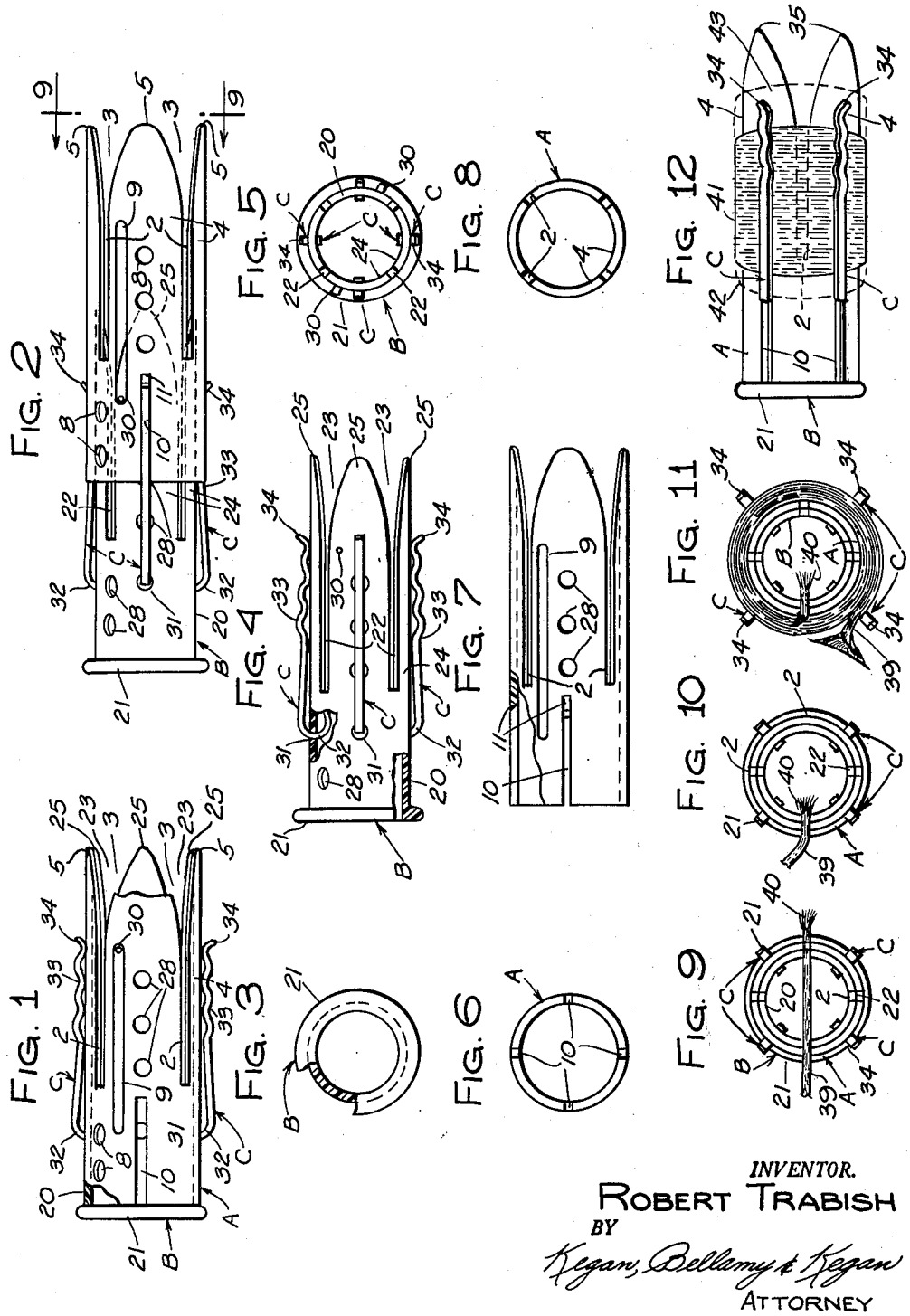
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LOCK-ON HAIR CURLER

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LOCK-ON HAIR CURLER

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This invention relates to hair curlers in general, but is concerned more particularly with hair curlers which are held in place to permit the hair to set before the curlers are removed, and its principal object is to provide a new and improved hair curler of simple and practical construction which is readily locked into place upon application and which remains securely locked until removal thereof is desired, whereupon the curler is readily unlocked and removed.

In one common use of hair curlers, the hair is first combed and parted, usually after being moistened with a suitable moistening agent to enhance the retention of the curl after the curler is removed. The curlers are then applied one at a time, each to a separate tress, strand, bundle, or lock of hair. The application of a curler to a lock or strand of hair begins at the end of the strand, with the curler commonly having a slot or opening to retain the end of the strand in starting position. Following attachment of the end of the strand of hair to the curler, the curler is rotated or rolled to wrap or wind the strand or bundle of hair more or less tightly around it in a roll which is completed when the curler approaches the scalp. Then, a fastening device is applied to hold the curler in its rolled-up position in the hair. This fastening device is commonly a hair pin such as the well-known bobby pin. This hair pin is placed in fastening position with one arm of the pin engaging the roll of hair or the curler, and the other arm of the bobby pin engaging the outside of the strand of hair near the scalp, to hold the roll of hair in contact with the hair curler.

After the remaining curlers have been similarly applied and fastened, they are all left in place for the desired curl-setting period. Then, each is removed by removing the fastening device therefrom to permit the curler to partly unwind and come free from the hair.

An outstanding disadvantage of the foregoing procedure in applying and holding hair curlers is the necessity for employing a separate clasp device for each applied curler. These clasp devices not only tend to become scattered and lost, but the handling thereof is tedious and time-consuming, not only when the clasps are applied to the rolled-up curlers, but also when the hair curlers are being removed, at which time the clasps must be sorted and placed in a receptacle separate from that of the curlers, so as to prepare the equipment for the next use thereof.

According to the invention, the foregoing and other disadvantages of hair curlers as previously used are overcome by providing a new and improved hair curler construction wherein each air curler has clasp structure incorporated therein which is retained in an ineffective open position while the hair curler is being applied and is readily movable to a closed locked position on the hair curler when the curler has been applied. The improved lock-on hair curler leaves both hands of the operator free to hold the curler and the hair as desired during the application of the curler. Then one hand is used to move the curler to its closed locked position.

The above-mentioned and other objects and features of this invention, and the manner of obtaining them, will become more apparent, and the invention will be best understood by reference to the following description of

the invention taken in conjunction with the accompanying drawing, comprising FIGS. 1 to 12, wherein:

FIG. 1 is a side view, partly broken away, of the curler in closed lock position but without a strand or bundle of hair wound thereon;

FIG. 2 shows the structure of FIG. 1 with the curler in its normal open or applying position;

FIGS. 3, 4, and 5 are respectively a left-end view, a side view, and a right-end view of the inner body member B of the structure of FIGS. 1 and 2;

FIGS. 6, 7, and 8 are respectively a left-end view, a side view, and a right-end view of outer body member A of the structure of FIGS. 1 and 2;

FIG. 9 is a right-end view of the assembled curler in open position taken along line 9—9 of FIG. 2, showing a starting step in the operation of applying the curler to a strand of hair to be curled;

FIG. 10 is a further view similar to FIG. 9 but showing the strand of hair pulled to a preferred starting position from which the rolling of the strand onto the curler is begun;

FIG. 11 is a further view similar to FIGS. 9 and 10, but showing the assembly after the strand of hair of FIGS. 9 and 10 has been wound thereon and the assembly has been locked in wound position; and

FIG. 12 is a side view of the structure in the wound and locked position of FIG. 11.

Referring first particularly to FIGS. 1 and 2, which show respectively the collapsed locked position and the open starting position of the curling assembly, the generally cylindrical outer body member of the curler assembly is shown at A. Outer member A telescopingly receives the cylindrical inner body member B to which the clasp or locking members C are attached for longitudinal movement with respect to member A.

Preferably, members A and B are of molded plastic construction and are of such relative sizes that member B telescopes with member A with a comparatively slight clearance which is sufficient to permit a free sliding relationship. By way of example, cylindrical member A may have an outside diameter of one inch, a length of three inches, and a wall thickness of .050 inch. Member B comprises annular head portion 21 and cylindrical inner body portion 20, which may have an outside diameter of ⅞ inch and a wall thickness and length as indicated for member A. In this illustrative size, the curler is adapted for curling the principal locks or strands of a head of hair. A smaller sized curler of similar construction may be employed for curling shorter strands, such as those sometimes found at the nape of the neck.

As is clear from an inspection of FIGS. 1, 2, 6 to 8, and 12, outer hollow cylindrical body member A is squarely terminated at its rear end to permit square contact with head 21 of member B in the closed position of FIGS. 1 and 12, while the front end portion of member A is shaped and slotted to facilitate the starting attachment (FIGS. 9 and 10) of a strand 39 of hair to be wound upon the curling structure. In the illustrative embodiment, there are four equally spaced longitudinal slots 2 into the front and intermediate portion of member A, dividing that portion into four similar sections 4. Each inter-slot segment 4 is tapered to a point 5, providing four tapered entrance zones 3 to the respective slots 2. The segment 4 which is shown in full view in FIGS. 1 and 2 has the illustrated long guide slot 9 through the side wall thereof to cooperate with its associated short and rounded guide and stop lug 30, carried on the corresponding segment 24 of member B. In the fully closed locked position of FIGS. 1 and 12, the guide and stop lug 30 is near the front end of slot 9 (in member A), while lug 30 is at the rear end of slot 9 in the fully extended open position of FIG. 2, serving

in that position to establish a limit of the opening movement of the curler assembly. By the slot 9 and cooperating lug 30, the members A and B are moreover prevented from rotating substantially relative to each other, thereby limiting their relative movement to a telescoping movement between the two positions discussed above.

Preferably, the opposed quadrant 4 of curler A has a similar slot 9 (not shown) to receive a second guide and stop lug 30 carried by member B as seen in FIG. 5.

As seen best in FIGS. 1, 2, 6, and 12, there are four longitudinal fastener-guide slots 10 cut or molded into the rear end portion of member A, with the closed end of each guide slot 10 merging with a tapered cam portion 11. Cam 11 facilitates outward camming movement of the outer arms 33 of clasp members C upon the telescoping movement of the structure from the position of FIG. 2 to the position of FIG. 1 or 12.

The hollow cylindrical inner body member B comprises the cylindrical portion 20 and the annular head portion 21 fixed therewith. As seen best in FIGS. 1, 2, 4, and 5, portion 20 of member B is divided into four segments 24 by the four slots 22 which correspond respectively to segments 4 and slots 2 in member A, with segments 24 tapering to points 25 to leave widened entrance portions 23 which merge with slots 22 as explained for entrance portions 3 and slots 2 of member A. In the closed position shown in FIGS. 1 and 12, the segments 24 of member B are radially aligned with and respectively underlie the segments 4 of member A, slots 2 and 22 being radially aligned as seen in FIGS. 9 to 11.

Member B carries four clasps C, aligned centrally with the four quadrants 24 of member B and the four quadrants 4 of member A. Each clasp C is in the form of a hairpin, being illustrated more particularly as comprising an ordinary commercially available bobby pin, commonly comprising a formed spring steel core covered with a suitable protecting plastic or baked-on-enamel coating. Each clasp C has a pair of generally similar arms comprising an inner arm (not shown in side view) inside of member B and an outer arm 33 which terminates in the outwardly inclined end portion 34, seen best in FIGS. 1 and 4. The inner arm of C may be similar to the illustrated corrugated outer arm 33 except that it usually has a straight end portion rather than the illustrated out-turned angular portion 34 of outer arm 33. Each of the four members C is assembled with member B by insertion through a separate round opening 31. Any opening 31 may be drilled or molded into the body B of a size somewhat larger in diameter than the width of the clasp member C, and is preferably inclined inwardly and forwardly at an angle of about 45° as is shown in cross section in FIG. 4 for one hole 31. When assembling any member C with body member B, the described inner arm of the member C is inserted into its opening 31 at about the 45° angle indicated at the top in FIG. 4. Then, the member C is pushed forwardly and inwardly at about that angle until its inner arm fully enters member B to reach the fully installed position shown in side view in FIGS. 1, 2, and 4 and in end view in FIGS. 5 and 9 to 11.

With the four clasp members C assembled with member B to provide the subassembly shown in FIGS. 4 and 5, member B is next brought into an assembled position as shown best in FIG. 2. For this purpose, the forward end portions of the four segments 24 of member B are telescoped with the base portion of member A, with the small rounded guide lugs 30 of member B aligned with the respective slots 9 of member A. When the members 30 encounter the end of member A, the two segments 24 of B which carry them are flexed inwardly sufficiently to allow members 30 to pass within member A. Then, when the member B is telescoped further into member A to reach the position shown in FIG. 2, the inwardly flexed segments 24 of B snap outwardly to bring the members 30 within their respective slots 9 in member A. As this assembly operation is being performed, the outer arms 33 of clasps C are aligned with the rear slots 10 in member A and they enter these slots as shown in FIG. 2, keeping the clasps C in alignment in the open position of FIG. 2.

In the intended use of the curler assembly, starting with the described open position thereof shown best in FIG. 2, the end portion of any lock or strand 39 of the head of hair to be curled is brought across the open end of member A as by grasping the strand 39 at end 40 thereof and pushing the member A crosswise of the strand until the strand is forced to enter opposed slots 2 of member A which are so dimensioned as to grip the strand 39 and to flatten it somewhat preparatory to rolling. This preparatory position is best illustrated in FIG. 9.

Next, the strand 39 is preferably pulled forwardly to free it from the slot 10 shown to the right in FIGS. 9 and 10, to leave the end 40 of the strand within the hollow interior of the assembly in about the position shown in FIG. 10, wherein the strand 39 is held in a single slot 10, to the left.

Next, the open assembly is rolled from its position indicated in FIG. 10 to wind the strand 39 around outer body member A until that strand is substantially completely wound on the curler assembly into the roll 41 shown in FIGS. 11 and 12. Then, while member A (with the roll 41 thereon) is held in one hand, member B is grasped by its rim 21 and is telescoped therewith from an open position according to FIG. 2 to the closed locking position of FIGS. 11 and 12. As member B is thus pushed into member A from the open position of FIG. 2, outer arms 33 of clasps C slide within the slots 10 of member A until they reach and engage the outwardly sloping end portions 11 thereof. By the cooperation of sloped ends 34 and cam portions 11, arms 33 are lifted outwardly to the outer surface of member A. At about this time, or shortly thereafter, the outwardly directed end portions 34 of spring arms 33 may begin to encounter the roll 41 (FIGS. 11 and 12) around member A, whereupon they are thereby cammed outwardly against their inward spring tension to encompass the roll 41 as the telescoping movement continues, culminating finally in roll 41 being encompassed by the four outer arms 33 when the fully locked position of FIGS. 11 and 12 is reached. As seen in FIG. 11, the four clasps C grasp the outside of the roll 41 near the terminal point thereof, thereby positively preventing unwinding of the roll.

Openings 8 of member A align with openings 28 of member B in the closed position of FIGS. 1 and 12 (such openings not shown in FIG. 12) to provide vent passages to promote circulation as an aid to drying of wrapped hair.

It will be understood, of course, that the structure disclosed is more or less useful with only a single clasp C installed, but all four clasps C are preferred because, since the clasps are only 90° apart, one or the other of them is always in a position to grasp and hold the roll 41 near the outer termination thereof. Of course, three equally spaced clasps C might provide a workable modification, although the four illustrated clasps C are preferred. A further modified construction has been considered wherein six equally spaced clasps C may be provided, which is about the maximum that is presently considered advisable for the intended purpose.

Some operators may prefer not to use the slots 2 to start a roll according to FIG. 10, preferring instead to lay the end portion of the strand 39 across the member A and hold it in position by hand until the first turn has been completed, to thereby hold the end portion of the strand in place. For such operators, the slots 2 and 22, together with entrance portions 3 and 23 may be omitted, leaving the front portion of parts A and B unslotted.

After all of the curlers required for the head of hair have been installed as described, and after the setting time has elapsed, the curlers are removed. To remove any disclosed curler, portion A, with the roll 41 thereon, may be grasped in one hand, and portion B may be

grasped in the other hand, through its rim member 21, and is pulled out to the open position of FIG. 2, wherein stops 30 end the pull-apart telescoping movement by engaging the inner end of their respective slots 9. By this opening unlocking movement, the clasps C are completely disengaged from the roll 41, whereupon the roll may be more or less unwound to permit the curler assembly to be removed and placed in a suitable receptacle for the next required use thereof.

With the body portions A and B both made of plastic, and with the clasps C provided with a protective coating as described, the lock-on curlers are not affected by any permanent-wave solution nor by any curl-setting solution commonly employed, whereby the improved lock-on curlers may be used either as a part of a permanent-wave imparting process or as curlers for use apart therefrom. Moreover, the curlers may be used on dry hair as well as on wet hair.

The inward tension of the arms of clasps C, while ample for the described lock-on purpose, is preferably insufficient to materially compress a roll of hair encompassed by the clasps, whereby clasp marks are not made in the hair as is sometimes done by relatively strong rubber bands.

While it has been herein described that the clasps are each cammed outwardly to completely encompass the outside of the roll 41 of FIGS. 11 and 12, the locking action described is still effective when the arms 33 and tips 34 pass more or less through the outermost layer of the roll rather than camming completely outwardly as described. Moreover, even though, by accident or intentionally, the width of the roll is caused to be nearly the length of member A, as to the roll width indicated by left and right dotted lines 42 and 43 of FIG. 12, the locking action is still effective because of the intermediate portion of the outside layer of the roll 41 being more or less encompassed by the arms 33 of the clasps C.

While I have described above the principles of my invention in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation to the scope of my invention.

I claim:

1. A lock-on hair curler assembly comprising an outer and an inner body member telescopingly related to each other for a telescoping movement of the inner body member within the outer one between an open position and a closed position of the assembly, the outer body member being adapted to have a strand of hair wound into a roll therearound, a series of clasp members affixed to and carried by the inner body member and spaced around the periphery thereof, each clasp member including a spring arm extending axially toward the outer body member and ending short of a said wound roll when the inner body member is in said open position and to extend beyond the wound roll when the inner body member is in said closed position, and means for camming the said spring arm of each said clasp member outwardly into an inwardly pressing contacting relationship with the wound roll as said inner member is telescoped into its closed position, whereby the said wound roll is locked on the assembly, wherein the said outer body member has a longitudinal closed guide slot through an intermediate portion of the side wall thereof, and a rounded guide member fixed with said inner body member and extending into the guide slot, the guide member being at one end of the slot or the other depending upon whether the assembly is in said open or is in said closed position.

2. A lock-on hair-curler assembly comprising an outer and an inner cylindrical body member telescopingly related to each other, guide means for preventing relative rotation of the body members while permitting movement of the inner body member within the outer one between an extended strand-winding position and a closed lock position of the assembly, the inner body member having an outwardly flared rim at its rear end to facilitate grasping it to move it from either said position to the other, said guide means including means for stopping the inner body member from moving beyond either of said positions, the outer body member being adapted by a series of open outwardly flared longitudinal slots to receive and grip the end portion of a strand of hair in any desired slot to facilitate winding the strand into a roll around the outer body member, a series of clasp members affixed to and carried by the inner body member and spaced around the periphery thereof, each clasp member including a spring arm extending axially toward the outer body member and ending short of a said wound roll when the inner body member is in said open position and to extend beyond the wound roll when the inner body member is in said closed lock position, and means for camming the said spring arm of each said clasp member outwardly into an inwardly pressing contacting relationship with the wound roll as the said inner body member is telescoped into said closed locked position.

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