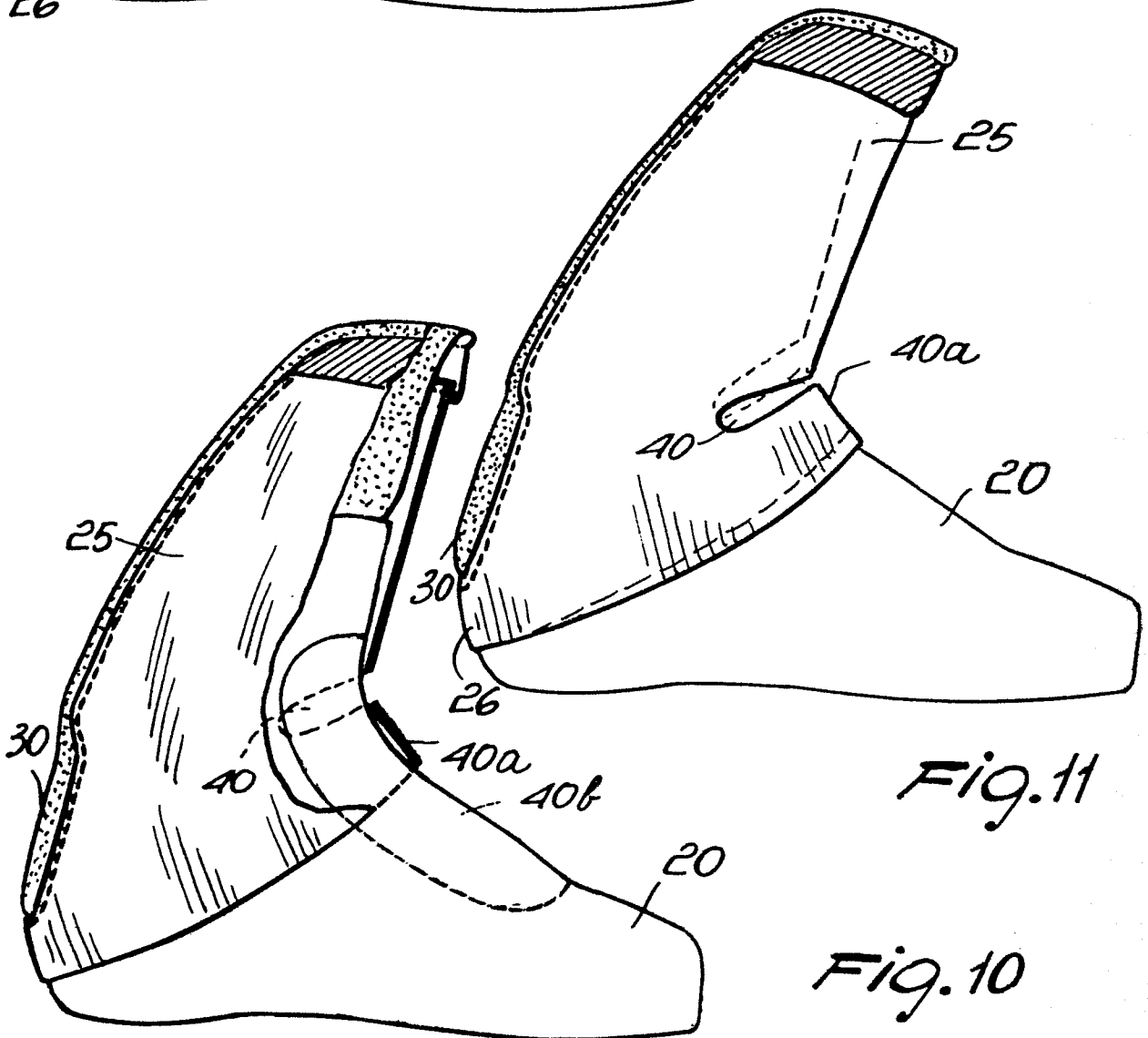


Fig. 11

Fig. 10



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. *)
A	FR-A-2 107 590 (KOFLACH SPORTGERATE) * Page 2, line 39 - page 3, line 13; figures 1-4 *	1-3,8	A 43 B 5/04
A	FR-A-1 380 525 (R. BLANGE et al.) * Page 3, right-hand column, lines 1-26; figure 7 *	1,8,12	
A	DE-U-7 141 079 (CALZATURIFICIO G. GARBUIO) * Claims 1,3; figures 1-4 *	7,9	
P,A	EP-A-0 066 133 (NORDICA) * Page 4, lines 19-26; figure 1 *	1,2,5,8	
P,A	EP-A-0 084 788 (NORDICA) * Claims 1,2,6; figures *	1,4,5,8	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl. *)
Place of search THE HAGUE		Date of completion of the search 31-01-1984	Examiner MALIC K.
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