March 10, 1942. J. HOMMER 2,276,196

CURLER

Filed Feb. 11, 1941

FIG. 1.

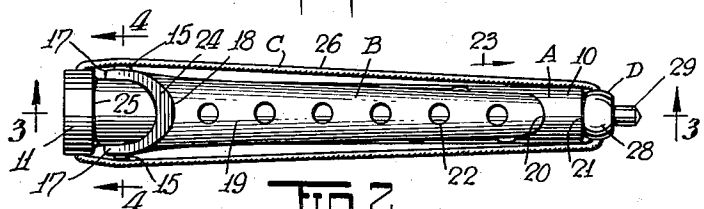



FIG. 2.

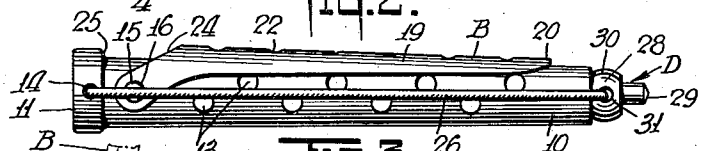



FIG. 3.

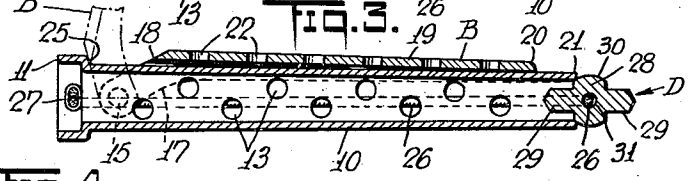



FIG. 4.

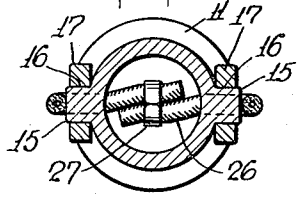



FIG. 5.

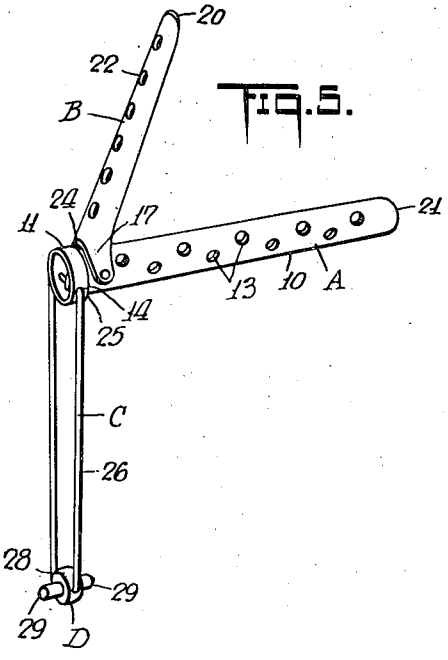



FIG. 6.

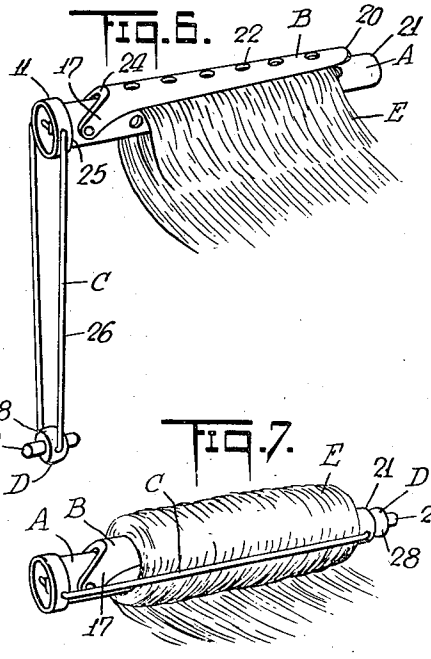



FIG. 7.




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40-159

Patented Mar. 10, 1942

2,276,196

# UNITED STATES PATENT OFFICE

2,276,196

## CURLER

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Application February 11, 1941, Serial No. 378,339

5 Claims. (Cl. 132—41)

The present invention relates to a curler, and it particularly relates to a curler of molded plastic materials.

In making curlers out of plastic materials, many problems arise which are not encountered when the materials are formed of sheet metal.

In view of the expense of the plastic material, it is desirable to form the curler of relatively thin sheets of material and of hollow construction rather than solid construction.

However, when the curler is formed of hollow plastic materials, or of relatively thin sheets thereof, it has been found that the strength is greatly diminished and this is particularly so where the curler is of a two piece construction in which the various elements may be fused together after having been molded in sections.

Furthermore, it is necessary to form the curler so that the stresses and strains applied thereto will not result in breaking or bending of the molded plastic material, and so that the various latching means for holding the hair in position during the winding and after it has been finally wound into a coil upon the shank of the curler, must be formed of relatively inexpensive construction so that they may be readily assembled with the shank of the curler and at the same time will be reliable in their action.

It is, therefore, among the objects of the present invention to provide an improved curler construction of the character above described, in which the curler, although formed of relatively thin synthetic plastic resinous or cellulosic materials, will be of substantial strength and will withstand relatively rough usage without breaking, bending or derangement.

Another object is to provide an improved simple, inexpensive, readily manufactured plastic curler which will be altogether devoid of metal parts.

Still further objects and advantages will appear from the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of illustration and explanation only, and not by way of limitation, since various changes therein may be made by those skilled in the art without departing from the scope and spirit of the present invention.

In accomplishing the above objects, it has been found most suitable to form the shank of the curler of a slightly converging tube with a collar on the largest end thereof in one piece by a single molding operation. The hollow shank after formation then may be drilled or cut to provide various openings or holes therein. The shank at the same time is provided with two outstanding members adjacent said collar, which will engage the jaws of a molded finger.

The resiliency and curvature of the jaws of the finger should be such as to maintain said fingers tightly and substantially permanently upon such projections which form a pivot or hinge mount for the finger. The finger is preferably so formed that it has a beveled rear face which will be stopped against the collar at the larger end of the slightly tapered curler construction.

To hold another coil of hair after it has been wound upon the curler, it has been found most satisfactory to provide a rubber or stretchable loop of fabric materials, including rubber as the flexing element, the ends of which element extend through said collar aforementioned and are clipped or tied together within the large end of the hollow curler shank. This loop, at its other end, carries a lug member which is of such a shape and of such diameter as to fit in the end and lock in the end of the hollow shank.

Referring to the drawing, which illustrates one of the embodiments according to the present invention, to which the invention is by no means restricted, since the drawing is merely by way of illustration and not by limitation.

Fig. 1 is a top plan view of the curler,

Fig. 2 is a side elevational view of one form of curler according to the present invention,

Fig. 3 is a longitudinal sectional view upon the line 3—3 of Fig. 1,

Fig. 4 is a transverse view upon the line 4—4 of Fig. 1, upon an enlarged scale as compared to Fig. 1,

Fig. 5 is a perspective view of the curler with the finger in elevated position and the rubber band hanging loosely,

Fig. 6 is a perspective view illustrating the next position after Fig. 5, in which the end of the lock or strand of hair is engaged by the finger before the strand of hair is wound upon the curler shank and finger, and

Fig. 7 is a perspective view illustrating the third operation, showing the curler with the coil of hair completely wound thereon and the entire coil held upon the shank of the curler.

Referring to Figs. 1 to 7, the curler is provided with a hollow tubular shank A shown in Figs. 1 to 3 as slightly converging to the right, with a finger B pivotally mounted upon the shank adjacent its widest portion, and with a latch or

holder C of stretchable or flexible material for holding the complete coil upon the curler.

The shank A is preferably molded in one operation as one integral solid piece, from a plastic, such as cellulose acetate, ethyl cellulose, or even a synthetic resinous material, such as a phenol formaldehyde resin, a urea formaldehyde resin and acrylic acid resin or a vinylite resin.

The shank A when formed, is provided with an enlargement or collar 11, and both the body 10 of the shank, as well as the enlarged collar 11, are provided with a plurality of openings 13 and 14 respectively. The openings 13 are drilled in staggered relationship around the entire periphery of the tubular member A to permit of a circulation of steam and hot air through the coil of hair upon the shank 10, while the openings 14 are to engage the latch or stretchable member C.

The shank adjacent the collar 11 is provided with the integral outstanding stud members 15, which fit into the openings 16 in the finger 17 of the yoke 18 adjacent the hinge or pivot end of the finger B (see particularly Figs. 1, 2 and 4).

The fingers 17 are spaced apart slightly less than the diameter of the shank A, at the studs 15, so that when snapped upon the studs 15, they will be held firmly in position thereon.

The main portion of the finger B extends forwardly as indicated at 19, and is of decreasing width until it terminates at 20 short of the end 21 of the shank A.

A row of openings 22 are provided along the length of the finger by drilling or cutting after the finger B has been molded in one piece to aid in the circulation of steam and hot air through the coil of hair upon the shank A.

It will be noted that the finger B is of decreasing width in the direction 23 to the narrow portion of the shank A. The pivot end of the finger B is beveled at 24 so that it will contact the shoulder 25 between the collar 11 and the shank 10 when thrown in uppermost position as indicated by the dot and dash lines of Fig. 3.

The member C is formed of a band or strand of fabric including a rubber cord as indicated at 26, the ends of which pass inwardly through the openings 14 in the collar 11 and are clipped together as indicated at 27.

The forward end of the band 26 carries the stud member D, which as best shown in Figs. 1 to 3, has the central large diameter portion 28 and the end extensions 29, one of which fits into the narrow diameter end 21 of the shank A.

It will be noted that the outside of the large diameter portion is curved as indicated at 30, and the narrow portion of the enlargement 28 will contact with the end 21 of the shank A.

The stud D has a hole 31 bored therethrough, which receives the rubber or stretchable strand 26. The positioning of the curved portion 30 so it just about enters the open mouth 21 of the shank A, assures that the element D will always be centered and in turn will center the cord and apply equal tension to both sides when the cord is stretched over the coil of hair wound upon the shank A and the finger B.

In operation, the finger B is lifted away from the shank A and the coil of hair is placed under the finger B and then wound on the shank A in the manner indicated in Figs. 6 and 7.

Finally, the stud member D is snapped into the opening 21 at the end of the shank A.

The coil of hair then in the position of Fig. 7 may be steamed or enclosed in a hair-waving pad and clamped and subjected to electrical or other heat to give a permanent wave, or other form of wave as desired.

The curler as disclosed in the present application may also be used at home to curl the hair before retiring or in dressing. The shank A, finger B and the stud D may all be inexpensively molded in one piece, and the entire construction is so formed that it will be durable, withstand considerable strains and stresses without breaking or bending, and without disengagement of the finger 17 from the studs 15.

The positioning of the rounded portion 30 of the stud D in the narrow open mouth 21 of the shank A will assure automatic equalization of the tension of the strands 26 on the sides of the coil of hair E, as indicated in Fig. 7.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A thin shell molded plastic curler comprising a thin shell one piece molded shank, having a converging tapered portion and an enlarged collar with a transverse shoulder at the larger end of said tapered portion, and a thin shell one piece molded finger provided with a pivotal mount on said shank, the finger at said pivotal mount being clevised and bevelled so as to abut said shoulder when turned upwardly away from said shank, and means to latch a coil of hair upon said curler.

2. A thin shell molded plastic curler comprising a thin shell one piece molded shank and a thin shell one piece molded finger provided with a pivotal mount on said shank, the finger at said pivotal mount being clevised and bevelled so as to abut said shoulder when turned upwardly away from said shank, and means to latch a coil of hair upon said curler, the walls of said shank converging slightly toward one end and at the other end having an enlarged collar adjacent said pivotal mount.

3. A thin shell molded plastic curler comprising a thin shell one piece molded shank, having a converging tapered portion and an enlarged collar with a transverse shoulder at the larger end of said tapered portion, and a thin shell one piece molded finger provided with a pivotal mount on said shank, the finger at said pivotal mount being clevised and bevelled so as to abut said shoulder when turned upwardly away from said shank, and means to latch a coil of hair upon said curler, said pivotal mount including two lugs extending rearwardly from said finger on both sides of said finger, said lugs being spaced apart less than the diameter of the shank at the pivot mount and said shank being provided with integral studs engaged by said lugs, said lugs being pressed by their own resiliency on the said studs.

4. A thin shell molded plastic curler comprising a thin shell one piece molded shank, having a converging tapered portion and an enlarged collar with a transverse shoulder at the larger end of said tapered portion, and a thin shell one piece molded finger provided with a pivotal mount on said shank, the finger at said pivotal mount being clevised and bevelled so as to abut said shoulder when turned upwardly away from said shank,

and means to latch a coil of hair upon said curler, said latching means consisting of an extensible cord extending through openings in one end of said shank adjacent said pivot mount and having a stud fitting in the other end of said shank away from the pivot mount.

5. A thin shell molded plastic curler comprising a thin shell one piece molded shank, having a converging tapered portion and an enlarged collar with a transverse shoulder at the larger end of said tapered portion, and a thin shell one piece molded finger provided with a pivotal mount on said shank, the finger at said pivotal mount being clevised and bevelled so as to abut said shoulder when turned upwardly away from said shank, and means to latch a coil of hair upon said curler, said latching means consisting of an extensible cord extending through openings in one end of said shank adjacent said pivot mount and having a stud fitting in the other end of said shank away from the pivot mount, said stud having an enlarged head with pins extending from both sides thereof, said enlarged head having rounded outside portion to fit in the end of the shank.

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