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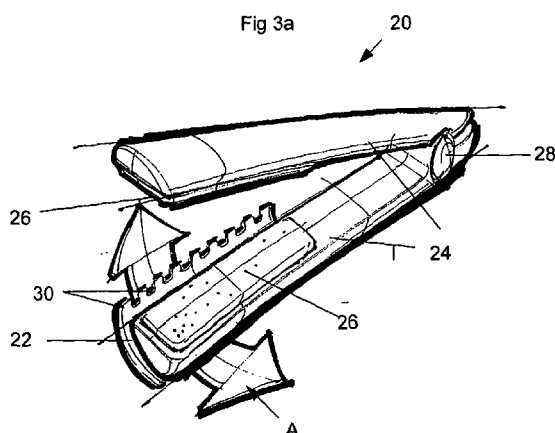
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(54) Title: HAIR STYLING APPARATUS



(57) Abstract: 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; and means for manipulating a user's roots spaced apart from the hair heating plate whereby, in use, the means for manipulating a user's root is brought into contact a user's roots and the hair heating plate is spaced apart from a user's head.

Hair Styling Apparatus

FIELD OF THE INVENTION

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

BACKGROUND TO THE INVENTION

- 10 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.

- 15 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
20 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.

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

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SUMMARY OF THE INVENTION

- According to one aspect of the invention, there is provided a hair styling appliance, the appliance comprising a pair of clamping members for clamping hair to be styled,
30 wherein at least one of said clamping members comprises:

 a hair heating plate; and

 means for manipulating a user's roots spaced apart from the hair heating plate whereby, in use, the means for manipulating a user's root is brought into contact with a user's roots and the hair heating plate is spaced apart from a user's head.

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Thus, in contrast to existing styling appliances which have only the plates manipulating the hair, the present invention has an additional component to make it easier to access and to manipulate the roots of a user's hair to give body to the hair, without the risk of burning.

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The means for manipulating a user's roots (i.e. the roots of a user's hair) may be in the form of a comb with a plurality of teeth. The teeth may project generally perpendicular to the plane of the heating plate and may be laterally spaced from the heating space.

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Thus according to another aspect of the invention, there is provided a hair styling appliance, the 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; and

a comb with a plurality of teeth for manipulating a user's roots spaced apart

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from the hair heating plate.

The teeth may project generally perpendicular to the plane of the heating plate and may be laterally spaced from the heating space. 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.

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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 means for manipulating a user's roots may comprise a baffle for controlling the gas such that the gas flow manipulates a user's roots.

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Thus according to another aspect of the invention, there is provided a hair styling appliance, the appliance comprising:

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a pair of clamping members for clamping hair to be styled, and

a gas supply connected to the at least one clamping member to generate a gas flow over the clamping member,

wherein at least one of said clamping members comprises:

a hair heating plate; and

a baffle for controlling the gas flow over the clamping member such that the gas flow manipulates a user's roots.

5 The comb may act as the baffle so that the comb may be combined with the gas flow to make it easier to access a user's roots. 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.

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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
15 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.

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 compressed air.
20 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.

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
25 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

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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.

10 DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

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.

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 underneath the clamping member

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.

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.

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.

It will be appreciated that the comb may be replaced by a baffle or similar device which controls and guides the air flow but does not have teeth like the comb. In other words, the hair styler could provide an air flow without a comb implement. Such a baffle may have a similar shape to the depicted comb and thus may be shaped so as to define a gap between the baffle and the outer surface of the clamping member through which the gas flows. The profile of the inner surface of the baffle may thus generally match the profile of the outer surface of the clamping member. A baffle or other mechanical spacer could still be used to prevent the user from bringing the heated plate(s) close to their scalp.

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 spirit and scope of the claims appended hereto.

CLAIMS:

1. 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:
5 a hair heating plate; and
means for manipulating a user's roots spaced apart from the hair heating plate whereby, in use, the means for manipulating a user's root is brought into contact with a user's roots and the hair heating plate is spaced apart from a user's head.
- 10 2. A hair styling appliance according to claim 1, wherein the means for manipulating a user's roots is in the form of a comb with a plurality of teeth.
3. 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:
15 a hair heating plate; and
a comb with a plurality of teeth for manipulating a user's roots spaced apart from the hair heating plate.
4. A hair styling appliance according to claim 2 or claim 3, wherein the comb is
20 slidably mounted to the at least one clamping member.
5. A hair styling appliance according to any one of claims 2 to 4, 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.
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6. 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 means for manipulating a user's roots comprises a baffle for controlling the gas flow such that the gas flow manipulates
30 a user's roots.
7. A hair styling appliance comprising:
a pair of clamping members for clamping hair to be styled, and
a gas supply connected to the at least one clamping member to generate a gas
35 flow over the clamping member,

wherein at least one of said clamping members comprises:

a hair heating plate; and

a baffle for controlling the gas flow over the clamping member such that the gas flow manipulates a user's roots.

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8. A hair styling appliance according to claim 7, when dependent on any one of claims 2 to 5, wherein the comb forms the baffle.

9. A hair styling appliance according to claim 7 or claim 8, wherein the baffle is slidably mounted to the at least one clamping member whereby the direction of the gas flow is controllable.

10. A hair styling appliance according to any one of claims 7 to 9, wherein the gas flow is controlled by a user-activated button.

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11. A hair styling appliance according to any one of claims 7 to 9, comprising an automatic activation mechanism, whereby the gas flow is generated when the baffle presses against a user's head.

12. A hair styling appliance according to any one of claims 7 to 11, wherein the gas supply is in the form of an electric fan housed within the appliance.

13. A hair styling appliance according to any one of claims 7 to 11, wherein the gas supply is in the form of a container of compressed air housed within the appliance.

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14. A hair styling appliance according to any one of claims 7 to 13, wherein the gas flow passes over the heating plate whereby the gas is heated.

15. A hair styling appliance according to any one of claims 7 to 13, comprising a heating element located in the gas flow for heating the gas.

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16. A hair styling appliance according to any one of claims 7 to 15, wherein the inner surface of the baffle is shaped to generally match the outer surface of the clamping member.

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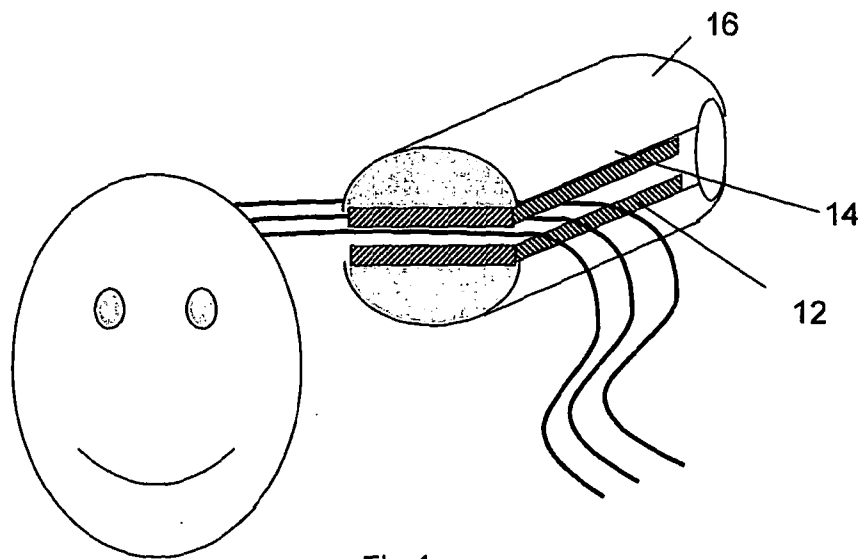


Fig 1a
Prior art

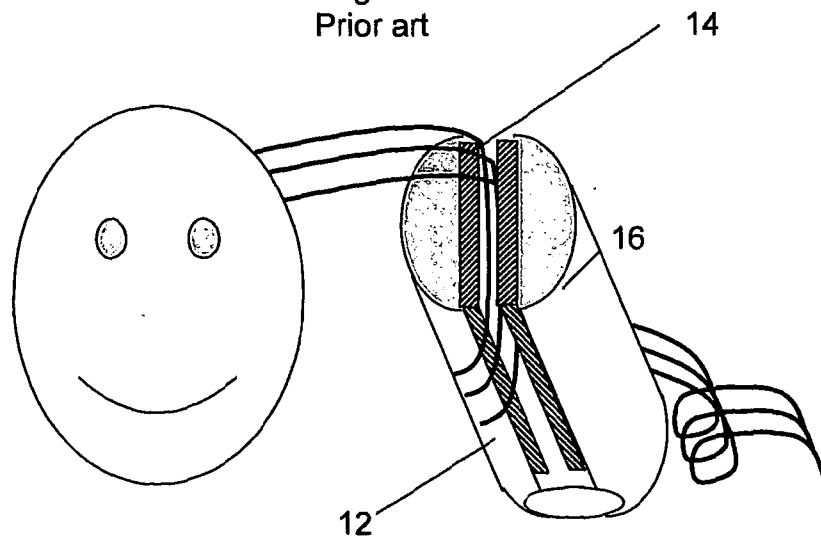


Fig 1b
Prior art

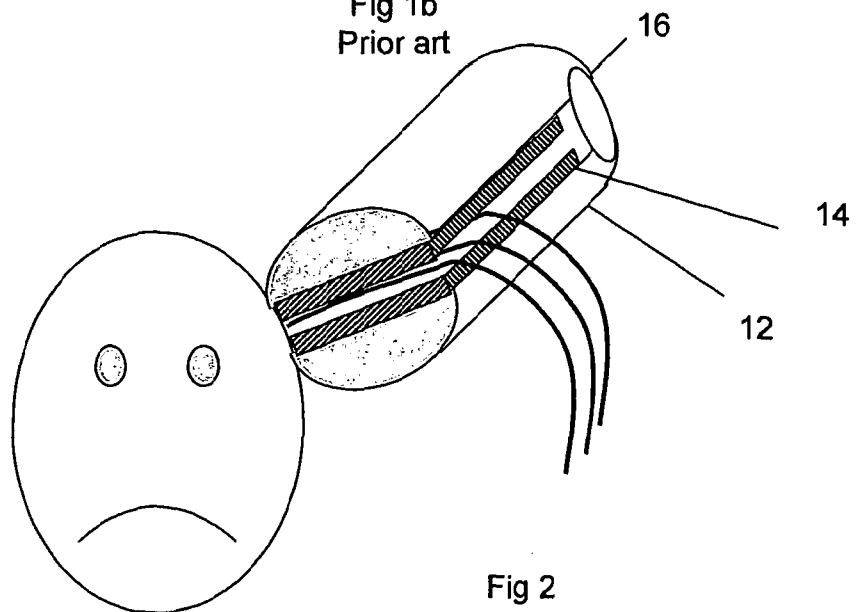


Fig 2
Prior art

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Fig 3a

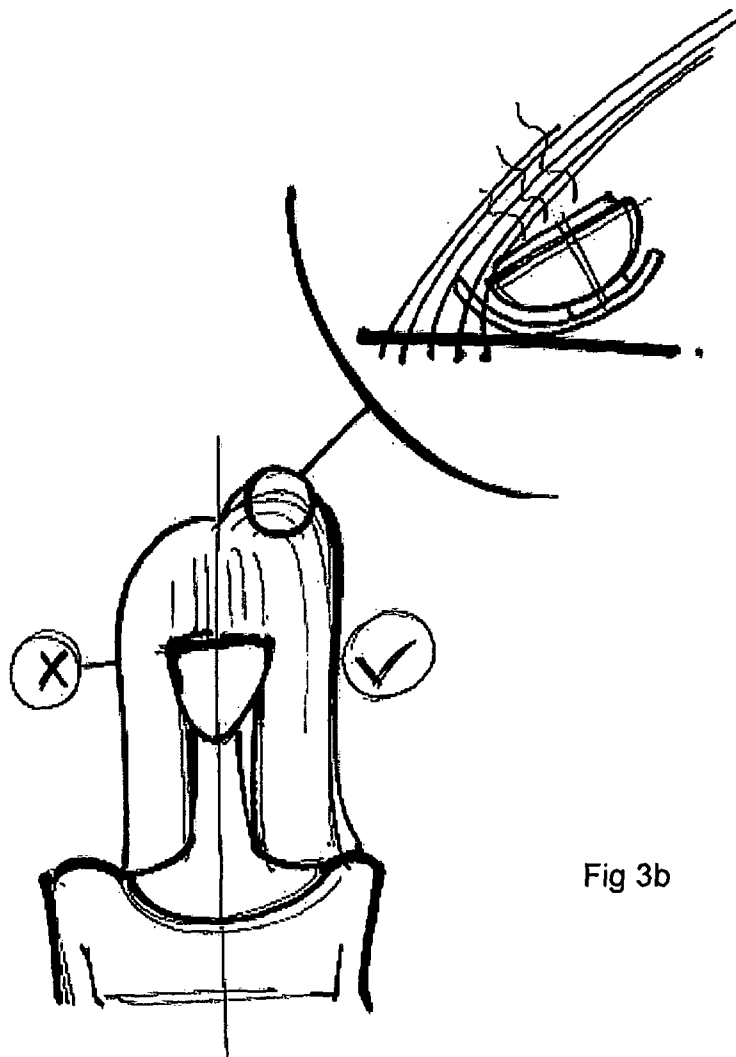
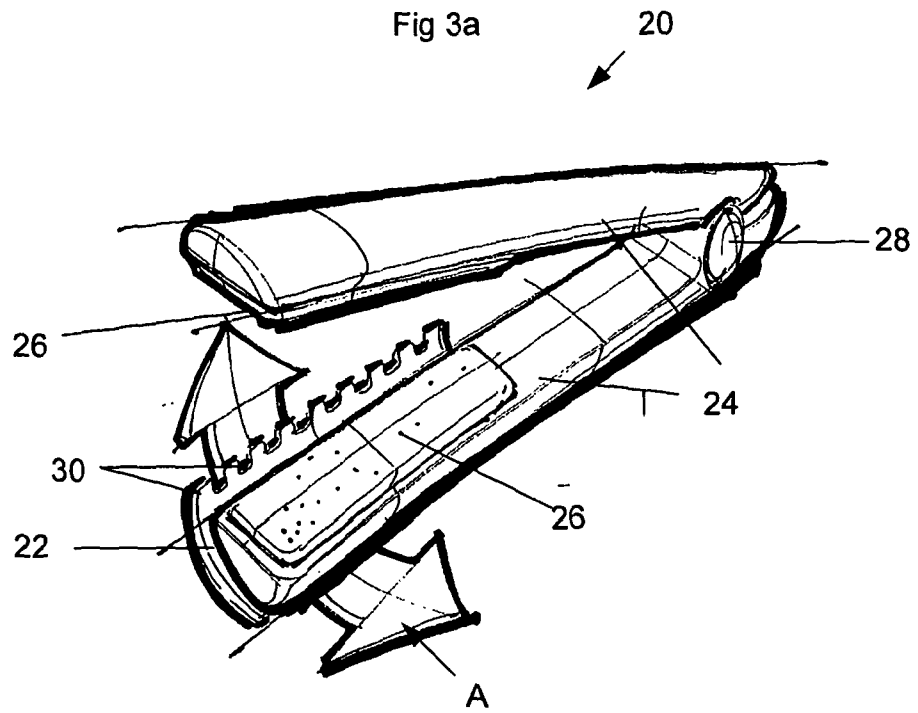


Fig 3b

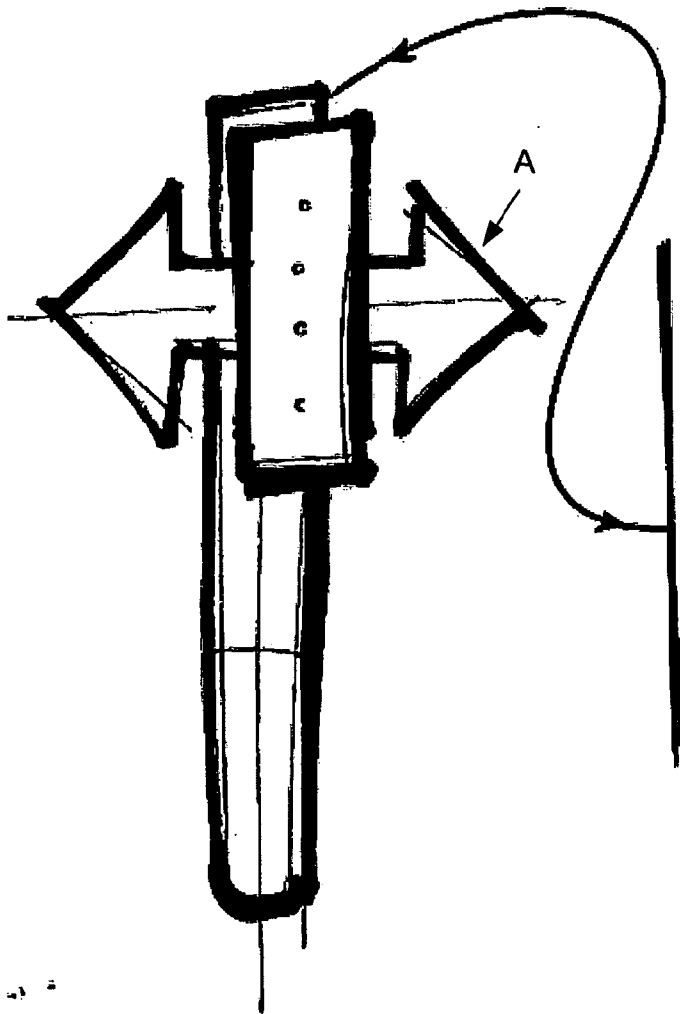


Fig 3c

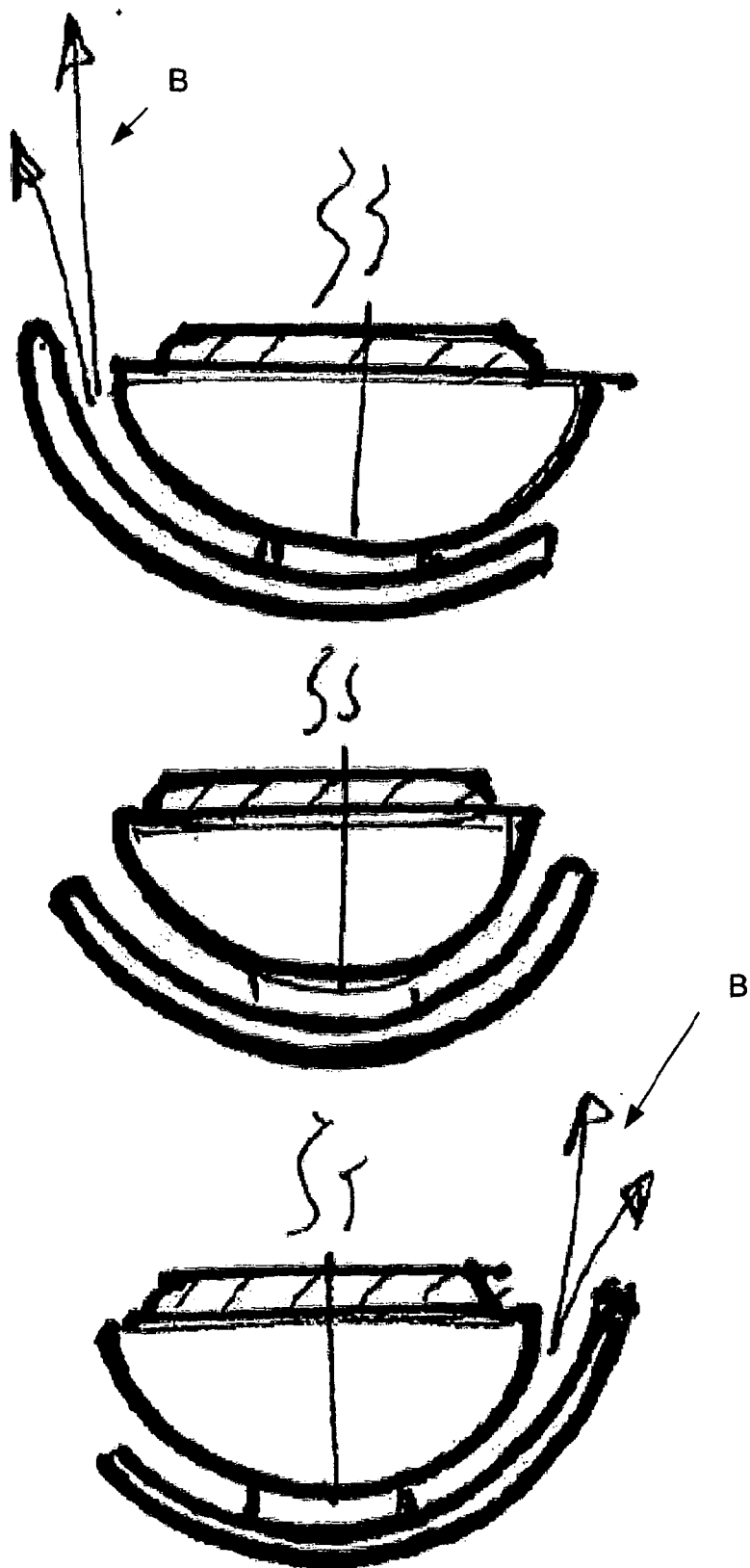


Fig 4