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(54) Device for conditioning hairy skin before shaving

(57) The invention relates to a device which serves for the conditioning treatment of the skin and/or the hairs, especially in the region of the human face and especially prior to a shaving operation.

It comprises profile features (7, 7') as steps, ridges or file-type or rasp-type teeth or calottes or other small projections which are provided on at least a part of the surface of the device.

In prefered embodyments, said profile features are provided either on a cap (4) of a shaver or on the rear side of the head of the shaver or on a handle.

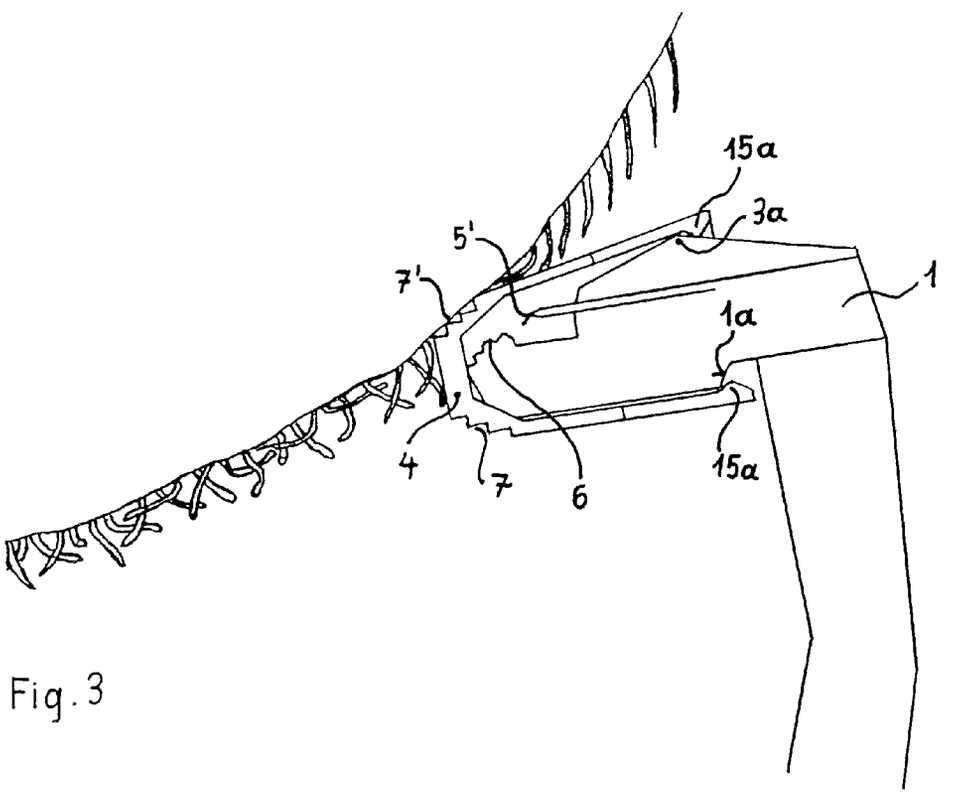

Fig. 3

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Description

The invention relates to new devices used for conditioning hairy skin, especially facial skin, before shaving. Which devices preferabely, as an additional function, also serve to protect the razor blade edges.

Most wet shaving instruments, including disposable shavers, are provided with means protecting the cutting edge of the razor blade from being damaged from the moment when the shaver is leaving the assembly machine in the factory until it gets to the user. Preferably, these means are protection caps attached over the front portion of the shaver head. Said head comprises a supporting part, at least one razor blade, which is sandwiched between said supporting part and a cover part.

Snapping means are known, suitable for easy removal of such protection caps whenever the shaver is to be used for shaving, but providing secure attachment for protection of the blade edge, when the shaver is not used. These protection caps can often be snapped on in two opposed positions in order to make the automatic assembly easier and are usually injection molded from thermoplastic material.

In a first embodyment, this invention proposes to provide profile features on such a protection cap, suitable for conditioning the skin prior to shaving. Therefore, such a "conditioning & protection cap" has, according to the invention, a double purpose: to be used as a skin and hair conditioning device and to protect and shield the razor blade.

Said profile features acccording to the invention are provided to cause the skin and the underlying tissue to be kneaded and gently massaged. As the conditioning device is drawn over the skin, said profile features cause swiftly passing creases and waves on the surface. Thus, the hair of the beard is lifted up, adjusted, freed and prepared for the shaving act following the conditioning. The treatment provided by said profile features during said conditioning enables the razor blade edge to cut the hair close to the skin surface during said subsequent shaving act resulting in a closer shave.

Furthermore, said conditioning exercises and stimulates the facial muscles and the muscles associated with the hair follicles and, in addition, enhances the blood circulation.

When attached to the front portion of the shaver, the "conditioning & protection cap" must be attached with sufficient restraint to permit conditioning without disturbing vibrations or wavering.

The costs for said device are extremely low, since said profile features can either be directly provided in the appropriate surface areas of the injection mold used for manufacturing the protection cap, or said profile features are formed in a separate part, which is riveted, snapped, glued, ultrasonically welded or otherwise attached onto a base part.

When said profile features are formed in a separate part, said part could optionally be made from a material selected solely for the conditioning purpose. The conditioning device could be made of materials ranging from soft rubberlike to rigid substances and/or could be coated or surface treated, which for example affects friction.

When the shape of the "conditioning & protection cap" allows it to be attached over the shaver head in two opposed positions, a choice of two different profile features could be provided on the opposed sides.

Profile features suitable for conditioning the skin prior to shaving, in an other embodyment of the invention, could be attached, as a separate part to an elongated handle or could be provided directly on a suitable region of said handle.

In still another embodyment of the invention, the profile features are provided on the rear side of a shaver head. For example, the profile features are directly formed in the injection mold used for manufacturing the head. Said head comprises a supporting part, at least one razor blade, which is sandwiched between said supporting part and a cover part. The profile features for the conditioning purpose would then be on the side of the head facing away from the razor blade edge.

The profile features provided on the cap according to the invention, have a certain similarity to features normally used on guard bars of one-way shavers, but the choice of characteristics of said profile features, in an inventive step, take advantage of the fact, that there is no razor blade edge in immediate vicinity of said profile features.

The absence of said razor blade edge allows to choose such profile features solely for their maximum efficiency for the conditioning treatment prior to the shaving act.

In the known shavers, guard bars are arranged close to and parallel with razor blade edges. The purpose of the guard bar is to stretch the skin in order to prevent the formation of swiftly forming creases or waves when the shaver under light pressure is drawn over the skin. If the convex top of such creases or waves is formed in the space between the guard bar and the razor blade edge, nicking (minute cuts) easily occurs.

Such surface profiles on guard bars of shavers must be limited in profile depth in order to avoid nicking. A type of profile found on most guard bars consists of a number of small steps arranged parallel with and in immediate vicinity to the razor blade edge. The razor blade is clamped against a supporting base part by means of a cover part, the front end of which is arranged parallel with and in immediate vicinity of the blade edge. The exact location of the razor blade edge relative guard bar and cover, which, during shaving are in contact with the skin, provides the "shaving geometry". Ideally, the bar stretches the skin ahead of the edge, while the cover should glide easily over the skin surface and not contribute to promoting skin formations prone to nicking. Such profiles are of limited efficiency for lifting up and adjusting hair in front of an aproaching razor blade edge. Shaving "against the grain", which may help freeing

some hair in "problem regions" (the location varies from person to person) is considered a substantial risk for nicking.

One embodyment of the invention in form of a cap, which has profile features provided on its surface, is used for the conditioning, when it is attached over the front portion of the shaver head, for the purpose of shielding the blade edge.

Since the razor blade edge is shielded during conditioning, one can, without risk nicking, push harder and more vigorously than in normal shaving as well as move in arbitrary directions, in order to lift up and adjust the hair. Furthermore, the profile features for conditioning provided on the cap can be designed, for example, to comprise features with greater profile height, such profiles having wave shaped steps, teeth, calottes or the like. Conditioning also provides advantages when applied prior to shaving longer face or body hair.

Thus, the conditioning profile on said cap according to the invention, when attached to the front end of the shaver head and shielding the blade, lends confidence to treat "problem regions" and to move "against the grain" until one has freed the hair to be shaved.

US A 4,502,217 discloses a shaving instrument comprising a guard bar in front of a razor blade edge. The guard bar, on its surface area intended for coming into contact with the skin, is provided with small projections, having, for example, file-type or rasp-type teeth with sharp edges. Such teeth are formed by plastic deformation and displacement of portions of the surface area of the guard bar. The length of the sharp edges vary between 0.3 and 1.0 mm, projecting from the surface of the guard bar between 0.03 and 0.12 mm. Such limitations in size are obviously provided to avoid exzessive undulation and irritation of the skin. However, it is mentioned in the description, that the instrument can also be used without a blade either for massaging the facial skin or for adjusting the hairs of a beard prior to shaving.

The invention disclosed in the present application, proposes in its first embodyment, to provide a protection cap for the razor blade edge with conditioning features such as parallel steps or ridges, wave shaped profiles, file-type or rasp-type teeth, calottes or the like. Said features are provided on at least that part of said cap, located in a region in contact with the face when the shaver (with the cap shielding the blade) is guided over the skin in the same way as typical during shaving.

Since all these features are formed by injection molding, one can select the corner and edge radii. This allows substantial undulation, while avoiding irritation of the skin during conditioning.

Electrical shavers with vibrating cutting elements are known. Some of such shavers can be used for dry or wet shaving. The present invention relates to "classical" wet shavers without any parts which are moving or vibrating by electrical or mechanical means.

The invention is explained in more detail in connection with the accompanying drawings which show preferred embodyments of the invention. In the drawings,

Fig. 1 shows a shaver according to a first embodyment of the invention with its cap removed,
Fig. 2 shows a cap provided with conditioning profiles, according to the first embodyment of the invention, usable with the shaver of Fig. 1,
Fig. 3 shows, schematically, the cap of Fig. 2, securely attached over the front portion of the shaver head of Fig.l, while being drawn over the skin,
Fig. 4 shows a cap acccording to the invention similar to the cap shown in Fig. 2 but with wave-like profile features,
Fig. 5 shows still an other cap similar to the cap of Fig. 4, but with teeth-like profile features,
Fig. 6 shows a conditioning device according to the invention, where the profile features are formed on a separate part which is connected with a protection cap,
Fig. 7 shows a second embodyment of the invention with profile features provided on a handle,
Figs. 8 to 10 show a further embodyment of the invention with the profile features formed on a rear part of a shaver head,
Fig. 11 shows lentile-formed profile features according to the invention in perspective view and cross section,
Fig. 12 shows still an other embodyment of profile features in top view and cross section and
Figs. 13 and 14 show an other arrangement of the profile features of Fig. 12.

As mentioned above, applicable to all embodyments, moldmaking techniques for injection molding allow to choose suitable radii of the edges and corners. Such radii, preferabely in a size of 0.02 to 0.3 mm are not depicted realistically in the drawings. The distance between steps or ridges preferabely varies from 0.2 to 1.0 mm, and the pitch of waves or teeth preferabely from 1.0 to 3.0 mm.

Fig. 1 comprises a shaver with a head 1, a handle 2 and a cover part 3. A razor blade 5 is firmly clamped between a supporting part 29 and a cover part 3. A guard bar 6 is provided in front of the edge 5' of the razor blade 5. A cap 4 is shown at a small distance from the shaver in a position, which corresponds to its position some moments after having been taken off from the shaver or some moments prior to its mounting on the shaver.

The cap 4, shown also in Fig. 2 in perspective view, fits, preferabely, over the front portion of the shaver and shields the the cutting edge 5' of the razor blade 5 and the guard bar 6, and is snapped on by means of bumps 15a, which engage corresponding means 3a and la provided on cover part 3 and supporting part 29. Cap 4 has, preferably on its foremost part 33, profile features 7 according to the invention, which are used for massaging the skin and/or adjusting the hairs, when treated with

these profile features. The profile features 7, shown in Figs. 1 and 2 only schematically, consist of multiple steps or ridges 14, located in a region oriented and arranged parallel to the cutting edge, when the cap is mounted on the shaver.

The orientation of the profile features 7 is defined by the intersection line between the front plane 13 and one of the side planes 15.

Due to the symmetry of the rear region 30 of the cap 4, two such profile features 7, 7' can be provided, either identical in shape and structure, or different. This allows the user to choose, according to his personal experience, between two conditioning features with different characteristics. Depending on how the cap 4 is mounted on the shaving instrument, the one or the other of such features is used for conditioning.

During conditioning the shaving instrument is moved along the skin similar to the movements during actual shaving, but with the cap 4 securely attached over its place on the front portion of the shaver head as it is shown in Fig. 3. From this figure it is easy to see, that the handling of the device according to the invention corresponds essentially to the handling of a shaver during actual shaving. Since the blade edge is shielded during conditioning, one can move with confidence in arbitrary directions or even "against the grain"

Fig. 4 shows a cap with ridges similar to the ridges of the cap according to Fig. 2. A difference is, that the ridges 18 and 19 according to Fig. 4 are not rectilinear but undulated, intended to amplify the massaging and hair-lifting effect. The ridges 19 undulate in planes parallel to the side planes 15, the ridges 18 undulate in planes parallel to front plane 13. The ridges 18 are shown in top view on the side figure to Fig. 4.

Another preferred embodyment of profile features 7 and/or 7' is shown in Fig. 5, comprising rows 8, 9, 10 of teeth 11 with edges 12, the rows 8 to 10 oriented parallel to the cutting edge of the razor blade when the cap 4 is mounted on a shaver. The length of each individual tooth 11 is preferably about 0,5 to 1,5mm.

Preferably, the space between the teeth is 0.5 to 2.0mm, the rows are arranged with a stepheight of 0.3 to 1.5mm substantially corresponding to the height of the teeth. The front-most teeth 21 and the rear-most teeth 22 of Fig. 5 protrude from the surfaces 13 and 15, respectively. All edges 12 have preferably small radii between 0.03 and 0.15 mm. A side figure to Fig. 5 shows a front view of a part of some of the teeth 11 with their ridges 12.

The profile features 7, 7' can be formed either by an injection moulding process or by subsequent forming, e.g. coining or the like.

When used in connection with one-way shavers, the conditioning features can be made from a material, e.g. polystyrene, polypropylene, having a lifetime corresponding at least to the usefull lifetime of the razor blade edge. This means, that the provision of two different features on one device provide the user with a conditioning device wich outlasts the razor blade edge, even if the user prefers only one side. Provided, the conditioning features are formed directly into the protection cap, the costs are zero except for the tooling.

Fig. 6 shows, in a perspective view and in a cross section, a further variation of the first embodyment of the invention. The profile features 7, 7' are formed on a separate part 16, which part can be mounted on either a cap or a handle. In Fig. 6, this separate part 16 is riveted to a cap 17. The separate part 16 itself has at least one protrusion 23 which fits in a corresponding hole of the cap and is plastically deformed during the riveting procedure. The protrusion and the hole are both formed during the injection molding of the respective parts.

This embodyment has the advantage that the separate part 16, including the profile features, can be produced from a material which is especially suitable for the conditioning procedure. The profile features on the separate part 16 can, of course, have the shape of the profile features shown in Figs. 4 and/or 5.

Fig. 7 shows in perspective view a further embodyment which has profile features 7 either formed directly into a handle 24 or formed into a separate part attached to the handle 24. Such a separate part can be mounted on the handle 24 by riveting, glueing or the like. The handle 24 can have the same size and shape as the handle 2 (Fig. 1), the profile features can, of course, have the shape of the profile features shown in Figs. 4 and/or 5.

A further variant of the second embodyment of the invention with profile features on the rear side of the shaver head is shown in Figs. 8 to 10. These figures show a perspective view, a side elevation and, in a schematic view, how the instrument is held during its use. In this context, rear side means the side of the shaver head, which lies opposite to the razor blade edge.

In Fig. 9, in more detail, a shaver head 26 is mounted on a handle 25. The cutting edge of the razor blade (not shown) is shielded by a cap 27, snapped on or otherwise attached to the front portion of the shaver head. The rear side 28 of the shaver head 26, which is not covered by the cap 27, carries the profile features 7 which can have any suitable form.

The use of this device, as shown in Fig. 10, is different from the use illustrated in Fig. 3. Tests have shown that both ways to carry out the conditioning are easily learnable.

Fig. 11 shows, in a perspective view and in a cross-sectional view according to the dash-dottet-line, profile features consisting of a plurality of substantially spherical calottes 20 arranged in rows, offset patterns or the like on an essentially plane 31 part of a conditioning device.

Each calotte projects preferably 0.2 to 0.7 mm from the surronding plane and includes, at its base, an angle α of 15° to 90°, more preferably of 40° to 60° with said plane. Preferably, the calottes cover of about 20 % to about 70 % of the total area constituting said profile features, but the packing density can be increased to the

maximum, where all the adjacent calottes are in contact with one another.

Figs. 12 to 14 show profile features similar to the profile features of Fig. 11 but consisting of a plurality of elongated calottes 32. Their geometrical relations with the surrounding plane 31 and their degree of packing density are substantially as described above, under Fig. 11. Preferably, the lenght of each elongated calotte is between 0.3 to 2 mm, more preferably between 0.5 to 1.5 mm. It is of course, possible to vary the form of such calottes, for example to give them more the form of ellipsoidcalottes.

The shown embodyments differ in the pattern of arrangement of said elongated calottes on said plane: Fig. 12 shows, in a perspective view and in a cross-sectional view according to the dash-dottet-line, a zi-zag-pattern, Fig. 13 in a perspective view an aligned pattern with offset-configuration of the calottes and Fig. 14 in an perspective view, an aligned pattern with aligned calottes.

Claims

1. Device which serves for the treatment of the skin and/or the hairs, especially in the region of the human face and especially prior to a shaving operation, comprising profile features (7, 7') as elongated or waved ridges (14, 18, 19) or file-type or rasp-type teeth (11, 22), spherical or elongated calottes (20, 32), or other small projections are provided on at least a part of the surface of the device.

2. Device according to claim 1, comprising a shaver and a cap (4) on which said profile features (7, 7') are formed.

3. Device according to claim 1 comprising a shaver and a cap (17) whereby said profile features (7, 7') are formed on a separate part (16) which is mounted on said cap.

4. Device according to claim 3 whereby said separate part (16) is mounted on said cap (17) by riveting, glueing, welding or the like.

5. Device according to claim 1 comprising a shaver with a handle (25) and a shaver head (26) having a razor blade with a cutting edge on the front portion of said shaver head, whereby said profile features (7) are formed on said shaver head in its rear region (28) which lays opposite to said front portion.

6. Device according to claim 1 comprising a handle (24) whereby said profile features (7) are formed on said handle.

7. Device according to claim 1 comprising a handle (24) whereby said profile features (7) are formed on a separate part which is mounted on said handle.

8. Device according to claim 7 whereby said separate part is mounted on said handle (24) by riveting, glueing, welding or the like.

9. Device according to claim 2, whereby two different profile features (7, 7') are provided symmetrically on said cap (4).

10. Device according to claim 2, whereby said profile features (7, 7') consist of at least three rows (8, 9, 10) of teeth (11) with edges (12), each row and said edges extending essentially parallel to the cutting edge (5') of the razor blade (5) when the cap is mounted on the shaver.

11. Device according to claim 10, whereby the length of each individual tooth edge (12) is preferably about 0,5 to 1,0 mm and whereby the teeth (11) within each row (8, 9, 10) have a spacing of preferably about 1,0 mm.

12. Device according to claim 1, whereby said profile features (7, 7') consist of parallel steps.

13. Device according to claim 1, whereby said profile features (7, 7') consist of parallel ridges (14).

14. Device according to claim 1, whereby said profile features (7, 7') consist of wave shaped profiles (18, 19).

15. Device according to claim 1, whereby said profile features (7, 7') consist of file-type or rasp type teeth (11).

16. Device according to claims 2 and 14, whereby the plane of the waves of the wave shaped profiles (18) is parallel to a side plane (15) of said cap (4).

17. Device according to claims 2 and 14, whereby the plane of the waves of the wave shaped profiles (19) is parallel to a front plane (15) of said cap (4).

18. Device according to any of the preceding claims, whereby said profile features (7, 7') consist of pattern of calottes (20, 32).

19. Device according to claim 18, whereby said calottes (20) have essentially spherical form.

20. Device according to claim 18, whereby said calottes (32) have essentially elongated form.

21. Device according to any of claims 18 to 20, whereby said calottes (20, 32) project about 0.2 to 0.7 mm from a surronding plane (31) and include, at their

base, an angle (α) of 15° to 90°, preferably from 40° to 60° with said plane (31).

22. Device according to any of claims 18 to 21, whereby said calottes (20, 32) cover of about 20 % to about 70 % of the total area constituting said profile features (7, 7').

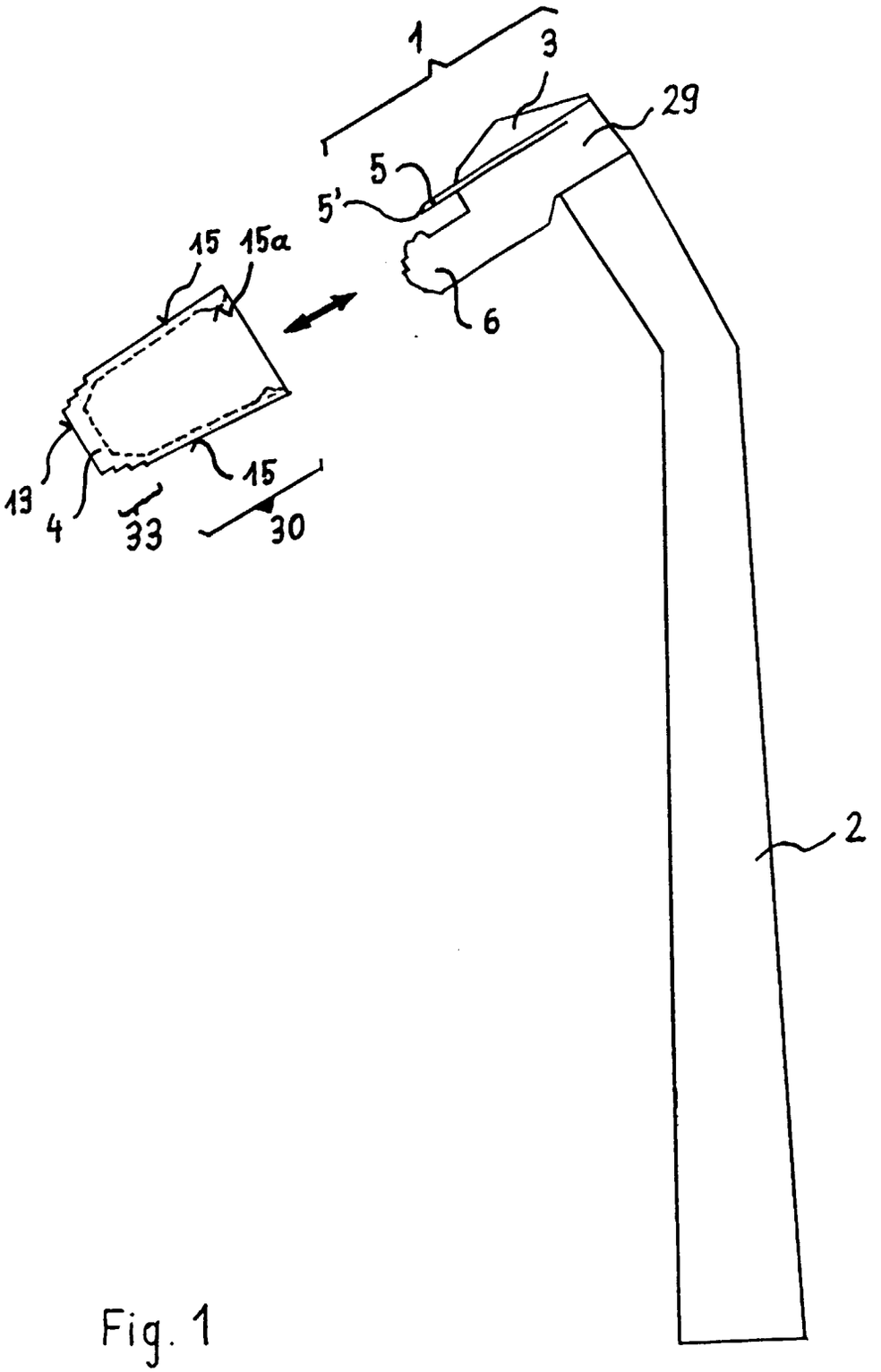


Fig. 1

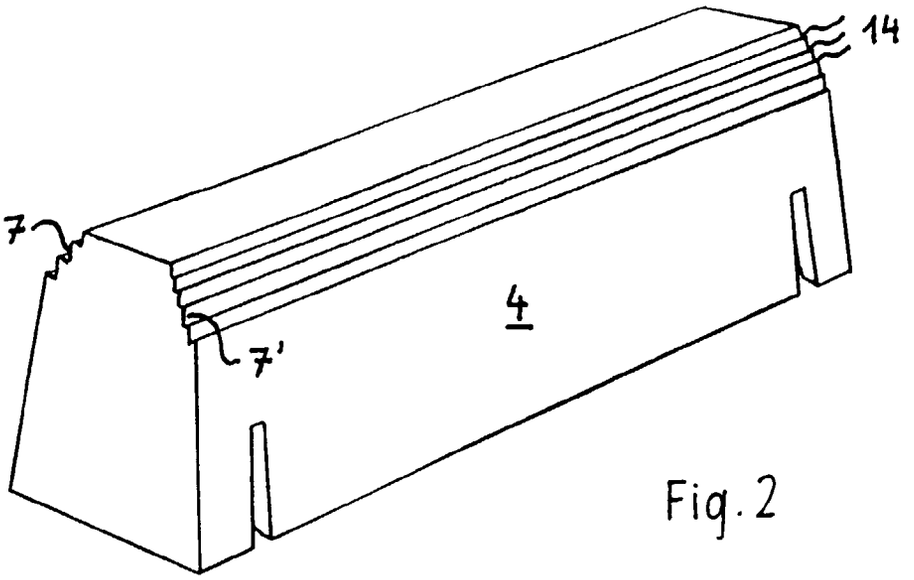


Fig. 2

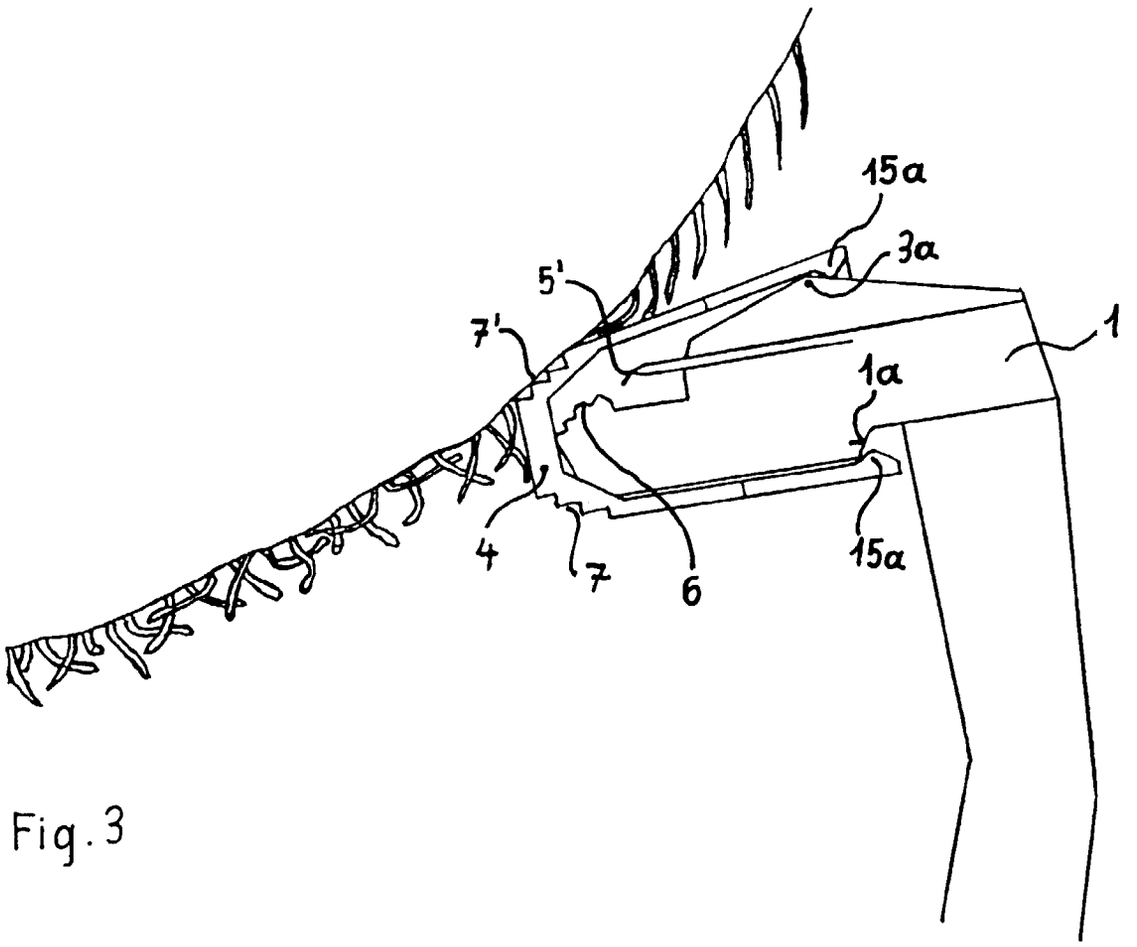


Fig. 3

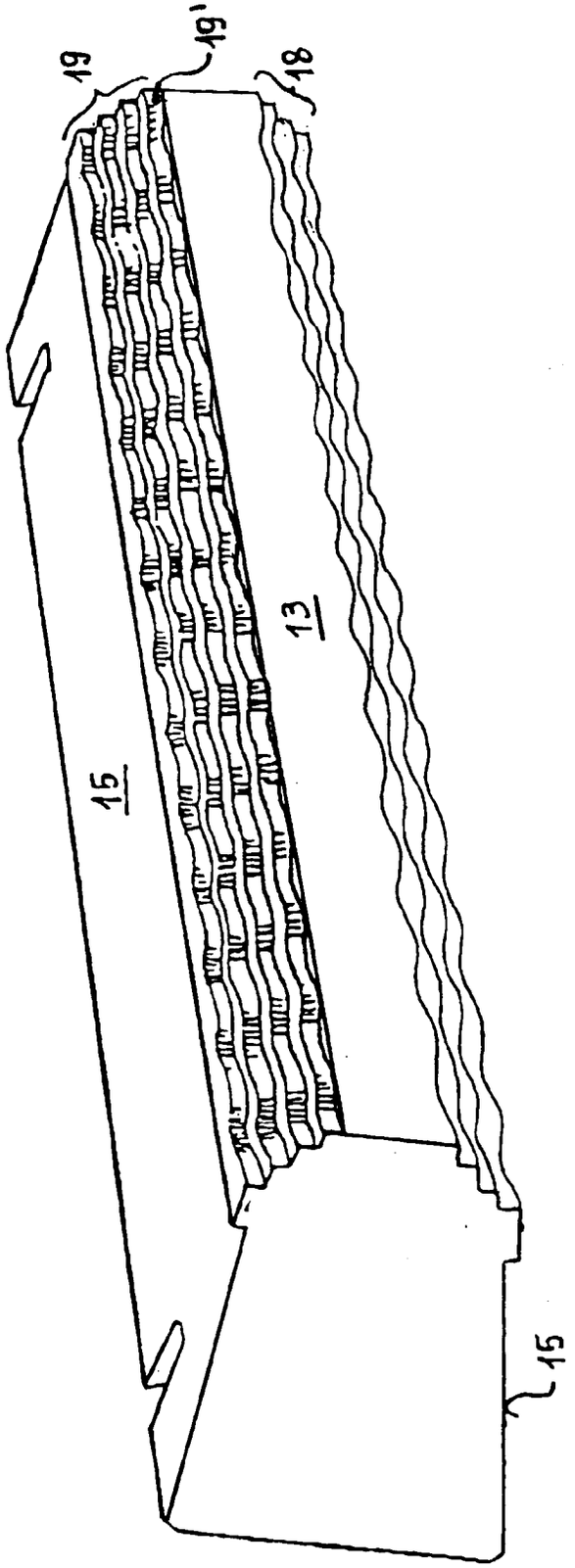
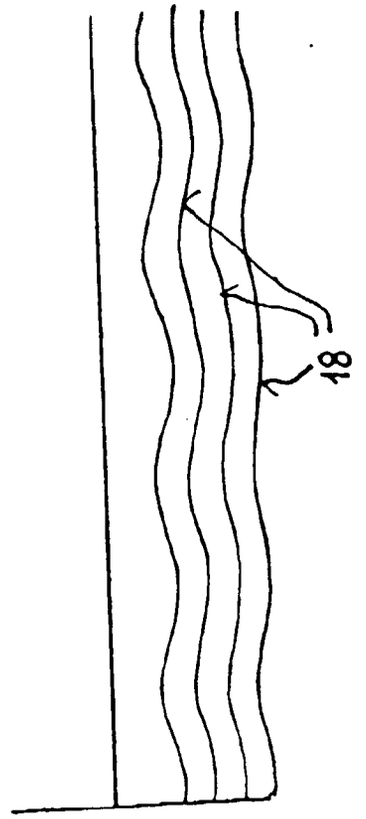
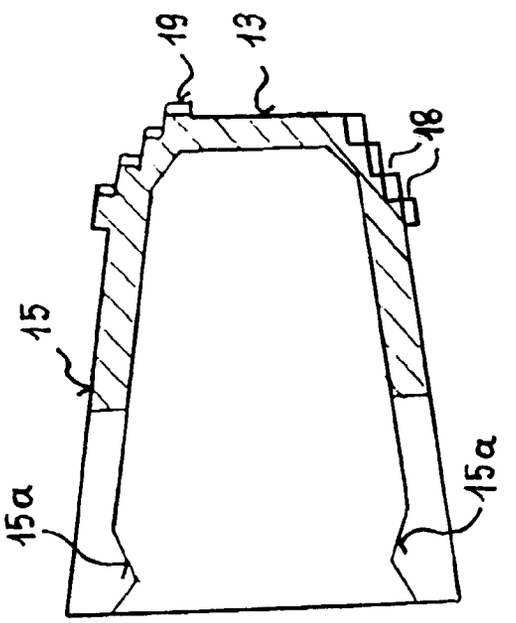


Fig. 4





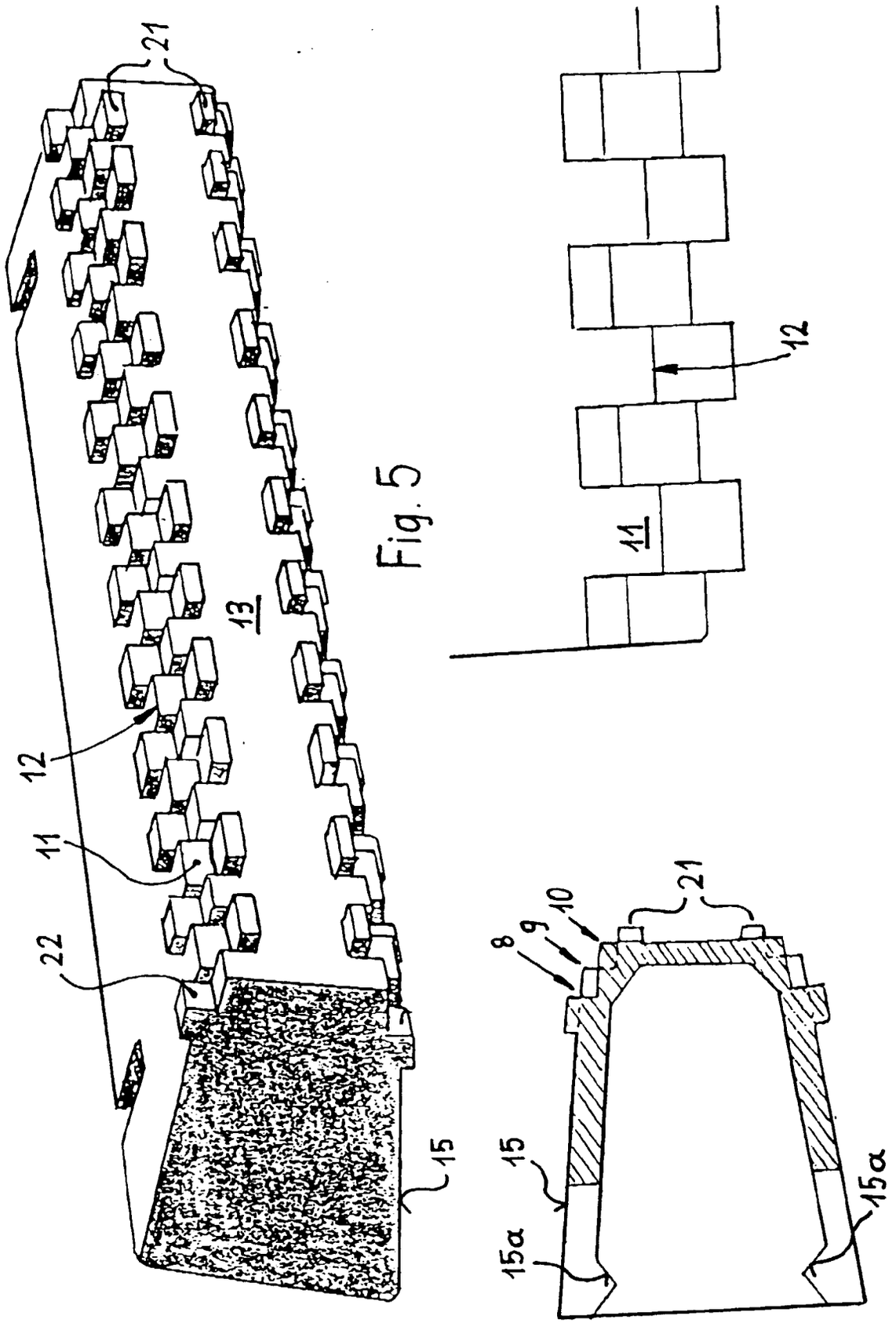


Fig. 5

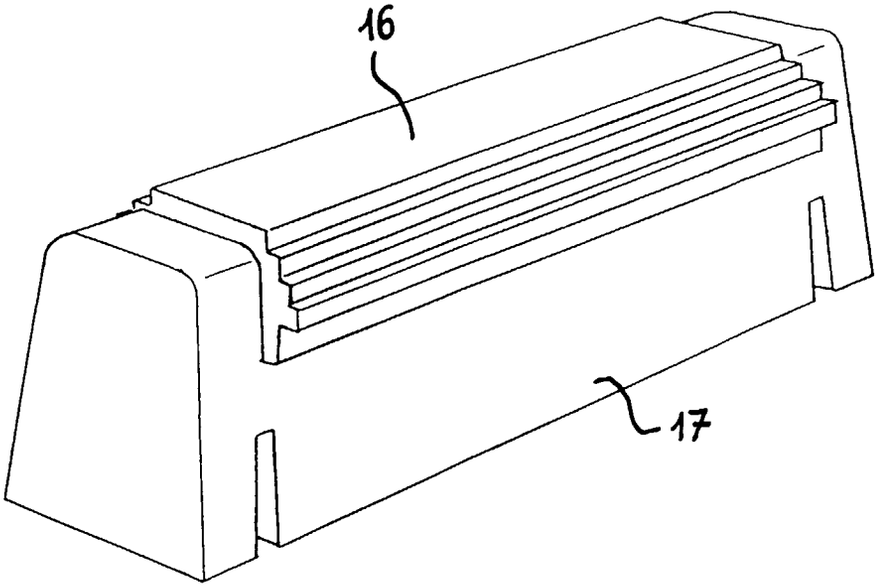
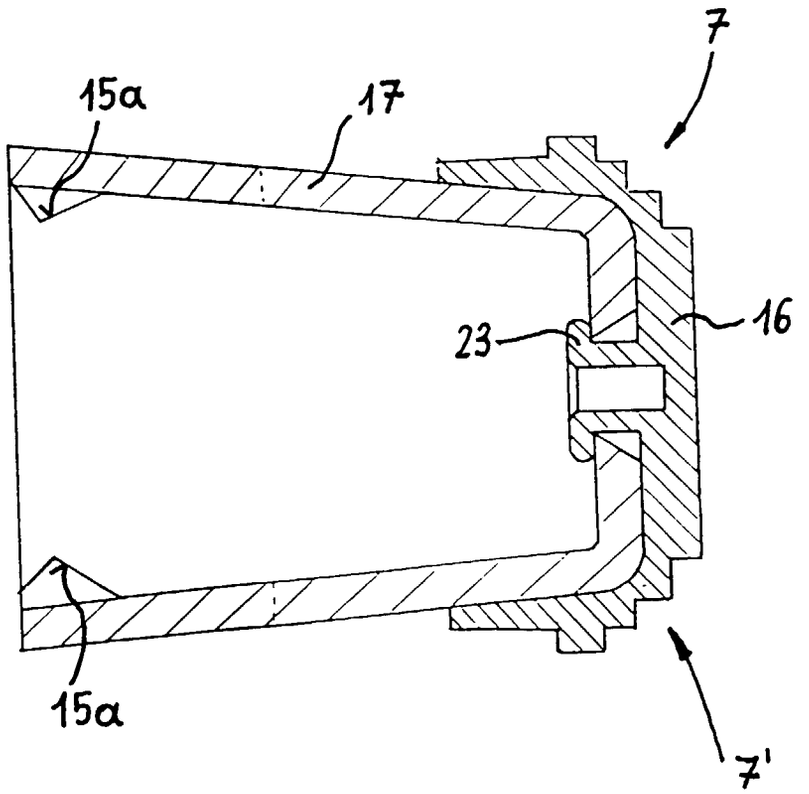


Fig. 6



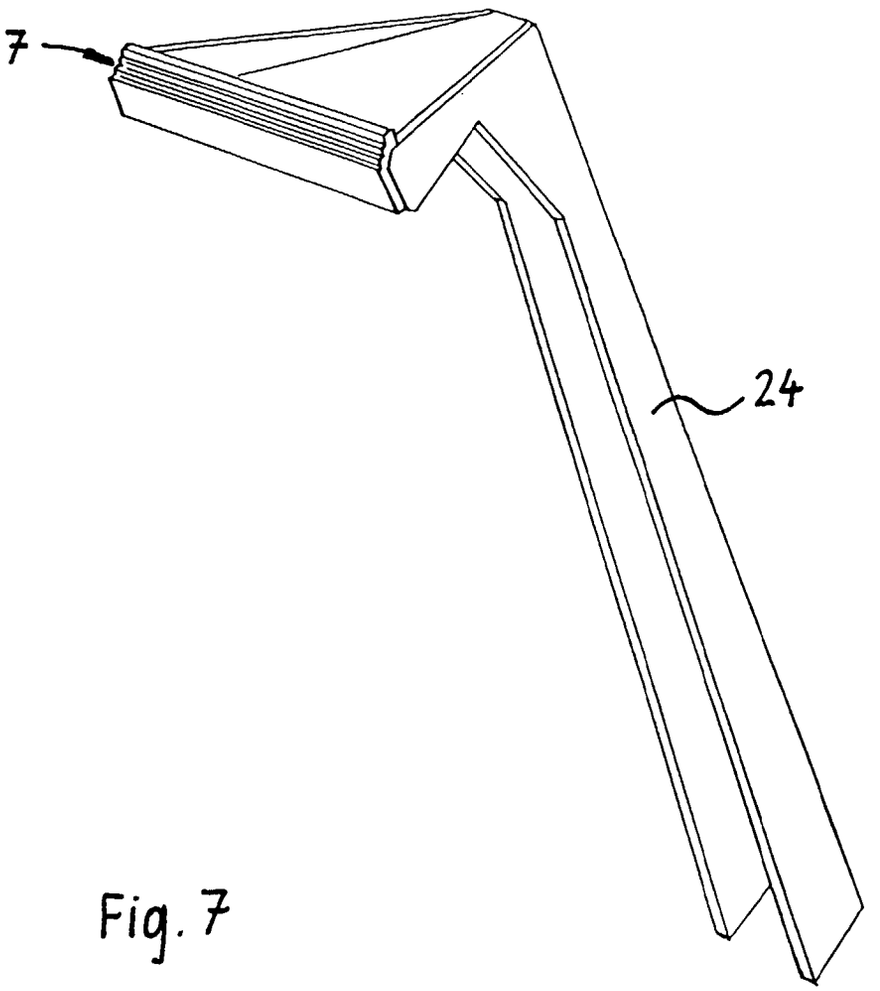


Fig. 7

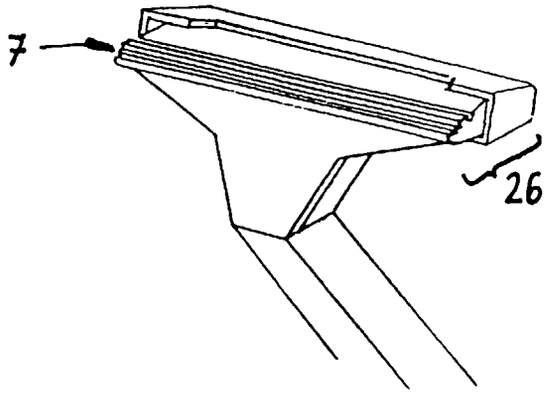


Fig. 8

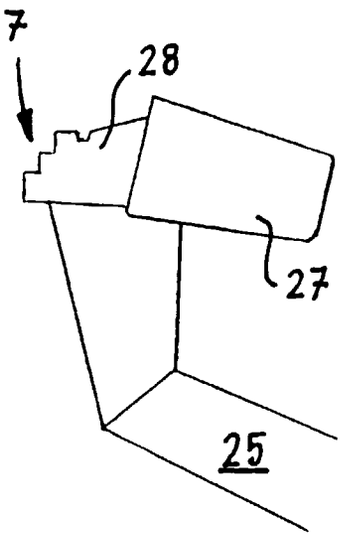


Fig. 9

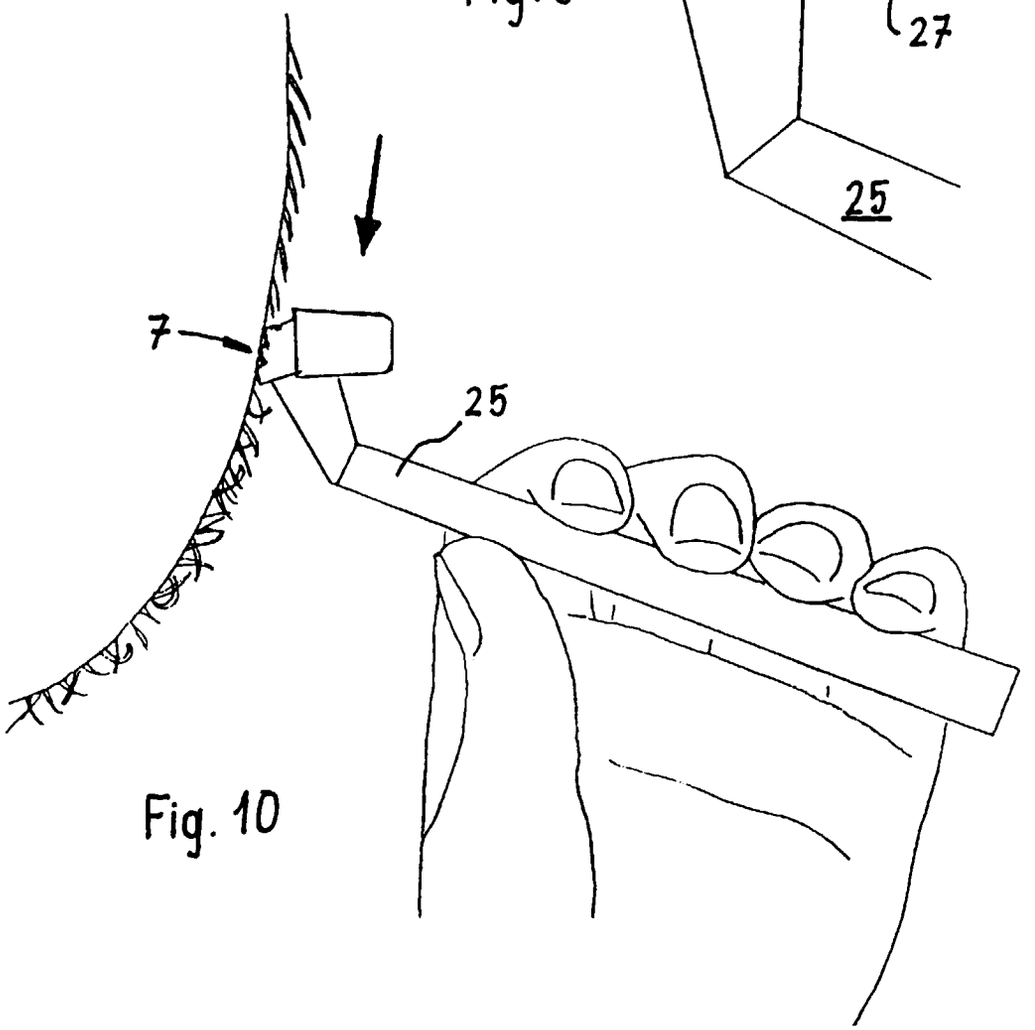


Fig. 10

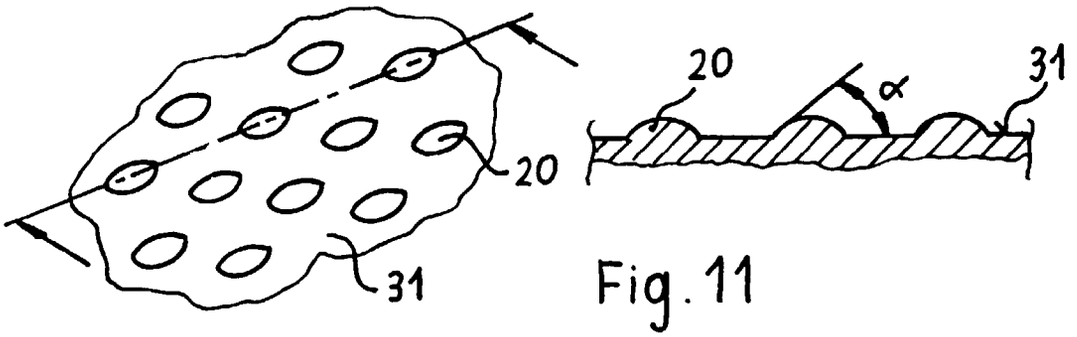


Fig. 11

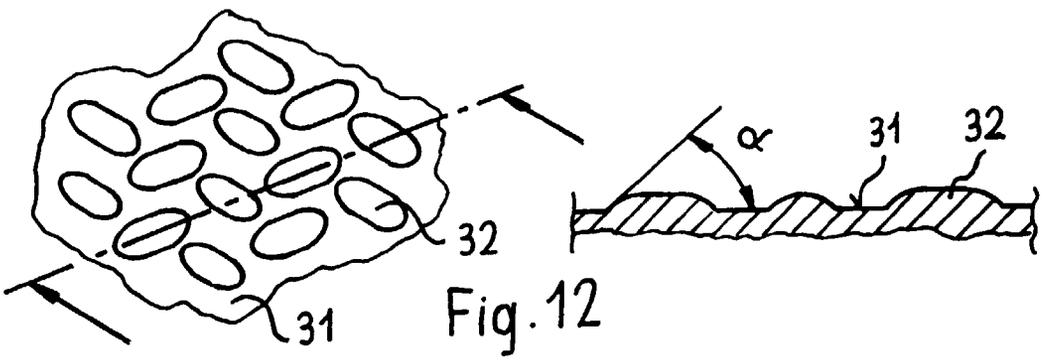


Fig. 12

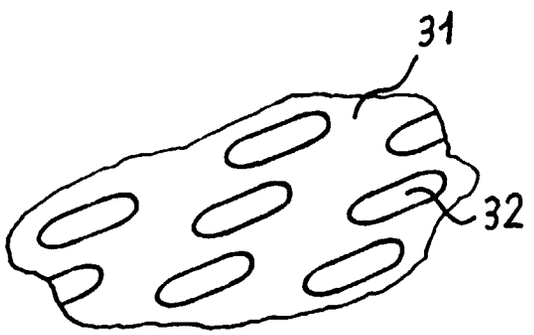


Fig. 13

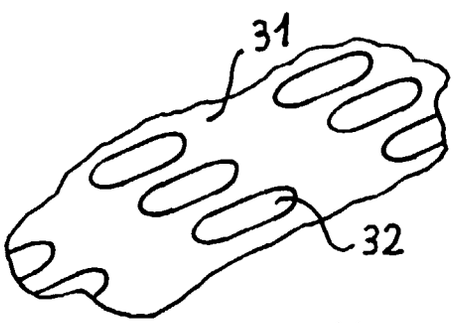


Fig. 14