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I-60035 Jesi (Ancona) (IT)(54) **Leather insole with a semi-rigid bearing frame, moulded in thermoplastic rubber (TR).**

(57) The instant invention concerns a genuine leather insole (2) with a semi-rigid bearing frame, moulded in thermoplastic rubber (TR), made up of an annular edge (3), from one side of which to the other there extend transversally several rows of ribs (4), also moulded in (TR), along each of which a series of regularly spaced cylindrical bristles (5) is made during the moulding phase; it being provided that the sheet of leather also has transversal rows of small holes (2a) positioned alternately with respect to the ribs underneath.

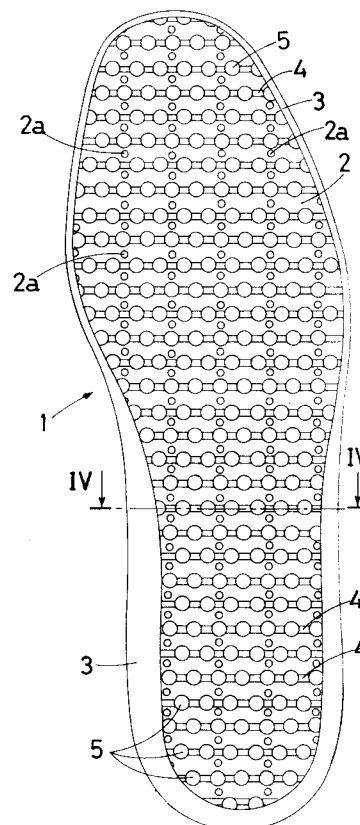


FIG. 2

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The instant patent application for a utility model concerns a leather insole with a semi-rigid bearing frame, moulded in thermoplastic rubber (TR).

It should immediately be noted that in this case the insole means the hygienic insole which is usually inserted and positioned inside the vamp, once the manufacturing process has been terminated, in order to finish off the inside of the shoe, by covering the seams or the points at which the vamp is glued to the mid-sole and / or to the actual sole.

In the vast majority of cases, said insoles are made of genuine leather, in such a way as to be able to offer the foot a resting surface which is as hygienic as possible, given the fact that leather, on the one hand, is able to absorb any perspiration and on the other, is able to reduce the level of perspiration due to its excellent transpiration properties, which allow the heat generated inside the shoe to be expelled to the outside.

Recently, insoles have been put on the market, which comprise one sheet of genuine leather glued to a layer, of more or less uniform thickness, moulded in TR, from the lower face of which there protrudes a closely packed series of almost conical bristles, decreasing in height from the heel towards the tip, which have the aim of making the insole anatomical and at the same time, soft and yielding.

If it is true that this aim has been satisfied by adopting the said layer of TR covered with bristles, then it is also true that said layer creates considerable difficulties.

First of all, the sheet of leather's capacity of transpiration is completely eliminated, the pores being totally obstructed by the thermo-plastic material which covers the entire lower surface of the sheet of leather.

The immediate consequence of this obstruction is that instead of relieving the natural perspiration of the foot, this is actually accentuated, because the reduced capacity of heat elimination brings about the overheating of the inside of the shoe, thereby favouring said perspiration.

Moreover, because the sheet of leather is highly absorbent, it gets so moist as to be almost wet, becoming impregnated with the unpleasant smell typical of moulded thermoplastic rubber, which cannot be eliminated.

The aim of the instant invention is to create a new model of genuine leather insole, which will not be affected by the problems described above, even though it will be provided with a soft and anatomical supporting structure moulded in TR.

The model of insole according to the invention has managed not only, to maintain the leather's natural capacity of transpiration, almost without change, but even to create forced ventilation inside the shoe, so as to increase the dispersion of heat and therefore reduce, or maybe even eliminate,

perspiration of the foot.

The model in question comprises a sheet of leather, shaped in conformity with the sole of the foot, which is glued to a bearing structure moulded in TR, made up of an annular edge, of variable height and of a profile which conforms to the perimeter of the sheet of leather above it; inside said edge, there extend transversally from one side to the other tightly packed ribs, from which there protrude at the bottom, cylindrical bristles of a height gradually decreasing from the heel to the toe.

The inter-axis between one rib and the other is such that the surface of leather covered by TR is less than half of the total area of the sheet of leather.

Moreover, it should also be said that the sheet of leather has transversal rows of small holes positioned at intervals with respect to the aforementioned ribs, so as to make the inside of the shoe communicating with the hollow space below the insole.

For further clarity of explanation, the description of the invention continues with reference to the attached drawings, reproduced for illustrative and not limitative purposes, wherein;

- Fig.1 is a plan view of the insole according to the invention, seen from above;
- Fig.2 is a plan view of the insole according to the invention, seen from below;
- Fig.3 is the section of Fig.1 along the plane III-III;
- Fig.4 is the section of Fig.2 along the plane IV-IV;
- Fig.5 is the side view of the insole according to the invention;
- Fig.6 is the section of Fig.2 along the plane VI-VI.

With reference to the abovementioned drawings, the model according to the invention consists of an insole (1), which comprises a sheet (2) of genuine leather, glued to a semi-rigid bearing frame moulded in TR.

Said monolithic frame is made up of an annular edge (3) with a profile in conformity with the perimeter of the sheet (2) above it, which in its turn has a shape similar to the shape of the sole of the shoe inside which the insole (1) is to be inserted.

The height of the annular edge (3) decreases from the heel to the toe, as illustrated in Fig.5.

From one side to the other of the edge (3), there extend transversally, at regular intervals, several rows of ribs (4), also made of TR.

Along each rib (4), a series of regularly spaced cylindrical bristles (5) is made during the moulding phase, which in the back and central areas of the insole protrude from the related rib (see Fig.3), while in the front area, said bristles (5), are of a

height equal to the height of the corresponding rib (as illustrated in Fig.6).

Finally, it is provided that the height of the bristles (5) decreases gradually from the heel towards the toe, following the gradual thinning out of the edge (3). 5

Moreover, it should be underlined that the bristles (5) in each row are staggered with respect to the bristles in the adjacent rows, so that the longitudinal alignment of the bristles (5) is only present in alternate rows. 10

The leather sheet (2) in its turn, has transversal rows of small holes (2a) positioned alternately with respect to the underlying ribs (4).

Through said holes (2a), the inside of the shoe is rendered communicating with the hollow space of air below the sheet (2), so as to obtain during walking, light but nonetheless effective, forced ventilation which is due to the mass of air circulating in both directions through said holes. 15 20

In fact, the pressure exerted by the foot on the insole (1) moves continually from one point to the other, thereby determining cyclic, elastic deflection of the bristles (5), which generates a sucking-pushing action, intended to create a flow of air in alternate directions, through the small holes (2a) on the sheet (2). 25

Claims

1. Insole in genuine leather with a semi-rigid bearing frame moulded in thermoplastic rubber (TR), characterised by the fact that it comprises a sheet (2), of genuine leather, glued to a semi-rigid bearing structure moulded in TR, made up of an annular edge (3) with a profile in conformity to the profile of the perimeter of the sheet (2) above it, and of decreasing height from the heel towards to the toe; it being provided that from one side to the other of the edge (3), there extend transversally, at regular intervals, several rows of ribs (4), also moulded in TR, along each of which a series of regularly spaced cylindrical bristles (5) is made during the moulding phase, which in the back and central areas of the insole (1) protrude from the related rib, while in the front area, said bristles (5) are of a height equal to the height of the corresponding rib; it being provided that the height of the ribs (5) decrease gradually from the heel towards the toe following the gradual thinning out of the edge (3), it being provided, finally, that the sheet of leather (2) have in its turn, transversal rows of small holes (2a), positioned alternately with respect to the ribs (4) underneath. 30 35 40 45 50 55

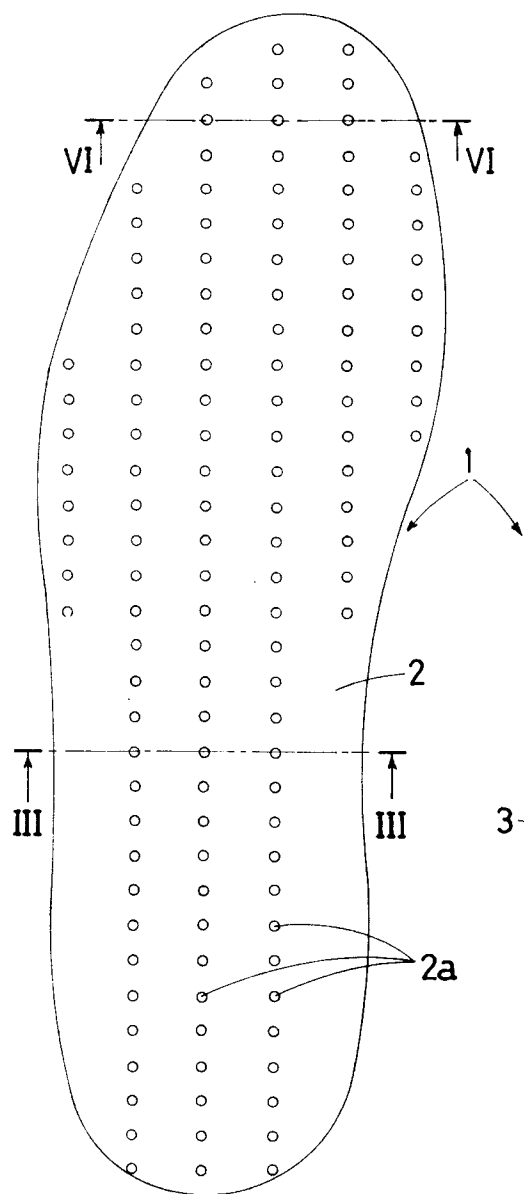


FIG. 1

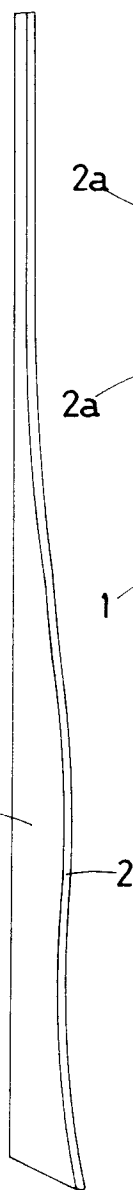


FIG. 5

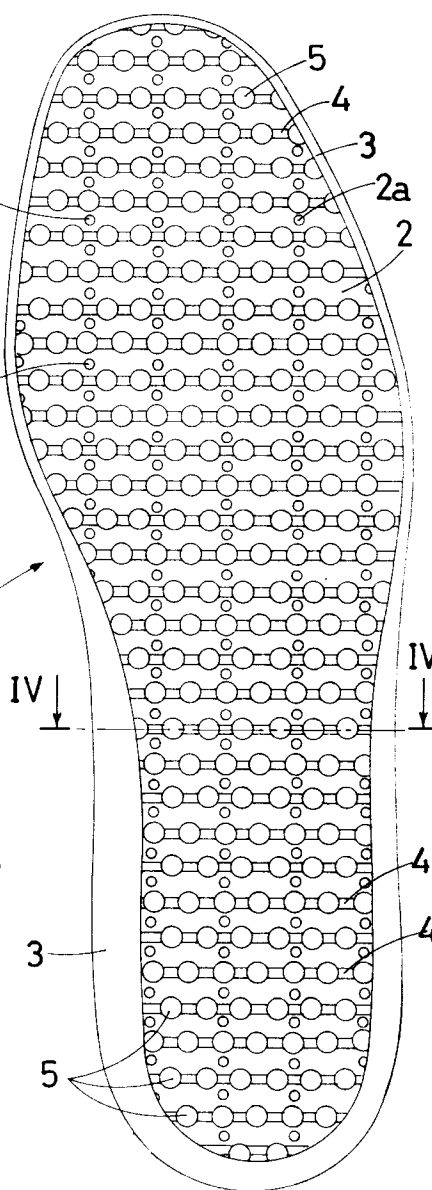


FIG. 2

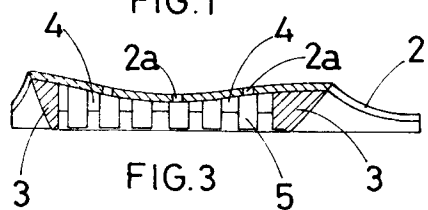


FIG. 3

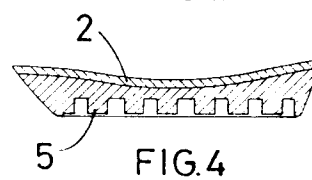


FIG. 4

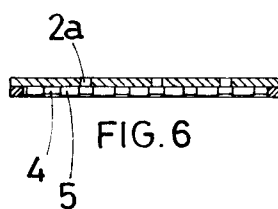


FIG. 6



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EUROPEAN SEARCH REPORT

Application Number
EP 93 83 0428

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.5)
A	US-A-2 146 888 (FISCH) * page 1, right column, line 3 - line 13 * * page 2, left column, line 6 - line 22 * * figures * ---	1	A43B17/08
A	FR-A-1 511 344 (SUPERGA S.P.A.) * the whole document * ---	1	
A	CH-A-272 822 (WÜRMS) * the whole document * ---	1	
A	US-A-4 831 749 (TSAI) * abstract; figures * -----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.5)
			A43B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 8 February 1994	Examiner Scholvinck, T
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