

(19)



(11)

EP 3 081 103 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
19.10.2016 Bulletin 2016/42

(51) Int Cl.:
A41D 1/08 (2006.01) A41D 13/05 (2006.01)

(21) Application number: **16164705.2**

(22) Date of filing: **11.04.2016**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
MA MD

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(30) Priority: **14.04.2015 IT PD20150025 U**

(54) CHAMOIS PAD FOR CYCLING SHORTS

(57) A chamois pad for cycling shorts (10), comprising:

- a first layer (11) of fabric, directed toward a user in the configuration for use,
- a second intermediate layer (12) made of soft polyurethane foam,

- a third intermediate layer (13) made of high-density polyurethane foam,

- a fourth layer (14) directed outwardly in the configuration for use, made of breathable filter foam, for protecting anatomical parts.

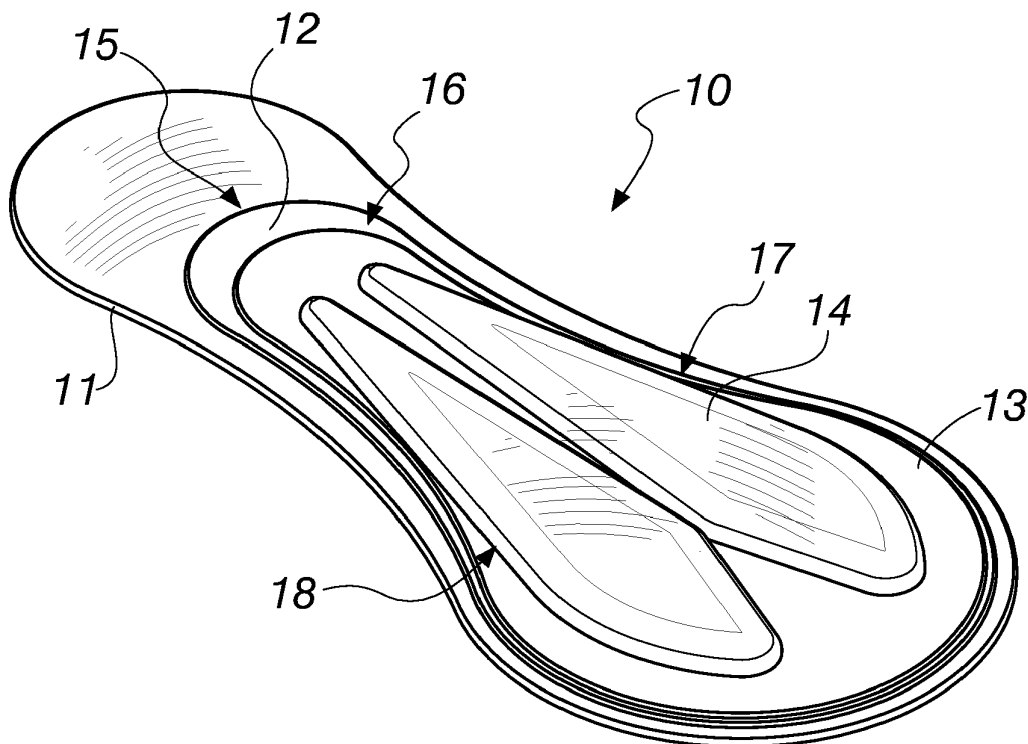


Fig. 1

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Description

[0001] The present invention relates to a chamois pad for cycling shorts.

[0002] Currently, shorts with anatomically contoured chamois pad for improving the comfort of sitting on a saddle are by now an essential part of the equipment for cycling as a sports activity.

[0003] Such protection is used to avoid excoriations and abrasions of the body parts in contact with the saddle of the bicycle.

[0004] It is in fact known that after many kilometers covered on a bike, the continuous pressure of the body and of the ischial bones on the saddle may cause an unpleasant pain, compromising the good exercise of the athlete.

[0005] Currently these chamois pads are made for example by coupling and heat-sealing several layered portions of polyurethane, with operations for adhesive bonding and subsequent thermoforming or high-frequency thermal bonding of the fabrics with the polyurethanes.

[0006] The chamois pads of a known type provided by means of polyurethane foams suffer important technical limitations due mainly to the poor breathability and to the presence of rigid coupling points of the layers, which affect the comfort and reliability of the product over time.

[0007] The aim of the present invention is to provide a chamois pad for cycling shorts that is capable of obviating the cited limitations of known chamois pads for cycling shorts.

[0008] Within this aim, an object of the invention is to provide a chamois pad that is more comfortable and at the same time no less breathable than chamois pads of the known type.

[0009] Another object of the invention is to provide a chamois pad that is anatomically compatible with the requirements of the athlete.

[0010] Another object of the invention is to provide a chamois pad that can be applied to shorts of a known type with per se known methods.

[0011] A further object of the invention is to provide a chamois pad that can be manufactured with per se known technologies.

[0012] This aim and these and other objects that will become better apparent hereinafter are achieved by a chamois pad for cycling shorts, characterized in that it comprises

- a first layer of fabric, directed toward a user in the configuration for use,
- a second intermediate layer made of soft polyurethane foam,
- a third intermediate layer made of high-density polyurethane foam,
- a fourth layer directed outwardly in the configuration for use, made of breathable filter foam, for protecting anatomical parts.

[0013] Further characteristics and advantages of the invention will become better apparent from the description of a preferred but not exclusive embodiment of a chamois pad according to the invention, illustrated by way of nonlimiting example in the accompanying drawings, wherein:

Figure 1 is a perspective view of a chamois pad according to the invention;

Figure 2 is a schematic view of a portion of a transverse cross-section of the chamois pad according to the invention;

Figure 3 is view of a blank of the chamois pad according to the invention.

[0014] With reference to the figures, a chamois pad for cycling shorts according to the invention is generally designated by the reference numeral 10.

[0015] The chamois pad 10 comprises

- a first layer 11 of fabric, directed toward a user in the configuration for use,
- a second intermediate layer 12 made of soft polyurethane foam,
- a third intermediate layer 13 made of high-density polyurethane foam,
- a fourth layer 14 directed outwardly in the configuration for use, made of breathable filter foam, for protecting anatomical parts.

[0016] The second layer 12, made of soft polyurethane foam, has a density between 50 kg/m³ and 80 kg/m³ and preferably of 65 kg/m³; the second layer 12 has the particularity that it can be worked by stitching and therefore can be affected, together with the first layer made of fabric 11, by the stitched seams for fixing to a pair of cycling shorts.

[0017] The third layer 13, made of high-density polyurethane foam, has a density between 100 kg/m³ and 140 kg/m³ and preferably of 120 kg/m³; the third high-density layer 13 acts substantially as a support for the subsequent fourth layer 14.

[0018] The fourth layer 14, which is breathable and for protection of the anatomical parts, is constituted by an expanded polyurethane based on polyether, which is cross-linked, has a density between 60 kg/m³ and 100 kg/m³, and preferably of 80 kg/m³; the fourth layer 14 is termed "filter" because it has the particularity that it allows air to pass and absorbs sweat and liquids in general without however retaining them but allowing their evaporation and therefore remaining substantially dry; since it is breathable, in addition to protection of the anatomical parts it also ensures some control of the temperature in the same areas.

[0019] The second layer 12, made of soft polyurethane foam, has a thickness between 3 mm and 5 mm and preferably of 4 mm.

[0020] The third layer 13, made of high-density poly-

urethane foam, has a thickness between 3 mm and 5 mm and preferably of 4 mm.

[0021] The fourth layer 14, which is breathable and for protection of the anatomical parts, has a thickness between 6 mm and 10 mm and preferably of 8 mm.

[0022] The layers 11, 12, 13, 14 are mutually joined by cold cross-linking adhesive, so as to define a multilayer block 20, as shown in Figure 3.

[0023] The chamois pad 10 has, as clearly shown by Figure 1,

- parts in relief with a thickness that increases progressively from the edge toward the inside, such as for example the first part 15, which is thicker than the first layer 11 made of fabric, and the second part 16, which is thicker than the first part 15;
- and anatomically contoured raised portions, for example the raised portions 17, 18, for resting for example the ischial extremities of a user.

[0024] The parts in relief 15 and 16 and the anatomically contoured raised portions 17 and 18 are not compressed, i.e., they appear for use without having undergone processes for pre-compression that might have reduced their thickness and softness and therefore with the breathability and impact cushioning capabilities of the original materials.

[0025] The parts in relief with a thickness that increases progressively from the edge toward the inside 15, 16 and the anatomically contoured raised portions 17, 18 are provided by means of processes with removal of material starting from the multilayer block 20.

[0026] In particular, the parts in relief 15 and 16 and the anatomically contoured raised portions 17 and 18 are provided by paring processes.

[0027] In practice it has been found that the invention achieves the intended aim and objects.

[0028] In particular, the invention provides a chamois pad that is more comfortable and at the same time no less breathable than chamois pads of the known type.

[0029] Furthermore, the invention has provided a chamois pad that is anatomically compatible with the requirements of the user.

[0030] Moreover, the invention has provided a chamois pad that can be applied to shorts of a known type with per se known methods.

[0031] Furthermore, the invention provides a chamois pad that has no rigid points or parts that are compressed by thermoforming, to the benefit of overall softness and comfort.

[0032] Moreover, the invention provides a chamois pad that is provided without post-forming adhesive bonding and the layers of which are firmly joined before the shaping processes by material removal.

[0033] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims; all the details may further be replaced with other technically equivalent

elements.

[0034] In practice, the materials used, so long as they are compatible with the specific use, as well as the contingent shapes and dimensions, may be any according to requirements and to the state of the art.

[0035] The disclosures in Italian Utility Model Application No. PD2015U000025 (202015902344163) from which this application claims priority are incorporated herein by reference.

[0036] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A chamois pad for cycling shorts (10), **characterized in that** it comprises

- a first layer (11) of fabric, directed toward a user in the configuration for use,
- a second intermediate layer (12) made of soft polyurethane foam,
- a third intermediate layer (13) made of high-density polyurethane foam,
- a fourth layer (14) directed outwardly in the configuration for use, made of breathable filter foam, for protecting anatomical parts.

2. The chamois pad according to claim 1, **characterized in that** said second layer (12), made of soft polyurethane foam, has a density between 50 kg/m³ and 80 kg/m³, and preferably of 65 kg/m³.

3. The chamois pad according to one or more of the preceding claims, **characterized in that** said third layer (13), made of high-density polyurethane foam, has a density between 100 kg/m³ and 140 kg/m³ and preferably of 120 kg/m³.

4. The chamois pad according to one or more of the preceding claims, **characterized in that** said fourth layer (14), which is breathable and for protection of the anatomical parts, has a density between 60 kg/m³ and 100 kg/m³ and preferably of 80 kg/m³.

5. The chamois pad according to one or more of the preceding claims, **characterized in that** said second layer (12), made of soft polyurethane foam, has a thickness between 3 mm and 5 mm and preferably of 4 mm.

6. The chamois pad according to one or more of the preceding claims, **characterized in that** said third

layer (13), made of high-density polyurethane foam, has a thickness between 3 mm and 5 mm and preferably of 4 mm.

7. The chamois pad according to one or more of the preceding claims, **characterized in that** said fourth layer (14), which is breathable and for protection of the anatomical parts, has a thickness between 6 mm and 10 mm and preferably of 8 mm. 5
8. The chamois pad according to one or more of the preceding claims, **characterized in that** said layers (11, 12, 13, 14) are mutually joined with cold cross-linking adhesive. 10
9. The chamois pad according to one or more of the preceding claims, **characterized in that** it has parts in relief (15, 16) with a thickness that increases progressively from the edge toward the inside and anatomically contoured raised portions (17, 18) that are not compressed. 15 20
10. The chamois pad according to one or more of the preceding claims, **characterized in that** said parts in relief (15, 16) with a thickness that increases progressively from the edge toward the inside and said anatomically contoured raised portions (17, 18) are provided by means of processes with removal of material starting from a multilayer block (20). 25 30

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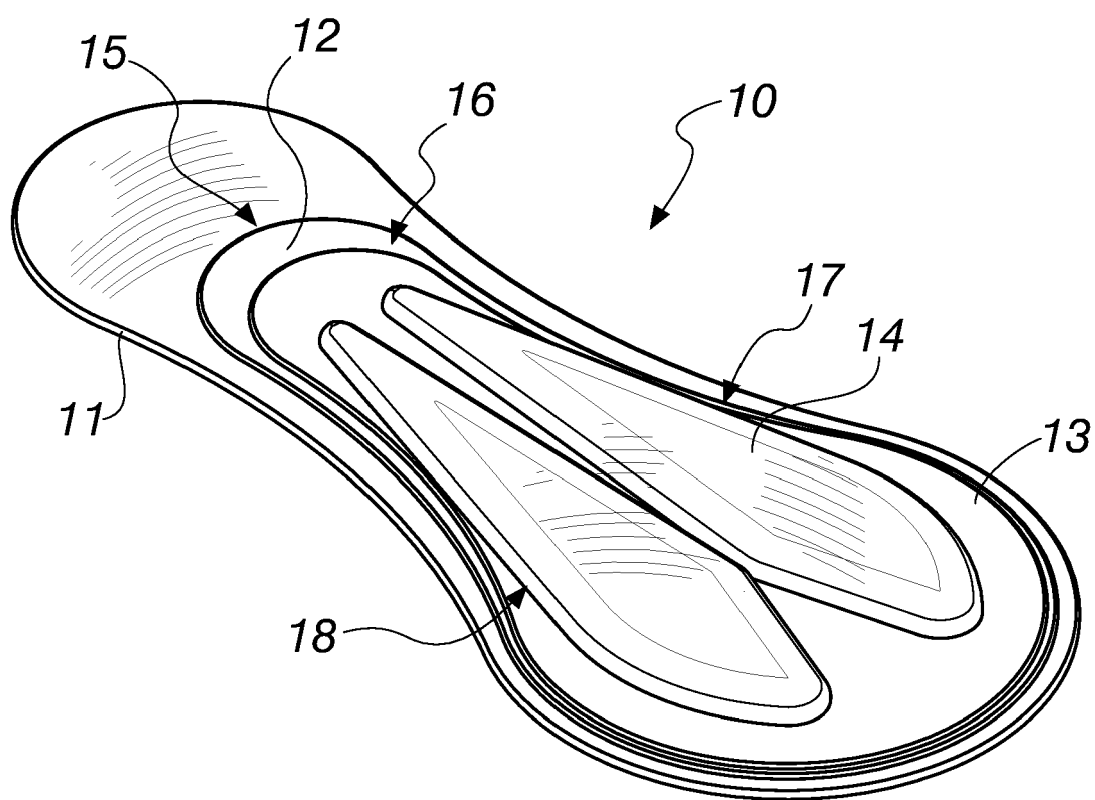


Fig. 1

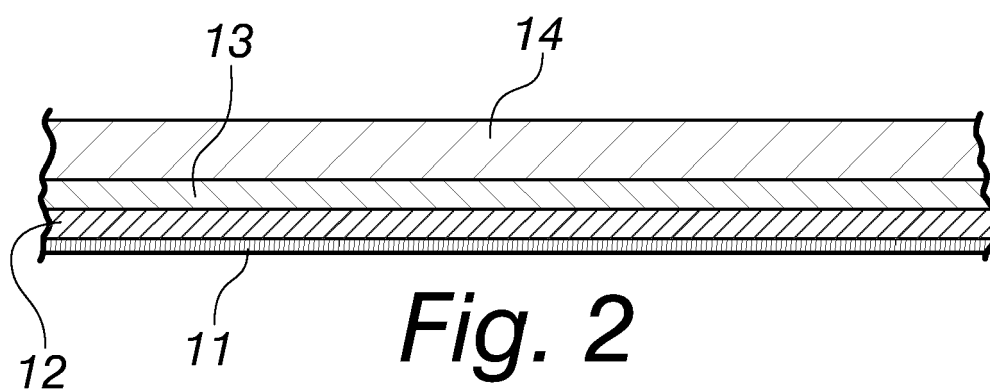
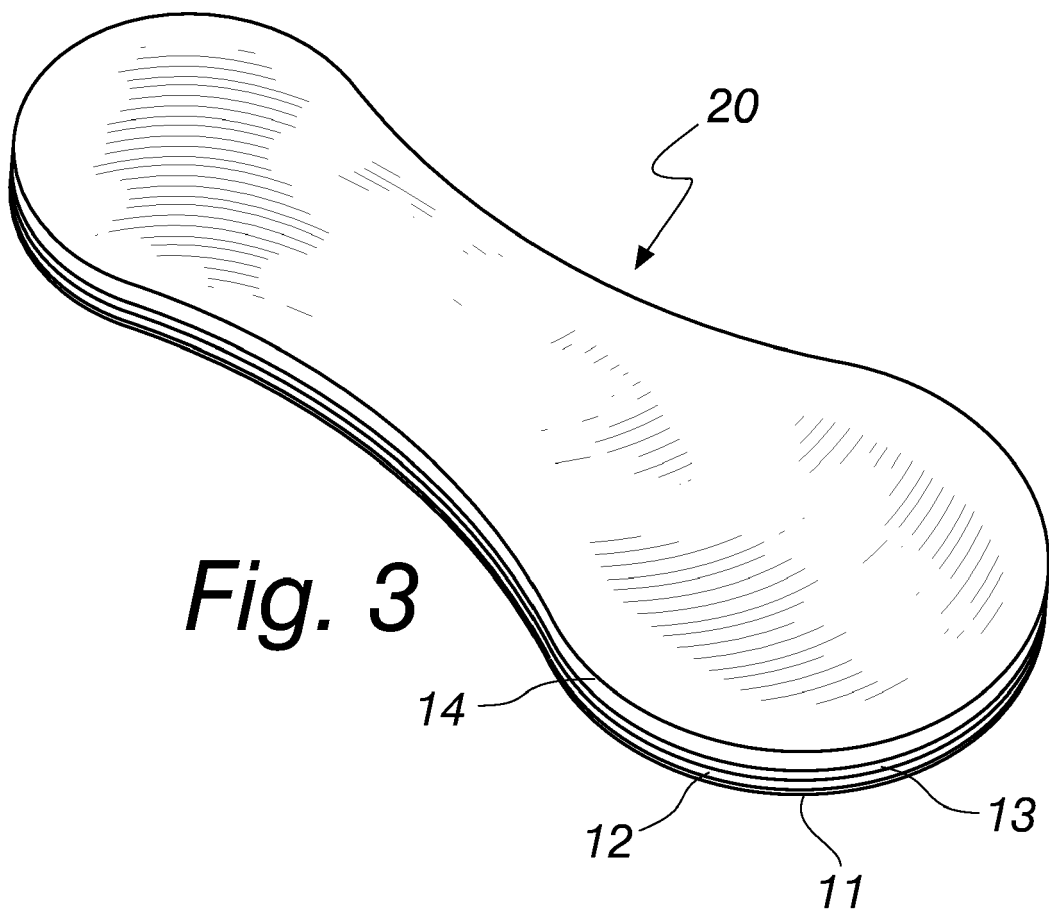


Fig. 2





EUROPEAN SEARCH REPORT

Application Number
EP 16 16 4705

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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			TECHNICAL FIELDS SEARCHED (IPC)
			A41D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 3 August 2016	Examiner van Voorst, Frank
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03/02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82