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J. WHYTE

2,474,449

EXPANDABLE CURLING ROD

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Fig. 1.

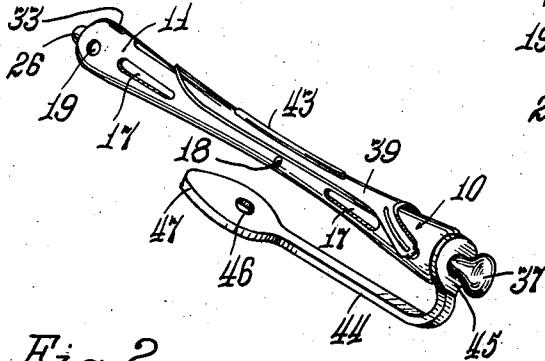


Fig. 3.

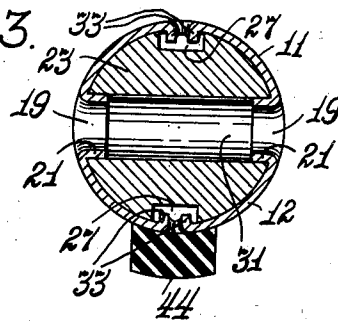


Fig. 2.

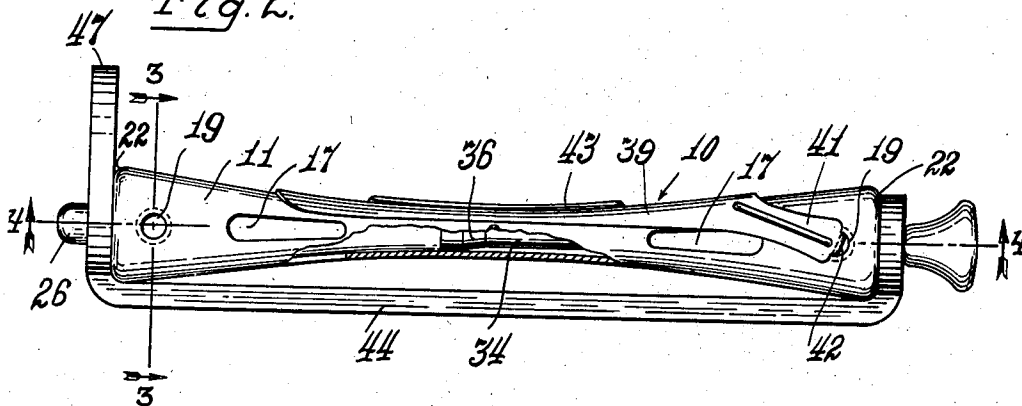


Fig. 4.

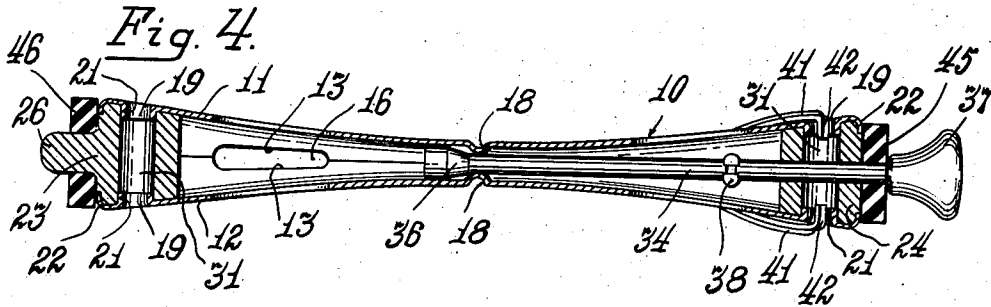


Fig. 5.

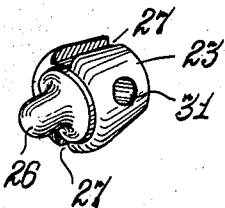
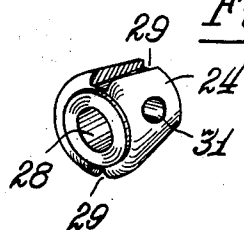


Fig. 6.



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EXPANDIBLE CURLING ROD

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4 Claims. (Cl. 132-33)

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The invention relates to improvements in curling rods and particularly to a hair curling rod of a kind especially adapted for use in the process commonly referred to as cold permanent waving.

In cold permanent waving of hair, the hair is divided into a large number of individual tresses which are wound upon curling rods and thoroughly saturated with a waving solution. After the solution has remained on the wound tress for a predetermined period of time, the wound tress is subjected to the application of a neutralizing solution to wash out the waving solution. In use, the curling rod is held at its ends and applied to the free end of a hair tress. It is then rolled between the fingers inwardly towards the scalp to wind the hair tress thereon. Such winding necessarily places the hair tress under considerable tension with the result that the hair tress is tightly wound upon the rod.

Because a tightly wound curl impedes the penetration of the waving and neutralizing solutions to the innermost strands of hair in the curl being processed, it is advisable to provide means whereby the wound tress of hair may be loosened sufficiently to facilitate the free flow of the solutions therethrough. This desired degree of penetration of the solutions is accomplished by the use of a curling rod embodying features of the present invention, which rod is provided with novel means to relieve the tension of the initially tightly wound curl.

It is accordingly an object of the invention to provide such a curling rod with means for effecting a contraction of its circumferential area so as to impart looseness to a curl wound thereon and thereby facilitate complete saturation of the waving solutions throughout the entire body of the curl.

Another object of the invention is to provide a curling rod of the kind embodying the features of the present invention, with readily removable means to clamp a hair tress to the rod preliminary to the winding of said tress thereon.

Another object is to provide a contractable curling rod with novel manually actuable means to effect positive contraction and expansion of said rod, and further, to provide novel attached means to secure a hair tress wound thereon against unwinding.

Other and further objects of the present invention will be apparent from the following descriptions and claims and are illustrated in the accompanying drawing, which, by way of illustration, shows a preferred embodiment and prin-

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ciple thereof. Other embodiments of the invention, embodying the same or equivalent principle, may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawing:

Fig. 1 is a perspective view of a curling rod embodying features of the invention.

Fig. 2 is an elevational view of the curling rod, partly broken away.

Fig. 3 is a transverse sectional view taken on line 3-3 of Fig. 2.

Fig. 4 is a longitudinal sectional view taken on line 4-4 of Fig. 2.

Fig. 5 is a perspective view of a detail.

Fig. 6 is a perspective view of another detail.

Referring to the drawings, the curling rod comprises preferably a hollow cylindrical body portion 10 formed of a pair of segments 11 and 12 which, when assembled, present a longitudinally arched medially contracted member. Each of the segments 11 and 12 is stamped preferably from sheet metal stock and includes recesses 13 along the longitudinal edges which, when the segments 11 and 12 are assembled, present elongated cutout portions 15. Additional elongated cutouts 17 are provided in the bodies of segments 11 and 12. Intermediate the ends of each of the segments 11 and 12 an inwardly directed protuberance 18 is stamped out of the wall of the segment. Apertures 19 are provided in each end portion of the segments 11 and 12 with the marginal edges of the apertures punched inwardly to provide nipples 21. The marginal ends 22 of the segments 11 and 12 are bent inwardly to provide a substantially semi-circular opening in each end and to retain the end members 23 and 24 in position, as will be presently described.

End members 23 and 24 in the form of tapered plugs are arranged to be received in opposite ends of the body 10 to provide closures therefor. The member 23 is provided with an extension 26 and includes diametrically opposed longitudinal slots 27. The member 24 is provided with a longitudinal bore 28 and, similarly, includes diametrically opposed longitudinal slots 29. Each of the members 23 and 24 is drilled to provide diametrical bores 31 the axes of which are disposed transversely at right angles to the axes of the slots 27 and 29.

In assembly, the end member 23 and 24 are positioned in opposite end portions of the segments 11 and 12 with the nipples 21 received in the diametrical bores 31. With a suitable tool

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lugs 33 are struck out of the edges of the segments 11 and 12 and are bent inwardly to engage the walls of the longitudinal slots 27 and 29. The relation of the thickness of the lugs 33 to the width of the longitudinal slots 27 and 29 and the length of the nipples 21 is such as to provide for limited movement of the segments 11 and 12, each in opposite radial directions, but not longitudinally.

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An operating stem 34 is disposed in the body portion 10 and extends through the longitudinal bore 28 of the end member 24. The stem 34 is provided at one end with an enlargement providing a cam element 36, and at the other end with a knob 37, and is arranged for longitudinal reciprocation, whereby the cam element 36 may be moved by means of the knob 37 into engagement with the protuberances 18 in the segments 11 and 12 to cause the segments to move outwardly radially and cause separation therebetween, thereby providing for circumferential enlargement of the body portion 10. One or more projections 38 are struck from the body of the stem 34 to provide an enlargement to serve as a shoulder for limiting the reciprocating movement of the stem 34 within the body portion 10.

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A clamp member 39 shaped to conform to the contour of the body portion 10 and substantially arcuate in cross section is provided, at one end, with a pair of spaced legs 41, 41 which have inwardly turned terminal portions 42, 42 engageable in the diametrically opposed apertures 19 of the body segments 11 and 12 for pivotally mounting the clamp member 39 on the body. A longitudinal rib 43 is stamped in the clamp member 39 to add rigidity to the structure. The clamp member 39 is intended for securing the end of a hair tress to the body 10 of the curling rod preliminary to winding the tress around the rod.

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An elastic retaining member 44 formed of rubber or of a similar material is provided with perforated ends 45 and 46, the latter having a tab extension 47. The member 44 is anchored, at one end, to the operating stem 34 and is adapted to be drawn across the curl, after winding, and to be secured at its other end with the extension 26 entering the perforated end 46. The tab extension 47 provides an area for gripping the retaining member 44 with the fingers to facilitate manipulation. The retaining member 44 is assembled on the stem 34 by stretching the perforated end 45 over the knob 37, and by a similar operation may be removed therefrom. It can be seen that the size of the knob 37 in relation to the stem 34 is such as to prevent accidental removal of the member 44 from the stem 34. When the retaining member 44 is drawn across the curl and secured at both ends of the curling rod, as described above, the stem 34 is canted against the walls of the bore 28 to retain the stem 34 in one of its positions of adjustment.

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In use, the operating stem 34 is first moved outwardly so that the cam element 36 engages the protuberances 18 of the segments 11 and 12 to effect separation of the segments, thereby to enlarge the circumferential dimension of the body portion 10 of the rod. With one end of the retaining member 44 hanging freely, the end of a hair tress is secured between the clamp member 39 and the medial portion of the body 10. The winding of the tress on the curling rod is best accomplished by grasping the rod at its ends and then rolling the same inwardly towards the scalp. It is evident that such winding of the hair tress would result in a tightly wound curl.

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Since it is undesirable to apply waving and other solutions to the tightly wound curl, because of the difficulty that would be experienced in obtaining complete saturation of the innermost strands of hair in the curl, the body portion 10 of the curling rod is first adjusted to fully expanded position, as above described. When the tress is wound upon the rod, the retaining member 44 is drawn across the hair and the rod and engaged with the extension 26 to secure the hair against unwinding. Thereafter, the operating stem 34 is manipulated so that the cam element 36 is moved out of operative engagement with the protuberances 18. As a result, the segments 11 and 12 are permitted to move towards each other resuming their normal position and presenting a contracted body structure. The curl is now relatively loose on the rod to complete saturation of the hair with hair waving solution, but is secured against displacement by the retaining member 44.

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It should be evident that the curling rod of the present invention embodies novel features making it highly useful for cold permanent waving of the hair, since it includes means to initially retain the hair tress in place on the rod and means for securing the wound hair tress in place even after said tress has been loosened by contraction of the rod extended therethrough. The cutouts 16 and 17 also have the useful purpose in aiding the penetration and circulation of the waving solutions, because the solutions may flow freely through and over the curl and pass downwardly into the rod through one or more of the cutouts and reenter the curl upon flowing outwardly through other of the cutouts back into the curl.

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Although a preferred embodiment of the invention has been described herein, it should be understood that the features of the invention may be incorporated in curling rods shaped other than the particular shape of the rod illustrated without departing from the spirit of the invention or the scope of the appended claims.

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I claim:

1. A curling rod comprising in combination a pair of segments shaped to form a tubular body, an end member retained within each end of said body, each of said end members having diametrically opposed longitudinal slots, inwardly turned portions on said segments loosely engageable in said slots to retain said segments in assembled relation but to permit limited movement towards and away from each other, and an operating stem slidable in said body and arranged to cooperate with the inner surfaces of said body to urge said segments away from each other to expand said body circumferentially.

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2. A curling rod comprising in combination a pair of segments shaped to form a tubular body, an end member secured at each end of said body, each of said end members having diametrically opposed longitudinal slots, inwardly turned portions on the longitudinal edges of said segments engageable in said slots to retain said segments in assembled relation but to permit limited movement towards and away from each other, and cam means slidable through one of said end members and arranged to cooperate with the inner surfaces of said body to urge said segments apart to expand said body circumferentially.

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3. A curling rod comprising in combination a pair of segments shaped to form a tubular body, an end member held within each end of said body, each of said end members having diametrically

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opposed longitudinal slots, inwardly turned portions on said segments loosely engageable in said slots to retain said segments in assembled relation but to permit limited movement towards and away from each other, cam means slidable through one of said end members to cooperate with the inner surfaces of said body to urge said segments apart to expand said body circumferentially, clamping means on said body for securing a hair tress while it is being wound thereon, and means for securing the hair tress against unwinding.

4. In a curling rod, a pair of segments shaped to form a tubular body, each of said segments having at each end portion an inwardly directed nipple and inwardly turned marginal flanges, an end member arranged at each end of said body, each of said end members having a diametrical

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aperture and longitudinal slots arranged on an axis at right angles to the axis of the diametrical aperture to receive the nipples and the marginal flanges of said segments respectively, whereby to retain said segments in assembled relation.

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