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(54) **Hair tool with vibrating member**

(57) The invention relates to a hair tool 2 for styling hair. The hair tool 2 comprises a body 4 in which is located at least one vibrating member. The at least one vibrating member is operable to cause substantially the whole of the body 4 to vibrate.

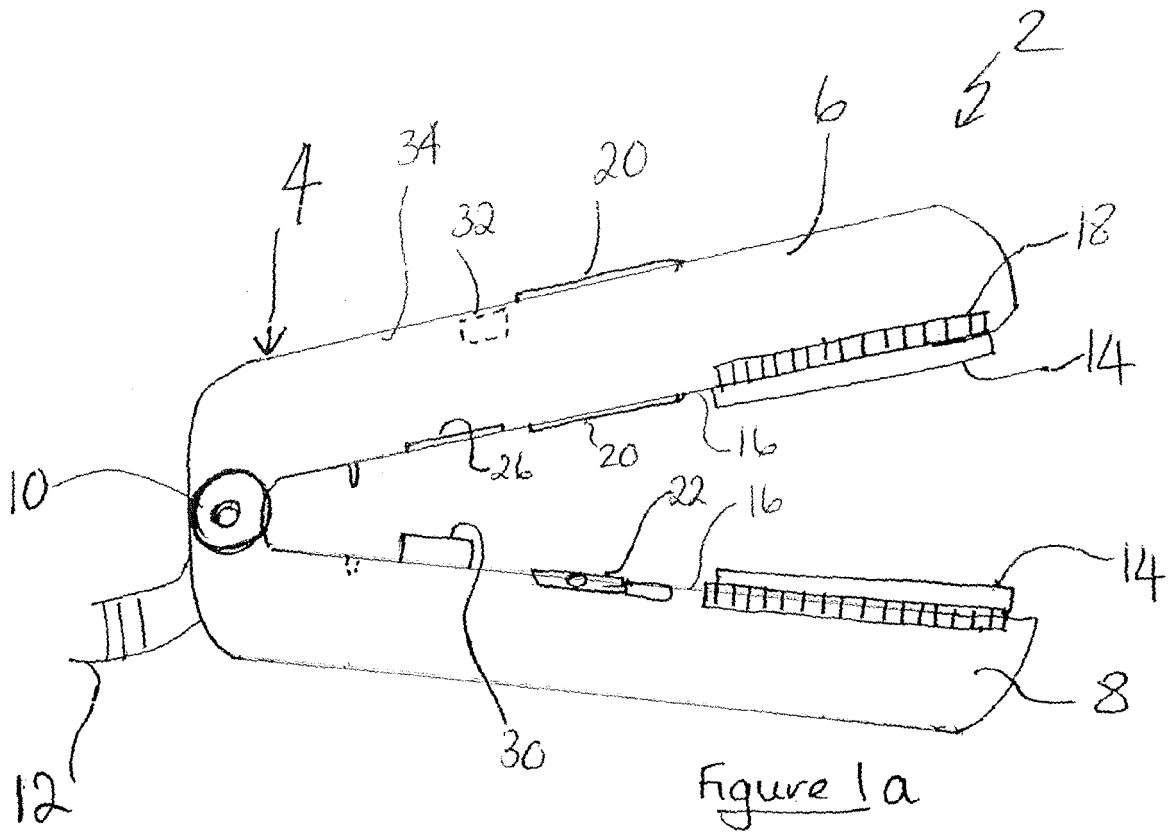

Figure 1a

EP 2 135 522 A1

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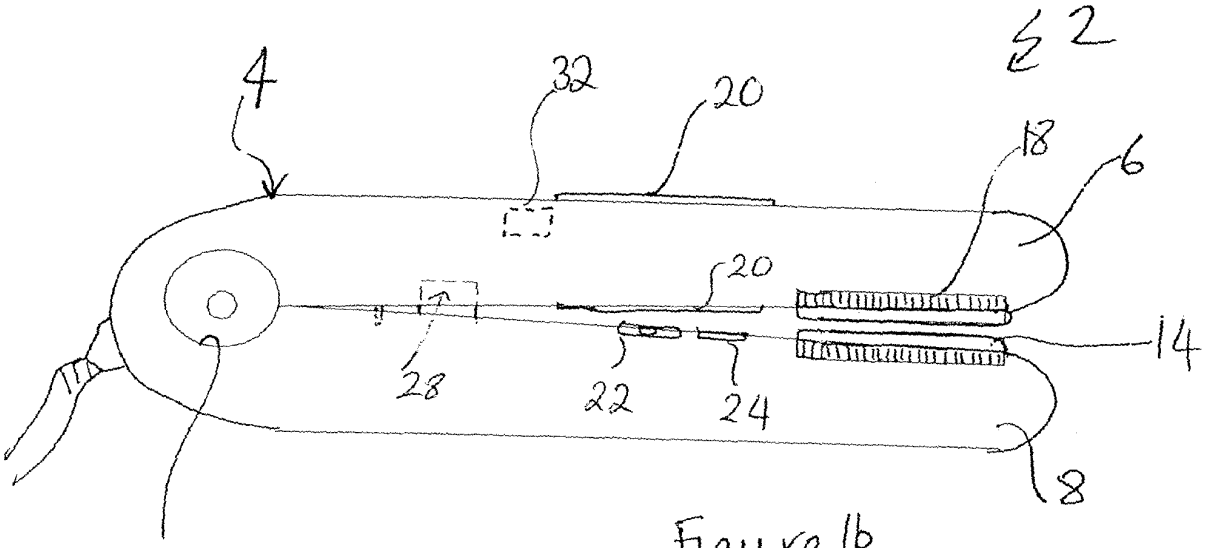


Figure 1b

Description

[0001] The invention relates to a hair tool. Particularly, but not exclusively, the invention relates to a hair tool for straightening hair.

[0002] Hair tools, for example, hair straighteners, crimpers or curling tongs, are commonly used when styling hair. The tools are used by both professional stylists and the public to achieve a desired hair style.

[0003] Hair straighteners can be used on many types of hair, for example, long or short hair. The straighteners commonly comprise a pair of arms which are hinged together. A heating plate is mounted on each arm such that when the arms are brought together, a section of hair is sandwiched between the heating plates. The straighteners are then pulled through the section of hair. The combination of heat and force helps to straighten the hair.

[0004] It is a known problem that hair tools for styling often drag or tug at the hair section during use. This is because the hair section cannot easily move across the heating plates or around the housing of the tool, which is often manufactured from plastics material. As a result of the dragging action, the hair section cannot, for example, be evenly straightened. This results in a poor finish to the style. Furthermore, such action is damaging to the hair and causes discomfort to the individual whose hair is being styled. This is a particular problem when straighteners are used for curling sections of hair. For such use, hair is wrapped around substantially the whole body of the hair tool.

[0005] It is an object of the invention to provide a hair tool for styling hair which aims to overcome the aforementioned problems.

[0006] According to an aspect of the present invention there is provided a hair tool for styling hair, the hair tool comprising a body in which is located at least one vibrating member, wherein the at least one vibrating member is operable to cause substantially the whole of the body to vibrate.

[0007] Preferably, the hair tool is a hair straightening tool. Preferably, at least one heating plate is provided on the hair tool. Preferably, the heating plate is operable to heat up or cool down simultaneously with the vibrating member.

[0008] The arrangement of the vibrating member in the body ensures that the complete hair tool vibrates. Advantageously, when the complete unit vibrates, the hair section being pulled through the hair tool is continually moving across the heating plate and over or around the housing of the hair tool. Due to this continual movement, the hair passes freely over said plates and the housing, whilst simultaneously being styled, preferably straightened. The hair is not dragged or tugged and, therefore, damage to the hair is minimised. Consequently, the person whose hair is being styled is not in any discomfort.

[0009] The arrangement helps to ensure that hair does not grip to the body of the hair tool.

[0010] Preferably, the vibrating member is mounted on the housing of the hair tool.

[0011] Preferably, locating means for locating the vibrating member to the body are provided on the hair tool. Preferably, the locating means are dimensioned to receive at least a portion of the vibrating member. Preferably, the locating means are operable to locate a top part and/or a bottom part of the vibrating member. Preferably, the locating means are part of the body.

[0012] Preferably, the vibrating member is substantially free from dampening means. The dampening means may comprise a subsidiary housing.

[0013] Advantageously, the locating means only locate the vibrating member at points around the vibrating member. In this configuration, the vibrating member is not wholly encased by a form of dampening means. The operation of the vibrating member is therefore not hindered and the vibration not dampened.

[0014] Preferably, the vibrating member is located on a part of the hair tool which is substantially free from other component parts.

[0015] It has been found that when the vibrating member is positioned on a part of the hair tool which does not contain any other component parts, for example, on/off switches, the vibration to the unit is enhanced and the performance of the hair tool is improved.

[0016] Preferably, the vibrating member is located at an end of the hair tool remote from the at least one heating plate. In this arrangement, the effect of the vibrating member is not dampened by the heating plate.

[0017] Preferably, the hair tool comprises a first arm and a second arm. Preferably, said arms extend from the body. Preferably, said arms are hingedly attached to each other. Preferably, the vibrating member is located on the first arm. Preferably, a heating plate is provided on the or each said arm.

[0018] Preferably, an operating means is provided on the hair tool, for operating the vibrating member. Preferably, the operating means comprises a first portion and a second portion. Preferably, the first portion is located on the first arm and preferably the second portion is located on the second arm. Preferably, when the first arm is brought towards the second arm, the first and second said portions cooperate to cause the vibrating member to switch to an operational mode. In the operational mode, the vibrating member vibrates to cause vibration of the hair tool. When the first and second arms are moved away from each other, the first and second said portions are operable to cause the vibrating member to switch to an off position in which said member does not vibrate.

[0019] Preferably, a switch means is provided for switching the hair tool on and/or off. Preferably, the switch means is operable to switch the vibrating member on or off. In one mode of operation, the hair tool can be switched "on" to cause the heating plates to heat to a desired temperature, and the vibrating member simultaneously switched "off". The user is thus able to choose whether to use the vibration facility. Preferably, the switch

means is located on the second arm.

[0020] Preferably, the hair tool comprises a transparent portion. Preferably, the transparent portion is located adjacent the vibrating member. Preferably, the transparent portion is located in the part of the hair tool which is substantially free from other component parts. Preferably, the transparent portion is located in the first arm. Preferably, the transparent portion extends through the first portion, preferably from an outer surface to an inner surface. Preferably, the transparent portion is dimensioned so as to frame the switch means and a temperature display of the hair tool.

[0021] Advantageously, provision of the transparent portion enables the user to see the switch means and temperature of the hair tool whilst styling the hair. Furthermore, because the user does not need to open the arms of the tool, the arms remain in an operating position, allowing the hair tool to maintain a given temperature.

[0022] Preferably, a plurality of vibrating members are located in the hair tool. Preferably, two vibrating members are located in the hair tool. Preferably, a first vibrating member is located in the first arm and a second vibrating member is located in the second arm. The first and the second vibrating members may vibrate at the same or different frequencies. The first vibrating member may operate when the second vibrating member is turned off, and vice versa. Preferably, a vibrating member located in the first arm of the hair tool is operable to vibrate at a greater frequency than a vibrating member located in the second arm. As such, the vibration to the first arm is stronger than the vibration to the second arm.

[0023] Preferably, at least one channel is provided on the hair tool. Preferably, a plurality of channels is provided on the hair tool, preferably adjacent the heat plate/s.

[0024] The channels encourage the hair to split into a number of smaller sections as the hair passes through the hair tool. This helps to prevent tangling of the hair and so promotes ease of styling.

[0025] Preferably, at least one gripping means is provided on the hair tool. Preferably, the at least one gripping means is located on the housing of the hair tool, preferably on a first and/or second arm of the hair tool. Preferably, the gripping means is located at an end of the hair tool. Preferably, the gripping means is located adjacent at least one heating plate. Preferably, the gripping means is adapted to be gripped by a user of the hair tool. Preferably, the gripping means is adapted to provide a thermal barrier between the hair tool and the user.

[0026] Advantageously, the gripping means is located on the hair tool to enable a user to grip hold of the hair tool during use, to clamp the hair tool together when straightening a length of hair. The gripping means is preferably manufactured from thermally resistant materials so as to minimise the risk of a user burning themselves when using the tool.

[0027] Preferably, the or each heating plate is operable to heat to substantially 210°C. Preferably, the temperature of said heating plates can be stepped up or down incrementally, for example, in steps of 10°C. Preferably, the temperature is displayed on a temperature display which is preferably located adjacent the switch means.

[0028] Advantageously, it has been found that the vibration of the hair tool helps to maintain the temperature of the heating plates at a substantially constant desired temperature.

[0029] In a further aspect the invention provides a method of styling hair comprising the steps of

a)positioning a section of hair in a hair tool comprising a body in which is located at least one vibrating member,

b)causing the vibrating member to vibrate such that substantially the whole of the body of the hair tool vibrates, and

c)passing the hair through the hair tool to achieve the desired style.

[0030] Preferably, the hair tool comprises at least one heating plate, preferably two heating plates. Preferably said heating plates are operable to heat up or down simultaneously of the operation of the vibrating member.

[0031] In a further aspect the invention provides a method of applying a treatment to hair comprising the steps of

a) putting a hair treatment onto hair,

b) positioning a section of said hair on a hair tool comprising a body in which is located at least one vibrating member,

c) causing the vibrating member to vibrate such that substantially the whole of the body of the hair tool vibrates.

[0032] Preferably, the hair tool comprises at least one heating plate, preferably two heating plates. Preferably said heating plates are operable to heat up or down simultaneously of the vibrating member.

[0033] Advantageously, the vibration of the hair tool helps to spread the treatment more evenly across the hair.

[0034] All of the features described herein may be combined with any of the above aspects, in any combination.

[0035] An embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, wherein:

Figures 1 a and 1 b show schematic side views of a hair tool according to the invention;

Figure 2 shows a schematic plan view of a hair tool according to the invention;

Figure 3 shows a schematic plan view of a hair tool according to the invention;

Figure 4 shows a schematic top view of a hair tool according to the invention;

Figure 5 shows a schematic plan view of a hair tool according to the invention;

Figure 6 shows a schematic plan view of a hair tool according to the invention;

Figure 7 shows a schematic plan view of a hair tool according to the invention;

Figure 8 shows a schematic side view of an alternative embodiment of a hair tool according to the invention; and

Figures 9a to 9d show a schematic side view. a further schematic side view, a plan view and a further plan view of an embodiment of the invention.

[0036] Figure 1 shows a hair tool 2 according to the invention. The hair tool 2 comprises a body 4 having a first arm 6 and a second arm 8. The first arm 6 is hingedly connected to the second arm 8 by hinging means 10. A cable 12 is provided on the body 4 for supplying a power supply to the hair tool 2.

[0037] A heating plate 14 is located on a face 16 of each of the arms 6, 8. Each heating plate 14 is preferably a ceramic type heating plate 14. Channels 18 are provided adjacent the edges of each heating plate 14. The channels 18 aid in separation of the hair section being styled by the hair tool 2.

[0038] The first arm comprises a transparent window 20. The window 20 is generally rectangular in shape and is dimensioned to allow a user to see a switch means 22 and a temperature display 24 of the hair tool 2, when operating the hair tool 2. Adjacent the transparent window 20, on the face 16 of the first arm 6, is a first portion 26 of an operating means 28. The first portion 26 is dimensioned to receive a second portion 30 of the operating means 28.

[0039] A vibrating member 32 is located on the housing 34 of the hair tool 2. The vibrating member 32 will be described in further detail in relation to figures 5 to 7.

[0040] The switch means 22 and the temperature display 24 are provided on the second arm 8. The switch means 22 comprises an on/off switch 36, a temperature increase switch 38 and a temperature decrease switch 40, as shown most clearly in Figure 3. The provision of three independent switches enables a user to more readily and easily control the hair tool 2.

[0041] The temperature display 24 comprises a digital read-out, having LED functionality. The switch means 22 and the temperature display 24 are positioned on the second arm 8 such that, when the first arm 6 and the second arm 8 are brought together, the transparent window 20 substantially frames the switch means 22 and the temperature display 24. Such an arrangement is shown in figure 4.

[0042] Figures 5 to 7 show the vibrating member 32 in greater detail. Figure 5 shows the first arm 6 with part of a cover 42 removed to display said member 32. The vibrating member 32 is located in locating means 44. The locating means 44 comprise a shoulder portion 46, a bottom portion 48 and side portions 50. In this manner the vibrating member 32 is located in the locating means 44 such that a first part 52 of the vibrating member 32 abuts against the shoulder portion 46 of the locating means 44. A second part 54 of the vibrating member 32 abuts against a bottom portion 48 of the locating means 44. The arrangement allows the vibrating member 32 to be held in a generally fixed position within the housing 34 of the hair tool 2 whilst not being encased. This arrangement ensures that the vibration from the vibrating member 32 is substantially not dampened by the housing or any other dampening means.

[0043] In use, the user switches on the hair tool 2 by touching switch 36. The switch 36 operates such that one touch causes the heating plates to turn on. A further touch of said switch 36 causes the vibrating member 32 to become operational. The user then places a section of hair between heating plates 14 of the hair tool 2. The first arm 6 and second arm 8 are brought together such that the first portion 26 and second portion 30 of the operating means 28 contact one another. Said contact causes the vibrating member 32 to vibrate. The vibrating member 32 causes substantially the whole of the hair tool to vibrate. As such, the hair passing through the heating plates 14 and around the body 4 of the hair tool 2 is continually moved. Movement of the hair ensures that the hair does not become tangled or dragged by the casing of the hair tool 2 or by the operation of the hair tool 2. This is a particular advantage when hair is wrapped around the outer surface of the body 4, for example, when using the hair tool 2 for curling. Although the switch 36 is operational to control the overall only, only when the first portion 26 and the second portion 30 are brought into cooperation does the vibration member 32 vibrate.

[0044] The temperature of the heating plates 14 is controlled by the switches 38, 40, which can be pressed until the user reaches the desired temperature. The temperature of the heating plates 14 is displayed on the temperature display 24.

[0045] An alternative embodiment of the invention is shown in Figure 8. The hair tool 100 has like parts to that described in relation to Figures 1 to 7 except a second vibrating 132 is provided on the second arm 108 of the body 104. The second vibrating member 132 may vibrate at the same frequency as the vibrating member 132 in the first arm 106 but it is preferred that said second vibrating member 132 is operated to vibrate at a frequency that causes a lower vibration of the second arm 108 to that of the first arm 106.

[0046] Further alternative embodiments of the invention is shown in Figures 9a to 9d. The hair tool 200 comprises like parts to those previously described, with the

addition of a gripping means 260. The hair tool of Figure 9c is further shaped differently to those previously described. Specifically, the hair tool of Figure 9c comprises arm portions 264 which are substantially smaller in width compared to the remaining parts 266 of the arms. Further, common to all Figures 9, the gripping means 260 is located at an end of the body, on the second arm 204. The gripping means 260 curves partially around the end of the arm 204 to provide a location for the user to hold the end of the hair tool during use, when the arms 204,206 are clamped together during straightening. A series of raised gripping members 262 are provided on the gripping means 260 to enhance the gripping function of said means 260. The gripping means 260 is preferably manufactured from a thermally resistant material to provide a heat barrier for the user to grip the tool with minimal risk of burning their hand. Further, the provision of the gripping means allows a user is able to apply a clamping force to the arms to enhance the straightening effect.

[0047] The arrangement of a vibrating unit mounted directly onto the housing of a hair tool, not being encased in dampening means, advantageously enables substantially the whole vibrating unit to vibrate. This has the advantage that hair being styled does not become tangled either between the heating plates of the hair tool or around the outer plastic casing of the hair tool. Further, vibration of the entire unit encourages an even heat distribution of the hair, which provides an enhanced performance of styling.

[0048] Provision of operation of the operating means 28, which may operate only when the first portion and second portion are brought into cooperation, enables the user to more effectively control the hair tool 2. The switch means is operational to be switched to turn on the vibration mode and/or turn off the vibration mode, which allows the user to determine when they wish to use the vibration setting.

[0049] The hair tool of the present invention advantageously minimises tangling of the hair by the use of vibration. The use of vibration enhances the styling effect that can be achieved on the hair.

[0050] Provision of the transparent window enables a user to see the temperature setting of the hair tool without stopping the styling or operation of the hair tool. Further, it is envisaged that the transparent window may extend across the first arm or also across the second arm to enable the user to view the hair section as it is being styled.

[0051] The use of the vibration member also allows the user to more effectively apply a treatment or serum to the hair. In particular, the vibration helps to spread the treatment more evenly across the hair surface into the hair cuticle.

[0052] Advantageously, the vibrating member 32 is positioned away from the heating plates 14. The heating plates can reach temperatures of up to 210°C. Such temperatures could affect the operation of the vibrating unit. Therefore, by locating the vibrating member remote from the heating plate, the lifespan of the vibrating member is enhanced.

[0053] The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

[0054] All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

[0055] Each feature disclosed in this specification (including any accompanying claims, abstract and drawings) may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

[0056] The invention is not restricted to the details of the foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

Claims

1. A hair tool for styling hair, the hair tool comprising a body in which is located at least one vibrating member, wherein the at least one vibrating member is operable to cause substantially the whole of the body to vibrate.

2. A hair tool as claimed in claim 1, wherein the hair tool is a hair straightening tool comprises a first arm and a second arm.

3. A hair tool as claimed in claim 1 or 2 wherein at least one heating plate is provided on the hair tool.

4. A hair tool as claimed in any one of the preceding claims, wherein a locating means for locating the vibrating member to the body are provided on the hair tool, the locating means being dimensioned to receive at least a portion of the vibrating member.

5. A hair tool as claimed in claim 4, wherein the locating means are operable to locate a top part and/or a bottom part of the vibrating member.

6. A hair tool as claimed in any one of the preceding claims wherein the vibrating member is substantially free from dampening means.

7. A hair tool as claimed in any one of claims 3 to 6 wherein the vibrating member is located at an end of the hair tool remote from the at least one heating plate.

8. A hair tool as claimed in any one of claims 2 to 7, wherein the vibrating member is located on the first arm.

9. A hair tool as claimed in any one of the preceding claims, wherein an operating means is provided on the hair tool, the operating means being operable to operate the vibrating member, the operating means comprising a first portion and a second portion which are operable to cause the vibrating member to switch to an operational mode.

10. A hair tool as claimed in any one of the preceding claims, wherein the hair tool comprises a transparent portion.

11. A hair tool as claimed in any one of the preceding claims, wherein the hair tool comprises a gripping means being operable to provide a thermal barrier between said tool and a user.

12. A method of styling hair comprising the steps of

a)positioning a section of hair in a hair tool comprising a body in which is located at least one vibrating member,
b)causing the vibrating member to vibrate such that substantially the whole of the body of the hair tool vibrates, and
c)passing the hair through the hair tool to achieve the desired style.

13. A method of applying a hair treatment to hair comprising the steps of

d) applying a hair treatment to hair,
e) positioning a section of said hair on a hair tool comprising a body in which is located at least one vibrating member,
f) causing the vibrating member to vibrate such that substantially the whole of the body of the hair tool vibrates.

14. A method as claimed in claims 12 or 13, wherein the hair tool comprises at least one heating plate which is operable to heat up or down simultaneously of the operation of the vibrating member.

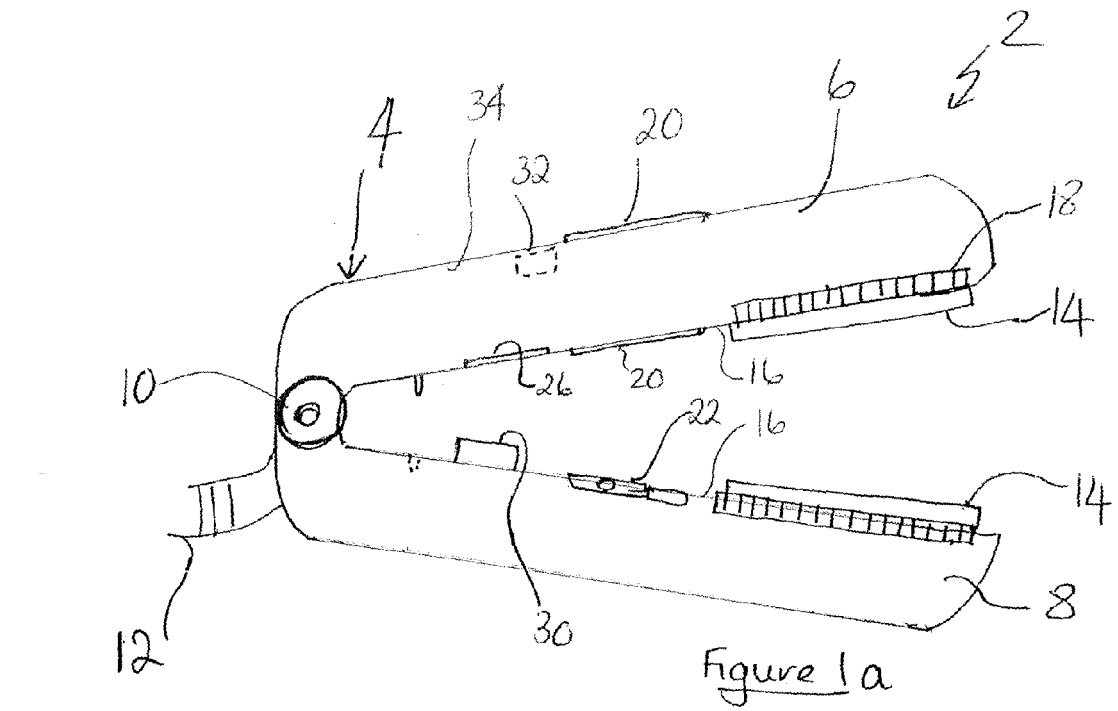


Figure 1a

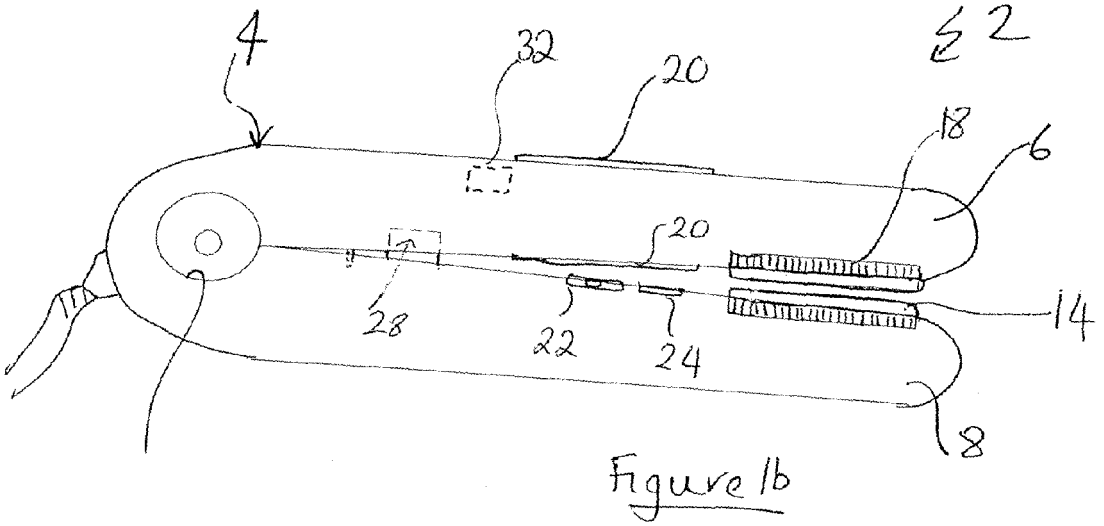


Figure 1b

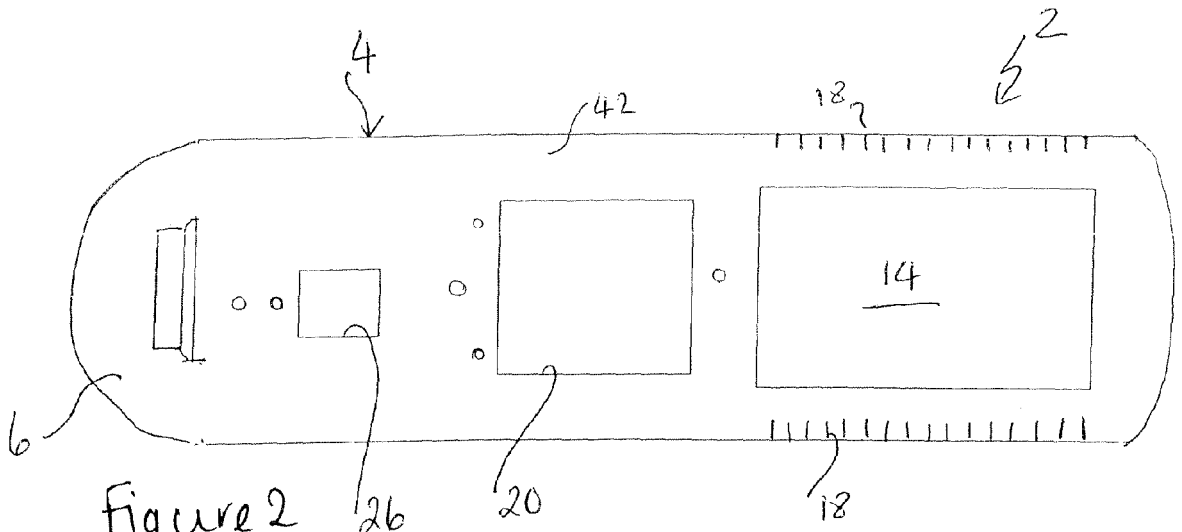


Figure 2

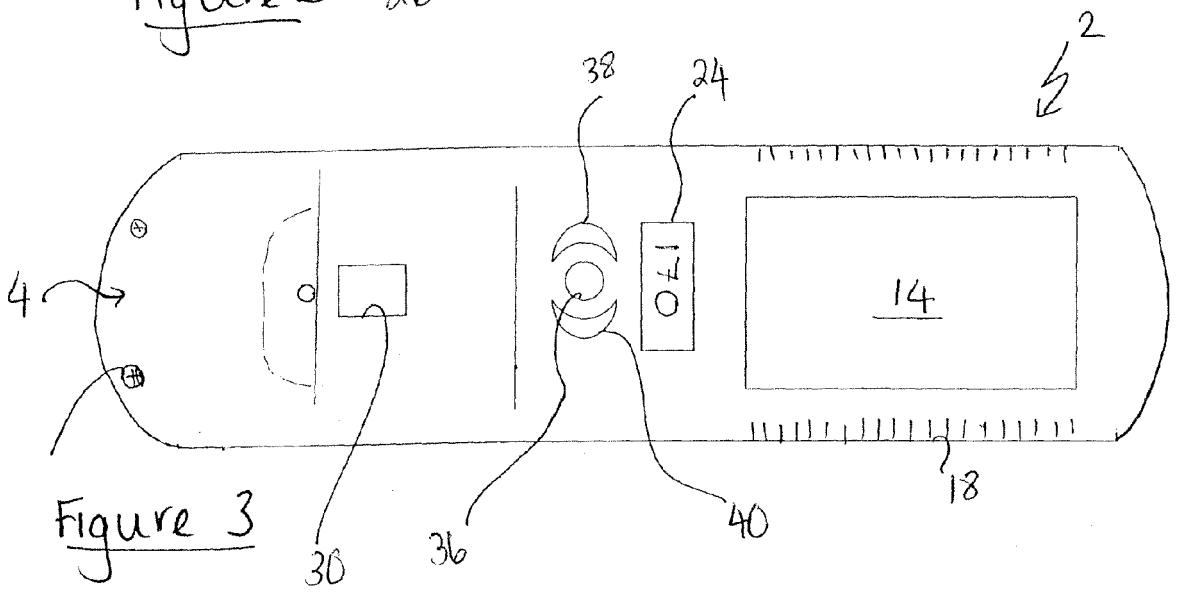


Figure 3

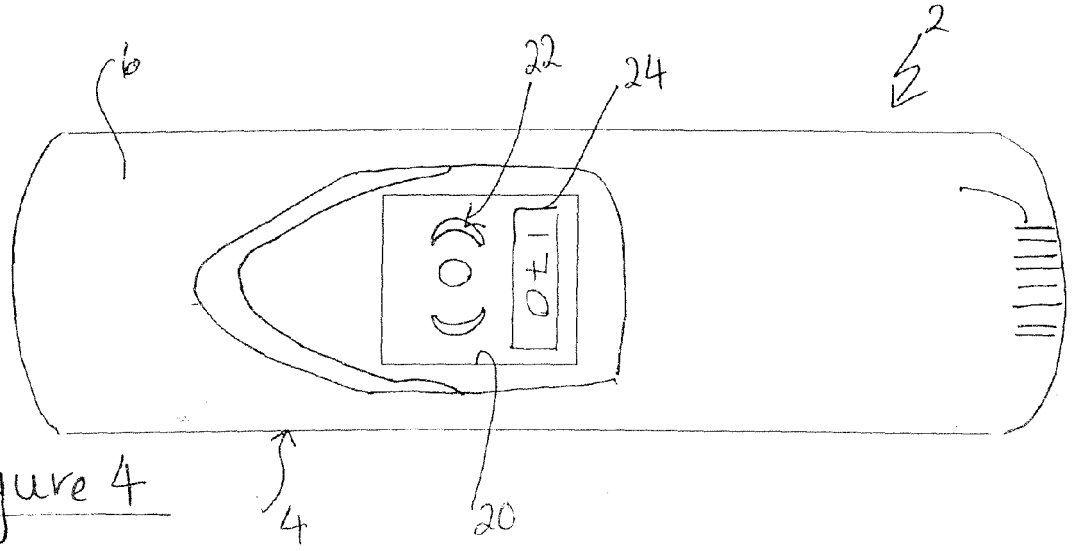


Figure 4

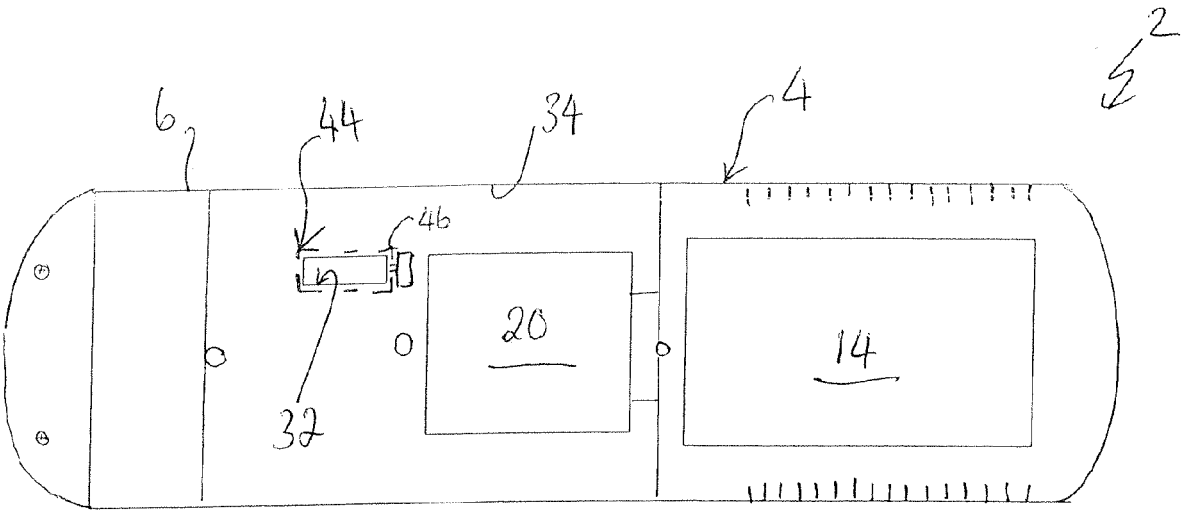


Figure 5

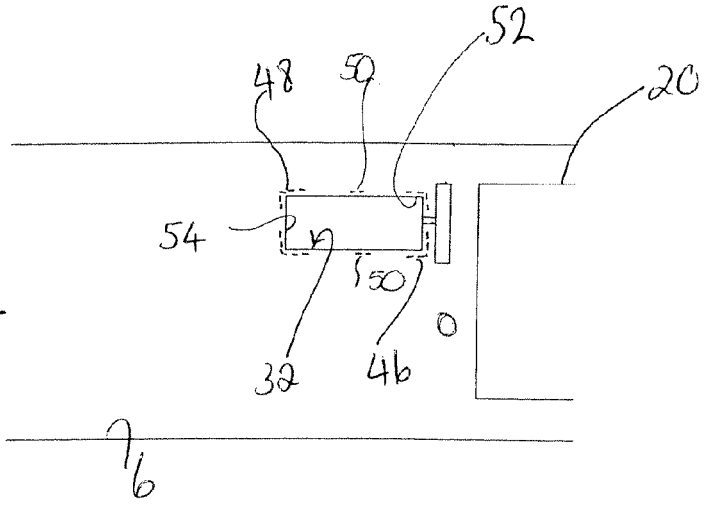


Figure 6

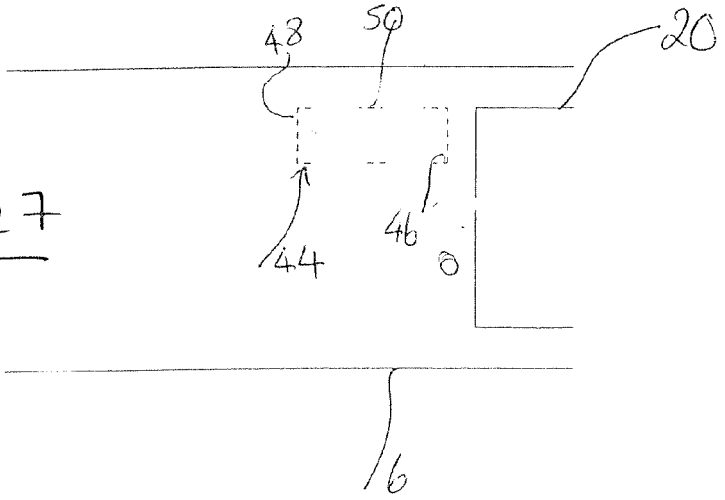


Figure 7

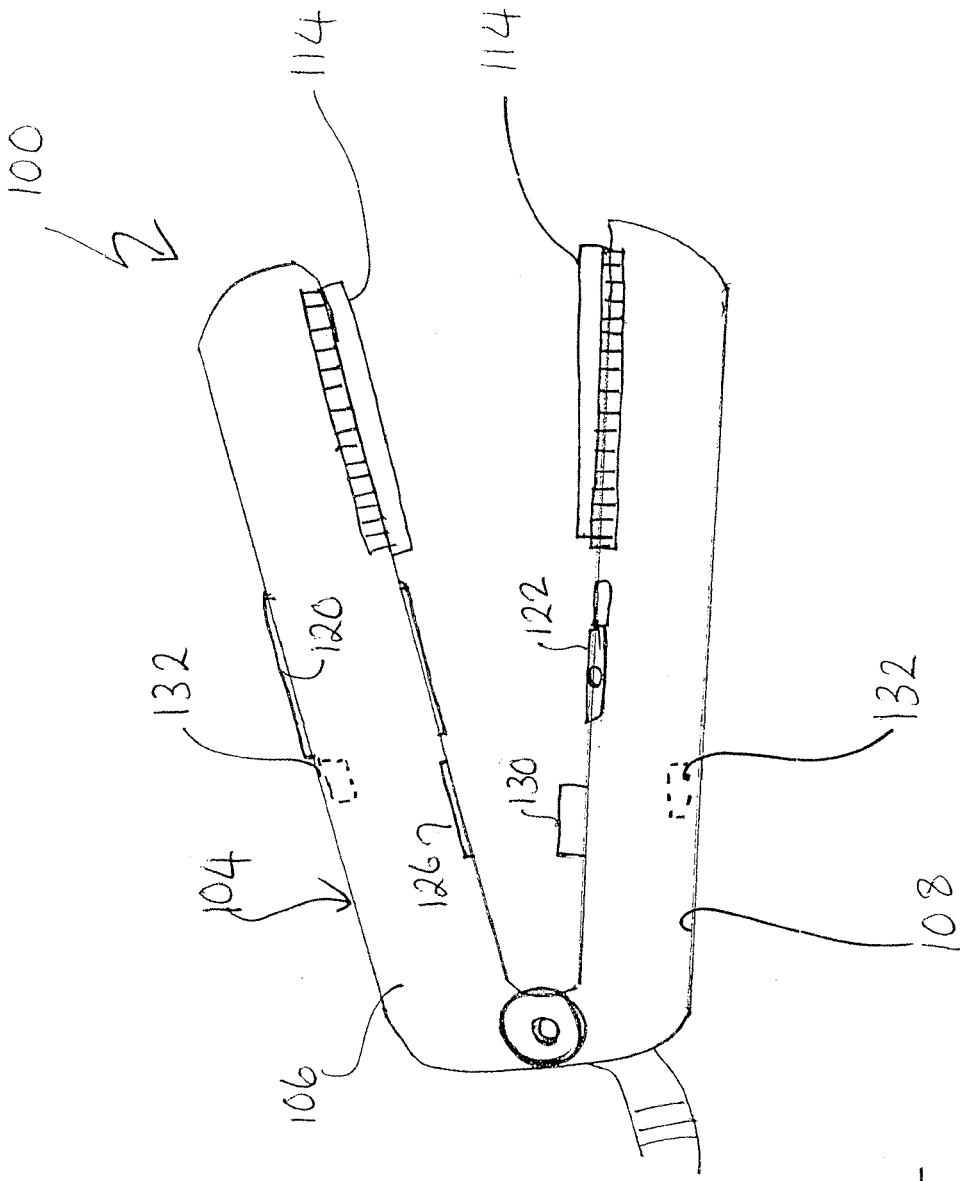


Figure 8

Figure 9a

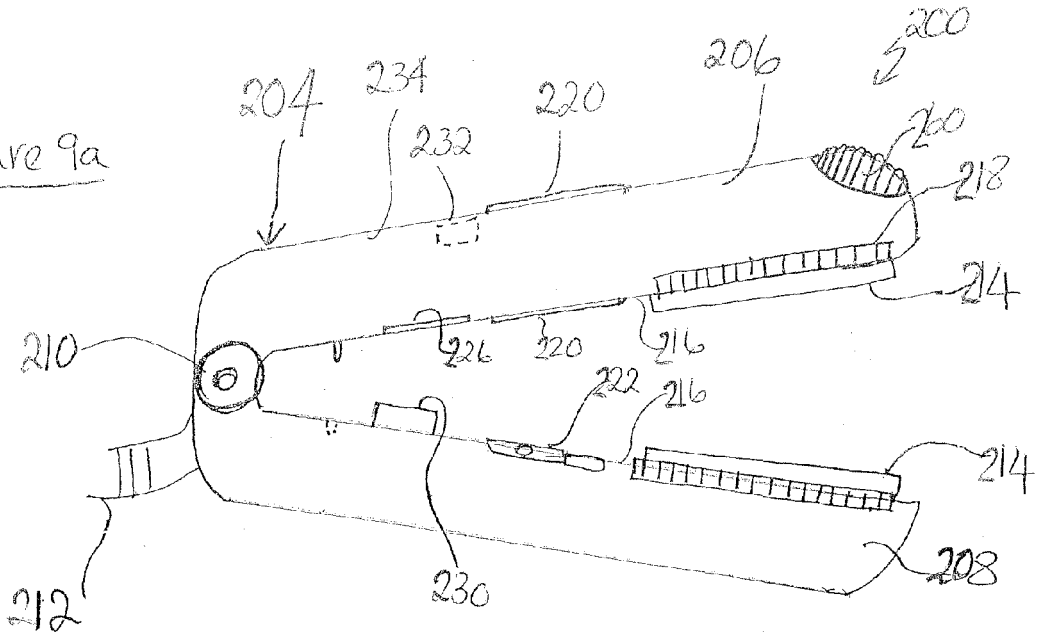


Figure 9b

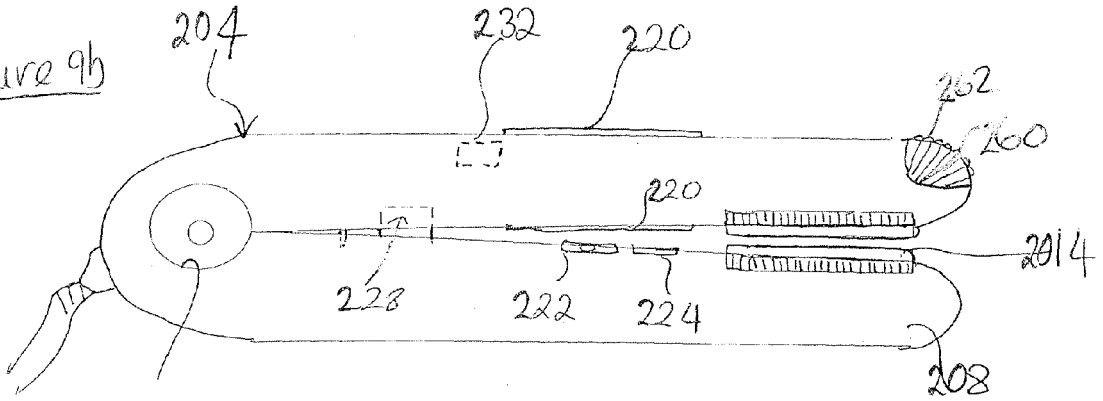
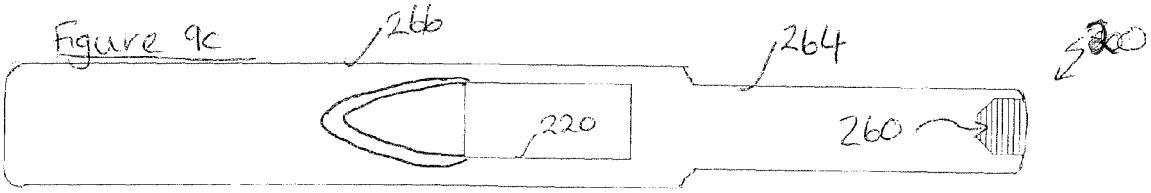


Figure 9c



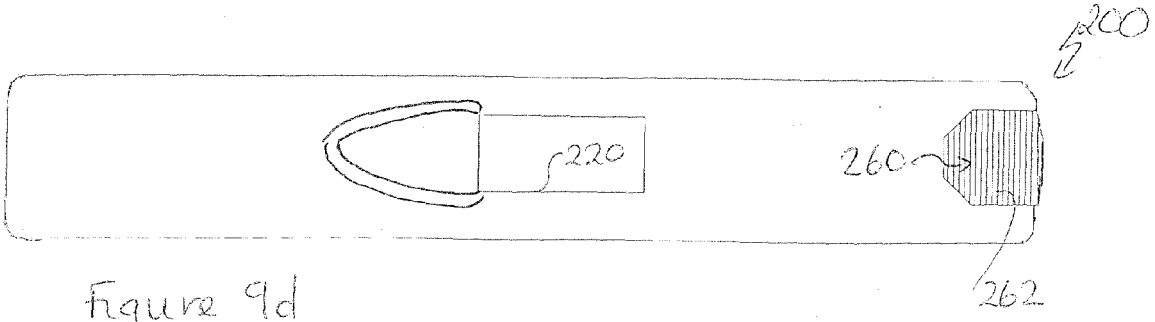


Figure 9d

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 09 16 3014

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	US 2008/072921 A1 (HABIBI MASOOD [US]) 27 March 2008 (2008-03-27) * abstract * * paragraph [0061] - paragraph [0062]; figures 1,2,4,33 *	1-9, 11-12,14 10	INV. A45D2/00
X	US 4 023 579 A (SUROFF LEONARD W) 17 May 1977 (1977-05-17) * the whole document *	1,4-6,9, 11-14	
X	EP 1 728 449 A1 (MATSUSHITA ELECTRIC WORKS LTD [JP]) 6 December 2006 (2006-12-06) * the whole document *	1-6,8-9, 11-12,14	
X	US 2002/026206 A1 (TAKEHANA MIKI [JP]) 28 February 2002 (2002-02-28) * the whole document *	1-9, 11-12,14	
Y	US 4 565 916 A (TSUJI EIJI [JP] ET AL) 21 January 1986 (1986-01-21) * column 5, lines 20-23 * * column 5, lines 52-55 *	10	

TECHNICAL FIELDS SEARCHED (IPC)

A45D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	22 October 2009	Nicolás, Carlos

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 09 16 3014

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22-10-2009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2008072921 A1	27-03-2008	WO 2008039343 A1	03-04-2008
US 4023579 A	17-05-1977	NONE	
EP 1728449 A1	06-12-2006	AT 408991 T	15-10-2008
		CN 1871970 A	06-12-2006
		CN 200941881 Y	05-09-2007
		ES 2313497 T3	01-03-2009
		JP 2006334109 A	14-12-2006
		KR 20060125588 A	06-12-2006
		RU 2321322 C1	10-04-2008
		US 2006272669 A1	07-12-2006
US 2002026206 A1	28-02-2002	NONE	
US 4565916 A	21-01-1986	DE 3243292 A1	01-06-1983
		FR 2516766 A1	27-05-1983
		GB 2110082 A	15-06-1983
		JP 58092308 A	01-06-1983

EPO FORM P0459

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