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(54) **Hair styling device**

(57) The present invention relates to a hair styling device, for example one that can be used for curling and straightening hair. Particularly, the invention relates to a hair styling device (10) having a first styling part (12) and a second styling part (14), such that the two styling parts are movable in relation to one another and hair can be placed between the two styling parts, at least one styling

part having a hair guidance part (22, 24) and also having a grip part (32, 34) that is structurally different from the hair guidance part, wherein the hair guidance part (22, 24) has a row of convexities (26) and concavities (28) and the grip part (32, 34) has a row of convexities (26) and concavities (28), and the hair guidance part (22, 24) and the grip part (32, 34) have a shared base area (30).

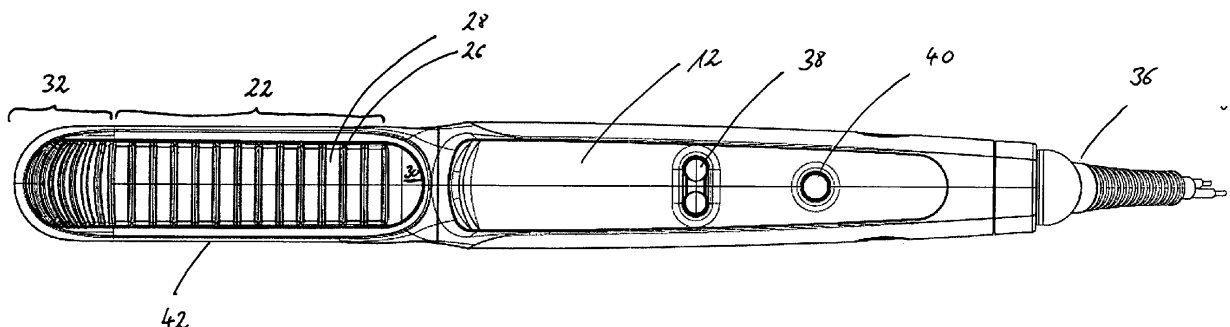


Fig. 2

Description

Field of the Invention

[0001] The present invention relates to a hair styling device such as one that can be used for curling and straightening hair, for example. The device may also be designed so that it serves preferably one of these two purposes and then is sold either as a straightening rod or as a straightening iron. The present invention is suitable for use in the private sector and also for use in the professional area, for example, in a hair styling salon.

Background of the Invention

[0002] British Patent GB 1,519,930 (filed May 27, 1977) discloses a hair styling device having two arms, each having heating elements. The arms may be moved toward one another by a lever mechanism with the help of a grip lever. This movement can be made in a reliable and controlled manner, in particular avoiding contact of one's fingers with the heating elements, but the design appears to be complex.

[0003] Unexamined German Patent DE 102 39 713 A1 (filed August 29, 2002) discloses a hair styling device with which steam can also be applied to hair. This device is optimized for one-handed operation. There is a clamping element against a heated styling rod. This clamping element may be swiveled out of the way by means of a push button or lever.

[0004] This device also has a vaporizer, which is supplied with water from a tank. This tank is situated at the tip of the styling rod. Water for vaporizing may be supplied by means of operating button. This operating button is situated approximately at the level of the push button, allowing convenient one-handed operation.

[0005] Due to the tank being arranged at the tip of the heated styling rod, there is also no risk of getting burned at this end of the device. However, this design is somewhat complex on the whole and is optimized specifically for a device using a vaporizer. The clamping forces with which hair is pressed against the styling rod by the clamping element depend to a significant extent on the design of the device, i.e., essentially on the available spring force in the embodiment shown here, and cannot be increased beyond this spring force.

[0006] US Patent 6,029,677 (filed March 31, 1998) also discloses a hair styling device with a vaporization unit. The hair styling device has a heatable, essentially cylindrical styling rod and a clamping device, which comes in contact with it under spring tension. The heatable styling part is equipped with a heat guard element, which may be made of plastic and has a row of longitudinal ribs and ring-shaped transverse ribs. Furthermore, grip concavities are provided on the end of the styling rod and also on the end of the clamping part. These grip concavities should serve to press the clamping part against the heated styling part. The corresponding grip concavities are

seemingly created in one piece on the clamping part and/or on the styling part. At any rate, the grip concavity for the styling part is also embodied as elements that are independent of the heat guard. This in turn seems to result in a certain manufacturing complexity. Furthermore, the exterior of the device also has many, details which interfere with a uniform aesthetic shape.

[0007] An improved hair styling device is to be made available with the present invention. In particular, an esthetically attractive but at the same time inexpensive heat guard is to be offered. This heat guard should allow the guidance of heated parts, at least the styling part, without any risk of burns.

[0008] This object is achieved by a hair styling device according to claim 1.

[0009] According to the present invention, a hair styling device having a first styling part and a second styling part is thus made available. The two styling parts should be movable relative to one another, so that hair can be placed between the two styling parts. A styling part is understood to be a part of the device, which is suitable for coming in contact with the hair. The styling part may be either heated or unheated. In the case of a hair straightener, for example, two heated styling parts of essentially the same shape are often used. In the case of a curling rod, however, there will typically be a first styling part in the form of a heated cylindrical body and a clamping device, which may be understood in this context as being a second styling part. This second styling part in the form of the clamping device is then typically unheated. The mobility of the styling parts relative to one another may be accomplished, for example, by the possibility of a pivoting motion about a shared axis, but may also be achieved in a variety of other forms.

[0010] At least one of the styling parts should have a hair guidance part and also a grip part differentiable from the former. A hair guidance part may be understood to be any part, which imparts a preferential direction to hair being guided along the hair guidance part and/or divides the hair into multiple strands of hair. Preferably, however, exclusively plastic parts are not used here. The grip part in particular may be tailored to the anatomy of the hand or the fingers, but this need not be the case. At any rate, it is structurally different from the hair guidance part.

[0011] According to the invention, the hair guidance part should have a row of convexities and concavities. Such convexities and concavities may have multiple different shapes; for example, nubs may be considered as convexities and troughs or similar recesses may be considered as the concavities. Likewise, fins or webs with recessed grooves in between may also be considered. Hence, the term convexity can herein also be replaced by the term nub, fin, or web. Hence, the term concavity can herein also be replaced by the term trough or recess. A row of convexities and concavities is understood to be at least two convexities with a concavity in between. As a rule, the number of convexities and accordingly also the number of concavities will also be much higher. A

concavity is to be seen in relation to a convexity.

[0012] A hair guidance part influences the course of the hair as it is supplied to the device or guidance of the hair away from the styling part. For example, such a hair guidance part may be mounted on the rear end of the styling part. Then the hair is guided in strands through the hair guidance part and is oriented in a certain direction. Usually the hair is supplied at a right angle to the edge of the styling parts. For hair guidance, such convexities and concavities are especially expedient, but they also have an additional benefit for the hair guidance part because a human finger does not rest on the complete area of the part, which is usually at least warm, but it touches only the convexities.

[0013] According to the present invention, the hair guidance part and the grip part have a common base area which may be designed in one piece or may consist of multiple parts joined together. The latter variant in particular allows a reduction in the number of components for the hair styling device and thus ensures a cost advantage.

[0014] Furthermore, it is advantageous if the hair guidance part and the grip part (either one or both) are arranged so that one develops into the other. In other words, there should not be any distance between the hair guidance part and the grip part beyond the single width or two times the width of the neighboring concavities.

[0015] It has thus proven to be advantageous if the convexities are arranged closer together in the grip part. The distance between two convexities in the grip part should be smaller than the distance between two convexities in the hair guidance part. In the case of grooves extending in a first direction, the corresponding distance of the grooves would then be measured at a right angle to this first direction.

[0016] It has also proven to be advantageous if the convexities in the hair guidance part are higher than the convexities in the grip part. This achieves especially reliable hair guidance, whereas convexities of a lower height in the grip part may be quite adequate as an efficient heat guard and also for a secure grip.

[0017] It is also especially beneficial if the grip part is arranged in the end area of the styling part. The outer end area of the styling part is understood to be the area in which the styling part is openly accessible and which is thus usually opposite the hinge (or a similar connection) by means of which the styling part is movably connected to the other styling part. Furthermore, it is expedient if the grip part is curved. The curvature may approximately simulate a taper of the styling part on its outer end. Furthermore, an anatomically favorable finger rest can be achieved in this way.

[0018] The hair styling device is preferably designed so that each of the two styling parts has one grip part and one hair guidance part. Both the grip zone and the hair guidance are advantageously each mounted on the rear end of the styling part. The rear end is understood to be the end opposite the hair treatment end. In an especially

preferred embodiment, the hair styling device has two symmetrical styling parts, with two grip parts and two hair guidance parts situated opposite one another in a symmetrical arrangement.

[0019] For efficient treatment of hair, it is especially advantageous if the hair is guided by the hair treatment area first to a styling edge and then away from the styling edge to the hair guidance part. This styling edge may result in more efficient curling of the hair, for example. If no styling edge is provided on the hair styling device, hair may be guided along an edge area of the hair treatment area accordingly.

[0020] In one embodiment, one styling part on an inventive hair treatment device may be heated while the other remains unheated. This embodiment is very useful for a curling rod. Alternatively, however, both styling parts may be heated in an inventive hair styling device. A hair straightener having two symmetrical styling parts, both of which are heated, is especially preferred.

[0021] It is especially inexpensive and expedient if the hair guidance part and the grip part are both made of plastic, advantageously using the same plastic. Plastic can be processed well and is also a good heat guard material.

[0022] The invention will now be explained in greater detail on the basis of one exemplary embodiment, which relates to a hair straightener. Other embodiments may of course also be considered, so the features of this hair straightener, which are presented together here, may also appear in other inventive hair styling devices but need not appear in a similar combination.

[0023] In the figures:

Figure 1 shows a side view of a hair straightener,

Figure 2 shows a view of the hair straightener from above.

[0024] Figure 1 shows a hair straightener having a first styling part 12 at the top and a second styling part 14 at the bottom. The two styling parts are joined by the connecting hinge 16. A first heating element 18 is provided on the first styling part 12. Symmetrically with that, a second heating element 20 is provided on the second styling part 14. Hair can be inserted between these two styling parts. Hair guidance parts, namely a first hair guidance part 22 on the first styling 12 and a second hair guidance 24 on the second styling part 14, are both opposite the heating elements.

[0025] As a rule, hair is not guided along the two styling parts in the same way. Instead, due to the largely symmetrical design of this device, it is possible to either guide the hair around the first styling arm 12, so that it is guided in the first hair guidance part 12, or alternatively to guide the hair around the second styling part 14, so that it is guided in the second hair guidance part 24.

[0026] Each of the hair guidance parts has a row of convexities and concavities. For simplicity, only one con-

vexity is labeled with reference numeral 26 here and one neighboring concavity is labeled with reference numeral 28. In the embodiment shown here, the hair guidance part 22 has a base area 30. The convexities 26 protrude above this base area. Sections of the base area between the two convexities form the concavities. The hair guidance parts are attached to grip parts, namely a first grip part 32 on the outer end of the first styling part 12 and a second grip part 34 on the outer end of the second styling part 14. These grip parts in turn have a row of convexities (not identified further), which are elevated above the same base area 30. The first hair guidance part 22 is thus embodied in one piece with the first grip part 32 because both the grip part and the hair guidance part have the same base area 30. Accordingly, the second hair guidance part 24 and the second grip part 34 also share a base area, so that a one-piece design is again achieved. This side view also shows readily that the convexities in the area of the grip parts 32 and 34 do not protrude as far above the base area 30 as they do in the area of the hair guidance parts 22 and 24.

[0027] Figure 2 shows a view of the hair straightener from above. In this view, it can be seen that the first styling part 12 also carries the electric connecting cable 36. The device is thus operated electrically as a whole. It may be turned on by the switch 38, where its temperature can also be preselected. The ON-position is indicated by the display 40. In this view, it can be seen that convexities 26 are arranged on the base area 30 so they are equidistant in the area of the first hair guidance part 22. Accordingly, there are also concavities of the same width between the convexities 26. The base area also develops into the first grip part 32, but the latter is curved here. Accordingly, the convexities there have a different orientation. As shown clearly here, they are also definitely more densely arranged in the area of the grip part 32 than in the area of the hair guidance zone 22. Furthermore, a styling edge 42 is discernible in this view. Hair could be supplied to the hair treatment zone via the first hair guidance part i.e., guided along heating elements and around the styling edge 42, having been supplied from above, based on this view.

[0028] A very efficient hair styling device that can be handled safely can be manufactured in this way.

Reference numerals

[0029]

- 10 hair styling device
- 12 first styling part
- 14 second styling part
- 16 styling part connecting hinge
- 18 first heating element

- 20 second heating element
- 22 first hair guidance part
- 24 second hair guidance part
- 26 convexity
- 28 concavity
- 30 base area
- 32 first grip part
- 34 second grip part
- 36 cable
- 38 switch
- 40 display
- 42 styling edge

Claims

1. A hair styling device (10) having a first styling part (12) and a second styling part (14), such that the two styling parts are movable in relation to one another and hair can be placed between the two styling parts, at least one styling part having a hair guidance part (22, 24) and also having a grip part (32, 34) that is structurally different from the hair guidance part, **characterized in that** the hair guidance part (22, 24) has a row of convexities (26) and concavities (28) and the grip part (32, 34) has a row of convexities (26) and concavities (28), and the hair guidance part (22, 24) and the grip part (32, 34) have a shared base area (30).
2. The hair styling device (10) according to claim 1, in which the hair guidance part (22, 24) and the grip part (32, 34) are arranged so they can develop one into the other.
3. The hair styling device (10) according to claim 1 or claim 2, in which the hair guidance part (22, 24) and the grip part (32, 34) are designed in one piece.
4. The hair styling device (10) according to any one of the preceding claims, wherein the convexities (26) are arranged more densely in the grip part (32, 34) than in the hair guidance zone (22, 24).
5. The hair styling device (10) according to any one of the preceding claims, wherein the convexities (26) in the hair guidance zone (22, 24) are higher than

those in the grip part (32, 34).

6. The hair styling device (10) according to any one of the preceding claims, wherein the grip part (32, 34) is attached to the outer end of the styling part (12, 14). 5
7. The hair styling device (10) according to any one of the preceding claims, wherein the grip part (32, 34) has a curved base area (30). 10
8. The hair styling device (10) according to any one of the preceding claims, having a first styling part (12) with a first hair guidance zone (22) and a first grip part (32) as well as having a second styling part (14) with a second hair guidance zone (24) and a second grip part (34). 15
9. The hair styling device (10) according to any one of the preceding claims, wherein the hair guidance zone (22, 24) and the grip part (32, 34) are arranged on the rear end of the styling part. 20
10. The hair styling device (10) according to any one of the preceding claims, wherein at least one of the styling parts has a styling edge (42). 25
11. The hair styling device (10) according to any one of the preceding claims, wherein only one styling part (12, 14) is heated. 30
12. The hair styling device (10) according to any one of the preceding claims 1 to 10, wherein the first styling part (12) and the second styling part (14) are heated.
13. The hair styling device (10) according to any one of the preceding claims, in the form of a hair straightening having essentially symmetrical styling parts. 35
14. The hair styling device (10) according to any one of the preceding claims, wherein the first hair guidance part (22), the second hair guidance part (24), the first grip part (32) and the second grip part (34) are made of plastic. 40

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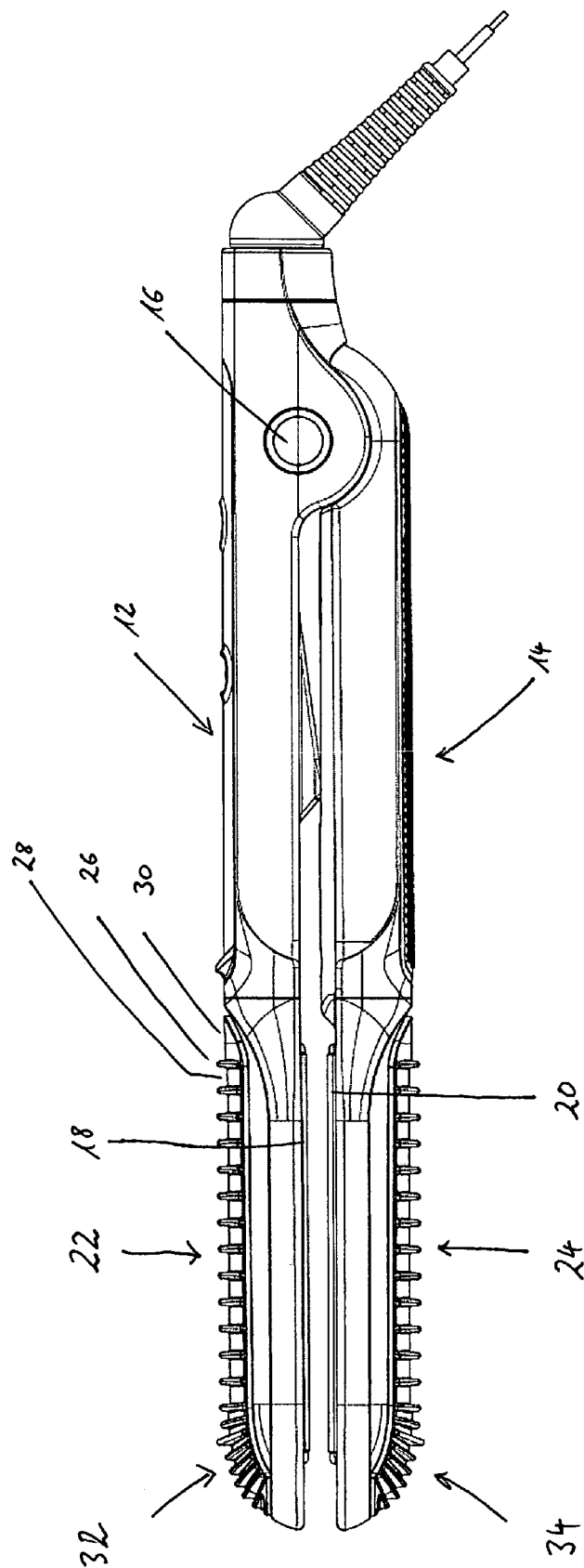


Fig. 1

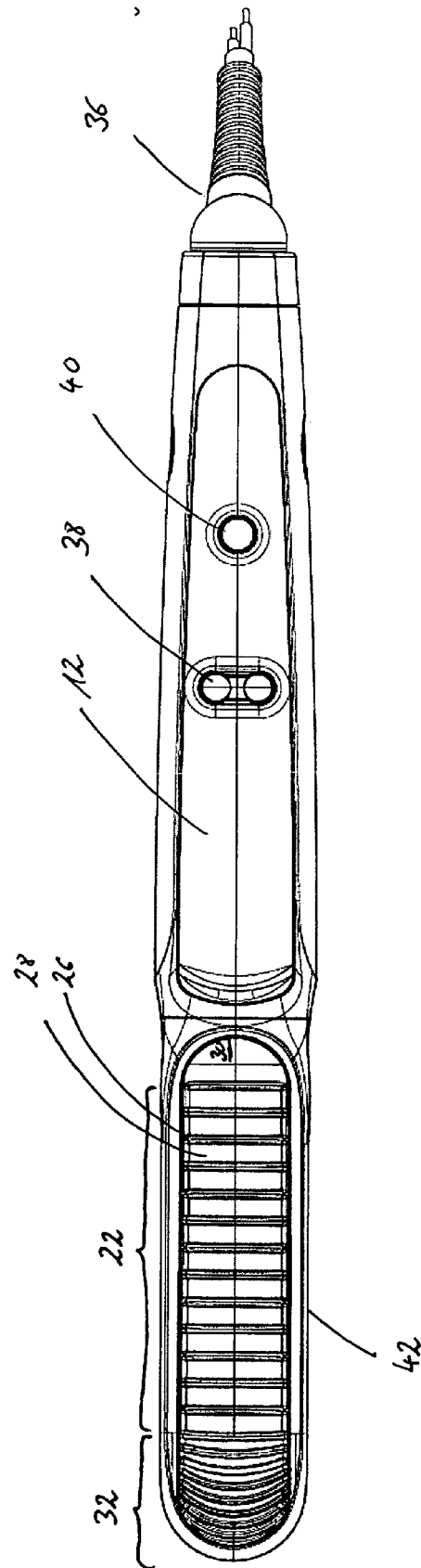


Fig. 2



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Application Number
EP 10 00 2612

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Place of search The Hague		Date of completion of the search 18 August 2010	Examiner Daoukou, Eleni
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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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