The invention relates to a hair styling tool comprising: a body (20) having a proximate end and a distal end; a rotatable cylinder (24) extending from the body (20), the rotatable cylinder (24) being continuously rotatable relative to the body (20); a motor (39) for continuously rotating the rotatable cylinder (24); and a styling arm (26, 34, 200) pivotally attached to the body (20), the styling arm (26, 34, 200) being non-rotatable about the longitudinal axis of the body (20) and having a distal end, wherein the styling arm (26, 34, 200) is movable between a first open position and a second position sufficiently close to the rotatable cylinder (24) such that placement of hair between the styling arm (26, 34, 200) and the rotatable cylinder (24) when the styling arm (26, 34, 200) is in the open position, and once the hair is in place, the styling arm (26, 34, 200) is movable to the second position to capture and style the hair, wherein the rotatable cylinder (24) is rotatable by the motor (39) in the second position. Furthermore, the invention relates to a method for styling a person's hair using a tool according to the invention.
FIELD OF THE INVENTION

Description

In one exemplary embodiment, a hair styling tool may include a brush head and/or a smoothing plate. In one exemplary embodiment, the hair styling tool may have a hinged or clam shell configuration.

BACKGROUND OF THE INVENTION

Brushing hair pulls oil from the scalp region and spreads it throughout the hair, adding body and sheen to the hair and keeping the hair healthy. To add even more body or to style hair in particular shapes, many people blow dry their hair as they brush it. When simultaneously blow drying and brushing hair, desirable results are achieved by pulling the bristles of a hair brush through the hair while heat, such as in the form of hot air, is applied directly to the hair. One method of brushing involves partially rotating the brush so that the bristles move through the hair. A user can usually rotate a brush about one half turn manually and, after each half turn, the user pulls the brush from the hair. The brush is then replaced in a new location, usually adjacent to the preceding location, and the process is repeated. Various brushes have been developed as an improved hair brushing means. Exemplary embodiments of such a brush are described in U.S. Patent No. 6,098,635 to Marino, the entire content of which is incorporated herein by reference.

SUMMARY OF THE INVENTION

In one exemplary embodiment, a hair styling tool is provided including a body, a cylinder extending from the body, the cylinder rotatable relative to the body, a motor for rotating the cylinder, and a styling arm attached to the body. The styling arm may be adapted to make contact with the cylinder and the styling arm may be movable between an open position in which the styling arm does not contact the cylinder and a closed position in which the styling arm contacts the cylinder. The styling arm may include a brush head and/or a smoothing plate. In one exemplary embodiment, the hair styling tool may have a hinged or clam shell configuration.
DETAILED DESCRIPTION

Referring to FIG. 1, a hair styling tool 20 includes an elongated body 22. The specific dimensions of the body are not critical, but the body should generally allow a user to comfortably hold the hair styling tool during use. In one exemplary embodiment, the body 22 may be adapted to house other mechanical and electrical components of the hair styling tool 20, as described in more detail below.

With reference also to FIG. 2, in one exemplary embodiment of the hair styling tool 20, a mounting channel 72 extends from a distal end of the body 22. As used herein, "distal" shall generally refer to a position or direction away from a base of the body 22 or towards a tip of the mounting channel 72. Conversely, "proximal" shall generally refer to a position or direction toward the base of the body 22 or away from the tip of the hot air channel 72. As described in more detail below, the mounting channel 72 serves to provide additional support to a cylinder 24 rotatably mounted on the mounting channel.

Referring again to FIG. 1, in one exemplary embodiment, a hot air channel 71 may be connected to a hot air fan assembly 44 housed in the body 22 such that hot air provided by the hot air fan assembly travels through the body via the hot air channel. Intake ports 70 in the body 22 admit outside air to an inlet of the hot air fan assembly 44. An opening 82 at a distal end of the hot air channel 71 allows the air to escape the body 22 and enter, for example, a cylinder attached to a distal end of the body as described below. A hot air switch 42 electrically connected to the hot air fan assembly 44 allows a user to control the hot air supply provided by the hot air fan assembly.

An elongated hollow cylinder 24 may be rotatably mounted over the mounting channel 72. The mounting channel 72 may include a groove 81 into which teeth 83 protruding from a cap 27 of the cylinder 24 may be snapped to mount the cylinder to the mounting channel. A base 25 of the cylinder may be adapted to be connected to a distal portion of the body 22. In one exemplary embodiment, the base 25 of the cylinder 24 is connected to the body 22 by a slip fit. In one exemplary embodiment, teeth (not shown) on an inner circumference of the base 25 mesh with teeth on a cylinder drive gear 50 at a distal end of the body 22 to align the cylinder 24 to the body. A distal end of the cylinder 24 may include the cap 27 to seal the distal end of the cylinder and prevent, for example, hot air provided through the hot air channel 71 from escaping from the distal end of the cylinder. The cap 27 may contain teeth 83 to allow the cylinder to be mounted and secured by an interference fit to the mounting channel 72 as described above. The specific shape or dimensions of the cap 27 are not critical as long as the cap substantially covers the distal end of the cylinder 24 and prevents a significant amount of air from escaping from the distal end.

In one exemplary embodiment, the cylinder 24 includes a plurality of holes 30 which allow a flow of hot air from the hot air channel 72 to an exterior of the hair styling tool 20 and to contact hair adjacent the cylinder. In one exemplary embodiment, the holes 30 are circular and arranged in rows, evenly spaced throughout the cylinder 24. The even spacing of the holes 30 throughout the cylinder 24 allows for even distribution of hot air throughout the cylinder and also for uniform heating of the cylinder, thus providing uniform drying when the cylinder is applied to hair, as described in more detail below. Although one configuration of the holes 30 is described herein, the specific configuration of the holes is not critical, and the holes may be arranged in any configuration allowing hot air to travel from the hot air channel 72 through the cylinder 24. Additionally, although the described holes 30 are circular, the shape of the holes is not critical. The holes 30 also serve to increase the friction between the brush head housing and the cylinder, increasing the brushing effectiveness on the hair.

With reference to FIGs. 3A-3D, alternate exemplary surface patterns of the cylinder 24 are shown. The alternate surface patterns, which are generally wave-shaped grooves 54a, 54b, 54c, 54d, allow for varying friction along the cylinder’s surface to provide different styling options when hair is placed between the cylinder 24 and a smoothing plate 108 as described in more detail below. The grooves may also be used on a cylinder having holes 30 (holes not shown for clarity). With reference to FIG. 3D, the smoothing plate 108 adapted to contact the cylinder 24 may include grooves 55 to further increase the friction between the brush head housing
The rotation assembly of the hair styling tool will now be described with further reference to FIG. 1. An electric motor 39 may be housed within the body 22, the motor being adapted to rotate the cylinder 24. In one exemplary embodiment, the motor powers a drive shaft 46 which extends along a length of the body 22. A drive gear 48 may be located at a distal end of the drive shaft 46, the drive gear adapted to interact with the cylinder gear drive 50 such when the drive gear 48 is rotated by the drive shaft, the cylinder gear drive 50 rotates as well. When the cylinder 24 interfaces with the cylinder gear drive 50, the cylinder rotates in the same direction and at the same rate as the cylinder gear driver. In one exemplary embodiment, the electric motor 39 is adapted to power the drive shaft 46 at different rates, depending on a setting adjusted by a user.

In one exemplary embodiment, the electric motor 39 is reversible such that it can rotate the drive shaft 48 in either direction. A rotation direction switch 41 may be electrically connected to the motor 39 to allow the direction of the motor to be set by a user. The motor 39 may be powered by, for example, electricity from an electrical power cord 40, a rechargeable battery, or by other means sufficient to generate enough energy to power the motor. An activation switch 38 may be used to activate the motor 39 to drive rotation of the cylinder 24. The activation switch 38 may be located anywhere on the brush, but in exemplary embodiment, the rotation switch is located in a position such that it is activated when a pivot handle 36 is in a closed position, as described in more detail below. Although a specific system including gears is described to allow the motor 39 to rotate the cylinder 24, one of ordinary skill in the art will appreciate that many other similar configurations of the driving system will achieve the same result in substantially the same way.

An elongated styling arm may be attached to the body 22 of the hair styling tool 20. In one exemplary embodiment, the styling arm may be a brush head 26. The brush head 26 may include an array of bristles 28 mounted on a surface of the brush head and protruding toward an outer surface of the cylinder 24. The brush head 26 may also include a vent holes 32 to allow hot air to enter or hot air and/or steam to escape to prevent the brush head from becoming dangerously hot. An exemplary brush head 26 venting pattern is shown in FIG. 4.

In one exemplary embodiment, as shown in FIG. 4, the brush head 26 has a concave structure such that the brush head generally conforms to the curvature of the cylinder 24, maximizing the effective brushing surface. In a further exemplary embodiment, the brush head 26 may have a width such that it extends around part of the cylinder circumference to subtend an angle between about 20° and about 45°. The brush head 26 may be adapted to receive and secure an interchangeable bristle blade 31, allowing users to choose from a variety of bristle densities and different bristle textures. The brush head 26 may include a groove 29 located along each interior side of the brush head, the grooves 29 adapted to slidingly receive and secure the interchangeable bristle blade 31.

With reference again to FIG. 1, the brush head 26 may be pivotally or otherwise movably attached to the body 22. More specifically, the brush head 26 may be attached to a distal end of a lever arm 34, the lever arm being pivotally attached to the body 22 by, for example, a transverse brush head pivot pin 35. The brush head 26 may have an open position wherein the brush head 26 is spaced from the cylinder 24, and a closed position (FIG. 5) wherein the brush head 26, and specifically, the bristles 28, are in contact with the cylinder. A bias means 84, such as a spring, may bias the brush head 26 into an open position. The pivot handle 36 may be provided to allow a user to move the brush head 26 from the open position to the close position, the pivot handle being pivotally attached to the body 22 by a pivot handle pivot pin 37. In one exemplary embodiment, a pivot handle gear 50 rotatably connected to the pivot handle pivot pin 37 is coupled with a brush head gear 52 rotatably coupled to the brush head pivot pin 35. The pivot handle 36 is oriented such that the pivot handle is in an open position (i.e., a proximal end of the pivot handle is spaced from the body 22) when the brush head 26 is in an open position and the pivot handle is in a closed position (i.e., a proximal end of the pivot handle is in contact or substantially in contact with the body) (FIG. 5) when the brush head is in a closed position. Accordingly, when the brush head 26 is biased to be in the open position, the pivot handle 36 is also biased to be in the open position. Due to the interaction of the pivot handle gear 50 and the brush head gear 52, when the pivot handle 26 is moved from the open position to the closed position, the brush head 26 simultaneous moves from the open position to the closed position.

Referring now to FIG. 6, another exemplary embodiment of a hair styling tool 120 includes a heating element such as a heating rod 60 which is adapted to provide heat to a cylinder 124 rotatably attached to a mounting channel similarly to the previous embodiment. The heating rod 60 may be electrically connected to a power source, such as the power cord 40, which provides the heating rod 60 with the ability to generate heat. A heating element switch 62 located on a body 122 allows a user to activate and deactivate the heating rod 60.

The cylinder 124 includes a heat transfer assembly 64 attached to an inner circumferential surface of the cylinder and adapted to allow the cylinder to slide over and make contact with the heating rod 60. The heat transfer assembly 64 may be any suitable heat transfer material, for example, plastic, metal, ceramic, or any combination thereof. Accordingly, when the heating rod 60 is heated, the heat is transferred by conduction from the heating rod to the heat transfer assembly 64 and to an exterior surface of the cylinder 124. The cylinder 124 includes holes 66, for example, concave indentations or...
Referring to FIG. 7, the styling arm includes a brush head 100 having a collapsible bristle assembly. With reference also to FIGs. 8A, 8B, and 8C, the brush head 100 includes a brush head housing 104 adapted to slidingly receive a blade 105 into grooves 121 extending longitudinally along both sides of the brush head housing. The smooth plate is heatable and in one exemplary embodiment the brush head housing may include an integrated plug electrically connected to the smoothing plate 108. When power is supplied to the plug, the plug heats the smoothing plate 108 allowing the smoothing plate to act similar to a curling iron or a straightening iron, as described in more detail below.

With further reference to FIGs. 8A-8C, the brush head housing 104 is also adapted to slidingly receive a blade 105 including bristle clusters 106 and rigid posts 107. In one exemplary embodiment, the blade 105 includes a plurality of collapsible members 123 extending longitudinally along the blade and having a generally concave cross-section. The collapsible members 123 have an extended position in which they provide for the bristles 106 to protrude from the smoothing plate 108 (FIG. 8A) and a collapsed position in which they provide for the bristles to be retracted with respect to the smoothing plate, i.e., recessed within or substantially flush with the smoothing plate (FIG. 8B). The collapsible members 123 are biased into the extended position, but may be transformed into the collapsed position by a force to overcome the bias. Specifically, when a sufficient compression force as indicated by the arrow in FIG. 8A is applied to the rigid posts 107 generally perpendicular to a planar surface of the blade 105, the collapsible members 123 bend to allow the bristles 106 and posts 107 to be recessed within the brush head housing 104 and to allow the smoothing plate 108 to have a relatively smooth surface. As such, the hair brush may also serve as a straightening iron or a curling iron.

Another exemplary embodiment of a hair styling tool is shown with respect to FIG. 8D. A styling arm 200 includes a housing 223 adapted to slidingly receive a smoothing plate 208 into grooves 221 extending longitudinally along both sides of the housing. The smoothing plate 208 does not include bristles and is heatable, and in one exemplary embodiment, the housing 223 may include an integrated plug to electrically heat the smoothing plate. When power is supplied to the plug, the heater heats the smoothing plate 208 allowing the smoothing plate to be used to more effectively style hair.

Yet another exemplary embodiment of a brush head 110 is shown with reference to FIGs. 9A, 9B and 9C. Similarly to the brush head 100, brush head 110 includes a brush head housing 112 adapted to slidingly receive a heatable smoothing plate 115 into grooves 131 extending longitudinally along both sides of the brush head housing. The brush head housing 112 may include an integrated plug 103 electrically connected to the smoothing plate 108.

The brush head housing 112 is also adapted to slidingly receive a blade 113 including bristles 114. The brush head housing 112 includes a bristle release knob 111a/111b adapted to be received into a release knob slot 133 located on a planar surface of the brush head housing. Specifically, with reference to FIG. 9C, a hull 116 of the release knob 111a contacts a spine 134 of the blade 113 to place the blade in an extended position such that the bristles 114 protrude through the smoothing plate 115. The spine 134 may extend along only a portion of the blade 113. When the release knob 111b is slid distally along the release knob slot 133 to a release position, (i.e., a position along the blade portion absent a spine), a compression force applied generally perpendicular to a planar surface of the blade allows the bristles 114 to be recessed into the brush head housing 112 (FIG. 9B). As such, the hair brush may also be used as a curling iron or a straightening iron.

Still another exemplary embodiment of a brush head 400 of the present invention is shown with respect to FIG. 12. The brush head 400 is directed to a brush head which incorporates a brush and an integrated smoothing plate without changing a configuration of the brush head. More specifically, the brush head 400 includes a plurality of brush head housing sections 402, each housing section adapted to slidingly receive a blade 404 including bristles 408 into grooves 410 extending longitudinally along the housing section. In one exemplary embodiment, the brush head 400 includes two housing sections 404, but the specific number of housing sections is not critical. The brush head 400 may further include a smoothing plate section 412 disposed between adjacent housing sections 404, the smoothing plate section configured to provide a planar surface contact with the cylinder 24 when the brush head is in a closed configuration as shown in FIG. 12. In one exemplary embodiment, the smoothing plate section 412 has a concave surface curved to substantially the same degree as the cylinder such that the smoothing plate section makes substantially complete contact with the cylinder when the brush head is in the closed position. The brush head 400 may further include an integrated plug and heating element enabling the brush head to be electrically heated.

Another exemplary embodiment of the present invention is shown with reference to FIG. 10. A hair styling tool 320 substantially similar to the previously described
hair styling tools is provided. The hair styling tool 320 includes a one-piece movable brush head assembly 330. The brush head assembly 330 includes a brush head 326 attached to a distal end of a lever arm 390. The lever arm 390 is generally in the shape of an "S" or an upside down "Z." The lever arm 390 is rotatably connected to the hair styling tool 310 by a transverse pivot pin 391. A pivot preload spring 392 biases the lever arm 390 into an open position such that the brush head 326 is spaced from a cylinder 324. When a force to overcome the spring bias is applied to the lever arm 390, the lever arm is movable from the open position to a closed position wherein the brush head 326 contacts the cylinder 324. The body 322 of the hair styling tool 320 may include slots 323 which permit the lever arm 390 to be moved between the open position and the closed position. A cylinder rotation switch 338 may be located such that it is activated when the lever arm is in the closed position and deactivated when the lever arm is in the open position.

As will understood by those of ordinary skill in the art, the "S" shaped lever arm configuration may also be used with any of the exemplary styling arms described above.

Yet another exemplary embodiment of the present invention is shown with reference to FIG. 11. A hair styling tool 149 has a hinged or "clam-shell" configuration including a body 152 and a styling arm 151 pivotally or otherwise movably attached to the body. In one exemplary embodiment, the styling arm 151 may be attached by a pivot pin 153. The pivot pin 153 may be designed so as to allow only a limited degree of rotation between the styling arm 151 and the body 152. For example, the maximum amount of rotation may about 60 degrees. Similarly to the previously described hair styling tool embodiments, the body 152 includes a rotatable cylinder 157 and the styling arm 151 includes a brush head 150. In one exemplary embodiment, a heating element 149 has a hinged or "clam-shell" configuration including a body 152 and a styling arm 151 pivotally or otherwise movably attached to the body. In one exemplary embodiment, the styling arm 151 may be attached by a pivot pin 153. The pivot pin 153 may be designed so as to allow only a limited degree of rotation between the styling arm 151 and the body 152.

For example, the maximum amount of rotation may about 60 degrees. Similarly to the previously described hair styling tool embodiments, the body 152 includes a rotatable cylinder 157 and the styling arm 151 includes a brush head 150. In one exemplary embodiment, a heating element switch 155 to control heating of the cylinder 157 and the brush head 150, and a rotation switch 156 to control rotation of the cylinder are located on the styling arm 151. However, the location of such switches is not critical, and the switches may be located anywhere that is convenient for user access. The hair styling tool 149 may be electrically powered through a power cord 154.

In one exemplary embodiment, the styling arm 151 may be biased, for example, by a spring, into an open position such that the styling arm is not in contact with the cylinder 24. A force to overcome the bias may be applied to the styling arm 151 to place the styling arm in a closed position wherein the styling arm contacts the cylinder.

The operation and use of the hair styling tool 100 will now be described with reference to FIGS. 1 and 5. The hair styling tool may be used by placing a selected portion of hair between the brush head 26 and the cylinder 24 when the brush head is in the open position (FIG. 1). The pivot handle 36 may then be moved from the open position to the closed position, resulting in the simultaneous movement of the brush head 26 from its open position to its closed position. Placing the brush head 26 in the closed position allows the brush head to clamp the selection portion of hair between the cylinder 24 and the bristles 28 of the brush head. Additionally, in one exemplary embodiment, placing the pivot handle 36 in the closed position triggers the rotation switch 38 to activate rotation of the cylinder 24. Accordingly, almost any length of hair may be brushed, shaped and styled without significant tangling in this manner. As is apparent, the various other exemplary embodiments of the hair styling tools described may be used in a similar manner. Namely, hair may be placed between the styling arm and the cylinder when the styling arm is in the open position. Once the hair is in place, the styling arm may be moved to the closed position to capture and style the hair. In an exemplary embodiment where the rotation direction of the cylinder is reversible, a user can use the brush with either hand or from either side of the head while having the cylinder rotate in the same general direction with respect to the hair.

The brushing, shaping and styling effects may be enhanced by using the heat apparatus associated with exemplary embodiments of the brush. Specifically, the hot air fan assembly 44 or the heating rod may be actuated to heat the cylinder 24 as it rotates. Additionally or alternatively, the heatable smoothing plates 108, 115, 208 or 412 of the brush heads 100, 110, 200 or 400 may be heated. The heat applied to the hair by the cylinder 24 and/or the brush heads 100, 110, 200 or 400 not only allows the hair to dry more quickly, but also provides the hair with smoothing volume and a healthy shine.

With reference to FIGS. 8A-8C, if a user wants to use the device as a curling iron or a flat iron, a compression force generally perpendicularly to the smoothing plate 108 may be applied to the blade 105 to place the bristles 106 in the collapsed position. In the collapsed position, the bristles 106 of the brush head are retracted with respect to the smoothing plate 108, i.e. recessed within or flush with the smoothing plate. Accordingly, the smoothing plate will have a smooth surface which, along with heat provided through the cylinder 24 and/or through the brush head, allows the device to be used as a smoothing, straightening or curling iron. In an alternate embodiment with reference to FIGS. 9A-9C, the user slides the release knob 111 distally along the slot 133 from position 111a to position 111b such that the spine 134 of the blade 113 does not make contact with the hull 116 of the release knob 111. Then, the user can apply a compression force to the blade 113 to cause ends of the bristles 114 to be retracted with respect to the smoothing plate.

With reference to FIGS. 11 and 12, the combination of bristle clusters 408 fixed in relationship to the heated flat iron section 412 allows the user to simultaneously brush and smooth, straighten or curl hair without having to change a configuration of the brush head 400.

Various embodiments of brush heads, cylin-
ders, and configurations of the hair brush have been described herein and, as will be appreciated by one of ordinary skill in the art, different brush heads and/or blades may be used with the different hair styling tools. Moreover, additional interchangeable brush heads or blades may be provided as a kit along with the base hair styling tool. Additionally, although specific means and configurations have been described, it will be appreciated that modifications may be made to such means and configurations while still remaining within the scope of the appended claims.

Claims

1. A hair styling tool comprising:
   (a) a body (20) having a proximate end and a distal end;
   (b) a rotatable cylinder (24) extending from the body (20), the rotatable cylinder (24) being continuously rotatable relative to the body (20);
   (c) a motor (39) for continuously rotating the rotatable cylinder (24); and
   (d) a styling arm (26, 34, 200) pivotally attached to the body (20), the styling arm (26, 34, 200) being non-rotatable about the longitudinal axis of the body (20) and having a distal end, wherein the styling arm (26, 34, 200) is movable between a first open position and a second position sufficiently close to the rotatable cylinder (24) such that placement of hair between the styling arm (26, 34, 200) and the rotatable cylinder (24) when the styling arm (26, 34, 200) is in the open position, and once the hair is in place, the styling arm (26, 34, 200) is movable to the second position to capture and style the hair, wherein the rotatable cylinder (24) is rotatable by the motor (39) in the second position.

2. The tool of claim 1 wherein the styling arm (26, 34, 200) has projections for engaging hair in the second position, the projections extending towards the rotatable cylinder (24).

3. The tool of claim 2 wherein the projections are stiff filaments.

4. The tool of claim 2 or 3 wherein the projections are bristles.

5. The tool of any of the preceding claims wherein the styling arm (26, 34, 200) supports at its distal end, the projections extending from the brush head (400).

6. The tool of claim 5 wherein the brush head (400) comprises a blade from which the projections extend, and wherein the blade is removable from the brush head (400), the tool further comprising a plurality of interchangeable blades, each having projections with a different configuration.

7. The tool of claim 5 wherein the brush head (400) includes a smoothing plate (412) between two sets of projections, and at least some of the projections extend beyond the smoothing plate (412).

8. The tool of claim 7 wherein the brush head (400) includes a smoothing plate (412) having a concave surface curved to substantially the same degree as the cylinder.

9. The tool of any of the proceeding claims further comprising a switch (38) that is automatically triggered to activate the motor (39) to rotate the rotatable cylinder (24) by the styling arm (200) being moved toward the second position from the first open position.

10. The tool of any of the proceeding claims wherein the rotatable cylinder (24) is rotatable for complete revolutions in the same direction.

11. The tool of any of the proceeding claims comprising a heater for heating the hair.

12. The tool of claim 1 wherein the rotatable cylinder (24) extends from the distal end of the body, and the rotatable cylinder (24) has a longitudinal axis aligned with the longitudinal axis of the body (20).

13. The tool of claim 1 wherein the rotatable cylinder (24) has grooves (55) on the surface thereof.

14. The tool of claim 1 wherein the rotatable cylinder (24) has surface holes (30).

15. A method to style a person's hair using a tool according to one of the preceding claims, the method comprising the steps of:
   (a) placing the hair between the rotatable cylinder (24) and the styling arm (26, 34, 200) with the styling arm (200) in the first open position;
   (b) moving the styling arm (26, 34, 200) to the second position and causing the motor (39) to continuously rotate the rotatable cylinder (24); and
   (c) styling, brushing, or shaping the hair.

16. The method of claim 15 wherein step (c) comprises straightening the hair.

17. The tool of any of the proceeding claims wherein a switch (38) that is automatically triggered to activate the motor (39) to rotate the rotatable cylinder (24) by the styling arm (200) being moved toward the second position from the first open position.
### DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document with indication, where appropriate, of relevant passages</th>
<th>Relevant to claim</th>
<th>CLASSIFICATION OF THE APPLICATION (IPC)</th>
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**The present search report has been drawn up for all claims**

Place of search: The Hague  
Date of completion of the search: 12 August 2010  
Examiner: Nicolás, Carlos

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