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W. F. FEYRER ET AL

2,568,146

HAIR CURLER

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Fig. 2.

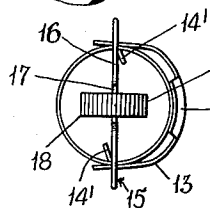


Fig. 1.

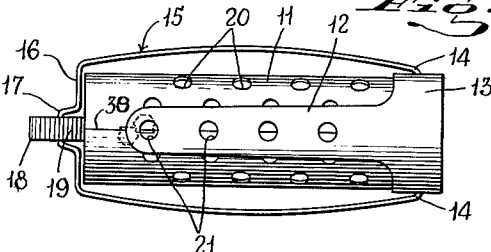


Fig. 3.

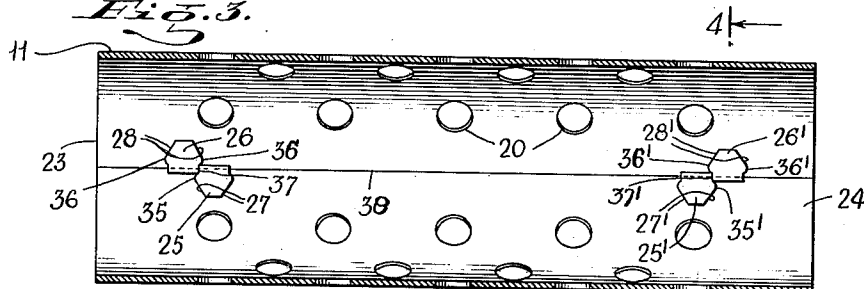


Fig. 4.

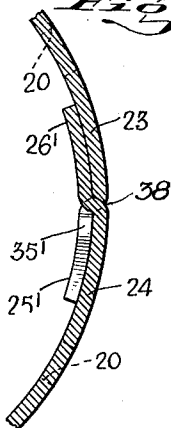


Fig. 5.

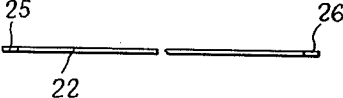


Fig. 6.

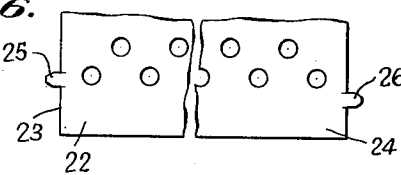


Fig. 9.

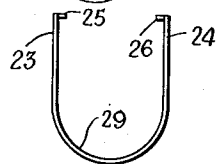


Fig. 7.



Fig. 10.

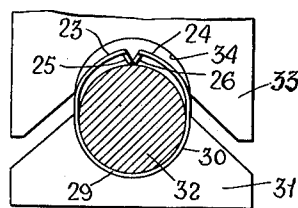
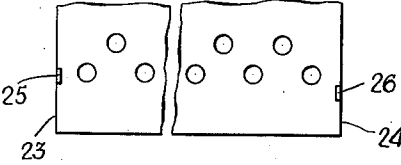


Fig. 8.



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HAIR CURLER

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4 Claims. (Cl. 132-41)

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This invention relates to hair curlers of the type employing a large diameter tube with members pivotally supported at one end of the tube for holding and clamping the hair on the tube. Still more particularly, the invention deals with a simple and economical method of producing curlers of the kind under consideration wherein means is provided for retaining the split portions of the tube in alignment and for preventing relative movement of the split ends of the tube in several directions, thereby preventing shifting and collapse of the tube, as would otherwise be experienced. The novel features of the invention will be best understood from the following descriptions when taken together with the accompanying drawing in which certain embodiments of the invention are disclosed, and in which the separate parts are designated by suitable reference characters in each of the views; and in which:

Fig. 1 is a side view of a curler with the parts in collapsed position.

Fig. 2 is an end view of the structure as seen in Fig. 1.

Fig. 3 is an enlarged sectional view through the tube of the curler with the pivoted parts removed.

Fig. 4 is a partial section on the line 4-4 of Fig. 3, on an enlarged scale.

Fig. 5 is an edge view of a sheet blank from which the tube is formed, part of the construction being broken away.

Fig. 6 is a plan view of part of one end portion of the sheet, as shown in Fig. 5.

Figs. 7 and 8 are views similar to Figs. 5 and 6, showing the first step in the formation of the tube.

Fig. 9 is a side edge view of the tube showing the next step in the formation thereof; and

Fig. 10 shows the method of shaping the tube around a mandrel, the mandrel being shown in section.

In the construction of curlers of the kind under consideration, it has been customary to form the tubular body of the curler from a split tube, the ends of the tube being arranged in abutting engagement with each other. This type of construction has been objectionable from the standpoint that the free abutting ends have been subjected to collapsing, as well as to relative longitudinal shifting movement in the use of the curler. It is the purpose of the invention to so construct the tube of the curler as to reinforce as well as to key the abutting ends of the tube to retain said abutting ends against relative movement in six different directions.

Considering Figs. 1 and 2, I have here shown the assemblage of a curler made according to the invention, in which 11 represents the tubular body of the curler, 12 the hair end holding mem-

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ber comprising a U-shaped portion 13 pivoted to one end of the curler by the ends 14 of a curl holding yoke 15 comprising a wire form. The cross head end 16 of the yoke is offset centrally, as seen at 17, and rotatable around the offset 17 is a rubber roller 18, preferably having a roughened surface 19. The ends 14, which form the pivot for the member 12 also pivot the yoke 15, and these ends within the tube 11 are offset, as seen at 14', note Fig. 2, to retain the yoke 15 against displacement.

The tube 11 preferably has a series of circumferential and longitudinally spaced perforations, as at 20, the member 12 having a plurality of similar longitudinal perforations 21. In forming the tube 11, we start with a preformed blank 22, the side edge portions 23 and 24 of which have arranged adjacent the ends of the resulting tube 11, outwardly projecting lugs or fingers, as at 25-25' and 26-26', note Fig. 3. It will be apparent that the lugs or fingers, which may also be termed key elements, are arranged so that both elements 25-25' on the edge portion 23 are disposed inwardly of the elements 26-26' on the edge portion 24, so that when the tube is assembled, as later described, this arrangement of elements retains or keys the edge portions 23 and 24 against movement longitudinally one with respect to the other in either of two directions.

Continuing the formation of the tube from the blank sheet shown in Figs. 5 and 6, the first step is to turn the elements 25-25' and 26-26' upwardly at right angles to the sheet, as shown in Figs. 7 and 8. Noting Fig. 3 of the drawing, it will be seen that the elements 25-25' and 26-26' have converging side edges, as at 27-27' and 28-28' respectively. This construction facilitates the passing of the lugs one with respect to the other in shaping the sheet blank to the cylindrical form.

The next step in the operation is to bend the sheet centrally to form a semi-circular central portion, as at 29, note Fig. 9, the side portions 23 and 24 being disposed substantially parallel to each other, and the elements 25-26 being directed inwardly. The tube thus formed is then placed upon a concaved surface 30 of a die 31, after which a mandrel 32 is arranged within the sheet to seat upon the half-round portion 29 thereof and then a punch 33 is moved downwardly and its concaved surface 34 serves to first bend the ends 23 and 24 inwardly and to pass the elements 25 and 26 crosswise of each other, as partially seen in Fig. 10.

Upon completing this operation, sufficient pressure is applied to that part of the tube having the elements 25-25' and 26-26' thereon, so as to force or spread the metal of the elements outwardly, as seen clearly at 35-35' on the elements 25-25' and 36-36' on the elements 26-26' in

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Fig. 3 of the drawing. These offset portions form additional keys which extend beyond or overlap the abutting edges of the elements, as at 27—27', so as to prevent pull apart separation of the tube or opening of the split 38 therein.

Upon completion of the assemblage, it will appear that the elements 25—25' extend inwardly upon and rest snugly on inner surfaces of the edge portions 24, whereas the elements 26—26' correspondingly rest upon the edge 23. It will thus be seen that the elements 25—25' prevent inward movement of the edge portion 24. The elements 26—26' prevent inward movement of the edge portion 23. In like manner, the elements 26—26' prevent outward movement of the edge portion 24 and the elements 25—25' prevent outward movement of the edge portion 23. Reference to inward and outward, here is radially with respect to the axis of the tube and these four movements together with the horizontally checked movements and the pull apart movement provide the six checked movements referred to.

It will be understood that our invention is not necessarily limited to the specific arrangement or location of the lugs herein disclosed, and the number of lugs or elements employed may also be varied, depending entirely upon the length of the tubular structure which is produced. In this connection, it will be apparent that our invention is applicable to the keying and reinforcement of split ends of tubes of any type or kind, or in joining adjacent edge portions of products made from sheet material, particularly when it is desirable to positively retain abutting edges of the sheet against the different movements, as herein specified.

Having fully described our invention, what we claim as new and desire to secure by Letters Patent is:

1. The method of forming the split tubular body of hair curlers of the character defined, which comprises first forming a sheet blank with a pair of projecting lugs spaced longitudinally of each side edge portion of the blank, with said lugs disposed adjacent end portions of the blanks, arranging one pair of lugs inwardly with respect to the other pair thereof, shaping the sheet blank to offset the lugs angularly with respect to said sheet, then bending the central portion of the sheet to substantially semi-circular cross-sectional form with said angular lugs extending inwardly toward each other, then bending the side portions of the blank inwardly around a mandrel, crossing the lugs of one side edge with the lugs of the opposed side edge and with said lugs in edge to edge relationship to each other in forming the resulting split tubular body with the lugs disposed upon the inner surface of said body, the lugs of one side edge portion of the body being arranged upon the inner surface of the other side edge portion of said body, and applying sufficient pressure to the assembled lugs to form offset key members thereon retaining adjacent abutting edges of said side portions against pull apart separation.

2. A curler of the character described, comprising a split tubular body, means pivotally supported on the body for clamping hair wound therearound, the edge portions of said body abutting to form the split therein, each having a pair of projecting key elements adapted to extend over and engage the undersurface of the opposed edge portions, the pair of key elements on one edge portion being disposed inwardly of the pair of

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key elements on the other edge portion in retaining the edge portions against longitudinal movement one with respect to the other, surface engagement of said key elements with opposed edge portions retaining said edge portions against inward and outward radial movement one with respect to the other, and adjacent side edges of said key elements having outwardly projecting means engaging opposed key elements in retaining said edge portions of the tubular body against separation.

3. A curler of the character described, comprising a split tubular body, means pivotally supported on the body for clamping hair wound therearound, the edge portions of said body abutting to form the split therein, each having a pair of projecting key elements adapted to extend over and engage the undersurface of the opposed edge portions, the pair of key elements on one edge portion being disposed inwardly of the pair of key elements on the other edge portion in retaining the edge portions against longitudinal movement one with respect to the other, surface engagement of said key elements with opposed edge portions retaining said edge portions against inward and outward radial movement one with respect to the other, side edges of the key elements being contracted to facilitate movement of the edge portions into abutting engagement with each other, and adjacent side edges of said key elements having outwardly projecting means engaging opposed key elements in retaining said edge portions of the tubular body against separation.

4. A hollow body of the character described formed from sheet material having abutting longitudinal edge portions forming a split extending longitudinally of the resulting hollow body, said edge portions having projecting outwardly contracted lugs, the lugs of one edge portion being adapted to be arranged upon and engage the inner surface of the opposed edge portion, the lugs of said edge portions being arranged in edge to edge abutting relationship to key the edge portions against relative longitudinal movement, surface engagement of the lugs with opposed edge portions keying said edge portions against inward and outward radial movement one with respect to the other, and abutting edges of said lugs having outwardly projecting key means engaging opposed lugs for retaining said edge portions against pull-apart separation.

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