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(54) Tool for finishing wall surfaces

(57) A tool for distributing and smoothening finishing material, such as mortar, plaster or other mixtures, on the surface of building walls and internal walls comprises a spatula (11) and a handle (12) connected to said spatula (11). The spatula (11) has a work surface (14) adapted to distribute and smoothen the finishing material and a connection surface (16) for connection with the handle (12), opposite to said work surface (14). The handle (12) has a central holding portion (17) designed to be held by the hand of an operator and connection portions (18, 19) between each end of the central holding portion (17) and said surface (16) for connection with the handle (12). The central holding portion (17) of the handle (12) has at least one section with axis inclined according to an angle (α) with respect to said work surface (14).

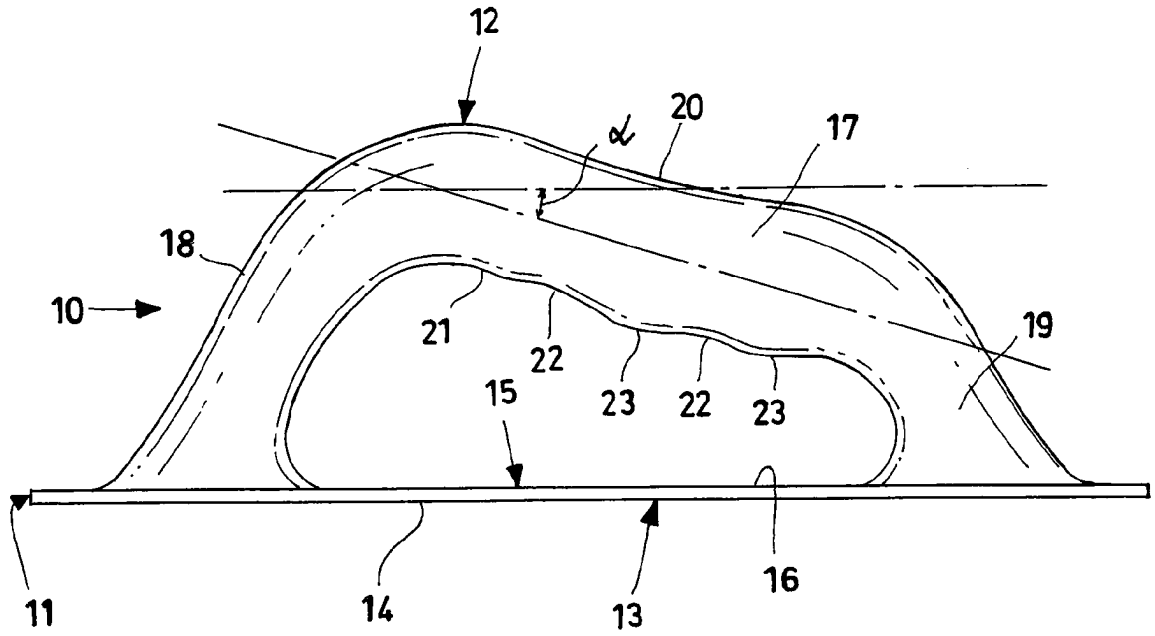


Fig.2

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Description

[0001] The present invention refers to a tool for distributing and smoothening mortar, plaster or other mixtures on the surface of building walls and internal walls. In the jargon of masonry, such tool is referred to as "darby masonry tool" or "darby".

[0002] Substantially, the darby is constituted by a generally rectangular-shaped board or spatula, with one of the two faces provided with a surface (face and surface defined hereinafter, for the sake of simplicity, respectively "work face" and "work surface") adapted to support and to distribute and smoothen the mortar on the wall, and by a handle arranged on the face of the spatula opposite to the work face.

[0003] The spatula of the darby can be made of steel, wood, plastic, rubber, and possibly covered with spongy material (for example rubber-sponge). Also the handle can be made of wood or plastic.

[0004] The darbies commonly present on the market generally have a handle constituted by a central holding portion designed to be held by the hand of the operator and by two connection portions between each end of such central holding portion and the surface of the face of the spatula opposite to the work face, at which they are constrained to the spatula itself.

[0005] In these darbies of the prior art, the central holding portion of the handle is arranged with axis substantially parallel to the surface of the spatula and the two connection portions are generally symmetric, arranged perpendicular to the surface of the spatula or with axis inclined with respect thereto. Thus, the handle of the darby has a substantial structural symmetry.

[0006] However, this structural symmetry implies various drawbacks in terms of the ergonomic features of the tool. Actually, the symmetry of the handle, with the central holding portion arranged parallel to the surface of the spatula, tends to allow the tool, in order to be comfortably and firmly gripped by the operator, to assume a position such that the central holding portion of the handle is arranged with axis substantially perpendicular to the extension of the arm of the operator (with the forearm and the axis of the holding portion of the handle which thus substantially form a "T" shape). This does not generate drawbacks until the tool is manoeuvred within a limited distance (about half a meter) from the shoulder of the operator, because in this case the elbow can be folded so as to allow the wrist to operate, without excessive stress, a pressure on the handle (and hence on the work surface) sufficient to perform a correct work for distributing and polishing the mortar on a vertical wall.

[0007] However, when the operator needs to work at a distance from the shoulder (off the ground or laterally) reachable only with the arm entirely stretched, there cannot be exerted an efficient pressure on the handle and on the work surface without the wrist, the elbow and the shoulder being subjected to high and potentially harmful stress and torsion.

[0008] A general object of the present invention is to overcome the aforementioned drawbacks by providing a tool (darby) for distributing and smoothening mortar, plaster or other mixtures on the surface of building walls and internal walls, having a handle that is particularly ergonomic, safe and comfortable and that does not subject the arm of the operator to unnatural stresses and movements even when it operates at a distance from the shoulder so as to keep the arm entirely stretched.

[0009] In order to attain such object it was conceived to provide, according to the invention, a tool for distributing and smoothening finishing material, such as mortar, plaster or other mixtures, on the surface of building walls and internal walls, comprising a spatula and a handle connected to said spatula, the spatula having a work surface adapted to distribute and smoothen the finishing material and a connection surface for connection with the handle, opposite to said work surface, and the handle having a central holding portion designed to be held by the hand of an operator and connection portions between each end of the central holding portion and said surface for connection with the handle, characterised in that the central holding portion of the handle has at least one section with axis inclined according to an angle α with respect to said work surface.

[0010] In order to clarify the explanation of the innovative principles of the present invention and its advantages with respect to the prior art, a possible exemplifying embodiment applying such principles is hereinafter described with reference to the attached drawings. In the drawings:

Fig. 1 represents a general perspective view of a darby according to the present invention.

Fig. 2 represents a side elevational view of the darby of Fig. 1.

Fig. 3 represents a side elevational view of a first variant of the darby according to the invention.

Fig. 4 represents a side elevational view of a second variant of the darby according to the invention.

[0011] With reference to the figures, there is illustrated a darby 10 constituted by a generally rectangular-shaped board or spatula 11 and by a handle 12.

[0012] On the spatula 11 there can be identified a lower face, or work face 13, with a work surface 14 adapted to be loaded (with the tool in inverted position with respect to what is illustrated in the figures, i.e. with the work face 13 facing upwards), with the help of a trowel, with finishing material, such as mortar, plaster or any other suitable mixture usually used in the building industry for the surface finishing of building walls and internal walls, and an upper face 15 opposite to the work face 13 and provided with a respective upper surface 16.

[0013] The work surface 14 is substantially flat and smooth so as to be able to distribute and smoothen on the wall, to be finished, the finishing material previously loaded, as mentioned above, on the work face. Advan-

tageously, the spatula is made of plastic material. However, it can also be made of steel, wood, rubber, and possibly covered with spongy material (for example rubber-sponge), as known in the art of darbies. The handle 12 (also advantageously made of plastic, wood or metal material) is arranged at the face 15 of the spatula opposite to the work face 13, constrained to the spatula through screws or fittings, or made integrally with the spatula. For the sake of descriptive clarity, hereinafter the surface 16 of the face 15 opposite to the work face 13 will be defined as "connection surface for connection with the handle".

[0014] The handle 12 is constituted by a central holding portion 17 designed to be held by the hand of the operator and by two connection portions 18, 19 between each end of the central holding portion 17 and said surface 16 of the upper face 15 of the spatula 11. According to the invention, the axis of the central holding portion 17 of the handle 12 is inclined according to an angle α with respect to the plane identified by the spatula 11 (and, thus, with respect to the work surface 14 and to the surface 16 for connection with the handle). It was found particularly advantageous that the angle α is comprised between 5° and 35°, preferably between 10° and 25°, and in particular around 15°.

[0015] Due to the inclination of the central holding portion 17 of the handle 12, the two connection portions 18, 19 between the ends of the central holding portion 17 and the surface 16 of the upper surface 15 of the spatula are of different length, as can be clearly seen in the figures. In particular, there will be a first longer portion 18, intended, for the correct use of the tool, to be faced forward, farther from the body of the operator, and a second shorter portion 19, intended to be faced backwards, towards the body of the operator. For the sake of descriptive clarity, the first portion 18 shall be defined as "front portion" for the connection of the handle and the second portion 19 as "rear portion".

[0016] Advantageously, the central holding portion 17 of the handle 12 has an upper surface 20 (i.e. the one facing far from the upper face 15 of the spatula and intended, in use, to be at contact with the palm of the hand of the operator) having a slight concavity, as observable in particular in Fig. 2, in that the central part thereof is slightly lowered with respect to the ends connecting to the aforementioned front 18 and rear 19 portions for connection of the handle with the spatula 11. For the sake of descriptive clarity, such concave design of the upper surface 20 of the central holding portion 17 can be defined as a "saddle" configuration.

[0017] The central holding portion 17 of the handle 12 also has, on the lower surface 21 thereof facing towards the upper face 15 of the spatula, a plurality of hollows 22 and reliefs 23 adapted to allow a safe and comfortable gripping for the fingers of the hand of the operator. Due to the innovative characteristics of the tool according to the present invention, in particular the inclination of the axis of the central holding portion 17 of the handle 12 with respect to the plane of the spatula 11 and, advantageously, also the "saddle" configuration thereof, the tool, as correctly held by the operator, naturally assumes a position such as to form an acute angle between the axis of the aforementioned holding portion 17 and the forearm of the operator, instead of a T-shaped configuration as observable in the case of known art darbies with substantial structural symmetry of the handle. Moreover, the inclination α of the axis of the central holding portion of the handle with respect to the plane of the spatula, together with the aforementioned acute angle position of the handle itself that such inclination causes it to naturally assume with respect to the forearm of the operator, allows the axial stress transmitted by the stretched arm of the operator, when it has to reach the maximum distance from the shoulder, to be partly discharged in a direction perpendicular to the surface of the wall to be finished, thus reducing the overall effort that the operator is required to make to exert a correct and sufficient pressure against the surface. Accordingly, the tool can be manoeuvred without excessive torsions of the wrist, the elbow and the shoulder, and thus in a particularly ergonomic manner.

[0018] At this point, it is clear that the configuration of the tool according to the invention allows to attain the preset objects, i.e. allows the operator to grip and guide the tool in a particularly ergonomic, safe and comfortable manner, without subjecting the wrist, elbow and shoulder to unnatural stresses and movements even when operating at such a distance from the shoulder to have to maintain the arm completely stretched.

[0019] Naturally, the description outlined above regarding an embodiment applying the innovative principles of the present invention is indicated by way of exemplifying such innovative principles and thus shall not be intended to limit the scope of the invention claimed herein.

[0020] For example, while in the solution illustrated in Figures 1 and 2 the central holding portion 17 is constituted by a single section inclined according to the angle α with respect to the work surface 14 of the spatula, still according to the principles of the present invention a variant embodiment (illustrated in Fig. 3) can be conceived, wherein the tool 10' has a handle 12' with central holding portion 17' and connection portions 18', 19' for connection with the spatula, with the central holding portion 17' comprising a first section 17'a inclined according to said angle α with respect to the work surface of the spatula, and specifically intended to be gripped by the user according to the previously described operating principles, and a second section 17'b substantially parallel to the work surface of the spatula.

[0021] Fig. 4 illustrates a further variant embodiment, wherein the tool 10" has a handle 12" with central holding portion 17" and connection portions 18", 19" for connection with the spatula, with the central holding portion 17" comprising a first section 17"a inclined according to an angle α_1 with respect to the work surface of the spatula

and a second section 17"b opposedly inclined according to an angle α_2 with respect to the work surface of the spatula, as can be clearly seen in the side view of Fig. 4. In this case, both sections 17"a and 17"b are adapted to be gripped by the operator according to the previously described operating principles.

[0022] The angles α_1 and α_2 may be equal to each other, coincident with the angle α indicated in Figures 2 and 3, so as to have a structural symmetry of the tool, which can thus be gripped, oriented indistinctively on one side or the other (and in this case the portions 18", 19" for connecting the handle to the spatula shall thus have the same length), or said angles may be different from each other ($\alpha_1 \neq \alpha_2$) so as to allow the tool to be gripped in two possible ways according to the previously described operating principles with different angles so as to better adapt, for example, to the size of the user or to the operating distance. Generally, in Figures 3 and 4 elements similar to those of Figures 1 and 2 are identified with the same reference number, while corresponding elements having the same function but different configuration are indicated with the same number with the addition of 'first' (') or 'second' (") indexes respectively.

[0023] For example, also in the embodiments of Figures 3 and 4 the sections 17'a, 17"a and 17"b of the respective gripping portions 17', 17" may be provided with a "saddle" concavity on the upper surface 20 and hollows 22 and reliefs 23 on the lower surface 21 to allow a safe and comfortable grip by the operator.

[0024] Lastly, in the attached drawings the front 18, 18', 18" and rear 19, 19', 19" portions for connecting the handle to the spatula are inclined so as to be divergent with respect to each other (i.e. moving away from the central holding portion 17, 17', 17") in the direction of the surface of the spatula. It is clear that such portions could also be substantially perpendicular to the surface of the spatula, without reducing the functionality of the tool according to the previously highlighted innovative principles.

Claims

1. Tool for distributing and smoothening finishing material, such as mortar, plaster or other mixtures, on the surface of building walls and internal walls, comprising a spatula (11) and a handle (12, 12', 12") connected to said spatula (11), the spatula (11) having a work surface (14) adapted to distribute and smoothen the finishing material and a connection surface (16) for connection with the handle (12, 12', 12"), opposite to said work surface (14), and the handle (12, 12', 12") having a central holding portion (17, 17', 17") designed to be held by the hand of an operator and connection portions (18, 18', 18", 19, 19', 19") between each end of the central holding portion (17, 17', 17") and said surface (16) for connection with the handle (12, 12', 12"), **characterised in that** the central holding portion (17, 17', 17") of the handle (12, 12', 12") has at least one section with axis inclined according to an angle (α) with respect to said work surface (14).

2. Tool according to claim 1, **characterised in that** said angle (α) is comprised between 5° and 35°.

3. Tool according to claim 2, **characterised in that** said angle (α) is comprised between 10° and 25°.

4. Tool according to claim 3, **characterised in that** said angle (α) is around 15°.

5. Tool according to claim 1, **characterised in that** the central holding portion (17) of the handle (12) is constituted by a single section inclined according to said angle (α).

6. Tool according to claim 1, **characterised in that** the central holding portion (17') of the handle (12') comprises a section (17'a) inclined according to said angle (α) and a section (17'b) substantially parallel to said work surface (14).

7. Tool according to claim 1, **characterised in that** the central holding portion (17") of the handle (12") comprises a first section (17"a) inclined according to an angle (α_1) with respect to the work surface (14) of the spatula (11) and a second section (17"b) opposedly inclined according to an angle (α_2) with respect to the work surface (14) of the spatula (11).

8. Tool according to claim 7, **characterised in that** said angles (α_1, α_2) are equal to each other.

9. Tool according to claim 1, **characterised in that** the connection portions (18, 18', 19, 19') between the ends of the central holding portion (17, 17') and the surface (16) for connection with the handle (12, 12') have a different length with respect to each other.

10. Tool according to claim 1, **characterised in that** the central holding portion (17, 17', 17") of the handle (12, 12', 12") has a surface (20), facing away from the surface (16) for connection with the handle (12, 12', 12"), having a concave configuration.

11. Tool according to claim 1, **characterised in that** the central holding portion (17, 17', 17") of the handle (12, 12', 12") has a surface (21), facing towards the surface (16) for connection with the handle (12, 12', 12"), having a plurality of hollows (22) and reliefs (23).

12. Tool according to claim 1, **characterised in that** the connection portions (18, 18', 18", 19, 19', 19") between the ends of the central holding portion (17,

17', 17") and the surface (16) for connection with the handle (12, 12', 12") are inclined so as to be divergent with respect to each other in the direction of said connection surface (16).

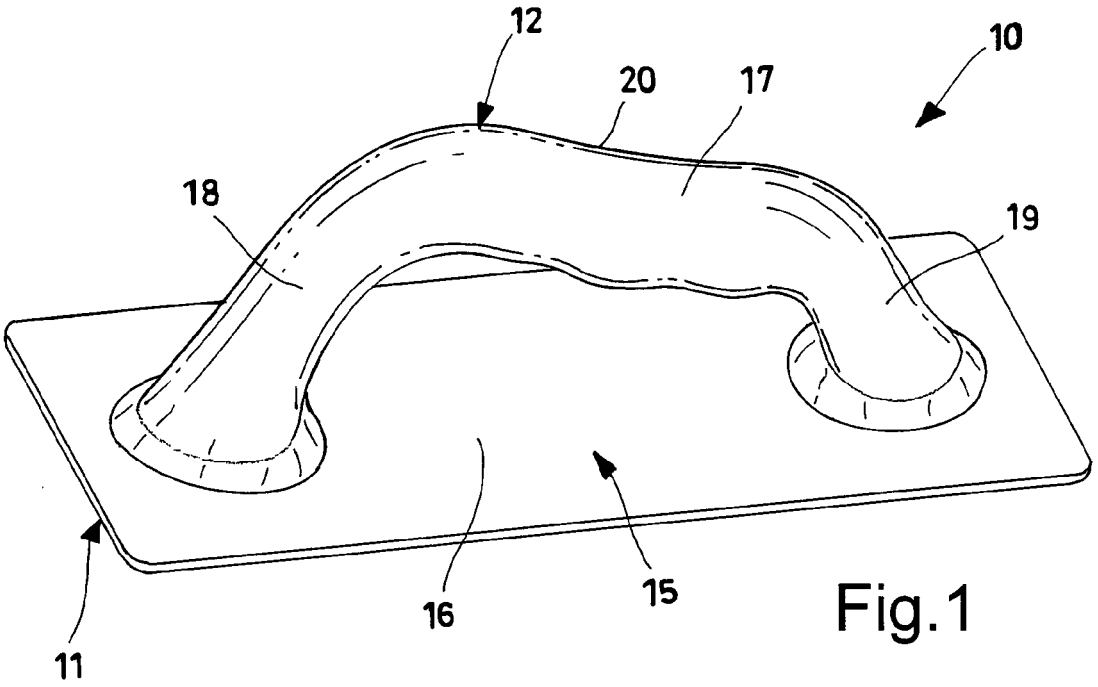

12
10
20
17
18
19
16
15
11

Fig.1

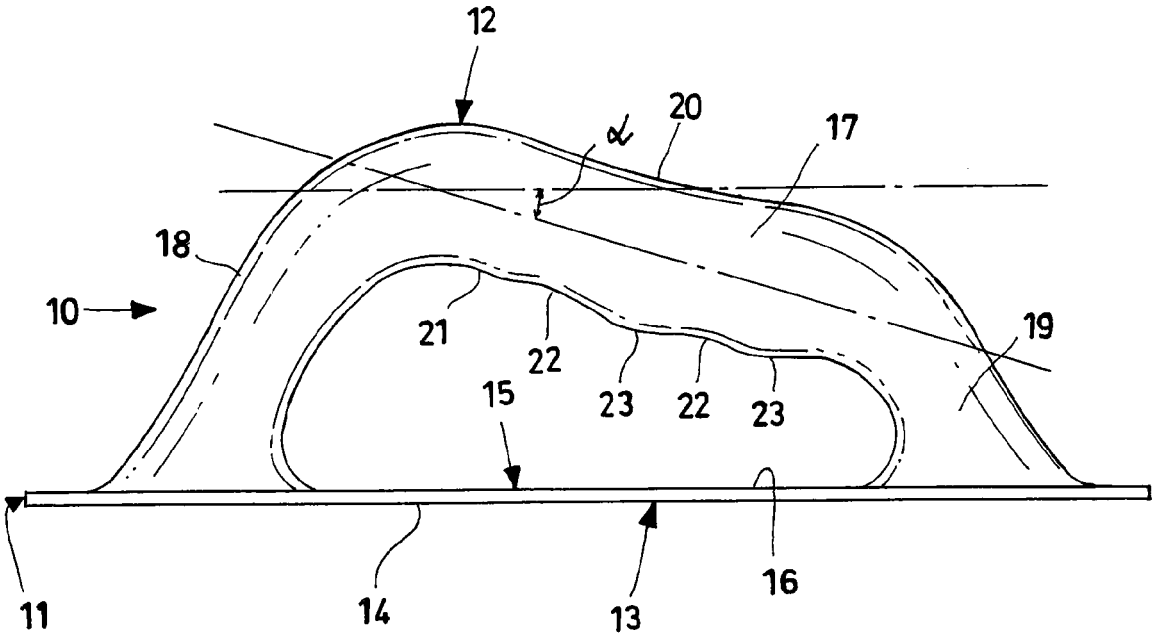

12
20
α
17
18
10
21
22
23
22
23
19
15
11
14
13
16

Fig.2

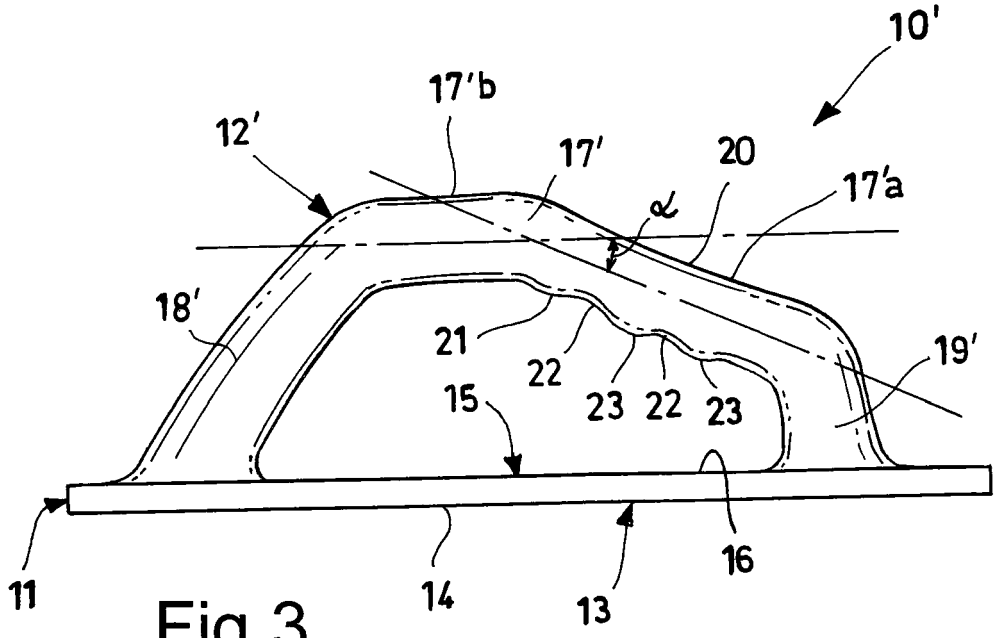

10'
17'b
12'
17'
20
17'a
α
18'
21
22
23
22
23
19'
15
11
14
13
16

Fig.3

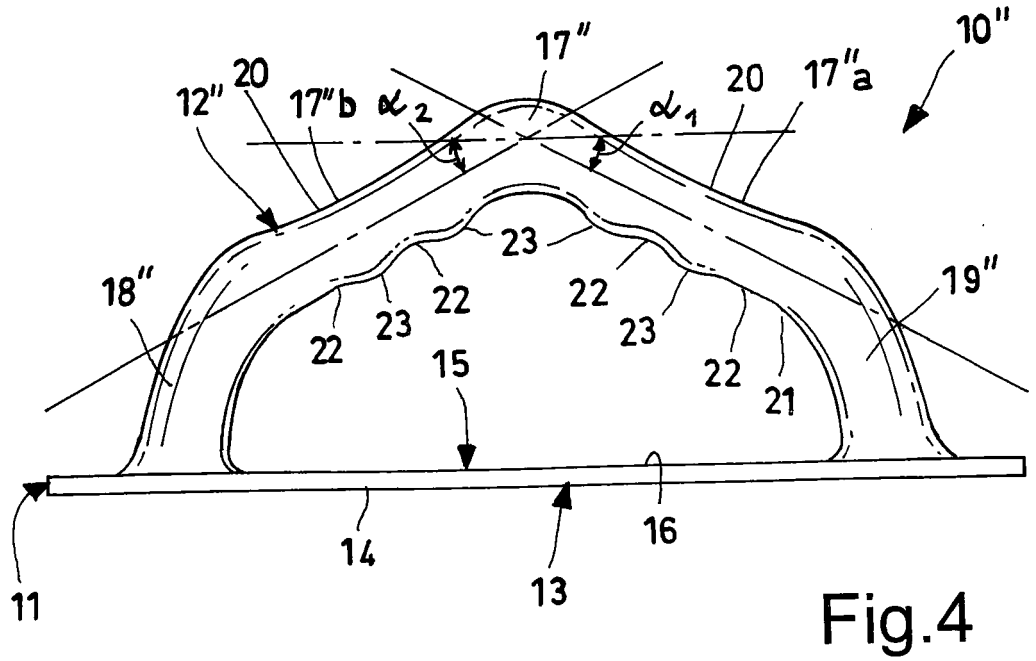

10"
17"
12"
20
17"b
α2
α1
20
17"a
23
18"
22
23
22
22
23
19"
22
15
22
21
11
14
13
16

Fig.4

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EUROPEAN SEARCH REPORT

Application Number
EP 14 16 1156

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			TECHNICAL FIELDS SEARCHED (IPC) E04F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	14 August 2014	Arsac England, Sally

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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14-08-2014

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82