

(21) Application No 9001000.0

(22) Date of filing 17.01.1990

(30) Priority data
(31) 8901835 (32) 27.01.1989 (33) GB

(71) Applicant
Lionel Maurice Lewis

**8 Chantry Close, Kenton, Harrow, Middlesex,
United Kingdom**

(72) Inventor
Lionel Maurice Lewis

(74) Agent and/or Address for Service
Graham Jones & Company
**77 Beaconsfield Road, Blackheath, London
SE3 7LG, United Kingdom**

(51) INT CL⁵
A61B 17/41

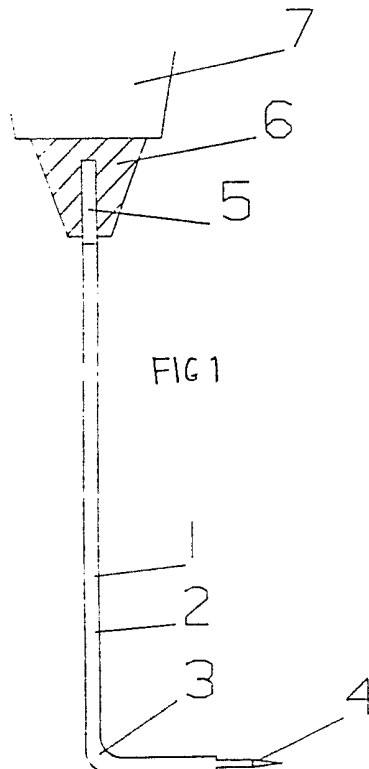
(52) UK CL (Edition K)
**A5R RHCE
U1S S1124**

(56) Documents cited
None

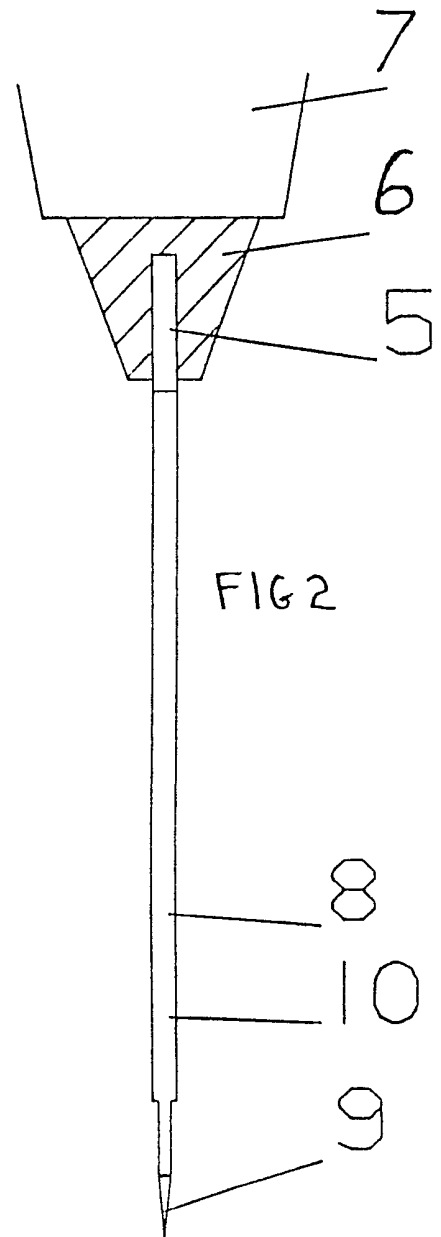
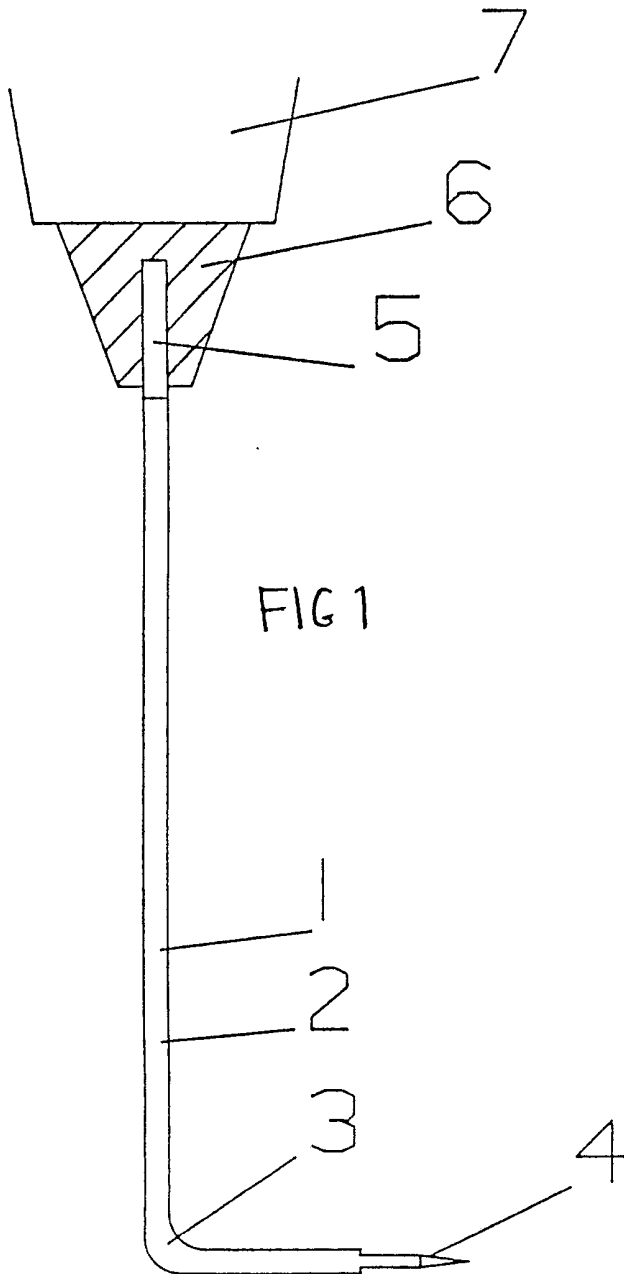
(58) Field of search
UK CL (Edition J) **A5R RHCE**
INT CL⁴ **A61B 17/41, A61N**
Online Databases: WPI, CLAIMS

(54) **Depilation needle**

(57) A depilation needle comprising an elongate conductive body (1) the surface of which is covered with insulating material (2), the body (1) having at one end a conductive tip (4) suitable for depilation purposes and at the other end a conductive surface portion (5) which communicates electrically with the tip (4) via the body (1), the needle being such that during depilation the conductive tip (4) and the insulating material (2) adjacent the conductive tip (4) are able to contact a person's skin whereby the insulating material (2) prevents the person's skin receiving an electrical depilation current except from the conductive tip (4), and the insulating material (2) comprising a non-toxic polyamide/polyimide resin.



1/1



DEPILATION NEEDLE

This invention relates to depilation needles for use with electrical depilatory apparatus.

Electrical depilatory apparatus comprising a depilatory needle which is used to pass an
5 electrical current through a hairfollicle whereby the hairfollicle is destroyed is well known. Such apparatus normally comprises a stainless steel needle which is used to contact the hairfollicle and through which a current is passed to kill the hair follicle,
10 thereby to prevent further growth of hair therefrom. One of the problems associated with electrical depilation is that the skin surrounding the hair follicle may be marked, albeit temporarily due to current flowing through surface tissue. This marking of the skin usually manifests
15 itself as scabs and red blotches and it is clearly undesirable. Over a period of years, scarring may appear as the pores shrink as a result of the treatment.

In United Kingdom patent No. 2136296 there is described and claimed a depilation needle which
20 obviates or reduces the above mentioned problem. The depilation needle in the patent is covered with a special type of insulating material.

I have now discovered a particularly advantageous insulating material that may be used on the depilation needle and that is easy to apply to the needle, is non-toxic and is generally satisfactory in use.

Accordingly, this invention provides a depilation needle comprising an elongate conductive body the surface of which is covered with insulating material, the body having at one end a conductive tip suitable for depilation purposes and at the other end a conductive surface portion which communicates electrically with the tip via the body, the needle being such that during depilation the conductive tip and the insulating material adjacent the conductive tip are able to contact a person's skin whereby the insulating material prevents the person's skin receiving an electrical depilation current except from the conductive tip, and the insulating material comprising a non-toxic polyamide/polyimide resin.

The resin is relatively inert and it is non-metallic.

The insulating material may include a lubricant material and/or a pigment. In this connection, the insulating material preferably includes polytetrafluoroethylene as a lubricant material, and carbon black as a pigment.

The resin may be that sold under the Trade Mark Xylan. Preferably, the Xylan is Xylan 8110 or Xylan 8114. if a black coating is required, then Xylan 8110/870 Black may be used. Xylan polyamide/polyimide resins are
5 available from the Whitford Corporation, of West Chester, Pennsylvania, United States of America.

The insulating material will usually be in the form of a lacquer or varnish. The lacquer or varnish will usually dry to a hard inert coating on the depilation
10 needle. The insulating material may be cured quite quickly at elevated temperatures. The insulating material may also be cured at lower temperatures, for example at ambient temperature, but then a longer curing time will usually be required.

15 The insulating material does not involve any intricate or complicated techniques in its application to the depilation needles. The insulating material may thus be applied simply by printing, spraying or dipping the depilation needles into the insulating
20 material. Electrostatic deposition may also be employed. The insulating material does not appear to have

any harmful effects on the skin such for example as skin irritation. Also, the insulating material does not appear to be susceptible to harbouring micro organisms that might tend to generate infections in a person's skin.

The depilation needle of the present invention can thus be used such that a current is passed along the needle so as to bypass surface layers of skin and to pass into the body at a region adjacent the hair follicle. Thus it is simple to apply to a follicle a suitable depilation current without damaging the surface tissues underlying it.

The needle may be bent or cranked. The needle may be made of stainless steel.

The tip should ideally be about one millimetre in length.

The tip may comprise a cylindrical extension of the body having a reduced diameter in order to permit insertion between a hair and its pore.

Embodiments of the invention will now be described solely by way of example and with reference to the accompanying drawings in which:

Figure 1 is a somewhat schematic sectional view of depilation apparatus including a needle; and

Figure 2 is a somewhat schematic sectional view of depilation apparatus which includes a needle of alternative design.

5 Referring now to Figure 1, a depilation needle comprises a first surgical stainless steel body portion 1 which is generally circular in cross section and which is coated with a thin insulative material coating 2. The coating 2 comprises a polyamide/polyimide resin mixed with polytetrafluoroethylene
10 as a lubricant/release agent and carbon black as a pigment. The coating 2 forms a hard inert coating.

The body portion 1 is bent or crinked at a region 3 and extends to define an insulated surgical stainless steel depilation tip 4 at one end. The end
15 of the body portion 1 remote from the tip 4 is also uninsulated and comprises a shank portion 5 which is received into a plated brass chuck 6 through which depilation currents are fed to the needle. The metal chuck 6 is supported in a body 7 which is fabricated
20 from an insulating material such as a plastics material.

The coating 2 can be provided on the body portion 1 by various methods including dipping the body portion 1 into the insulating material, or painting or spraying the insulating material on to the body portion 1. Usually, when the body portion 1 has been provided with the insulating material, the insulating material will be dried at ambient or elevated temperatures to form the coating 2.

Referring now to Figure 2 wherein parts corresponding to those shown in Figure 1 bear the same numerical designations, a needle 8 is provided which is similar to the needle shown in Figure 1 but which is straight and which does not therefore include the cranked region 3. As can be seen most clearly in Figure 2, the needle 8 includes an end part which includes an uninsulated tip 9 which is generally finer than the main body portion 10 of the needle 8 and which can therefore be inserted into the skin so that the whole of the conductive tip 9 lies beneath the surface of the skin next to the bulb of a hair follicle to be destroyed.

It will be appreciated that by using a depilation needle as shown in Figure 1 or Figure 2, it is possible to deliver an electrical current directly to a region below the skin surrounding a hair follicle without passing current through surface tissue, and thus it will accordingly be appreciated that marking due to current

passing through surface tissue is avoided.

In order to further illustrate the invention, reference will now be made to the accompanying Examples.

EXAMPLE I

5 A surgical stainless steel depilation needle
was coated with a coating of a Xylan 8110 material.
The needle was sprayed using a Binks Model 62
spray gun having a No.66 fluid nozzle and a No.66SD air
nozzle. The coating was uniformly provided on the needle
10 or probe. In order to ensure that the insulating material
was firmly bonded to the needle, curing was
effected by heating the needle at 450°F (230°C)
for 10 minutes, followed by heating the needle
at 600°F (315°C) for 1 minute. The resulting coating of
15 the insulating material was hard and it was satisfactorily
adhered to the needle.

The needle was immersed in cold distilled
water for twenty four hours. No significant change was
found in the pH of the distilled water. The distilled
20 water was then subsequently boiled for twenty minutes.
The boiled distilled water was found to retain its
original clarity, colour and taste.

This Example thus demonstrates that the insulating
material is unlikely to cause irritation to a person's
25 skin or to have any adverse affects on contact with the
person's skin.

EXAMPLE II

5 A sample of the insulating material referred to in Example I above, was brushed on to a polythene film to give a coated area of approximately 1cm^2 . The coated area was allowed to dry for 48 hours and it was then applied to a person's skin in the bend of the elbow and held in place overnight with an elastoplast strip. No reddening or other sign of irritation was observed on removal of the strip. This demonstrates again the fact that the insulating material is unlikely to cause irritation or to have other adverse effects on a person's skin.

EXAMPLE III

15 A needle produced as mentioned above in Example I was examined to see if the insulating material could harbour micro-organisms that could infect a person's skin. No evidence was found that the insulating material was unduly susceptible to micro-organisms. Any micro-organisms that might get on to the surface of the insulating material would normally be effectively destroyed by the sterilisation protocol routinely applied with the needles.

20

It is to be appreciated that various modifications may be made to the needle shown without departing from the scope of the invention and, for example, curved needles may be used. Although references have been made
5 above to a needle, it is to be understood that the device of the invention may alternatively be regarded as a probe if desired. Apart from the coating of the insulating material, the needle may otherwise be of various known designs so that needles of the present invention may be
10 used in a variety of known depilatory machines if desired. Also, the needles may be made of materials other than surgical stainless steel. Other polyamide/polyimide resins, for example Xylan 8114, may be used. The Xylan polyamide/polyimide resins will usually be of such a
15 consistency that dilution will not be necessary. Solvents may however be employed if the insulating material becomes too thick for satisfactory spraying.

CLAIMS

1. A depilation needle comprising an elongate
conductive body the surface of which is covered with
insulating material, the body having at one end a conductive
tip suitable for depilation purposes and at the other end
5 a conductive surface portion which communicates electrically
with the tip via the body, the needle being such that
during depilation the conductive tip and the insulating
material adjacent the conductive tip are able to contact a
person's skin whereby the insulating material prevents the
10 person's skin receiving an electrical depilation current
except from the conductive tip, and the insulating material
comprising a non-toxic polyamide/polyimide resin.

2. A depilation needle according to claim 1 in which
the insulating material includes a lubricant material and/or
15 a pigment.

3. A depilation needle according to claim 2 in which
the insulating material includes polytetrafluoroethylene
as a lubricant material, and carbon black as a pigment.

4. A depilation needle according to any one of the

preceding claims in which the resin is a Xylan resin.

5. A depilation needle according to any one of the preceding claims in which the insulating material is in the form of a lacquer or varnish.

5 6. A depilation needle according to any one of the preceding claims and which is bent or cranked.

7. A depilation needle according to any one of the preceding claims and which is made of stainless steel.

10 8. A depilation needle according to any one of the preceding claims in which the tip is one millimetre in length.

15 9. A depilation needle according to any one of the preceding claims in which the tip comprises a cylindrical extension of the body having a reduced diameter in order to permit insertion between a hair and its pore.

10. A depilation needle substantially as herein described with reference to the accompanying drawings.