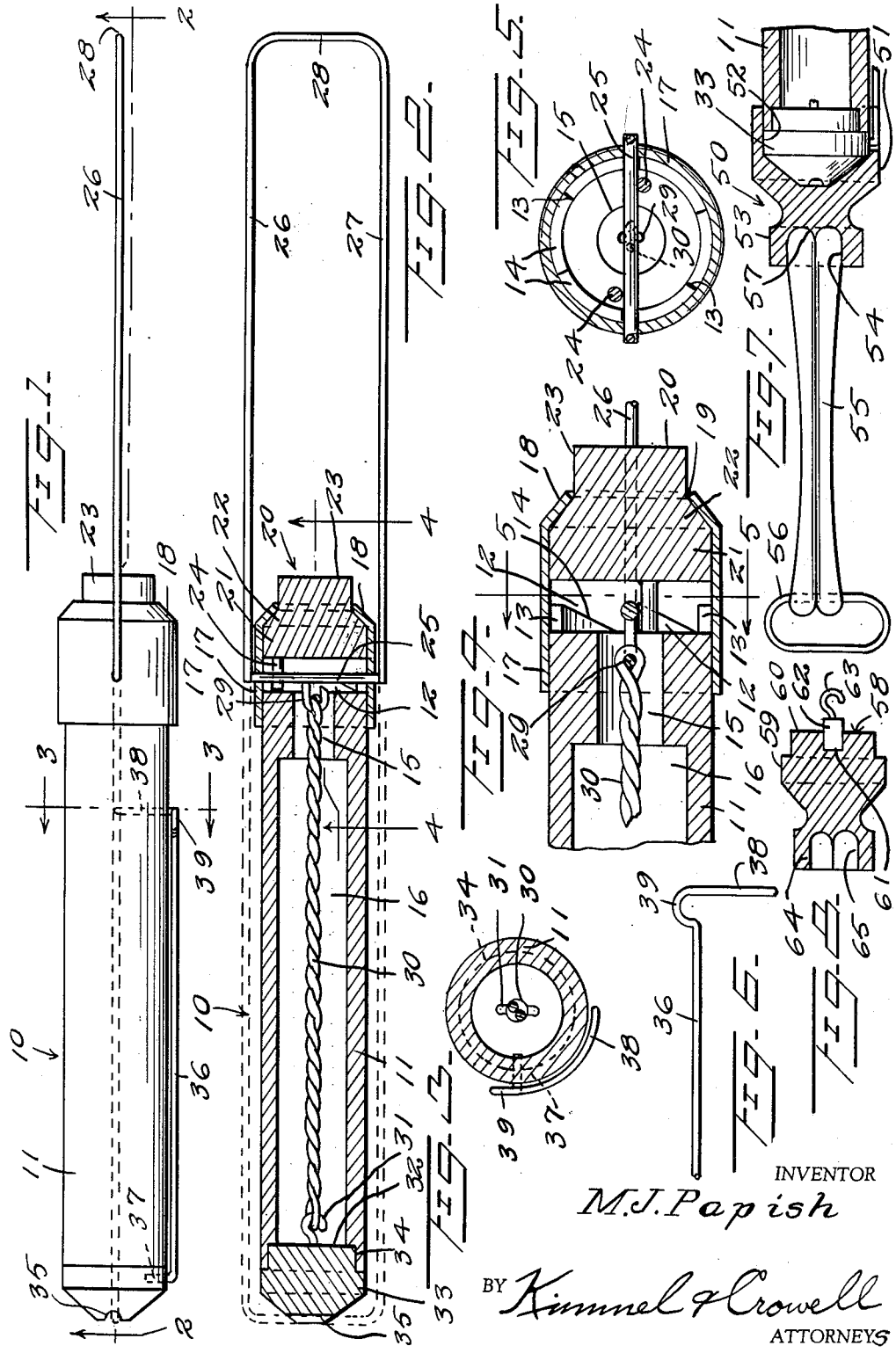
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APPARATUS FOR CURLING HAIR

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APPARATUS FOR CURLING HAIR

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This invention relates to hair curling devices, and more specifically, to curling apparatus for mechanically winding the hair thereon.

One of the primary objects of this invention is to provide in a hair curler mechanical means for winding the hair thereon.

Another object of this invention is to provide, in hair curling apparatus, means for mechanically wrapping the hair around the curler together with means operable upon the removal of the curler for conditioning the curler for a subsequent curl winding operation.

A further object of the present invention is to provide a hair curling device of the type described with means for releasably securing the hair to the curler while the curl is setting.

A still further object of this invention is to provide in a hair curler of the type to which reference has been made above with means for releasably clamping an end portion of the hair to the curler at the start of the winding operation.

This invention also contemplates as a further object the provision of a hair curler which is inexpensive to manufacture, non-complex in construction and assembly, durable in use, and which is simple to use.

Other and further objects and advantages of the present invention will become more apparent from a consideration of the following specification when read in conjunction with the annexed drawing, in which:

Figure 1 is a top plan view of a mechanically operated hair curler constructed in accordance with the teachings of this invention.

Figure 2 is a medial longitudinal cross-sectional view taken on the horizontal plane of line 2—2 of Figure 1, looking in the direction of the arrows.

Figure 3 is a cross-sectional view taken on the vertical plane of line 3—3 of Figure 1, looking in the direction of the arrows.

Figure 4 is an enlarged detail cross-sectional view, partly in elevation, taken on the line 4—4 of Figure 2 and looking in the direction of the arrows.

Figure 5 is an enlarged detail cross-sectional view taken on the vertical plane of line 5—5 of Figure 4.

Figure 6 is a partial side elevation of the clamp arm.

Figure 7 is a detail cross-sectional view illustrating a modification of this invention.

Figure 8 is a detail cross-sectional view of a further modification of the invention.

Referring now more specifically to the drawing, reference numeral 10 designates, in general, a hair curling device constructed in accordance with the instant invention. The curler 10 comprises an elongated substantially hollow cylindrical casing 11 having a pair of oppositely disposed open ends. As is shown in Figure 2, one end of the casing 11 is provided with a plurality of integrally formed circumferentially spaced ratchet teeth 12 having ratchet engaging sides 13 whose planar surfaces are disposed, substantially, in radial planes which contain the longitudinal axis of the casing. Each of the ratchet teeth 12 is

formed with an outer end 14 having a surface contained in an inclined plane which extends inwardly from its adjacent side 13.

Spaced inwardly from and adjacent to the ratchet teeth 12 the casing 11 is constructed with an inwardly extending centrally positioned elongated cylindrical passage 15 which opens at its inner end into a substantially cylindrical chamber 16 having a diameter greater than the diameter of the passage 15 and coaxially aligned therewith.

A sleeve 17 has one of its ends slidably mounted on the casing 11 adjacent the ratchet teeth 12 and projects therebeyond. The outer end of sleeve 17 is bent inwardly to form a circular abutment wall 18 and to define a coaxially aligned circular opening 19.

As seen in Figures 2 and 4, a button 20 is provided having an inner end 21 of substantially circular transverse cross-section, a central or intermediate portion 22 which tapers inwardly toward the other end 23 having a substantially uniform circular transverse cross-section. The end 21 and central portion 22 are mounted for reciprocation within the sleeve 17 with the end 23 projecting through the opening 19. In its normal position, the central portion 22 abuts against the wall 18 which limits the movement of the button 20 outwardly and away from the sleeve 17. The button 20 is completed by securing one end of each of a pair of diametrically opposed pins 24 to the end 21 in such position that the other ends thereof engage against the adjacent end of the casing 11.

A circular cross pin 25 extends diametrically across the sleeve 17 and is rotatable therein intermediate the button 20 and the casing 11. The pin 25 projects beyond the opposite sides of the sleeve and has secured thereto at its opposite end one of the adjacent ends of a pair of wire arms 26, 27 of a substantially U-shaped clamp, the other ends of the arms being integrally joined by a base wire 28.

A hook 29 projects laterally from the cross-pin 25 and extends partially into the passage 15. One end of a twisted rubber or flexible band 30 is looped over the hook 29 while the other end of the band is looped over a hook 31 positioned in the chamber 16 and centrally secured to the reduced end portion 32 of a closure cap 33. As seen in Figure 2, the reduced end 32 is frictionally seated and retained in a groove 34 which extends inwardly from the other end of the casing. A groove 35 extends diametrically across the outer end of the cap 33.

From the above description, it will be understood that the twisted rubber band 30 exerts sufficient force on the hooks 29 and 31 so that the cap 33 and sleeve 17 together with its associated elements are urged constantly towards each other.

A substantially L-shaped elongated wire leader 36 extends longitudinally of the casing 11 and has one of its ends 37 fixedly secured in the cap 33 while the other end 38 is bent laterally and arcuately around a portion of the casing 11. If desired, and to facilitate the operation of the device, a loop 39 may be formed in the leader 36 adjacent the other end 38.

In operation, let it be assumed that the described curler is to be applied to the hair and the component elements thereof are as shown in Figures 1 and 2. The operator first grasps the loop 39 and draws the leader 36 and the end 38 away from the casing 11. The ends of the hair to be curled are then inserted therebetween and the leader 36 released to lightly clamp the hair between the leader and casing. The sleeve 17 is then grasped between the fingers of the operator and the button 20 is pushed inwardly. Since the pins 24 engage against the adjacent end of the casing 11 the inward movement of the button 20 forces the casing 11 to slide outwardly relative to the other end of the sleeve 17. This movement continues until the sides 13 of the pair of ratchet teeth 12 engaged by the

cross-pin 25 become disengaged therefrom the pin 25 normally abutting thereagainst under tension of the band 30.

With the escape of the ratchet teeth 12 from the pin 25 the twisted rubber band exerts a torque or force on the casing 11 causing the latter to rotate relative to the sleeve 17 and consequently, to wind the hair on the casing 11. When the desired amount of hair has been wound on the casing, the button 20 is released. The tension of the band 30 exerts a force on the casing 11 and button 20 which causes the casing 11 and button 20 to move in their respective other direction. This longitudinal movement halts upon engagement of the inclined portion 22 of the button with the inwardly bent end 18 of the sleeve 17.

As the last described movement takes place, the abutment sides 13 of a pair of diametrically spaced ratchet teeth 12 engage the cross-pin 25 and the rotation of the casing 11 relative to the sleeve 17 is arrested.

The U-shaped clamping member comprising the wire arms 26, 27 and base 28 is then pivoted on the sleeve 17 until the base 28 locks in the groove 35 with the arms 26, 27 extending longitudinally of the casing 11 on diametrically opposed sides thereof. Thus it is seen that the hair now wound on the curler 10 is releasably clamped between the U-shaped clamping member and the casing.

When sufficient time has elapsed to set the curl, the operator disengages the base wire 28 from the groove 35 and rotates the arms 26, 27 and base 28 in the reverse direction. The sleeve 17 is grapsed as before and the operator pulls the curler 10 in a direction away from the head and causing the hair to rotate the casing 11 in the opposite direction and unwind therefrom.

As the casing is now rotating, the ends of the cross-pin 25 ride up the inclined ends 14 of consecutive ratchet teeth 12 until the curler 10 has been disengaged from the hair, the extreme ends thereof sliding from between the leader 36 and casing 11. At this point the band 30 will effect reengagement of the ends of the cross-arm 25 with a pair of abutting ends 13 of the ratchet teeth 12.

It should now be manifest that in effecting the winding operation the band 30 tended to become unwound or untwisted and that the torque provided thereby lessened with each revolution of the casing 11. On the other hand, in the withdrawal operation described above, the band 30 is retwisted to restore the same to its original condition and the curler is prepared for immediate reuse.

A second embodiment of this invention is disclosed in Figure 7, and extends the inventive concept to the utilization of conventional hair curlers now available on the open market. In this form, an adapter 50 is provided which comprises a cylindrical member 51 at one of its ends and formed of elastic material such as rubber. The member 51 is formed with a cylindrical recess 52 extending inwardly from one of its ends which is adapted to receive the outer end of the cap 33 and a marginal portion of the casing 11 immediately adjacent thereto.

The other end 53 of the adapter 50 is reduced in diameter and has a cylindrical recess 54 extending axially inwardly therefrom adapted to receive the one end of a conventional hair curler 55. The other end of the curler 55 has secured thereto the usual elastic or rubber band 56. The cylindrical recess 54 may have any desired contour to mate with the configuration of the free end of the curler to be employed.

Thus, in this embodiment the hair curler 55 comprises an extension of the casing 11. After the hair has been mechanically wound on the curler 55 the latter is detached from the adapter 50 to permit the band 56 to be inserted in the recess 57 to releasably secure the curler 55 to the hair.

In the embodiment of Figure 8, one end of the adapter 58 comprises a cap 59 having a reduced end portion 60 extending longitudinally therefrom. The cap 59 and end portion 60 are provided with a cylindrical recess 61 in which is anchored one end of the shank 62 of a hook 63. The other end 64 of the adapter is identical to the other

end of the adapter described above and includes an inwardly extending cylindrical recess 65 adapted to receive one end of a conventional curler therein.

In this instance, the cap 33 is removed from the casing 11 and the adapter 58 is substituted therefor with the projecting end seated in the groove 34. The hair winding and curling operations are then carried out as described above.

With the exception of the structural modifications noted above the remaining details of the modifications illustrated in Figures 7 and 8 are the same as those of the preferred form of the invention illustrated in Figures 1 through 6.

Having described and illustrated one embodiment of this invention in detail, it will be understood that the same is offered by way of example, and that the invention is only to be limited by the scope of the following claims.

What is claimed is:

1. A hair curling device comprising an elongated tubular casing having a pair of opposed ends, a sleeve having an end portion thereof slidably and rotatably mounted on one end of said casing, a substantially cylindrical element mounted for reciprocation in said sleeve adjacent the other end thereof, means cooperating between said element and the adjacent end of said casing to prevent relative rotation of said casing and said sleeve in one direction, means connected to said element and engaging said casing operable when reciprocated, to render said means ineffective, and means connected between said sleeve and said casing for effecting rotation of said casing relative to said sleeve.

2. A hair curling device comprising a sleeve, a casing mounted for rotation and reciprocation within said sleeve, actuating means connected between said sleeve and said casing for rotating said casing, and means reciprocable in said casing, cooperatively engaging said actuating means to effect the operation of said actuating means when reciprocated in one direction and to arrest the rotation of said casing when reciprocated in the opposite direction.

3. A hair curling device comprising an elongated sleeve having an end portion mounted for reciprocation and rotation on one end of an elongated casing, resilient means connected between said casing and said sleeve to effect relative rotation therebetween, ratchet means cooperating between said sleeve and said casing to prevent rotation of said casing relative to said sleeve in one direction, and manually operated means disposed in said sleeve to effect axial movement of said casing relative to said sleeve to render said ratchet means inoperative whereby said casing rotates relative to said sleeve, said resilient means being adapted to move said casing axially in the other direction to effect the operation of said ratchet means and to stop the rotation of said casing.

4. A hair curling device comprising an elongated substantially hollow cylindrical casing, said casing having a pair of opposed closed ends, one end of said casing having a plurality of circumferentially spaced ratchet teeth formed thereon, said casing having a longitudinal passage formed in said one end which communicates at its inner end with one enlarged chamber formed in said casing, a hook member secured to the other closed end of said casing and projecting within said chamber, said casing having one of its ends slidably and rotatably mounted in one end of a sleeve, a cross-pin extending diametrically across said sleeve and projecting on opposite sides thereof, a hook connected with said sleeve and projecting into said passage, resilient means connected with said hooks and extending through said chamber and into said passage, said means constantly tending to urge said casing and sleeve for relative longitudinal movement towards one another and for rotation in one direction relative to each other, said cross-bar being normally engaged by a plurality of ratchet teeth to prevent said rotation, and manually operated means having reciprocating movement disposed in said sleeve adjacent the

other end thereof and engaging said one end of said casing whereby movement of said manually operated means in one direction forces said casing to move outwardly away from said sleeve and to disengage said cross-pin from said ratchet teeth whereby said resilient means rotates said casing relative to said sleeve.

5. A hair curling device comprising an elongated substantially hollow cylindrical casing adapted to receive the hair to be curled thereon, said casing having a pair of opposed closed ends, one end of said casing having a plurality of circumferentially spaced ratchet teeth formed thereon, said casing having a longitudinal passage formed in said one end which communicates at its inner end with one enlarged chamber formed in said casing, a hook member secured to the other closed end of said casing and projecting within said chamber, said casing having one of its ends slidably and rotatably mounted in one end of a sleeve, a cross-pin extending diametrically across said sleeve and projecting on opposite sides thereof, a hook connected with said sleeve and projecting into said passage, resilient means connected with said hooks and extending through said chamber and into said passage, said means constantly tending to urge said casing and sleeve for relative longitudinal movement towards one another and for rotation in one direction relative to each other, said cross-bar being normally engaged by a plurality of ratchet teeth to prevent said rotation, manually operated means having reciprocating movement disposed in said sleeve adjacent the other end thereof and engaging said one end of said casing whereby movement of said manually operated means in one direction forces said casing to move outwardly away from from said sleeve and to disengage said cross-pin from said ratchet teeth whereby said resilient means rotates said casing relative to said sleeve and winds said hair on said curling device, hair clamping means secured to and extending longitudinally of said casing for initially receiving the free ends of the hair, and means connected with the projecting ends of said cross-pin and rotatable therewith on said sleeve for extrusion longitudinally of said casing to clamp the hair to said casing after the hair has been wound thereon, and means on said last-named means cooperating with said other end of said casing for releasably securing said last-named means in its clamping position.

6. A hair curling device comprising an elongated tubular casing having a pair of opposed ends, a sleeve having an end portion thereof slidably and rotatably mounted on one end of said casing, a substantially cylindrical element mounted for reciprocation in said sleeve adjacent the other end thereof, means cooperating between said element and the adjacent end of said casing to prevent relative rotation of said casing and said sleeve in one direction, means connected to said element and engaging said casing operable when reciprocated, to render said means ineffective, means connected between said sleeve and said casing for effecting rotation of said casing relative to said sleeve, and adapter means mounted on the other end of said casing and projecting axially thereof for connection with the free end of a conventional hair curler.

7. A hair curling device as defined in claim 6, said adapter means comprising an elongated elastic member having an axial recess extending inwardly from each end thereof, one of said recesses being adapted to receive the other end of said casing, and the other of said recesses being adapted to receive the free end of a conventional hair curler.

8. A hair curling device comprising an elongated tubular casing having a pair of opposed ends, a sleeve having an end portion thereof slidably and rotatably mounted on one end of said casing, a substantially cylindrical element mounted for reciprocation in said sleeve adjacent the other end thereof, means cooperating between said element and the adjacent end of said casing to prevent relative rotation of said casing and said sleeve in one direction, means connected to said element and engaging said casing operable when reciprocated, to render said means ineffective, and adapter means mounted on and closing the other end of said casing, said adapter means comprising a cap having a reduced end portion adapted to seat within said other end of said casing, and said cap having an axially extending end portion provided with an inwardly extending central recess to detachably receive the free end of a conventional hair curler therein.

References Cited in the file of this patent

UNITED STATES PATENTS

372,092	Stansbury	Oct. 25, 1887
527,172	Friedel	Oct. 9, 1894
2,134,486	Leland	Oct. 25, 1938
2,267,031	Jefferson	Dec. 23, 1941
2,627,861	Peyton	Feb. 10, 1953
2,651,309	Kemp	Sept. 8, 1953
2,657,694	Reed et al.	Nov. 3, 1953