Nov. 30, 1954 C. W. RENSTROM 2,695,620

CURLER

Filed March 13, 1953

FIG. 1.

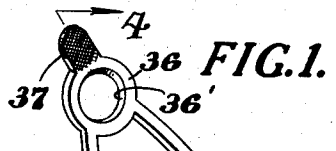


FIG. 2.

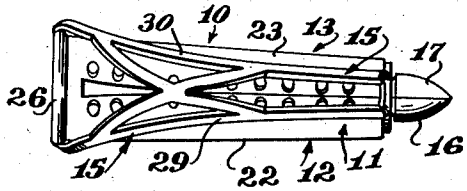


FIG. 4.

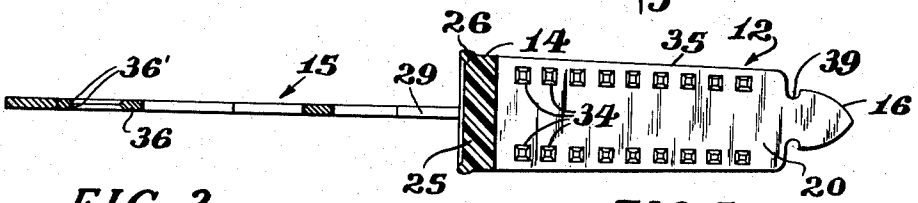


FIG. 3.

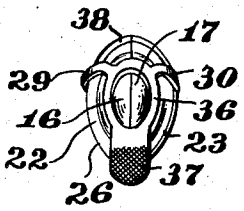
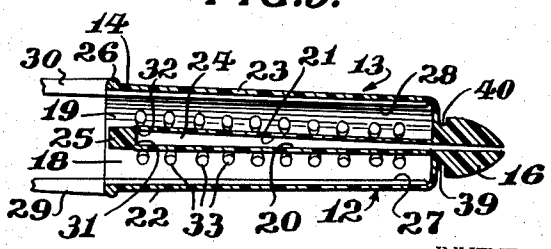


FIG. 5.



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CURLER

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3 Claims. (Cl. 132—42)

The present invention relates to the art of hair curling and in particular to an improved one piece, non-rigid hair curling device of the type more commonly used to curl hair without the use of heat or chemicals.

This new and improved plastic hair curler is of a simplified construction amenable to injection molding processes, wherein a one piece curler may be formed from such non-rigid plastics as Vinylite or other suitable materials, in one injection molding operation.

In the past, devices of this sort, and in particular hair curlers of the larger variety, similar to the present invention, have been unsatisfactory in many respects. From a comfort consideration, large curlers now on the market are unsatisfactory because of their relatively non-yielding construction, and resulting discomfort to the wearer. Mechanically, present devices are unsuitable because of their short life, due to structural failures and unsatisfactory means for rolling, drying and retaining hair in position on the curler.

This invention is an improvement over presently known devices and overcomes objections to these devices by providing a large resiliently pliable hair curler of the bifurcated mandrel variety. This curler is of a hollow construction which will readily conform to the shape of the wearer's head and will yield to pressure exerted against it while the wearer is sleeping.

The hollow construction also provides an improved and novel means for joining the bifurcated portions of the mandrel together so as to improve ventilation throughout the curler and to provide a hinging action of the bifurcated portions in a manner which avoids stresses resulting in structural failure. In this type of hair curler, it is necessary to spread the bifurcated or leg portions of the mandrel apart to insert or wedge hair therebetween prior to winding. This spreading and wedging apart of the legs eventually splits the mandrel in two thereby destroying the utility of the curler. In the present invention, novel stress relieving means are provided at the base of the legs so as to allow the legs to be spread apart without straining the mandrel to the rupture point.

When the hair is wound on curlers of this type, a strap secured to one end of the curler is made to overlay the hair and secure the opposite end portions of the mandrel. The present invention provides an improved overlaying strap of hammock shaped configuration which better holds the hair in place. This strap straddles both legs of the mandrel, rather than overlay but one leg as in older devices, whereby the legs are prevented from bulging outwardly, resulting in a more compact curler and a tighter curl.

The hollow legs of the mandrel, unlike older devices, are open at their base, so that irrespective of the amount of hair wound about the mandrel, air always has access to the interior of the curler to speed the drying of the curled hair.

It is an object of the present invention to provide a large type curler made of pliable material which will yieldably conform to the shape of the wearer's head and provide maximum comfort during use.

Another object of this invention is to provide a hair curler of the bifurcated mandrel variety, being of hollow, collapsible construction and adapted to partially yield to the pressure of the hair being wrapped thereupon whereby a tighter curl may be formed.

It is another object of this invention to provide a large type hair curler having improved means for ventilating and drying the hair wound thereupon.

Still another object of this invention is to provide a hair curler having ventilating means which will not be obstructed by hair wound thereupon.

It is still another object of this invention to provide a one piece hair curler of the bifurcated mandrel variety having improved hinging means for the bifurcated portions.

A further object of this invention is to provide a one piece hair curler of the bifurcated mandrel variety having improved means for locking together the bifurcated portions.

A still further object of this invention is to provide a large type hair curler of the bifurcated mandrel variety having an improved locking strap which overlays the bifurcated portions of the mandrel and holds the convolute hair portions in place in an improved manner.

It is a still further object of this invention to provide an improved large type hair curler of the bifurcated mandrel variety having means for locking the hair on the mandrel from either side thereby facilitating the use of the curler in the dark or without the aid of mirrors.

Further objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application and in which like numerals are designated to like parts of the same,

Figure 1 is a perspective view of the invention.

Figure 2 is a top plan view of the invention showing how the strap overlays the bifurcated mandrel and locks the bifurcated portions together.

Figure 3 is a front elevation view of the invention showing how the end portion of the strap secures the bifurcated end portion of the mandrel.

Figure 4 is a section view of the invention taken along the line 4—4 of Figure 1.

Figure 5 is a section view of the invention taken along the line 5—5 of Figure 1.

The hair curler **10** (Figures 1 and 2) comprises a cylindrically shaped pliable mandrel **11**, bifurcated substantially its entire length to form a pair of semi-cylindrical hollow legs **12** and **13** extending normally adjacent and parallel from the unitary body portion **14** of the mandrel **11**. A flexible strap **15** extends normally from the unitary body portion **14** in a direction opposite from said pair of legs **12** and **13**, and a pair of solid post halves **16** and **17** extend from the free ends of the legs to provide means for fastening the free end of the normally oppositely extending strap **15**.

The legs **12** and **13** (Figures 1, 4 and 5) are of hollow construction, closed at their free ends by the bases of post halves **16** and **17** and having openings **18** and **19** (Figure 5) in the bases of legs **12** and **13** respectively. These legs **12** and **13** are formed by flat inner walls **20** and **21** respectively adjacent to and faced inwardly toward each other, and outer walls **22** and **23** respectively of semi-cyclindrical configuration and integrally joined to the periphery of their respective inner walls. The flat inner walls **20** and **21** of the legs **12** and **13** are spaced apart slightly at **24** (Figures 1 and 5) but merge together at the unitary portion of the body **14** to form a diametrically arranged transverse web or reenforcing spoke-like member **25** (Figures 4 and 5) which also functions as a hinge pin in allowing the legs to spread apart when hair is placed therebetween. A reenforcing ring **26** encircles the outermost portion of this end of the body **14** and is integrally secured to the spoke-like member **25**. By providing openings **18** and **19** (Figure 5) in the base of the body portion **14**, in the spreading apart of legs **12** and **13**, as when hair is wedged therebetween, ring **26** collapses against spoke-like member **25**, thereby relieving stresses which would otherwise be set up in corners **31** and **32**. This stress relief minimizes the possibility of structural failure at these corners and accordingly immeasurably increases the life and utility of the invention. On the other hand, if body portion **14** were solid, ring **26** could not yield to pressure exerted by the spreading of legs **12** and **13** and eventually after limited use of the hair curler **10** the legs would split off or tear along the aforementioned corners.

A series of ventilating openings **33** and **34** (Figure 1) are formed adjacent the common longitudinal edges **35**

in both the inner and outer walls to provide communication between the exterior and interior of the hollow legs for the purpose of assisting to dry wet or damp hair wound thereupon. The provision of openings **18** and **19** in the body end **14** of the mandrel **11**, in addition to increasing the life and utility of the invention as above described, also serves the important function of greatly facilitating drying and setting of the hair by permitting circulation of air through openings **18** and **19** into hollow legs **12** and **13** and thence out through holes **33** and **34**. If openings **18** and **19** were not so provided air circulation through holes **33** and **34** would be seriously impeded due to obstruction of these holes by hair wound around legs **12** and **13**.

Interior of the legs **12** and **13** run reenforcing ridges **27** and **28** (Figure 5) longitudinally along the center of the undersurfaces of outer walls **22** and **23** respectively. The aforementioned flexible strap **15** (Figures 1 and 2) is an outward extension of the reenforcing ring **26** and the reenforcing ridges **27** and **28**, and comprises two arms **29** and **30** of length sufficient to be hinged backward to overlay the legs **12** and **13** of the mandrel **11** and to secure together the pair of post halves **16** and **17** extending from the free ends of the legs.

Strap **15** (Figure 1) is comprised of arms **29** and **30** which extend outwardly from reenforcing ring **26** and are secured at their extremities to a closed ring **36**. Projecting outwardly from ring **36** opposite the extremities of arms **29** and **30** is a serrated finger grip **37**. Arms **29** and **30** are reenforced by cross lacing **38** which is of X-like configuration and serves to hold the arms outwardly bowed from each other, resulting in giving strap **15** a hammock like configuration. This configuration permits strap **15**, when hinged forward over mandrel **11** (Figure 2), to longitudinally straddle legs **12** and **13**, arm **29** laying on surface **22** of leg **12** and arm **30** laying on surface **23** of leg **13**. This overlaying relationship between mandrel **11** and strap **15** adds rigidity to the entire structure and better holds the convolute hair portions in place while drying, thereby forming a higher quality curl. In order to maintain strap **15** in this overlaying position, finger grip **37** is grasped between the finger and thumb, and pulled toward post halves **16** and **17** whereupon ring **36** is engaged by the tapered portions of these posts. By sliding the ring downwardly over these post halves they are drawn together and the ring is received and secured in the post annular recess portions **39** and **40**. It is contemplated that ring **36** be formed of the same elastic substance as the rest of the curler and accordingly the inner ring diameter is made smaller than the diameter of the combined two post halves at their widest portion adjacent the annular recess. Thus the ring must be stretched in order to pass over the post halves, but will contract to its original diameter when received in the annular recess, thereby forming a locking engagement between the ring and the widest portion of the post halves. To assist in centering the ring over the post halves, the post contacting, interior ring edge may be chamfered as shown at **36'** in Figures 1 and 4. A double chamfer **36'**, as shown in Figure 4, enables the user to overlay strap **15** on either side of mandrel **11**. This feature is particularly advantageous when the hair curling operation is performed in the dark, since, obviously, the user of this invention does not have the problem of deciding, without actually seeing on which side of the mandrel to place the strap.

When a tight curl is desired, the hair may be wound on the mandrel with sufficient pressure to cause the mandrel to collapse. Because of the resilient quality of the material, however, the mandrel will tend to recover its normal shape whereby a tightening of the hair curl is achieved.

It is to be understood that the form of my invention, herewith shown and described, is to be taken as a preferred assembly of the same, in that various changes in the shape, size and arrangement of the parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claims.

I claim:

1. An integrally molded unitary hair curler comprising a mandrel bifurcated to form a pair of leg portions, means for holding hair in place in said mandrel, said leg portions having spaced opposed flat inner walls and curved outer walls so as to form a hollow tubular construction which is closed at one end and open at the opposite end, said leg portions having ventilating holes in their inner and outer walls communicating with the open ends so that air may freely enter the mandrel and circulate through said holes and through said open ends, and said leg portions being integrally joined together by a transverse web intermediate said legs and adjacent said open end portion, whereby said leg portions may pivot outwardly about said web when hair is placed between said leg portions.

2. An integrally molded unitary hair curler as called for in claim 1 in which the inner surface of each of the outer walls is provided with longitudinally extending reinforcing ridges.

3. A flexible hair curler comprising a mandrel bifurcated to form a pair of displaceable leg portions, means for holding hair in place between said leg portions, said leg portions having spaced opposed inner walls and curved outer walls so as to form a hollow yieldable tubular construction closed at one end and open at the opposite end, and said leg portions being connected by a transverse web intermediate said leg portions and adjacent said open end portion, said web merging into the inner walls of said leg portions so that the leg portions may pivot outwardly about said web when hair is placed between the leg portions.

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