

(19)



(11)

EP 2 496 110 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
05.09.2018 Bulletin 2018/36

(51) Int Cl.:
A45D 1/02 *(2006.01)* **A45D 1/18** *(2006.01)*
A45D 2/00 *(2006.01)*

(21) Application number: **10781726.4**

(86) International application number:
PCT/GB2010/002034

(22) Date of filing: **04.11.2010**

(87) International publication number:
WO 2011/055116 (12.05.2011 Gazette 2011/19)

(54) **HAIR STYLING APPARATUS**

GERÄT FÜR HAARSTYLING

APPAREIL DE COIFFURE

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **06.11.2009 GB 0919481**

(43) Date of publication of application:
12.09.2012 Bulletin 2012/37

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Description

FIELD OF THE INVENTION

[0001] The invention relates to hair styling appliances, in particular hair straighteners (hair straightening irons) and/or heated hair curling irons.

BACKGROUND TO THE INVENTION

[0002] Figs 1a and 1b show a typical domestic hair styling appliance 10 which has a pair of plates 12, 14 held between a set of tongs 16. One or both of the plates is heated. A user pulls their hair between the plates to either straighten their hair as illustrated in Fig. 1a or curl their hair as illustrated in Fig. 1b.

[0003] With these appliances it is difficult to achieve "body". In other words, the straightened hair sits flat against the user's head rather than standing out from their head. Achieving body requires manipulating the hair at its roots; bending the hair so that it leaves the head at an angle close to 90°. As illustrated in Fig 2, with the known devices of Figs 1a and 1b, bringing the plates close to the roots can result in the user burning their scalp. Even if burning is avoided, it is difficult to orient the tongs to bring the plates close to the scalp, particularly when working with hair at the back of the head.

[0004] Background prior art can be found for example in: WO2007/030994, WO2007/000700, GB2421906A, CA1145805, and CN201048665.

[0005] EP1652445 discloses a hair iron blows air toward the hair. The hair iron provides hair with anions or moisture during hair styling. The hair iron includes a pair of cases hinge-jointed at each one end and being freely opened or closed at the other end. Each case has a heater plate for generating heat at the other end. A fan assembly for blowing air is coupled to the one end of one of the cases. An air passage through which the blown air is passed is formed inside the hair iron. An anion generator is located in the fan assembly, thereby mixing the anions with the air being transferred. Means for providing moisture is disposed adjacent to the heater plate and means for supplying the moisture-providing means with water is received in the recess formed in lower side of the case.

[0006] US2005/236009 discloses an attachment for a hair styling iron that includes a hair pick and plurality of comb teeth. The hair pick, which is used for selecting and separating hair, may be moveable between an extended position and a retracted position. The comb teeth are located adjacent to a heating element for extending into the hair when the hair styling iron contacts and moves along the length of a bundle of hair. The attachment may be slid over a heating element arm, wherein a retaining lip hooks around to engage an inner surface of the heating element arm adjacent to the heating element. Also disclosed is a hair styling iron that includes comb teeth adjacent to a heating element of the hair styling iron, and

a hair pick that extends beyond the end of a heating element arm of the hair styling iron.

SUMMARY OF THE INVENTION

[0007] According to one aspect of the invention, there is provided a hair styling appliance comprising a pair of clamping members for clamping hair to be styled, wherein at least one of said clamping members comprises: a hair heating plate on an inner face; and a comb with a plurality of teeth for manipulating a user's roots mounted to an outer face wherein the comb is spaced apart from the hair heating plate and the comb is shaped to have an inner surface which generally matches the profile of the outer surface so that a gap is defined between the comb and the outer surface; wherein the comb has first and second sets of teeth on opposed sides of the comb and the comb is moveable between a first position in which a first set of the teeth extend generally perpendicular to the plane of the heating plate and are spaced laterally to one side of the heating plate and the second set of teeth are concealed beneath the clamping member and a second position in which a second set of the teeth extend generally perpendicular to the plane of the heating plate and are spaced laterally to the other side of the heating plate and the first set of teeth are concealed beneath the clamping member.

[0008] The comb may be slidably mounted on the at least one clamping member. In this way, the position of the comb relative to the heating plate may be adjusted according to which side of the head is being styled or according to the hand in which the user holds the appliance.

[0009] Alternatively or additionally the appliance may comprise a gas supply connected to the at least one clamping member to generate a gas flow over the clamping member and the comb may form a baffle for controlling the gas such that the gas flow manipulates a user's roots.

[0010] The baffle may be slidably mounted on the at least one clamping member whereby the direction of the gas flow is controllable. In this way, the position of the baffle relative to the heating plate may be adjusted according to which side of the head is being styled or according to the hand in which the user holds the appliance.

[0011] The gas flow may be controlled by a user-activated button or similar mechanism. Thus, when the user presses down on the button, bursts of flow may be generated when required. Alternatively, the appliance may comprise an automatic activation mechanism, whereby the gas flow is generated when the comb or baffle presses against the scalp, e.g. using a mechanical switch on an outer surface of the comb or baffle. The baffle may be slidable relative to the clamping member to stop the gas flow.

[0012] The gas flow may be generated by an electric fan within the body of the tongs. Alternatively, it may be generated by opening a valve on a container of com-

pressed air. The gas may be air or another gas, e.g. the propellants commonly used in spray cans. Hair treatment formulation may also be incorporated in the gas flow.

[0013] The gas flow may be heated, either by passing the flow over the plate(s) or by using a separate heating element. Whereas the plate(s) typically operate at a high temperature, the temperature of the gas flow could be controlled for the user's comfort. Methods for temperature control of gas flow are well known in the art, e.g. for hair dryers.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] These and other aspects of the invention will now be further described, by way of example only, with reference to the accompanying figures in which:

- Fig 1a shows a prior art hair straightening iron;
- Fig 1b shows a prior art hair curling iron;
- Fig. 2 shows the appliance of Fig 1a or 1b being used to manipulate hair close to a user's scalp;
- Fig. 3a is a perspective view of a hair styler with a moveable comb;
- Fig. 3b is a sketch showing the styler of Fig 3a in use, with only one half of the appliance shown for clarity;
- Fig. 3c is a plan view showing how the moveable comb moves; and
- Fig. 4 is a sketch showing how the moveable comb of Fig 3b is combined with an air flow.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0015] Fig 3a shows a hair styler 20 with a comb implement 22 having a plurality of teeth 30. As with conventional hair stylers, the hair styler of Fig 3a comprises a pair of clamping members 24 joined at one end by a hinge member 28 to form tongs. Both clamping members have a hair heating plate 26 on an inner face at the opposed end to the hinge whereby the hair heating plates 26 are brought into contact with each other during styling. It will be appreciated that the hair styler may have only one heating plate.

[0016] The comb 22 is mounted to the outer face of one of the clamping members and the comb 22 extends outwards from at least one side of the tongs. The comb is shaped so as to define a gap between the comb and the outer surface of the clamping member so that the comb is spaced therefrom. Thus, the profile of the inner surface of the comb generally matches the profile of the outer surface of the clamping member. The comb is approximately the same length as the heating plate and has a plurality of teeth on both long sides of the comb. The width of the comb is such that in use, only one set of the teeth 30 project above the plane of the heating plate and extend generally perpendicular to the plane of the heating plate. The other set of teeth 30 being concealed under-

neath the clamping member

[0017] As shown in Fig 3b, the teeth 30 of the comb projecting above the plane of the heating plate can be easily brought close to a user's hair roots without bringing the heating plate(s) close to the roots. With a familiar combing action, the roots of the hair can be lifted to give the hair body as shown in the side of the head indicated with a tick.

[0018] As shown in Fig 3c, the position of the comb is adjustable as illustrated by the arrow A, e.g. according to which side of the head is being styled or according to which hand the user holds the tongs with. Thus, the comb may be moved between a first position in which a first set of teeth extend generally perpendicular to the plane of the heating plate and are spaced laterally to one side of the heating plate and a second position in which a second set of teeth extend generally perpendicular to the plane of the heating plate and are spaced laterally to the other side of the heating plate. The first and second sets of teeth are on opposed sides of the comb. The comb may also be moved to a third position (or storage position) in which neither set of teeth extends outwards from the side of the clamping member.

[0019] Fig. 4 shows how the hair styler of Fig 3a to 3c is adapted to include a flow of air shown by arrow B. For clarity, Fig. 4 only shows one half of the tongs and one plate. The air applies a force to the hair at its roots, helping to give it body. The direction of the air flow can be adjusted by mechanically shifting the comb to give flow out of either side of the tongs. The air flow can also be turned off completely as shown in the central drawing of Fig. 4 in which the comb is centrally mounted on the clamping member and there is no air flow. By shifting the comb left relative to the clamping member, an air flow is generated to the left side of the heating plate on the clamping member as shown in the upper drawing of Fig. 4. Similarly, by shifting the comb right relative to the clamping member, an air flow is generated to the right side as shown in the lower drawing of Fig. 4.

[0020] No doubt many other effective alternatives will occur to the skilled person. It will be understood that the invention is not limited to the described embodiments and encompasses modifications apparent to those skilled in the art lying within the scope of the claims appended hereto.

Claims

1. A hair styling appliance (20) comprising a pair of clamping members (24) for clamping hair to be styled, wherein at least one of said clamping members comprises:
 - a hair heating plate (26) on an inner face; and
 - a comb (22) with a plurality of teeth (30) for manipulating a user's roots mounted to an outer face wherein the comb is spaced apart from the

hair heating plate and the comb (22) is shaped to have an inner surface which generally matches the profile of the outer surface so that a gap is defined between the comb and the outer surface;

wherein the comb (22) has first and second sets of teeth (30) on opposed sides of the comb and the comb is moveable between a first position in which a first set of the teeth extend generally perpendicular to the plane of the heating plate and are spaced laterally to one side of the heating plate and the second set of teeth are concealed beneath the clamping member and a second position in which a second set of the teeth extend generally perpendicular to the plane of the heating plate and are spaced laterally to the other side of the heating plate and the first set of teeth are concealed beneath the clamping member.

2. A hair styling appliance according to claim 1, wherein the comb is slidably mounted to the at least one clamping member.
3. A hair styling appliance according to claim 1 or claim 2, wherein the teeth for manipulating a user's roots project generally perpendicular to the plane of the heating plate and are laterally spaced from the heating plate.
4. A hair styling appliance according to any one of the preceding claims, further comprising a gas supply connected to the at least one clamping member to generate a gas flow over the clamping member and wherein the comb forms a baffle for controlling the gas flow such that the gas flow manipulates a user's roots.
5. A hair styling appliance according to claim 4, wherein the baffle is slidably mounted to the at least one clamping member whereby the direction of the gas flow is controllable.
6. A hair styling appliance according to any one of claims 4 or 5, wherein the gas flow is controlled by a user-activated button.
7. A hair styling appliance according to any one of claims 4 to 6, comprising an automatic activation mechanism, whereby the gas flow is generated when the baffle presses against a user's head.
8. A hair styling appliance according to any one of claims 4 to 7, wherein the gas supply is in the form of an electric fan housed within the appliance.
9. A hair styling appliance according to any one of claims 4 to 8, wherein the gas supply is in the form

of a container of compressed air housed within the appliance.

10. A hair styling appliance according to any one of claims 4 to 9, wherein the gas flow passes over the heating plate whereby the gas is heated.
11. A hair styling appliance according to any one of claims 4 to 9 comprising a heating element located in the gas flow for heating the gas.
12. A hair styling appliance according to any one of claims 4 to 11, wherein the inner surface of the baffle is shaped to generally match the outer surface of the clamping member.

Patentansprüche

1. Haarstylinggerät (20), das ein Paar Klemmelemente (24) zum Klemmen von zu stylendem Haar umfasst, wobei wenigstens eines der genannten Klemmelemente Folgendes umfasst:
 - eine Haarerwärmungsplatte (26) auf einer Innenfläche; und
 - einen Kamm (22) mit mehreren Zähnen (30) zum Manipulieren der Wurzeln eines Benutzers, montiert auf einer Außenfläche, wobei der Kamm von der Haarerwärmungsplatte beabstandet ist und der Kamm (22) so gestaltet ist, dass er eine Innenfläche hat, die allgemein mit dem Profil der Außenfläche übereinstimmt, so dass eine Lücke zwischen dem Kamm und der Außenfläche definiert wird;
 - wobei der Kamm (22) einen ersten und zweiten Satz Zähne (30) auf gegenüberliegenden Seiten des Kamms hat und zwischen einer ersten Position, in der ein erster Satz Zähne allgemein lotrecht zur Ebene der Erwärmungsplatte verläuft und lateral auf einer Seite der Erwärmungsplatte beabstandet ist und der zweite Satz Zähne unter dem Klemmelement verborgen ist, und einer zweiten Position beweglich ist, in der ein zweiter Satz der Zähne allgemein lotrecht zur Ebene der Erwärmungsplatte verläuft und lateral auf der anderen Seite der Erwärmungsplatte beabstandet und der erste Satz Zähne unter dem Klemmelement verborgen ist.
2. Haarstylinggerät nach Anspruch 1, wobei der Kamm verschiebbar an dem wenigstens einen Klemmelement montiert ist.
3. Haarstylinggerät nach Anspruch 1 oder Anspruch 2, wobei die Zähne zum Manipulieren der Wurzeln des Benutzers allgemein lotrecht zur Ebene der Erwärmungsplatte vorstehen und lateral von der Erwärmungsplatte vorstehen und lateral von der Erwärmungsplatte vorstehen und lateral von der Erwärmungsplatte vorstehen.

mungsplatte beabstandet sind.

4. Haarstylinggerät nach einem der vorherigen Ansprüche, die ferner eine Gaszufuhr beinhaltet, die mit dem wenigstens einen Klemmelement verbunden ist, um einen Gasfluss über das Klemmelement zu erzeugen, und wobei der Kamm eine Umlenkwand zum Steuern des Gasflusses bildet, so dass der Gasfluss die Wurzeln eines Benutzers manipuliert. 5
5. Haarstylinggerät nach Anspruch 4, wobei die Umlenkwand verschiebbar an dem wenigstens einen Klemmelement montiert ist, so dass die Richtung des Gasflusses steuerbar ist. 10
6. Haarstylinggerät nach Anspruch 4 oder 5, wobei der Gasfluss von einem benutzeraktivierten Knopf gesteuert wird. 15
7. Haarstylinggerät nach einem der Ansprüche 4 bis 6, das einen automatischen Aktivierungsmechanismus umfasst, so dass der Gasfluss erzeugt wird, wenn die Umlenkwand gegen den Kopf eines Benutzers drückt. 20
8. Haarstylinggerät nach einem der Ansprüche 4 bis 7, wobei die Gaszufuhr in Form eines in dem Gerät untergebrachten elektrischen Gebläses vorliegt. 25
9. Haarstylinggerät nach einem der Ansprüche 4 bis 8, wobei die Gaszufuhr in Form eines in dem Gerät untergebrachten Druckluftcontainers vorliegt. 30
10. Haarstylinggerät nach einem der Ansprüche 4 bis 9, wobei der Gasfluss über die Erwärmungsplatte passiert, so dass das Gas erwärmt wird. 35
11. Haarstylinggerät nach einem der Ansprüche 4 bis 9, das ein Heizelement umfasst, das sich im Gasfluss zum Erwärmen des Gases befindet. 40
12. Haarstylinggerät nach einem der Ansprüche 4 bis 11, wobei die Innenfläche der Umlenkwand so gestaltet ist, dass sie allgemein mit der Außenfläche des Klemmelements übereinstimmt. 45

Revendications

1. Appareil de coiffure (20) comprenant une paire d'éléments de pincage (24) pour pincer les cheveux à coiffer, au moins un desdits éléments de pincage comprenant : 50
 - une plaque chauffante de cheveux (26) sur une face intérieure ; et
 - un peigne (22) comportant une pluralité de dents (30) pour manipuler les racines d'un utilisateur 55

et étant monté sur une face extérieure, le peigne étant espacé de la plaque chauffante de cheveux et le peigne (22) ayant une forme amenant sa surface intérieure à épouser le profil de la surface extérieure, de sorte qu'un espace soit défini entre le peigne et la surface extérieure ; le peigne (22) ayant des premier et second ensembles de dents (30) sur des côtés opposés du peigne, et le peigne étant mobile entre une première position dans laquelle les dents du premier ensemble de dents s'étendent généralement perpendiculairement au plan de la plaque chauffante et sont espacées latéralement vers un côté de la plaque chauffante, et les dents du second ensemble de dents sont dissimulées sous l'élément de pincage, et une seconde position dans laquelle les dents du second ensemble de dents s'étendent généralement perpendiculairement au plan de la plaque chauffante et sont espacées latéralement vers l'autre côté de la plaque chauffante, et les dents du premier ensemble de dents sont dissimulées sous l'élément de pincage.

2. Appareil de coiffure selon la revendication 1, dans lequel le peigne est monté coulissant sur l'au moins un élément de pincage.
3. Appareil de coiffure selon la revendication 1 ou 2, dans lequel les dents pour manipuler les racines d'un utilisateur se projettent généralement perpendiculairement au plan de la plaque chauffante et sont espacées latéralement de la plaque chauffante.
4. Appareil de coiffure selon l'une quelconque des revendications précédentes, comprenant en outre une alimentation en gaz connectée à l'au moins un élément de pincage pour générer un écoulement gazeux sur l'élément de pincage, et dans lequel le peigne forme un déflecteur pour réguler l'écoulement gazeux, de sorte que l'écoulement gazeux manipuler les racines d'un utilisateur.
5. Appareil de coiffure selon la revendication 4, dans lequel le déflecteur est monté coulissant sur l'au moins un élément de pincage, de sorte que la direction de l'écoulement gazeux puisse être réglée.
6. Appareil de coiffure selon l'une quelconque des revendications 4 et 5, dans lequel l'écoulement gazeux est régulé par un bouton activé par un utilisateur.
7. Appareil de coiffure selon l'une quelconque des revendications 4 à 6, comprenant un mécanisme d'activation automatique, au moyen duquel l'écoulement gazeux est généré quand le déflecteur appuie contre la tête d'un utilisateur.

8. Appareil de coiffure selon l'une quelconque des revendications 4 à 7, dans lequel l'alimentation en gaz est sous la forme d'un ventilateur électrique logé dans l'appareil.
- 5
9. Appareil de coiffure selon l'une quelconque des revendications 4 à 8, dans lequel l'alimentation en gaz est sous la forme d'un récipient d'air comprimé logé dans l'appareil.
- 10
10. Appareil de coiffure selon l'une quelconque des revendications 4 à 9, dans lequel l'écoulement gazeux passe sur la plaque chauffante, de sorte que le gaz soit chauffé.
- 15
11. Appareil de coiffure selon l'une quelconque des revendications 4 à 9, comprenant un élément chauffant situé dans l'écoulement gazeux pour chauffer le gaz.
- 20
12. Appareil de coiffure selon l'une quelconque des revendications 4 à 11, dans lequel la surface intérieure du déflecteur présente une forme qui épouse généralement la surface extérieure de l'élément de pinçage.
- 25
- 30
- 35
- 40
- 45
- 50
- 55

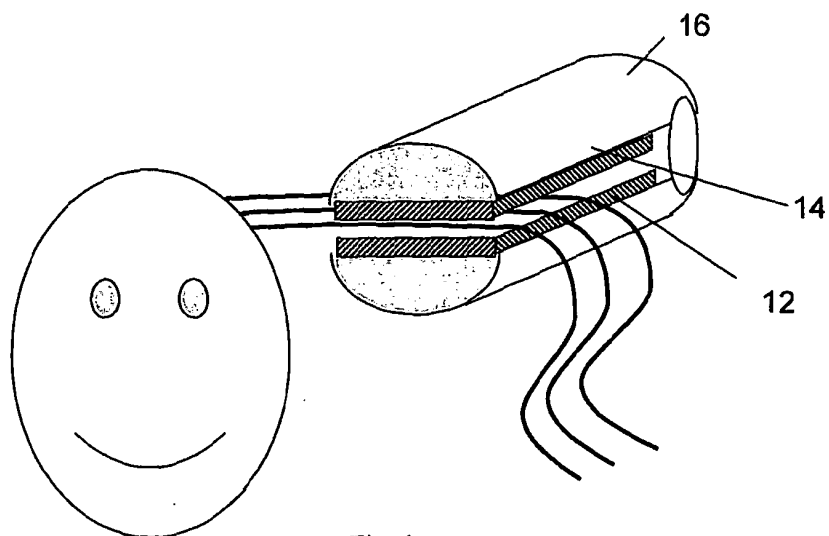


Fig 1a
Prior art

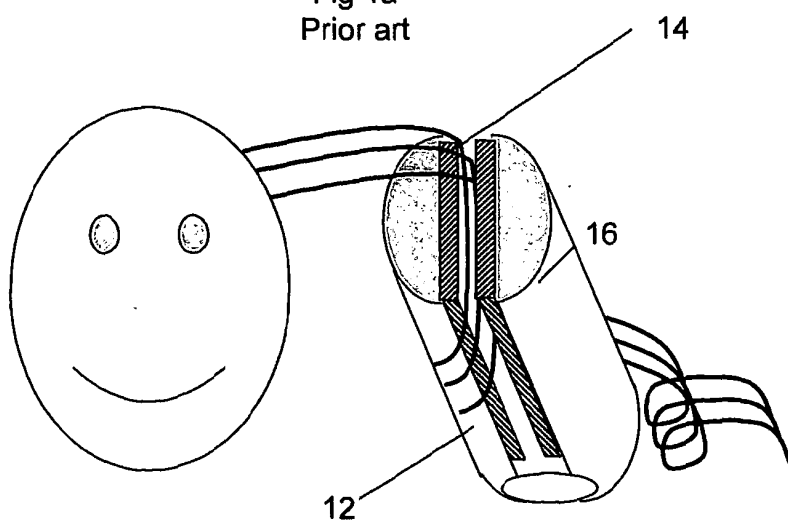


Fig 1b
Prior art

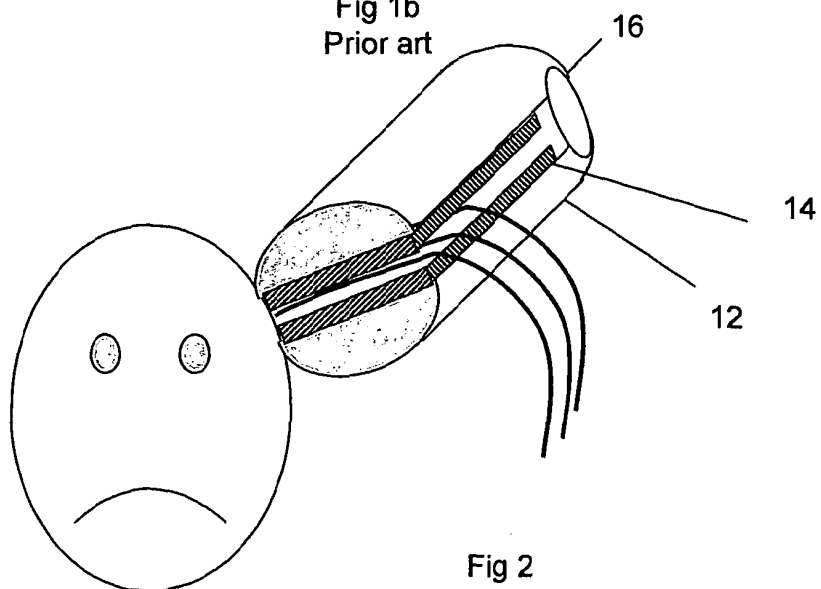


Fig 2
Prior art

Fig 3a

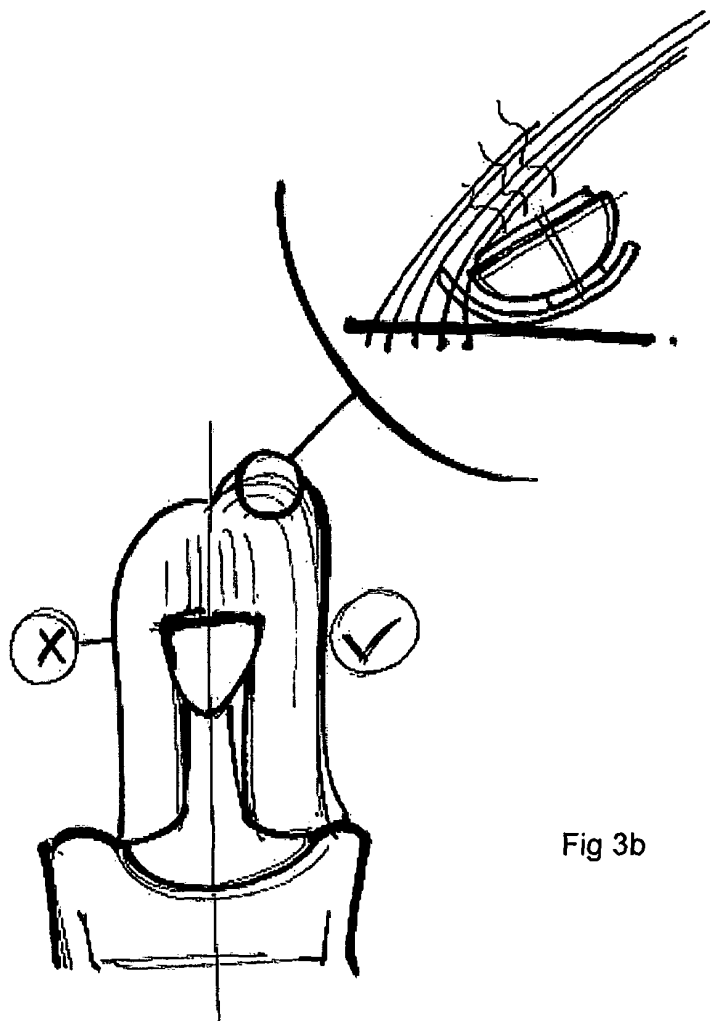
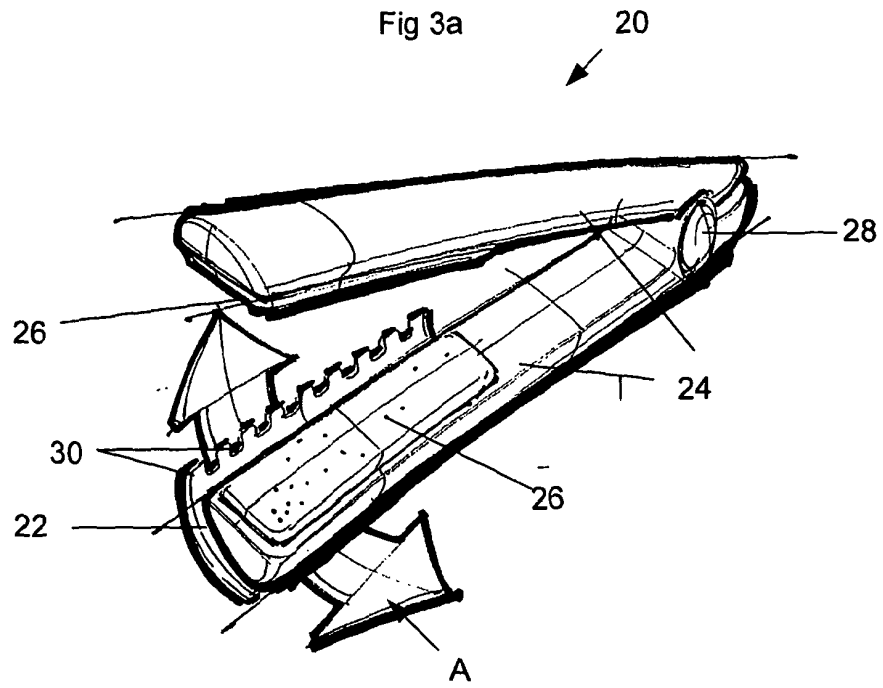


Fig 3b

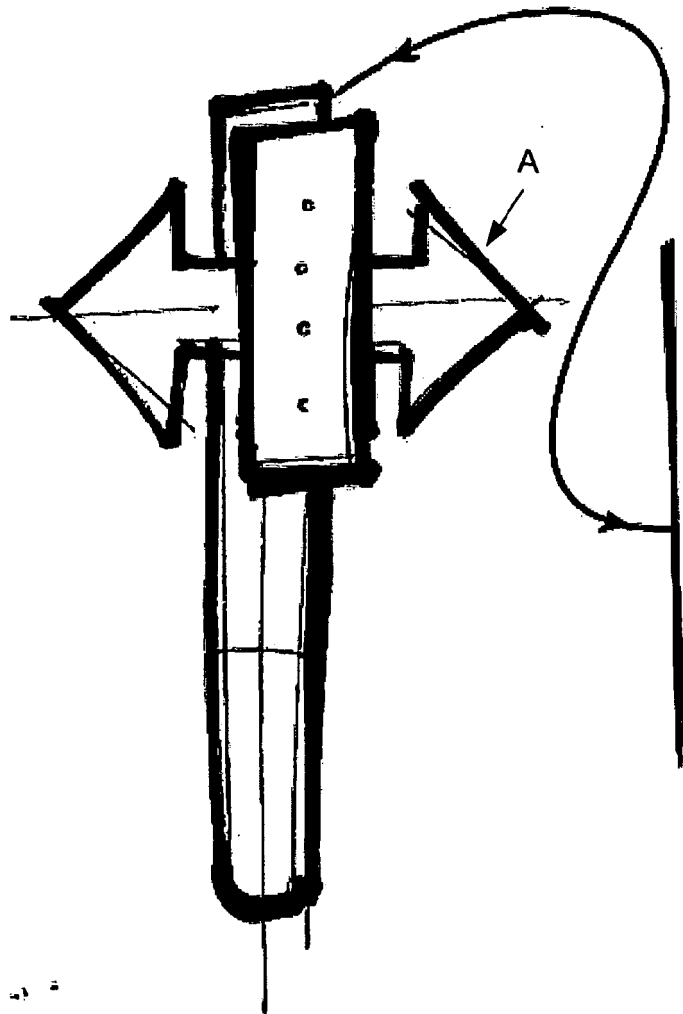


Fig 3c

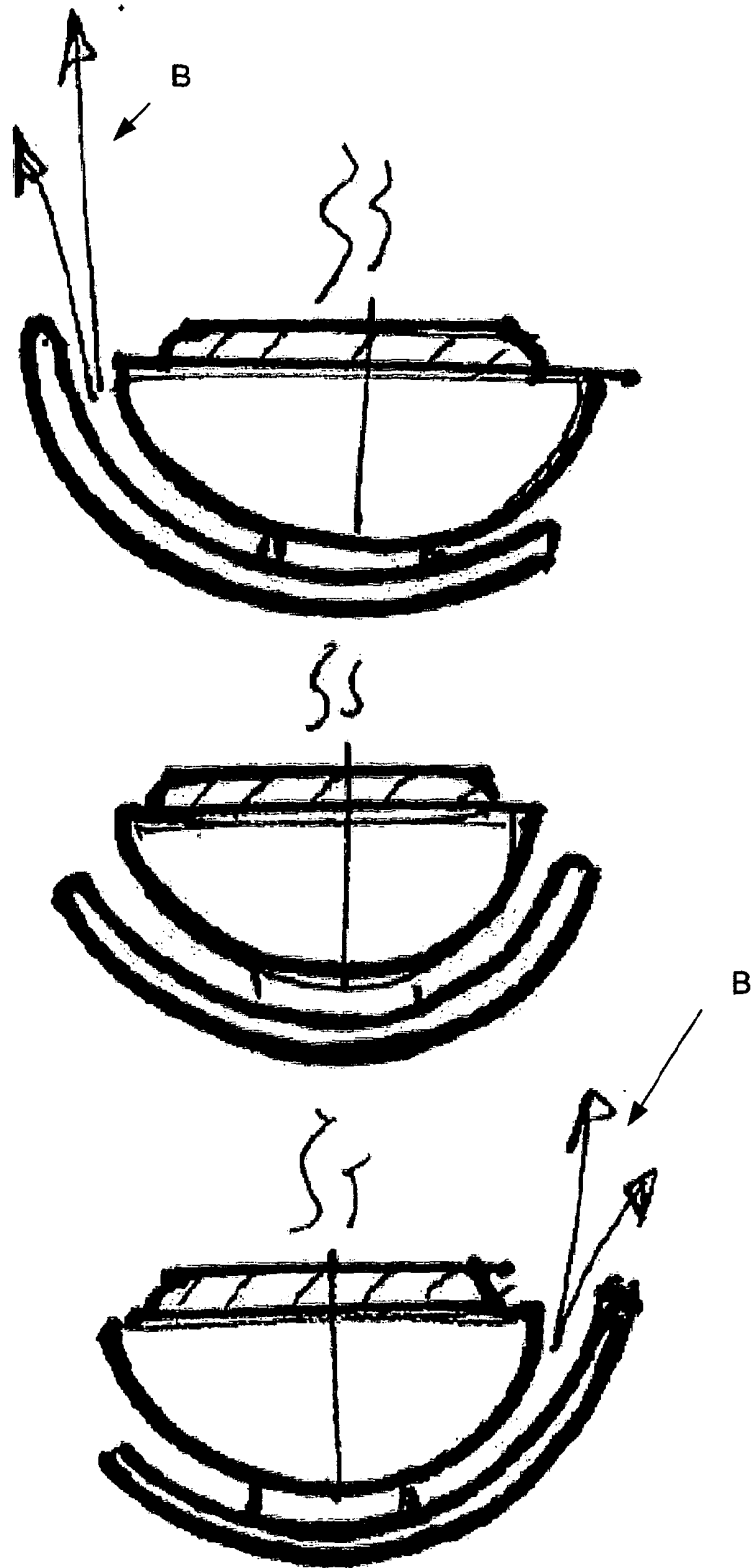


Fig 4

REFERENCES CITED IN THE DESCRIPTION

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