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(54) Improvements in or relating to artificial fingernails.

(57) An artificial fingernail for adhering to the exposed surface of a natural fingernail made of an acrylonitrile/butadiene/styrene polymer and having a rear portion (9) of reduced thickness to enable the portion (9) to be pressed down onto the natural nail to achieve a close-fitting junction with the cuticle of the natural nail. The border between the area (9) of reduced thickness and the remainder of the artificial nail is convex with respect to the rear edge (5) of the nail, when viewed in plan. The rear edge (5) of the nail, when viewed from the rear of the nail, presents an inverted, deeply convex configuration. The artificial nail is adhered to the natural nail using a liquid cyanoacrylate adhesive.

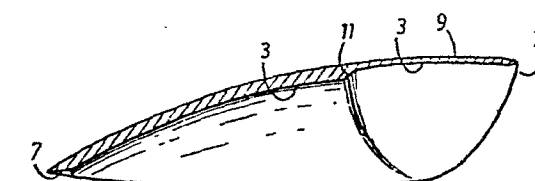
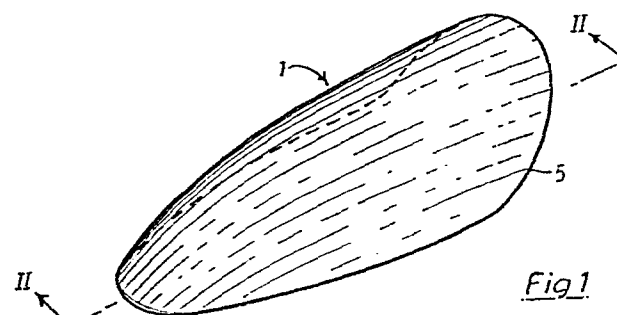


Fig 2.

DESCRIPTION

"IMPROVEMENTS IN OR RELATING TO
ARTIFICIAL FINGERNAILS"

5 The present invention relates to artificial finger
nails for adhering to natural fingernails, thereby
artificially lengthening the natural fingernails, and
to a method of adhering the artificial fingernails to
natural fingernails.

10 Preformed artificial fingernails have been known
for many years. These nails have traditionally been
made of polyvinyl acetate and have been adhered to the
natural fingernail by gummy adhesives. Such
artificial nails have had a number of practical
15 disadvantages which have detracted from their
widespread acceptance. Firstly, the acetate material
itself is brittle and prone to splitting and
breaking. Because of its brittle nature, such nails
have had to be relatively thick which led to them
being of unsightly and unnatural appearance. A
20 characteristic of the known nails was that, because of
the material used in their manufacture, if they were
immersed in water they tended to distort and in many
cases to come off altogether. Thus, the wearer of
such nails had difficulty in washing her hands and
25 had to take special steps to avoid immersion in water.

30 In order to improve the above-described artificial
nails, a method of artificially lengthening natural
nails was devised known as the "acrylic sculptured tip
method". In this method the natural fingernail
initially undergoes a series of preparatory steps so
that it will satisfactorily accept the artificial
fingernail. However, prior to carrying out these
preparatory steps the natural fingernail and the
surrounding area of the finger is usually checked for
35 the presence of any disease, deformity or disorder

which would result in it being unadvisable to apply the artificial fingernail. If there is no such disease, deformity or disorder present, then the preparatory steps are carried out. Initially, the
5 cuticle is softened and , if necessary, any dead cuticle and hangnails are removed. The surface of the natural fingernail (i.e. the nail plate) and the surrounding area of the finger is then cleansed to remove any oil and/or grease that may be present. In
10 this cleansing step any oil and/or grease present on the surface of the natural fingernail and the surrounding area of the finger is removed utilizing methylated spirits. If any oil and/or grease is present and is not removed, then this may hinder the
15 application of the artificial fingernail, for example, by resulting in an unsatisfactory bond between the natural fingernail and the artificial fingernail.

After the natural fingernail has undergone the preparatory steps, it has either a form or a platform placed around the free edge thereof such that a
20 surface is provided on which the artificial fingernail can be subsequently produced. If a form is utilized, then this is usually made of aluminium foil and is removed after the artificial fingernail has been
25 produced. However, if a platform is utilized, then this is usually made of a plastics material and is not removed after the artificial fingernail has been produced, the platform being bonded to the artificial fingernail by means of an acrylic liquid which is the
30 same as that used in the artificial fingernail itself; the formation of the artificial fingernail itself is discussed, in detail, below.

The surface of the natural fingernail is then slightly roughened by rubbing it with an emery board,
35 this procedure resulting in a dust being created on

the surface of the nail. The dust created provides a "key" which aids the subsequent bonding of the artificial fingernail to the natural fingernail.

5 A coating of an acrylic material, in liquid form, is then applied to the surface of the natural fingernail and, if utilized, to the surface of the platform.

10 The next step is the actual formation of the artificial fingernail and this is achieved by mixing together an acrylic liquid and an acrylic powder and applying this mixture to the surface of the natural fingernail and the form/platform. The acrylic powder/acrylic liquid is applied as evenly as possible to the surface of both the natural fingernail and the
15 form/platform, and is applied to the surface of the form/platform such that an artificial fingernail having the desired length is obtained. The acrylic powder/acrylic liquid is then allowed to harden such that a solid, crude, artificial fingernail is produced.

20 In order to produce an artificial fingernail having a satisfactory appearance, the crude, artificial fingernail, which has a dull and rough surface, is filed down into a nail shape and subsequently polished to a high gloss. The filing
25 may, for example, be achieved utilizing files of various coarseness and buffers, and may be carried out by hand or by machine.

The above-described "acrylic sculptured tip method" has a number of disadvantages, the major of which are listed below:-
30

1. The acceptability and appearance of the artificial fingernails produced depends, to a large extent, on the skill of the operator who is forming them, and it often takes several months for an
35 operator to acquire a good level of skill.

2. As the crude, artificial fingernails produced on hardening of the acrylic powder/acrylic liquid mixture have a rough and dull surface finish, it is necessary to file and then polish them in order to
5 produce artificial fingernails having a satisfactorily smooth and glossy surface finish. The need to file and polish the cured acrylic powder/acrylic liquid mixture is a disadvantage since it adds to the overall time of the method and also since a certain degree of
10 skill is required if a satisfactory finish is to be obtained.

3. The whole procedure, including the initial preparation of the natural fingernails, forming the crude, artificial fingernails, and filing and
15 polishing the crude artificail fingernails to the required shape and gloss, may take a skilled and experienced operator from one to two hours to carry out on both hands of the person having the artificial fingernails applied. For an inexperienced operator,
20 however, the procedure may take up to approximately four hours.

4. The artifical fingernails produced utilising the above-described method look acceptable from a distance, but on close inspection, they can be seen to
25 be considerably thicker than natural fingernails.

5. The artificail fingernails produced utilizing the above-described method are somewhat brittle and breakages of the artificial fingernails are, therefore, quite common.

30 6. As the natural fingernail grows, a space will eventually develop between the cuticle and the rear edge of the artificial fingernail bonded to the natural fingernail, for example, approximately two to four weeks after the artificial fingernails have been
35 applied it will be necessary to fill the space formed between the cuticle and the rear edge of the

artificial fingernail, this being achieved by filling the space with further acrylic powder/acrylic liquid mixture, allowing the mixture to harden, and then filing and polishing the surface of the newly applied and hardened acrylic powder/acrylic liquid mixture to achieve a satisfactory surface finish.

7. Both the original application of the artificial fingernails and the subsequent filling of the spaces formed due to natural fingernail growth are quite time consuming and, hence, expensive to perform.

8. The acrylic liquid used to produce the artificial fingernails must be carefully stored in order to prevent its solidification before use.

9. When it is desired to remove the artificial fingernails, it is necessary to either cut away the artificial fingernail, or to soak the fingernails in acetone for up to approximately one hour. The former of these two methods for the removal of the artificial fingernails has the disadvantage that it must be carried out very carefully if damage to the natural nail is not to occur, and the latter of these two methods has the disadvantage that the nails must be soaked in acetone for a considerable length of time before the artificial fingernails can be removed.

It is an object of the present invention to provide an artificial fingernail and a method of applying such an artificial fingernail to a natural fingernail which avoid at least some of the disadvantages of the above-described known "acrylic sculptured tip method" and also of the known preformed artificial fingernails described initially.

According to the present invention there is provided an artificial plastics fingernail for adhering to the exposed surface of a natural fingernail, the artificial fingernail being made of an

acrylonitrile/butadiene/styrene polymer and being shaped to fit over the exposed surface of the natural fingernail and having a rear portion of reduced thickness to enable the latter portion to be pressed
5 down onto the natural fingernail to achieve a close-fitting junction with the cuticle of the natural nail.

The reduced thickness of the rear portion of the artificial nail can improve the appearance of the
10 artificial fingernail for two reasons. Firstly, when adhered to the surface of a natural fingernail, the artificial fingernail will have an improved fit at the base of the natural fingernail. That is, the artificial fingernail will not be above the level of
15 the surrounding skin and it will, therefore, be difficult to distinguish the artificial fingernail from a natural fingernail. Secondly, because the artificial fingernail is made of a translucent material, the reduced thickness rear portion will
20 appear lighter in colour than the remainder of the artificial fingernail. Consequently, if the border between the area of reduced thickness and the remainder of the artificial fingernail is convex with respect to the rear of the artificial fingernail, when
25 viewed in plan, then the artificial fingernail, when adhered to a natural fingernail, will simulate the "half-moon" effect observed at the base of natural fingernails.

The artificial fingernail according to the present
30 invention is preferably manufactured in a variety of sizes, e.g. nine different sizes, such that it should not be necessary to trim the sides or rear of the nail in order to achieve a satisfactory fit on the surface of the natural fingernail. This is particularly
35 important since, as already stated, the underside of

the edge of the artificial fingernail is contoured to fit the junction of the natural fingernail and the associated cuticle and any trimming of the sides or rear of the artificial fingernail will remove this
5 contoured edge, thus resulting in an inferior fit of the artificial fingernail. If desired the front of the artificial fingernail may be trimmed so that the artificial fingernail, when adhered to the surface of a natural fingernail, has a desired length. This
10 trimming of the front of the artificial fingernail is preferably performed after the artificial fingernail has been adhered to the natural fingernail and will not affect the fit of the artificial fingernail.

It has been found that by making the artificial
15 fingernail according to the present invention from an acrylonitrile/butadiene/styrene (ABS) polymer, the artificial fingernail has sufficient flexibility to allow it to bend without breaking. As a result, the danger of damage to the natural nail plate and the
20 natural nail bed by the application of pressure to, or inadvertent knocking of, the artificial fingernail is reduced very considerably compared to the known artificial nails described initially.

Preferably, the artificial fingernail of the
25 present invention is translucent in order that it closely resembles the appearance of a natural fingernail.

The ABS polymer is particularly suitable for use in forming the artificial fingernails of the present
30 invention since artificial fingernails produced therefrom can, when desired, be readily removed from the natural fingernail, for example, by immersing the artificial fingernail in acetone for a short period of time.

In accordance with the present invention there is also provided a method of adhering an artificial fingernail according to the present invention to a natural fingernail, the method comprising preparing
5 the natural fingernail to accept the artificial fingernail, applying a bonding agent either to the exposed surface of the natural fingernail or to that portion of the underside of the artificial fingernail that is to contact the natural nail, positioning the
10 artificial fingernail on the surface of the natural fingernail, and holding the artificial fingernail in place for a period of time sufficient to allow the bonding agent to bond the artificial fingernail to the natural fingernail.

15 Prior to carrying out the method of the present invention, it is preferable to visually inspect the natural nail and the surrounding area of the finger for any disease, deformity or disorder which would result in it being unadvisable to apply the artificial
20 fingernails.

If the visual inspection of the natural nail and the surrounding area of the finger indicates that there is no disease, deformity or disorder present, then the natural fingernail is prepared such that it
25 will accept the artificial fingernail. This preparation comprises cleansing the natural fingernail, for example, to remove any oil and/or grease that may be present on the surface of the nail. Preferably the area of the finger surrounding the
30 natural fingernail is also cleansed. Cleansing is preferably achieved by washing the natural fingernail and the surrounding area of the finger with hot soapy water and also washing the natural fingernail and the surrounding area of the finger with a solvent capable
35 of removing any oil and/or grease present. A suitable solvent for removing oil and/or grease is acetone.

5 The preparation of the natural fingernail such that it will accept the artificial fingernail also preferably comprises a step wherein the cuticle is softened, for example, by applying an oil to the cuticle. Also, any dead cuticle and hangnails are preferably removed. The softening of the cuticle and the removal of any dead cuticle/hangnails, if carried out, are preferably carried out prior to the cleansing step.

10 The preparation of the natural fingernail, in accordance with the method of the present invention, also preferably comprises, after the cleansing and any softening of the cuticle, a step wherein the surface of the natural fingernail is rubbed with an abrasive,
15 for example, an emery board, to lightly roughen the surface of the nail and create a dust on the surface of the nail. The formation of such a dust on the surface of the natural fingernail is particularly advantageous since it will provide a "key" when the
20 bonding agent and artificial fingernails are subsequently applied.

The purpose of the preparation of the natural fingernail, in accordance with the method of the present invention, is, firstly, to ensure that a
25 satisfactorily strong bond is subsequently achieved between the natural fingernail and the artificial fingernail, and secondly, to ensure that an anaerobic seal is created between the natural and artificial fingernails when the artificial fingernail is
30 subsequently bonded to the exposed surface of the natural fingernail. The latter point is particularly important since the absence of such an anaerobic seal could result in foreign matter, e.g. moisutre, being able to find its way inbetween the natural and
35 artificial fingernails after they have been bonded

together and this could lead to health problems, for example, infections developing between the natural and artificial fingernails.

5 After the preparation of the natural fingernail, in accordance with the method of the present invention, has been completed, a bonding agent is applied either to the exposed surface of the natural fingernail or to that portion of the underside of the artificial fingernail that will lie on the surface of
10 the natural fingernail when the natural and artificial fingernails are bonded together. Preferably the bonding agent is applied to the exposed surface of the natural fingernail. Preferably the bonding agent is applied such that, when the artificial fingernail is
15 positioned on the surface of the natural fingernail, substantially the whole of the exposed surface of the natural fingernail is coated with the bonding agent. For example, the bonding agent may be applied to only a portion of either the surface of the artificial
20 fingernail or the natural fingernail but sufficient bonding agent being applied such that, when the artificial fingernail is positioned on the natural fingernail, substantially the whole of the exposed surface of the natural fingernail is coated with the
25 bonding agent.

A preferred bonding agent for use in the method of the present invention is a liquid cyanoacrylate adhesive. A more preferred bonding agent is a viscous liquid cyanoacrylate adhesive, for example, as
30 manufactured by Bostik of West Germany.

After the application of the bonding agent, the artificial fingernail is placed in its desired position on the surface of the natural fingernail and is held in this position for a period of time
35 sufficient to achieve a bond between the artificial

and natural fingernails. If a cyanoacrylate adhesive is used as the bonding agent, then the artificial fingernail must be placed in the desired position on the surface of the natural fingernail immediately after the application of the cyanoacrylate adhesive due to the very rapid cure time of the adhesive.

Further, if a cyanoacrylate adhesive is utilized as the bonding agent, then the artificial fingernail is preferably held in place on the surface of the natural fingernail for a period of time of from 20 to 30 seconds since this period of time will be long enough for the cyanoacrylate adhesive to cure sufficiently to achieve a positive bond between the artificial and natural fingernails.

Once the artificial fingernail has been bonded to the natural fingernail, the free end of the artificial fingernail may, for example, be trimmed such that it has any desired shape and also such that the artificial fingernail has any desired length.

The artificial fingernails may be retained in position on the natural fingernails until such time as the growth of the natural fingernail results in a noticeable space between the rear edge of the artificial fingernail and the cuticle. This noticeable space usually develops approximately two to four weeks after the initial application of the artificial fingernails.

When a noticeable space has developed between the rear edge of the artificial fingernails and the cuticle, the artificial fingernails can be readily removed and, if desired, fresh artificial fingernails applied. The removal of the artificial fingernails may, for example, be achieved by immersing the fingernails in a suitable solvent, e.g., acetone, for a short period of time, after which time the

artificial fingernails and bonding agent can be readily removed. If a cyanoacrylate adhesive is used as the bonding agent and acetone is used as the solvent, then the bonding agent will be softened by
5 the acetone to such an extent that it can be peeled away from the natural fingernail.

The present invention will now be further described with reference to the accompanying drawings, in which:-

10 Fig.1 is a perspective view of one embodiment of an artificial fingernail according to the present invention;

Fig.2 is a sectional view of the artificial fingernail illustrated in Fig.1 and taken along line
15 II of Fig.1; and

Fig.3 is a plan view of the artificial fingernail of Figs. 1 and 2.

Referring to the drawings, there is illustrated an artificial fingernail 1 according to the present
20 invention. The artificial fingernail 1, which is made of translucent acrylonitrile/butadiene/styrene polymeric material, has an underside surface 3 which is shaped to fit the exposed surface of a natural fingernail (not shown) and has a rear edge 5 which is
25 shaped to the line of the cuticle associated with the natural fingernail. Thus, the present artificial nail has a rear edge 5 which, when viewed from the rear (as indicated by arrow X in Figs. 1 and 2) presents an inverted, deeply convex configuration. This is in
30 contrast to the shape of the known polyvinylacetate nails which had a rear edge lying substantially in the same horizontal plane as the front edge. In other words, the nail was almost symmetrical about a plane extending transversely of its length and the front and
35 rear of the nail were substantially indistinguishable

one from the other. As evident from the drawings, this is not the case with the present artificial nail and the result is a much more aesthetically pleasing junction with the natural nail.

5 Further, the artificial fingernail 1 has an underside edge 7 which is chamfered or bevelled to fit the junction between the natural fingernail and the associated cuticle. The artificial nail 1 also has a rear portion 9 of reduced thickness. This enables the
10 portion 9 to have extra flexibility so that it can be pressed down onto the natural nail during bonding. It has been found that this greatly improves the natural appearance of the junction between the artificial nail and the natural cuticle.

15 As shown in Fig.3, the border 11 between the portion 9 of reduced thickness and the remainder of the artificial fingernail 1 is convex with respect to the rear edge 5 of the fingernail 1 when viewed in plan and this, together with the translucent nature of
20 the acrylonitrile/butadiene/styrene material from which the artificial fingernail 1 is made, simulates the "half-moon" region normally visible on natural fingernails, thus rendering the artificial fingernails more indistinguishable from natural fingernails.

25 The artificial fingernail and the method of adhering the artificial fingernail to a natural fingernail, according to the present invention, have a number of advantages of the "acrylic sculptured tip method" commonly used at present, the main advantages
30 being as follows:-

1. The method of adhering the artificial fingernail to a natural fingernail, according to the present invention, does not require a skilled person to carry it out as there are no steps requiring a high
35 degree of skill. In the "acrylic sculptured tip

method", however, a considerable amount of skill is required in order to satisfactorily form the acrylic liquid/acrylic powder mixture into a crude, artificial fingernail shape on the surface of the natural fingernail and the form/platform and, when the acrylic liquid/acrylic powder mixture has hardened, to satisfactorily shape the crude, artificial fingernail into a finished, polished artificial fingernail that is difficult to distinguish from a natural fingernail.

5 2. The method according to the present invention can be utilized to apply a complete set (i.e. ten) of artificial fingernails in approximately fifteen to twenty minutes, if an experienced operator is carrying out the method, and in approximately thirty to forty minutes, if a relatively inexperienced operator is carrying out the method. Both of these times are considerably shorter than the time normally required to apply a complete set of artificial fingernails by the known "acrylic sculptured tip method" which, as previously stated, can take an experienced operator from one to two hours and a relatively inexperienced operator up to four hours.

15 3. The artificial fingernails according to the present invention, when adhered to natural fingernails, have a superior appearance to the artificial fingernails produced by the "acrylic sculptured tip method".

25 4. The artificial fingernails according to the present invention may be produced in a variety of sizes, thereby reducing or eliminating the need to trim the rear and side edges thereof. This results in the artificial fingernails according to the invention achieving an excellent fit at the junction of the natural fingernails and the associated cuticles and thereby making it difficult to distinguish the artificial fingernails from natural fingernails.

5 5. The artificial fingernails according to the present invention have a thickness which is closer than the artificial fingernails produced by the "acrylic sculptured tip method", to the thickness of natural fingernails. This feature also, therefore, makes it difficult to distinguish the artificial fingernails of the invention from natural fingernails.

10 6. Artificial fingernails made of acrylonitrile/-butadiene/styrene polymer according to the present invention are more flexible, and hence less prone to damage, than the artificial fingernails produced by the "acrylic sculptured tip method". This flexibility of the artificial fingernails of the invention also minimises the risk of damage to the natural

15 fingernails to which they are adhered. For example, if the artificial fingernail according to the invention is inadvertently knocked or catches on something, it will have a tendency to bend rather than to pull on the natural nail and possibly damage the

20 natural nail. Further, if the pressure or strain applied to the artificial fingernail of the present invention is sufficiently great, then it will have a tendency to break so that the risk of damage to the natural fingernail is minimised.

25 7. A method by which the artificial fingernail according to the present invention is adhered to the natural nail has the effect that, if the artificial fingernail catches on something, the bond between the artificial and natural fingernails will have a

30 tendency to break before any damage to the natural fingernail occurs.

35 8. The artificial fingernails according to the present invention are simpler and quicker to remove from the natural fingernails, when desired, than the artificial fingernails produced by the "acrylic sculptured tip method".

5 9. As the artificial fingernails according to the present invention are quicker and simpler to apply to natural fingernails than the artificial fingernails produced by the "acrylic sculptured tip method", they are less costly to apply than the "acrylic sculptured tip" fingernails.

10 10. The artificial fingernails according to the present invention may be simply produced by a moulding technique, for example, by injection moulding. This allows the artificial fingernails to be readily mass produced and produced in a variety of standard sizes.

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CLAIMS

1. An artificial plastics fingernail for adhering to the exposed surface of a natural fingernail, the artificial fingernail being shaped to fit over the exposed surface of the natural fingernail, characterised in that the artificial fingernail is made of an acrylonitrile/butadiene/styrene polymer and in that the artificial fingernail has a rear portion (9) of reduced thickness to enable the latter portion (9) to be pressed down onto the natural nail to achieve a close-fitting junction with the cuticle of the natural nail.

2. An artificial fingernail, as claimed in claim 1 characterised in that the border between the area (9) of reduced thickness and the remainder of the artificial fingernail is convex and with respect to the rear edge (5) of the artificial fingernail, when viewed in plan, whereby the artificial fingernail when adhered to a natural fingernail simulates the "half-moon" effect, observed at the base of natural fingernails.

3. An artificial fingernail as claimed in claim 1 or 2, characterised in that the rear edge (5) of the nail, when viewed from the rear of the nail, presents an inverted deeply convex configuration.

4. A method of adhering an artificial fingernail, constructed as claimed in claim 1, to a natural fingernail, the method comprising preparing the natural fingernail to accept the artificial fingernail, applying a bonding agent either to the exposed surface of the natural fingernail or to that portion of the underside of the artificial fingernail that is to contact the natural nail, positioning the artificial fingernail on the surface of the natural fingernail, and holding the artificial fingernail in place for a period of time sufficient to allow the bonding agent to bond the artificial fingernail to the natural fingernail, characterised in that the bonding agent is applied such that, when the artificial fingernail is

positioned on the surface of the natural fingernail,
substantially the whole of the exposed surface of the
natural fingernail is coated with the bonding agent,
whereby to ensure that an anaerobic seal is created between
5 the natural and artificial fingernails when the natural
and artificial fingernails are bonded together.

5. A method as claimed in claim 4, characterised
in that the bonding agent is a liquid cyanoacrylate
adhesive.

10 6. A method as claimed in claim 4, characterised
in that the bonding agent is a viscous liquid cyano-
acrylate adhesive.

7. A method as claimed in claim 4, 5 or 6,
characterised in that, prior to application of the
15 artificial fingernail, the cuticle is softened by the
application thereto, of an oil.

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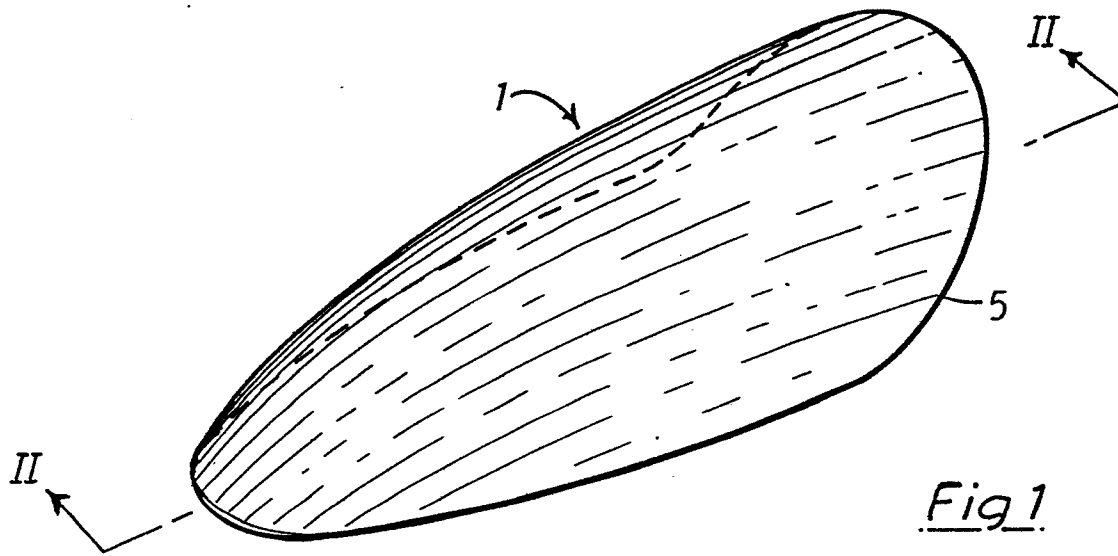


Fig 1.

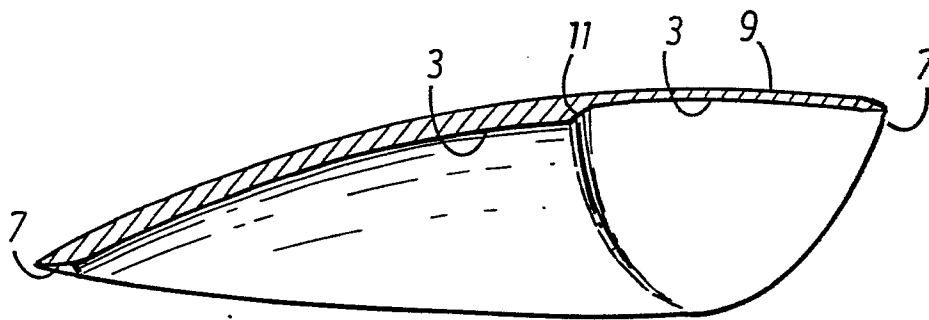


Fig 2.

