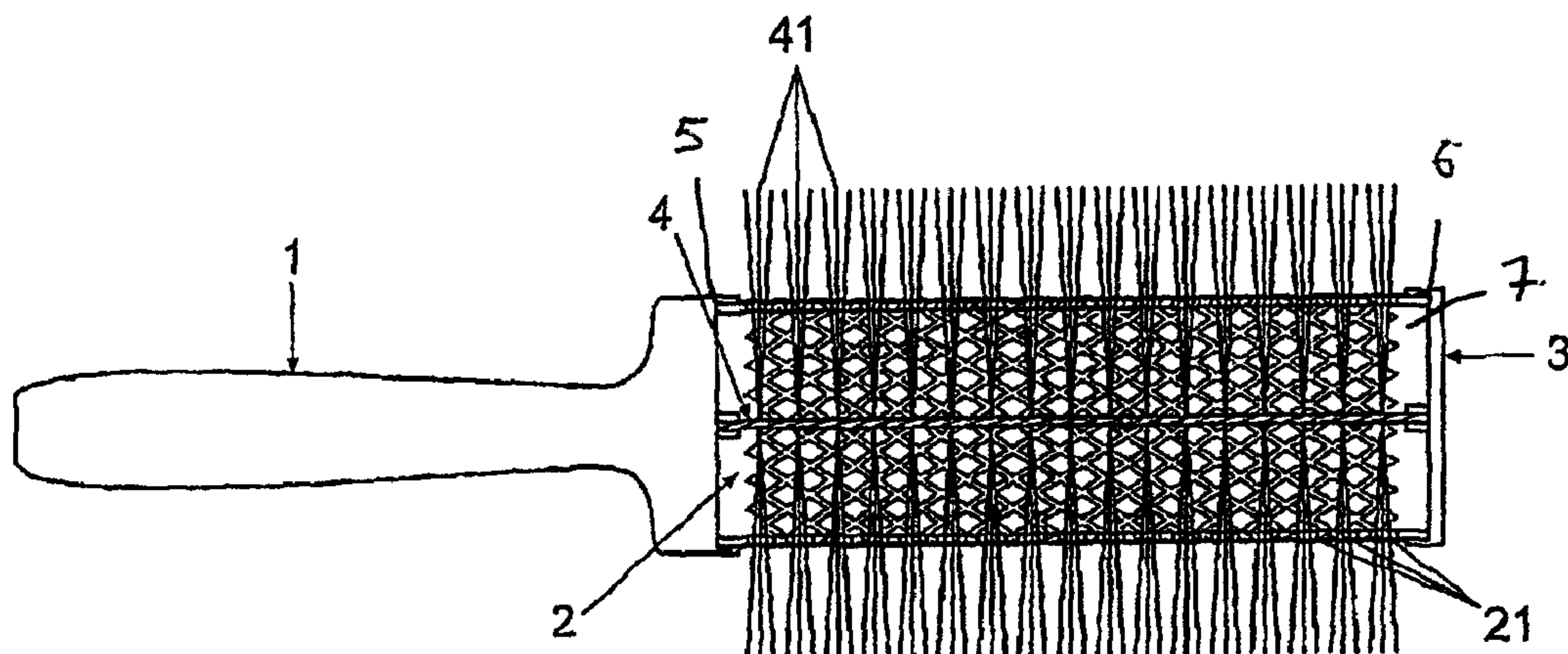




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(57) **Abbrégé/Abstract:**

The invention relates to a hair brush comprising: a handle (1), a tubular aluminium body (2) which is equipped with a coating of artificial plastic material, fluorinated vinyl polymer, and with staggered polygonal holes (21) which are bevelled (21, 21b) and which form lines that are oblique in relation to the longitudinal axis of the brush; radiation-ionised nylon fibres (41) which are helically fixed to a support core (4) which is located inside the tubular body, said fibres (41) projecting out from the above-mentioned holes (21) in the tubular body; and a front cover (3) which closes the front end of the tubular body.



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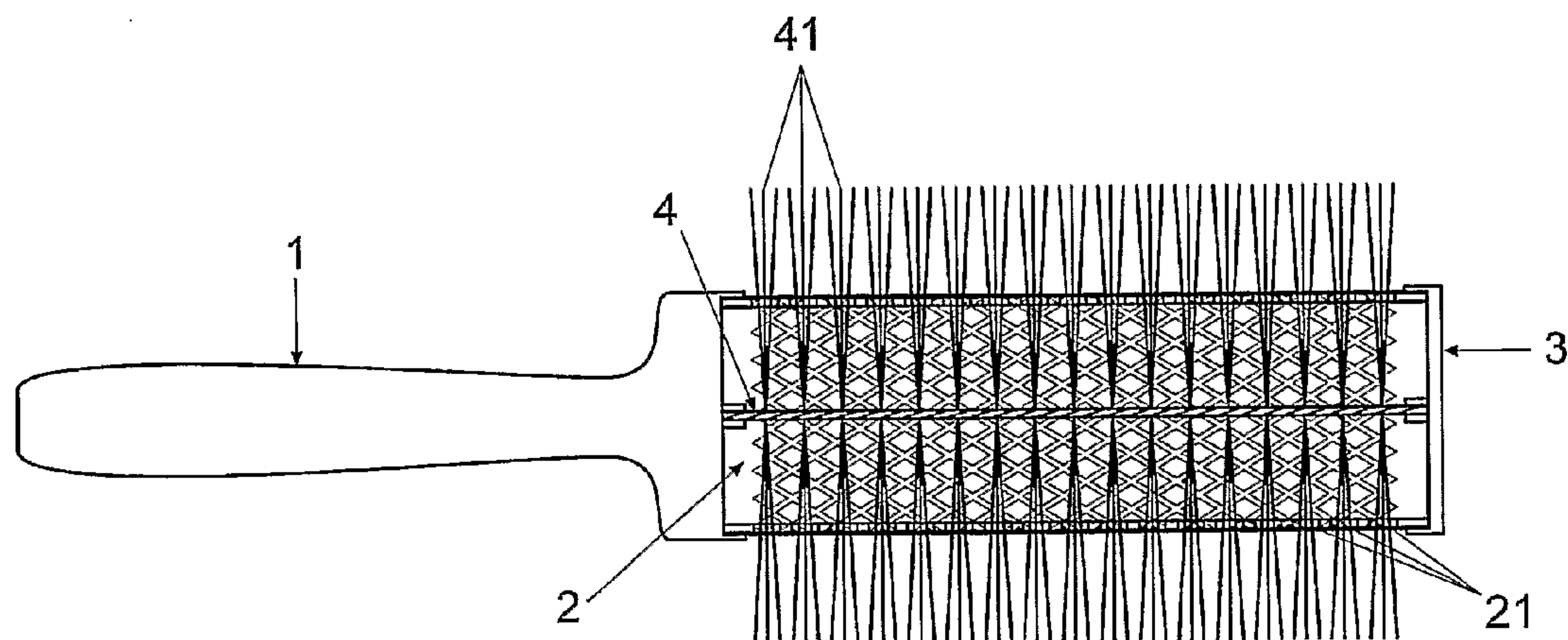
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(54) Title: HAIR BRUSH

(54) Título: CEPILLO PARA EL CABELLO

(57) **Abstract:** The invention relates to a hair brush comprising: a handle (1), a tubular aluminium body (2) which is equipped with a coating of artificial plastic material, fluorinated vinyl polymer, and with staggered polygonal holes (21) which are bevelled (21, 21b) and which form lines that are oblique in relation to the longitudinal axis of the brush; radiation-ionised nylon fibres (41) which are helically fixed to a support core (4) which is located inside the tubular body, said fibres (41) projecting out from the above-mentioned holes (21) in the tubular body; and a front cover (3) which closes the front end of the tubular body.(57) **Resumen:** Este cepillo comprende: un mango (1); un cuerpo tubular (2) de aluminio que presenta un recubrimiento de una materia plástica artificial, polímero fluorado del vinilo, y unos orificios (21) de forma poligonal, dispuestos al tresbolillo, que rematan en unos achaflanados (21, 21 b) y forman alineaciones en dirección oblicua respecto al eje longitudinal del cepillo; unas fibras (41) de nylon, ionizadas mediante radiación, fijadas helicoidalmente a un núcleo (4) de soporte, situado en el interior del cuerpo tubular, emergiendo dichas fibras (41) a través de los orificios (21) del cuerpo tubular, y un tapón frontal (3) que cierra el extremo anterior de dicho cuerpo tubular.

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HAIR BRUSH

Field of the Invention

The present invention relates to a hair brush. In particular, it relates to a hair brush for hair
5 straightening and soft perms.

Description of the Related Art

Hair brushes are commonly used at home and in hairdressing and beauty salons for brushing a
10 person's hair and, for example, creating soft perms. A commonly used brush for hairdressing
salons comprises a hollow tubular body having a plurality of holes. The body has a handle for
the brush to be held at one end, and a top to enclose the tubular body on its other end. The brush
includes a plurality of bristles arranged helicoidally and which extend outwards from the
tubular body through the holes of said tubular body. This kind of brush allows one to create a
15 soft perm and a hairdo while applying heat. The brush's tubular body is made of aluminium.

The body may or may not be coated with ceramic. A ceramic coating allows heat arising from
an external heat source, generally a hairdryer, to accumulate on the body of the brush and
transmit to the hair. When the aluminium tubular body is coated with ceramic, it accumulates
20 and retains heat for a longer amount of time compared to a tubular body that has no such
coating. However, an aluminium tubular body coated with ceramic transmits heat with less
speed and effectiveness compared to a tubular body that has no such coating.

Another known disadvantage of the above described brushes is that the hair products may
25 adhere on the tubular body of the brush little by little over time. This as a result inhibits a
smooth and uniform sliding of hair on the tubular body of the brush having such accumulated
hair product coatings.

Further disadvantages of the above described brushes relate to the holes of the tubular body, which are generally made by means of a die cut on an aluminium plate. During this manufacturing process, little imperfections may arise around the exterior and interior edges of the holes from one of the sides of the aluminium plate. These imperfections inhibit effective assembly of the various pieces that form the brush. Also, these imperfections inhibit the effective use of the brush. Hole imperfections on the interior or internal side of the tubular body inhibit the bristles from extending through the tubular body. Hole imperfections on the exterior or external side of the tubular body may be so jagged that they can damage one's hair cuticles.

While it is possible to shape the aluminium plates, from which the tubular bodies are made, such that hole imperfections remain on only one side of the tubular body, such an approach may slow down the manufacturing process.

A yet further disadvantage of the above described brushes relates to the holes being completely circular in cross-section. This causes the brush's bristles to lean slightly and results in the bristles not extending outwards from the tubular body in a perpendicular manner. Bristles so positioned inhibit the brush's ability to slide smoothly over one's hair and thus inhibit effective contact between the hair and the surface of the tubular body. This as a result notably reduces the effectiveness of the brush, especially during straightening and soft perm procedures.

BRIEF SUMMARY OF INVENTION

The present invention provides a hair brush disclosed herein that overcomes the above disadvantages. It is an object of the present invention to provide an improved hair brush.

There is accordingly provided a hair brush having a handle, a top, and a tubular body. The tubular body includes a first end and a second end opposite the first end. The handle connects to the first end of the tubular body. The top connects to the second end of the tubular body. The tubular body has an exterior side and an interior side opposite thereof. The tubular body has a plurality of spaced-apart holes extending from the interior side through to the exterior side of the tubular body. The tubular body has a plurality of inner bevelled edges configured to extend

around the holes at the interior side of the tubular body. The tubular body has a plurality of outer bevelled edges configured to extend around the holes at the exterior side of the tubular body. The brush includes a support member connected to and extending between the handle and the top. The brush includes a plurality of bristles fixed helicoidally to the support member. The
5 bristles are configured to extend through the holes of the tubular body and extend radially outwards from the body.

BRIEF DESCRIPTION OF DRAWINGS

The invention will be more readily understood from the following description of preferred
10 embodiments thereof given, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a side elevation view of the hair brush according to the invention, the brush including a tubular body formed by an aluminium plate having a plurality of holes extending therethrough;

15 Figure 2 is a plan view of the aluminium plate from which the tubular body of the brush referred to in Figure 1 is shaped;

Figure 3 is a cross-sectional view of the tubular body of the brush shown in Figure 1, with
20 bristles extending radially outwards therefrom;

Figure 4 is a perspective view of outer bevelled edges of the tubular body configured to extend around the holes on the tubular body shown in Figure 1; and

25 Figure 5 is a cross-sectional view of one of the holes of the tubular body, together with surrounding portions of the tubular body, the tubular body being shown in fragment, and the tubular body having an inner bevelled edge and an outer bevelled edge configured to surround the hole.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The brush as herein disclosed provides a series of technical features that allow the brush to be
5 used in a more effective and optimized manner, while improving its durability.

According to the invention, the brush features an aluminium tubular body having a plurality of
holes extending therethrough. The tubular body is coated externally with an artificial plastic
material. The artificial plastic material is configured to have non-stick properties, a high
10 capacity of heat transmission and a high resistance to chemical and physical agents. The
artificial plastic material in this example is polytetrafluorethylene, also known as Teflon
(Trademark).

Aluminium is a good conductive material for heat. When heat is applied to the tubular body as
15 herein described, this results in a homogeneous distribution of heat on the tubular body.

The coating of polytetrafluorethylene prolongs the time of heat transfer and provides protection
against damage of the brush otherwise caused by hair products applied on the hair. The coating
of polytetrafluorethylene thus improves the durability and extends the life of the brush.
20 Additionally, polytetrafluorethylene has non-stick properties, and this enables a smooth sliding
of hair over the tubular body of the brush. The coating thus acts to inhibit undue pulling of the
hair. This smooth sliding resulting from the coating also enables one's hair cuticles to be sealed,
which in turn results in a more brilliant and reinforced hair compared to that achieved with the
use of conventional brushes.

25 The holes made on the tubular body as herein described, and through which the bristles extend,
have a polygonal shape. In particular, each of the holes in this example has a rhomboidal shape.
The holes are arranged in a herringbone pattern so that the bristles can extend outwards
therethrough and therefrom in a relatively easy manner during the assembly of the brush. The
30 holes so shaped also enable the bristles to be arranged perpendicular to the tubular body.
Bristles so positioned enable one to brush in an improved and more effective manner.

In order to facilitate even more the disposal and extension of the bristles through the holes of the tubular body during the assembly of the brush, the brush as herein described has its holes arranged in oblique lines in respect of the longitudinal axis of the brush. The space between these polygonal holes is preferably equal to or less than to 2 millimetres, according to one example. Portions of the tubular body adjacent to the holes are oblique relative to the longitudinal axis of the brush, and this spacing enables the brush to be relatively light and also handier to use.

Hole imperfections arising from the manufacture of the tubular body are eliminated by bevelling the holes. The plurality of inner bevelled edges surrounding the holes facilitates the passage of the fibre through the holes of the tubular body. The plurality of outer bevelled edges surrounding the holes reduces and/or eliminates the presence of jagged imperfections on the external surface of the tubular body, which can damage the hair cuticle.

The bristles of the brush are made of nylon ionized by means of radiation. This strengthens and enhances the resistances of the bristles due to the alteration produced in the bristles' or fibres' molecular structure during the radiation. The use of these ionized bristles facilitates the sliding of hair among the bristles, and also avoids the accumulation of static in the hair and therefore the undesirable effects associated with such static accumulation.

Referring to the figures and first to Figure 1, the brush includes a handle (1), a tubular body (2) and a top (3). The handle (1) is assembled via a mouthpiece to the tubular body (2). The tubular body (2) is hollow and has a first end (5) that connects to the handle (1) and a second end (6) opposite the first end. The top (3) connects to the second end of the tubular body (2). The tubular body (2) has an exterior side (7) and an interior side (8), as shown in Figure 3, that is opposite the exterior side. The tubular body (2) includes a plurality of holes (21) extending therethrough. The brush includes a support member (4) centrally disposed within the tubular body (2) and which extends between the handle (1) and top (3) as shown in Figure 1. The brush includes a plurality of bristles (41) fixed to and arranged helicoidally with the support member

(4). The bristles (41) extend through the holes (21) of the tubular body (2). The bristles (41) are made of nylon bristles ionized through radiation.

5 The tubular body (2) is made of an aluminium plate coated externally with potytetrafluorethylene. The holes (21) each have a rhomboid shape and are arranged in a herringbone pattern, forming oblique lines in respect of the longitudinal axis of the brush The space between the holes is equal to or less than 2 millimetres.

10 As it can be seen in Figures 4 and 5, the tubular body (2) has a plurality of inner bevelled edges (21a) configured to extend around the holes (21) at the interior side (8) of the tubular body (2). The tubular body (2) has a plurality of outer bevelled edges (21b) configured to extend around the holes (21) at the exterior side (7) of the tubular body (2).

15 As seen in Figure 5, each of the holes (21) has a center, annular region (23) located between the interior side (8) and the exterior side (7) of the tubular body (2). The annular regions have sidewalls, as shown by walls (24) and (25) that extend in parallel with each other. As seen in Figure 5, the inner bevelled edges (21a) and the outer bevelled edges (21b) extend from the interior side (8) and the exterior side (7) of the tubular body (2), respectively, and terminate at said center, annular regions (23) of the holes (21). As seen in Figure 5, the inner bevelled edges
20 and the outer bevelled edges have terminal portions located (26) and (27) at the center, annular regions (23). The terminal portions are spaced-apart from each other.

25 The internal bevelling shown by edges (21a) facilitates disposal of the bristles (41) through the holes (21) during the assembly of the brush. The external bevelling shown by edges (21b) avoids the creation of jagged edges on the external surface of the tubular body (2), which may otherwise damage one's hair cuticles.

WHAT IS CLAIMED IS:

1. A hair brush having a longitudinal axis and comprising:

a handle;

a tubular body made of an aluminium plate and including a coating of vinyl fluoride polymer, the vinyl fluoride polymer being configured to have non-stick properties and a high resistance to chemical agents, the tubular body having a first end, a second end opposite the first end, the handle connecting to the first end of the tubular body, the tubular body having an exterior side, an interior side opposite thereof, a plurality of spaced-apart holes extending from the interior side through to the exterior side of the tubular body, the holes being polygonal-shaped, being arranged in a herringbone pattern, and being arranged obliquely relative to the longitudinal axis of the brush, the holes each having a center, annular region located between the interior side and the exterior side of the tubular body, said annular regions having sidewalls that extend in parallel with each other, a plurality of inner bevelled edges configured to extend around the holes at the interior side of the tubular body and a plurality of outer bevelled edges configured to extend around the holes at the exterior side of the tubular body, the inner bevelled edges and the outer bevelled edges extending from the interior side and the exterior side of the tubular body, respectively, and terminating at said center, annular regions of the holes, the inner bevelled edges and the outer bevelled edges having terminal portions located at said center, annular regions, the terminal portions being spaced-apart from each other;

a top connecting to the second end of the tubular body;

a support member disposed within the tubular body, the support member connecting to and extending between the first end and the second end of the tubular body; and

a plurality of bristles at one end fixed helicoidally to the support member, the bristles being configured to extend from the support member, extend through the holes of the tubular body and terminate spaced radially outwards from the tubular body.

2. The brush as claimed in claim 1, wherein each of the holes has, at least in part, a rhomboid shape.
3. The brush as claimed in any one of claims 1 to 2, wherein a spacing distance between adjacent said holes is equal to or less than 2 millimetres.
4. The brush as claimed in any one of claims 1 to 3, wherein the bristles are made of nylon bristle that is ionized by means of radiation.

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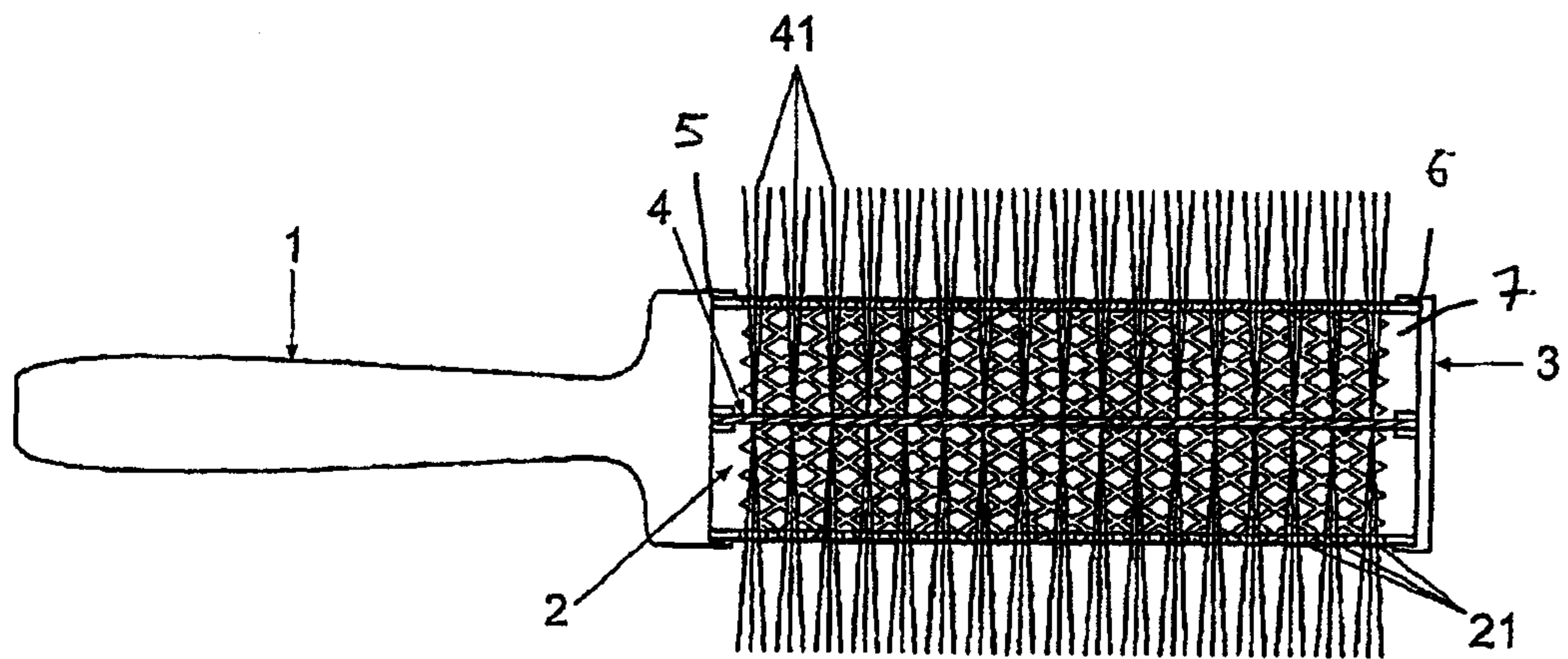


Fig. 1

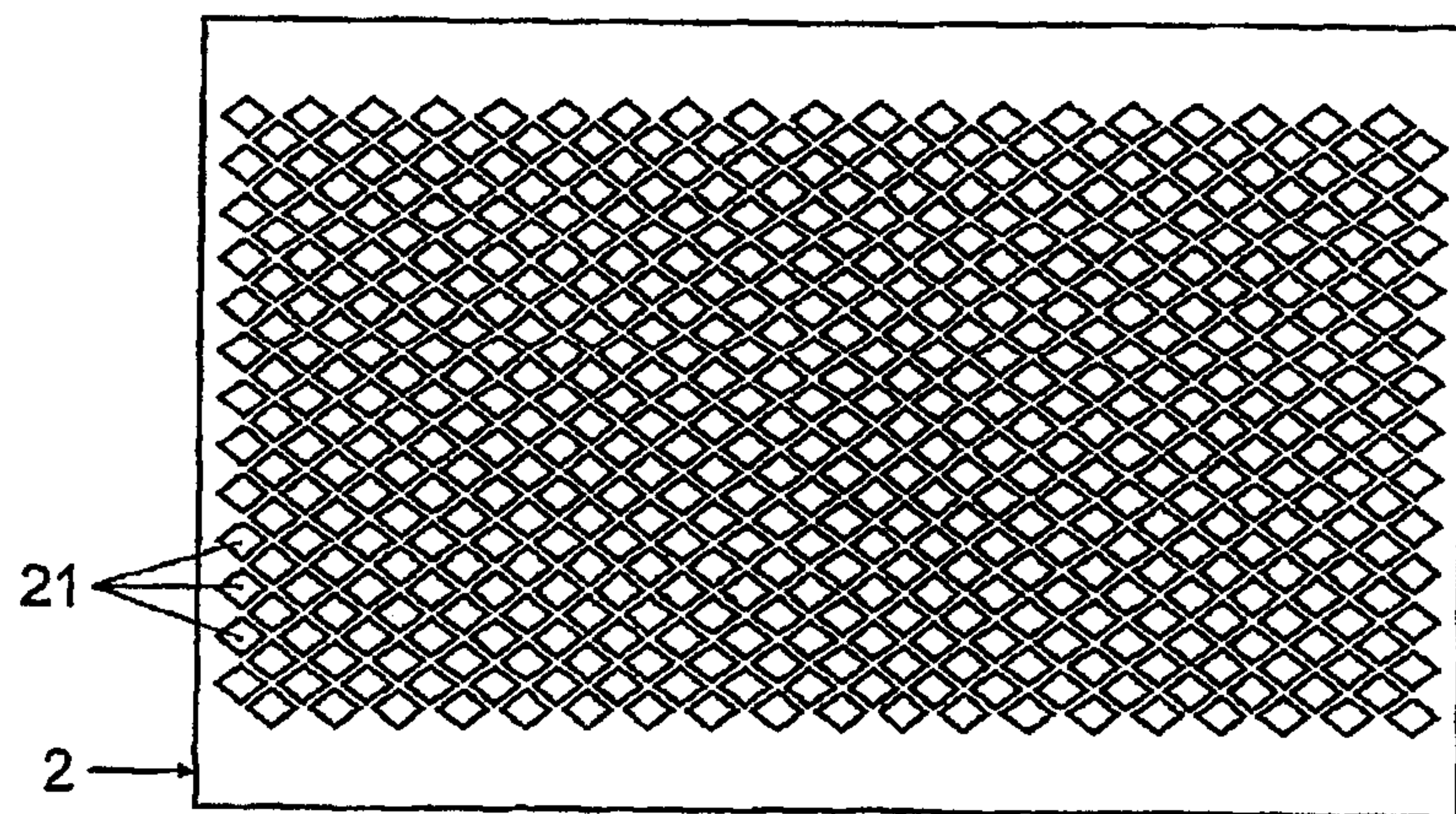


Fig. 2

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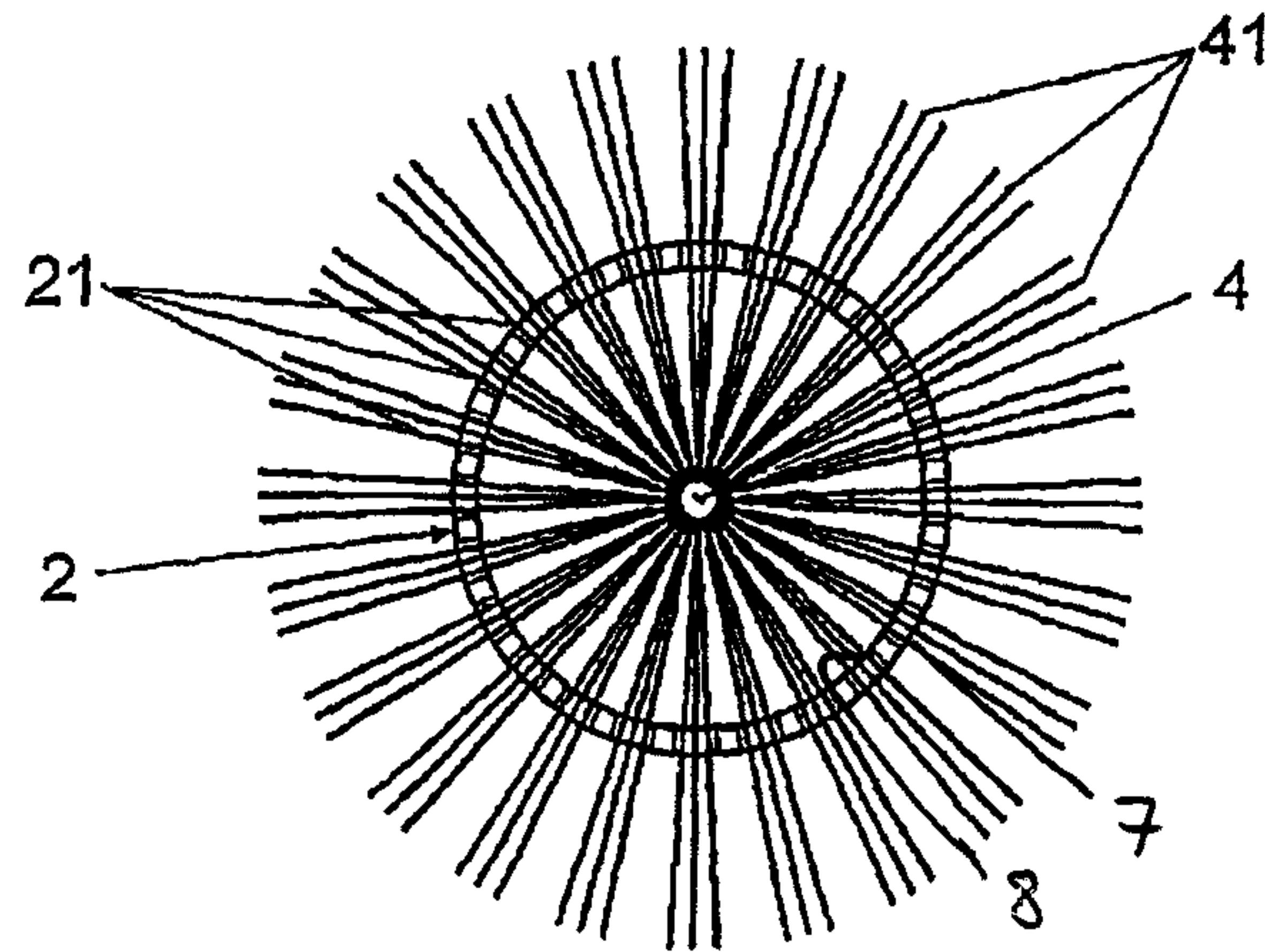


Fig. 3

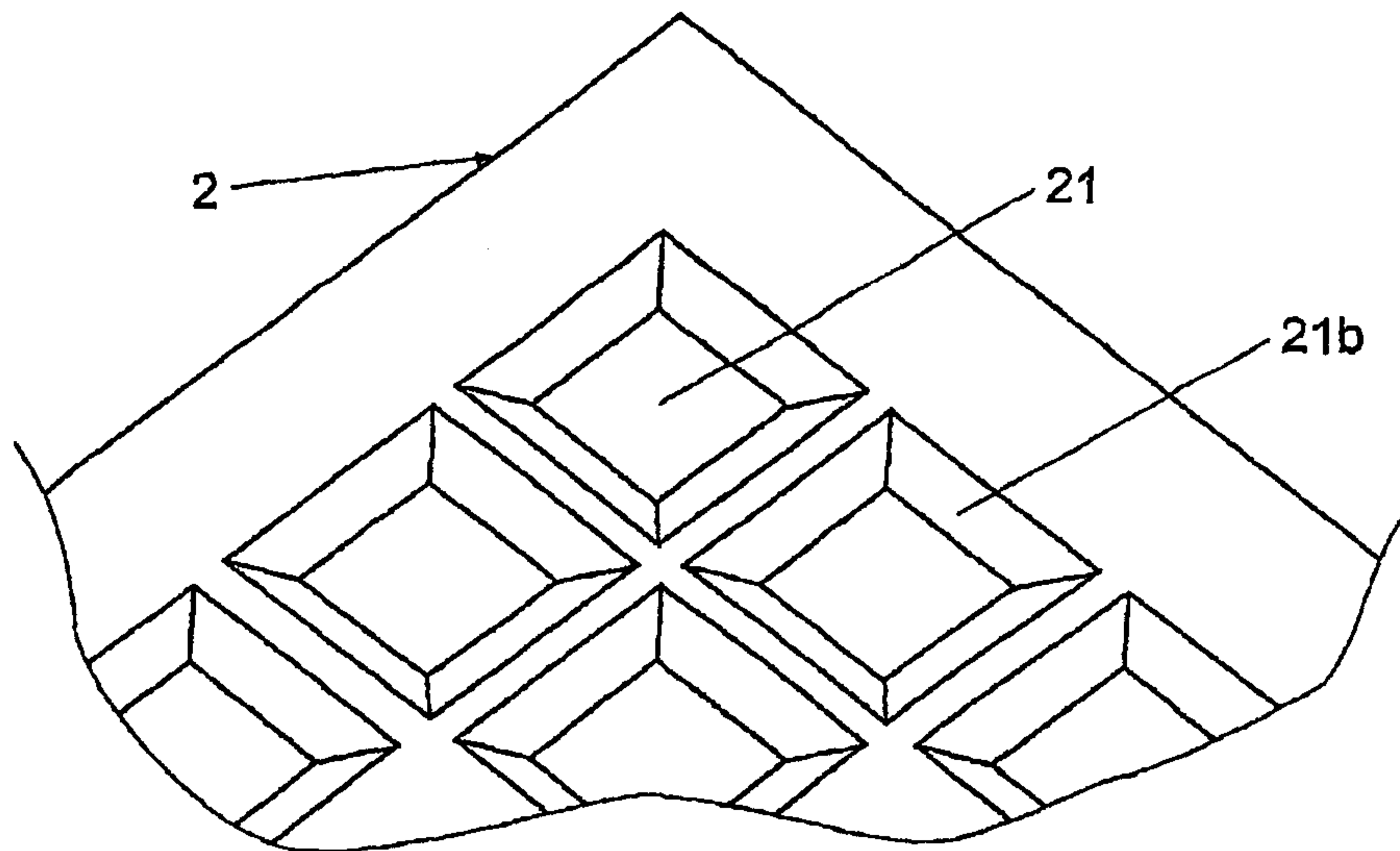


Fig. 4

