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[54] HAIR CURLING DEVICE

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[58] **Field of Search** 132/37, 33, 36, 40, 41

[56] **References Cited**

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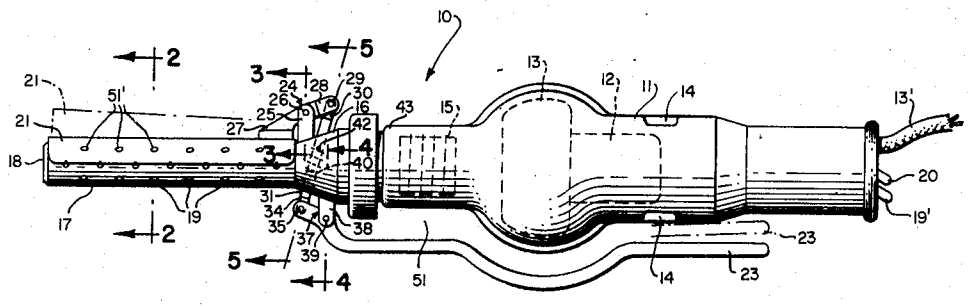
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[57] **ABSTRACT**

A hair curling device including a handle providing a source of heated air to a perforate cylindrical fixed jaw attached thereto and having a movable jaw pivotally mounted relative to the fixed jaw, with the pivoting action being effected by a lever which extends generally lengthwise of the handle and which is located on the opposite side of the handle from the movable jaw, a linkage between the lever and the movable jaw extending through a mounting connector which mounts the fixed jaw on the handle and includes a spring for biasing the movable jaw into clamped relationship with the fixed jaw. A hair curling device of the foregoing type in which the jaws, lever, and linkage are mounted on a mounting connector which may be selectively mounted and demounted from a handle.

10 Claims, 8 Drawing Figures



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HAIR CURLING DEVICE

The present invention relates to an improved hair curling device for curling hair in an improved manner.

In the past there have been various types of hair curling devices which supplied heated air to curling jaws extending from a handle and included structure for selectively opening and closing hair engaging jaws. Certain of these devices were deficient in that they had the operating lever and the movable jaw on the same side of the device and therefore they could not overcome the problem of leaving undesirable "fishhooks" in the hair as a result of the curling. "Fishhooks" are hair ends which curl upwardly and outwardly away from the head in the shape of a fishhook. Other devices which did have the operating lever and the movable jaw on opposite sides of the device required the operator of the device to exert proper pressure on the lever, which was extremely difficult considering that at the time of applying the pressure the operator also had to manipulate the curling device, that is, pull it longitudinally along the hair and simultaneously twist it. It is with overcoming the foregoing deficiencies of the prior art that the present invention is concerned.

Accordingly, it is the primary object of the present invention to provide an improved hair curling device which is especially adapted for easy manipulation by an operator in such a manner as to avoid undesirable distortion of hair into "fishhooks." It is a related object of the present invention to provide an improved curling device in which the pressure of the jaws on the hair being curled is automatically determined by the construction of the hair curling device itself, thereby obviating the necessity for the person operating the device to have the prerequisite skill which would otherwise be required.

Another object of the present invention is to provide an improved hair curling device having an extremely simple, efficient and effective linkage which will permit highly efficient usage of the hair curler.

A further object of the present invention is to provide an improved hair curling attachment which can be mounted on a preexisting blower handle to provide the various improved types of action enumerated above. Other objects and attendant advantages of the present invention will readily be perceived hereafter.

The improved hair curling device of the present invention includes a handle for providing a source of heated or cool air and includes means for mounting an improved attachment thereon which includes a mounting connector for mounting on the handle and having a fixed jaw member secured thereto and a movable jaw pivotally mounted on the mounting connector, with a lever mounted on the mounting connector and located on the opposite side of the handle from the movable jaw, and a spring biased linkage for urging the movable jaw toward the fixed jaw with a predetermined amount of pressure.

The various aspects of the present invention will be more fully understood when the following portions of the specification are read in conjunction with the accompanying drawings wherein:

FIG. 1 is a side elevational view of the improved hair curler of the present invention including a handle and a curling attachment mounted thereon;

FIG. 2 is a cross sectional view taken substantially along line 2—2 of FIG. 1;

FIG. 3 is a fragmentary cross sectional view taken substantially along line 3—3 of FIG. 1;

FIG. 4 is a fragmentary cross sectional view taken substantially along line 4—4 of FIG. 1;

FIG. 5 is a fragmentary cross sectional view taken substantially along line 5—5 of FIG. 1;

FIG. 6 is a fragmentary side elevational view showing the means for attaching the fixed jaw to the handle and taken substantially along line 6—6 of FIG. 7;

FIG. 7 is a view partially in cross section taken substantially along line 7—7 of FIG. 6; and

FIG. 8 is a schematic view showing how the hair curler of the present invention operates.

The improved hair curling device 10 of the present invention includes a handle 11 which is hollow and houses an electric motor 12 connected to lead-in wire 13', motor 12 driving blower 13 which causes air to be taken in through openings 14 and forced across heating element 15 and thence through hollow mounting connector 16 and into hollow fixed jaw member 17 the open rear end of which is enlarged to form such mounting connector, and the front end 18 of which is closed or stopped as by a plug to cause the heated air to flow outwardly through perforations 19 to thus supply heated air to the hair being curled. An electric switch 19' controls the flow of current to heating element 15 and a second electrical switch 20 controls the flow of electric current to motor 12. Thus, the device can operate selectively with heated air or cool air as desired.

A perforated upper movable jaw member 21 has its rear end pivotally mounted on the rear end of fixed jaw member 17, with its front end free and its inner surface 22 complementary to and normally biased into mating engagement with the outer surface of fixed jaw member 17, and is adapted to be moved to the dotted line position shown in FIG. 1 when the rear end of elongated lever 23 is moved from the solid line position to its dotted line position. More specifically, the linkage associated with mounting connector 16 and connecting the front end of lever 23 with the rear end of movable jaw 21 includes an outstanding upper front trunnion connection 24 consisting of upstanding arms 25 attached to connector 16 and mounting a rivet or pin 26 therebetween on which the intermediate portion of lever arm 27 pivots, the lower front end of which is secured to the rear end of movable jaw 21. The opposite or rear end of lever arm 27 is spread apart into portions 28 which mount rivet 29 which also pivotally extends through and forms a connection with the upper end 30 of transverse link 31 proximate pin 26, and which link in turn extends loosely through aligned apertures 32 and 33 in mounting connector 16. The lower end of link 31 is formed into a reduced portion 34 which is pivoted on rivet 35 which extends between forms a connection with spaced arms 36 formed at the front end of lever 23. Lever 23 in turn has an intermediate portion which is located adjacent but rearwardly of its front end and is pivotally mounted on an outstanding lower rear trunnion connection 37 proximate rivet 35 and comprising rivet or pin 39 mounted on spaced arms 38 attached to mounting connector 16.

Movable jaw 21 normally is biased toward fixed jaw 17 to the normally closed solid line position shown in FIG. 1 by resilient means in the form of a helical spring

40 located within mounting connector 16 surrounding link 31 and having its lower end 41 bearing against the inside of mounting connector 16 and its upper end effectively secured to the link by bearing against pin 42 which extends through link 31, thus normally biasing the rear end of lever 23 away from the front end of the lever toward the rear end of fixed jaw 17, as also shown in FIG. 1. It will be appreciated that by the proper selection of spring strength the amount of pressure applied by jaws 21 and 17 to the hair clamped therebetween is realized when lever 23 is released, and thus this discretion is not left to the person using the device.

Mounting connector 16 is used to selectively mount the entire unit consisting of the jaw members 17 and 21 and lever 23 and all the linkage therebetween onto the end 43 (FIG. 6) of handle 11. In this respect a sleeve 44 is secured to the inside of hollow handle 43 and it forms an annular ring 45 at the outer end thereof. The ring 45 has an annular depression 46' in its outer surface. Mounting connector 16 has its end formed into flexible fingers 46 which are circumferentially spaced about the mounting connector, these fingers being resilient so that they can be slipped over ring 45 and their resilience will cause their lower rounded portions 47 to fit in complementary mating detent-holding relationship with depression 46' in ring 45. Locking sleeve 48 is moved from the left of FIG. 6 to its position shown in FIG. 6 wherein detent portion 49 thereof presses into complementary mating depressions in the rear of fingers 46 to thus hold the assembly mounted on the end of handle 11. It will readily be appreciated that the mounting connector does permit the jaws to be selectively removed and replaced as required for proper operation and that this also permits jaws of different sizes to be used on the same handle. It is to be especially noted that all of the structure exclusive of handle 11 is mounted on mounting connector 16, which permits the improved attachment of the present invention to be supplied as a unit which can be easily mounted and demounted from existing handles.

The manner in which the curling device of the present invention is to be used can best be seen from FIG. 8. The parts of the curling device are oriented as shown in FIG. 1, namely, with movable jaw 21 and lever 23 being located on opposite sides of handle 23. By virtue of this arrangement it can be seen that the operator will grasp the top portion of handle 11 in the palm of his hand and his fingers will encircle lever 23 while his thumb rests on the handle. If desired, his index finger may extend through opening 51. Thereafter, the operator depresses handle 23 to its dotted line position to cause movable jaw to move to its open dotted line position to receive hair between the movable jaw 21 and fixed jaw 17. At this time the fan or heat or both are turned on to provide air which is forced through openings 19 onto the hair and this heated air can also pass through openings 51' in the movable jaw. The operator causes the jaws to clamp the hair which is closest to the head, and he pulls the curling device downwardly toward the free ends of the hair in the direction of arrow 50. When he comes to the end portions of the hair, he will impart a rotary motion to the jaws 17 and 21 in the direction of arrow 52 by twisting his wrist. This will provide proper curling to the ends of the hair, that is, it will cause these ends to be "curled under" in order to avoid what is known in the beauty trade as "fishhooks," that is, hair which is curved outwardly and upwardly. It will be appreciated that since spring 40 applies the proper curling pressure to the hair between jaws 17 and 21, the operator need not be concerned with this aspect of the curling, and can devote his attention to the other above-described manipulations.

It now is seen how the invention accomplishes its various objectives, and while the invention has been described and illustrated herein with reference to a single preferred embodiment, it is to be understood that various changes and modifications may be made therein by those skilled in the art, without departing from the inventive concept, the scope of which is to be determined from the appended claims. For example, the handle may be provided with but a single "on" and "off" switch which controls both the heat and air flow. In addition, the mounting connector 16 may be provided with a male member fitting within a female member of handle 11 instead of the reverse arrangement shown.

What is claimed is:

1. A hair curling device wherein the improvement comprises: a fixed jaw having front and rear ends; a movable jaw having front and rear ends, with its front end free and its rear end pivotally mounted relative to said rear end of said fixed jaw on one side thereof; an elongated lever having front and rear ends and an intermediate portion located adjacent but rearwardly of its front end, with said intermediate portion pivotally mounted relative to said rear end of said fixed jaw on the side thereof opposite said one side; linkage means connecting said front end of said lever with said rear end of said movable jaw to pivot said movable jaw toward and away from said fixed jaw upon actuation of said lever; and resilient means operatively associated with said linkage means for biasing said movable jaw and said front end of said lever toward said fixed jaw.

2. The hair curling device of claim 1 wherein said fixed jaw is hollow and perforated, with its rear end open and enlarged to form a hollow mounting connector for selective attachment to a handle, and its front end closed; and said movable jaw is perforated, with its inner surface complementary to and normally biased into mating engagement with the outer surface of said fixed jaw.

3. The hair curling device of claim 1 wherein said linkage means include a first pivotal connection effectively located between said rear end of said fixed jaw and said rear end of said movable jaw on said one side, a second pivotal connection effectively located between said rear end of said fixed jaw and said intermediate portion of said lever on said opposite side, an elongated link extending transversely of said rear end of said fixed jaw, a third pivotal connection between said rear end of said movable jaw and one end of said link proximate said first pivotal connection, and a fourth pivotal connection between said front end of said lever and the opposite end of said link proximate said second pivotal connection.

4. The hair curling device of claim 3 wherein said linkage means include an arm having a front end attached to said rear end of said movable jaw, a rear end

forming said third pivotal connection with said one end of said link, and an intermediate portion, an outstanding front trunnion attached to said rear end of said fixed jaw on said one side and forming said first pivotal connection with said intermediate portion of said arm, and an outstanding rear trunnion attached to said rear end of said fixed jaw on said opposite side and forming said second pivotal connection with said intermediate portion of said lever.

5. The hair curling device of claim 1 wherein said resilient means include a helical spring having one end effectively secured to said linkage means and its opposite end effectively bearing against said rear end of said fixed jaw.

6. The hair curling device of claim 1 wherein said fixed jaw is hollow and perforated, with its rear end open and enlarged to form a hollow mounting connection for selective attachment to a handle, and its front end closed; said movable jaw is perforated, with its inner surface complementary to and normally biased into mating engagement with the outer surface of said fixed jaw; and said linkage means include a first pivotal connection between said mounting connector and said rear end of said movable jaw on said one side, a second pivotal connection between said mounting connector and said intermediate portion of said lever on said opposite side, an elongated link extending transversely of said mounting connector, a third pivotal connection between said rear end of said movable jaw and one end of said link proximate said first pivotal connection, and a fourth pivotal connection between said front end of said lever and the opposite end of said link proximate said second pivotal connection.

7. The hair curling device of claim 1 wherein said fixed jaw is hollow and perforated, with its rear end open and enlarged to form a hollow mounting connector for selective attachment to a handle and its front end closed; said movable jaw is perforated, with its inner surface complementary to and normally biased into mating engagement with the outer surface of said fixed jaw; and said resilient means include a helical spring having one end effectively secured to said linkage means and its opposite end effectively biasing against said mounting connector.

8. The hair curling device of claim 1 wherein said linkage means include a first pivotal connection effectively located between said rear end of said fixed jaw and said rear end of said movable jaw on said one side, a second pivotal connection effectively located between said rear end of said fixed jaw and said intermediate portion of said lever on said opposite side, an elongated link extending transversely of said rear end of said fixed jaw, a third pivotal connection between said rear end of said movable jaw and one end of said link proximate said first pivotal connection, and a fourth pivotal connection between said front end of said lever and the opposite end of said link proximate said second pivotal connection; and said resilient means include a helical spring surrounding said link and having one end effectively secured to said link and its opposite end effectively bearing against said rear end of said fixed jaw.

9. The hair curling device of claim 1 wherein said fixed jaw is hollow and perforated with its rear end open and enlarged to form a hollow mounting connector for selective attachment to a handle and its front end closed, said movable jaw is perforated, with its inner surface complementary to and normally biased into mating engagement with the outer surface of said fixed jaw; said linkage means include a first pivotal connection between said mounting connector and said rear end of said movable jaw on said one side, a second pivotal connection between said mounting connector and said intermediate portion of said lever on said opposite side, an elongated link extending transversely through said mounting connector, a third pivotal connection between said rear end of said movable jaw and one end of said link proximate said first pivotal connection, and a fourth pivotal connection between said front end of said lever and the opposite end of said link proximate said second pivotal connection; and said resilient means include a helical spring surrounding said link within said mounting connector and having one end effectively secured to said link and its opposite end effectively bearing against said mounting connector.

10. The hair curling device of claim 9 wherein said linkage means include an arm having a front end attached to said rear end of said movable jaw, a rear end forming said third pivotal connection with said one end of said link, and an intermediate portion, an outstanding front trunnion attached to said mounting connector on said one side and forming said first pivotal connection with said intermediate portion of said arm, and an outstanding rear trunnion attached to said mounting connector on said opposite side and forming said second pivotal connection with said intermediate portion of said lever.

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