July 14, 1936. C. W. RENSTROM 2,047,709

HAIR CURLER

Filed Aug. 26, 1935

FIG. 1.

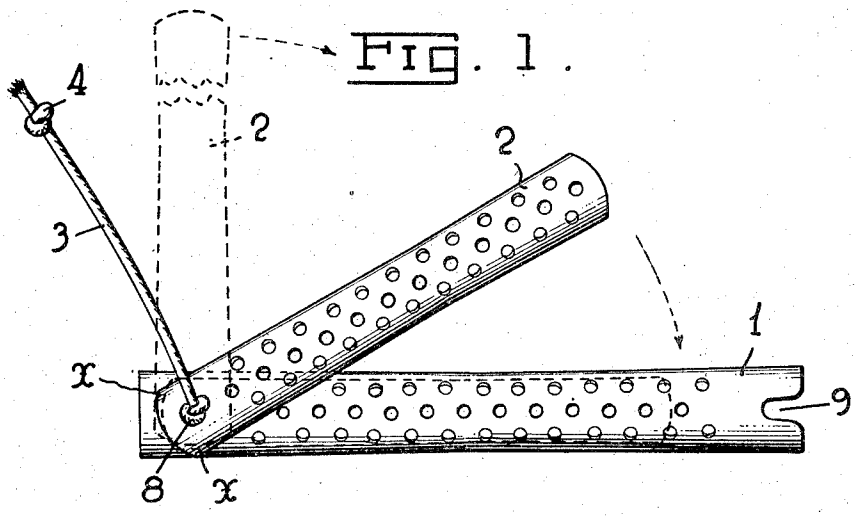



FIG. 2.

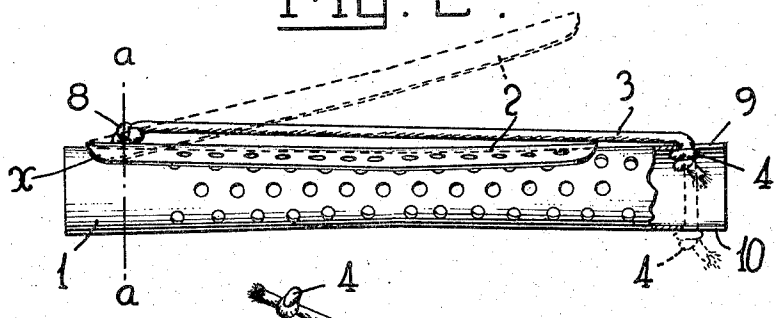



FIG. 3.

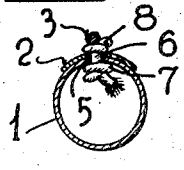
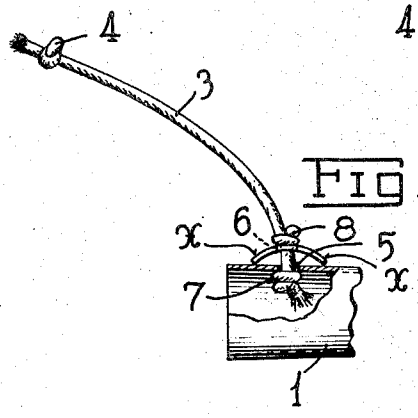



FIG. 4.




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## HAIR CURLER

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6 Claims. (Cl. 132—41)

This invention relates to hair dressing devices and the like; more particularly to hair curlers, and has for its object to provide a device which is efficient in operation, light in weight and consisting of a minimum number of parts which may be readily and quickly assembled, thereby reducing manufacturing costs.

Other objects will be apparent upon further perusal of this specification.

Broadly, my invention contemplates a mandrel, a clamp for securing the end of a lock or wisp of hair on the mandrel and retaining means for holding the hair and curler in place after the hair has been wound on the curler.

My invention will be more readily understood by referring to the accompanying drawing, in which:

Figure 1 is a plan view showing the parts separated with another position of the clamp shown in dotted lines;

Figure 2 is a side elevation showing the parts closed and in operative position, the hair being omitted;

Figure 3 is a section on line *a*—*a* of Figure 2 and;

Figure 4 is detail view showing the clamp at substantially right angles to the mandrel, broken away.

Referring to the drawing, 1 designates a mandrel which is preferably hollow. This mandrel may be made of any suitable light sheet material, preferably metal, such as aluminum. While the mandrel may be cylindrical in shape, I prefer to make it larger at the ends with a gradual decrease in diameter from either end toward the center, to readily accommodate and center the hair on the mandrel. Secured to the mandrel 1 is a clamp 2 which is arcuate in transverse cross-section and is also arcuate in longitudinal cross-section to conform to the shape of the mandrel as shown in Figure 2.

The clamp 2 may be secured to the mandrel in any suitable manner, within the broad scope of my invention, but I prefer to secure the clamp and mandrel together by means of the hair retainer 3. This hair retainer preferably may consist of a strand of flexible cord which is elastic and extensible. The cord may be of any suitable thickness and may be provided at its outer end with an enlargement, which I prefer to make by means of knotting the cord as at 4.

Near one of their respective ends, the mandrel 1 and the clamp 2 may be provided with aligning openings, 5 and 6, and the parts are secured together by passing the elastic cord or retainer 3 through these aligned openings and providing the cord with protuberances or enlargements, 7 and 8. The protuberances 7 and 8 may be formed by knotting the cord as shown. The protuberance 7 may be located on the inside of the mandrel below the opening 5, while the protuberance 8 may be located on the upper side of the clamp 2 above the opening 6. The cord or retainer 3 being elastic, the portion between the knots 7 and 8 serves in the nature of a spring hinge, pivot or the like and tends to return the parts from the position shown in full lines in Figure 1 to the position shown in Figure 2 in full lines. It will readily be seen that as the clamp 2 is moved laterally to an open position, as shown in Figure 1, the elastic cord between the knots 7 and 8 is slightly stretched or placed under tension, which is due to the curved parts *x* of the clamp 2 riding over the curved mandrel. As the clamp 2 is swung laterally, by virtue of its shape and the shape of the mandrel, the clamp is slightly raised at its hinged end above the mandrel, thus stretching the cord. If the clamp is released when in the position shown in full lines in Figure 2, the elastic cord will return the clamp to normal position shown in Figure 2. When the clamp is moved to a substantially right angled position, as shown in dotted lines in Figure 1, both of the parts *x*—*x* will rest upon the highest points of the mandrel or at a "dead center" position so that the elastic hinge cannot return the clamp to closed position but the clamp remains in open position. As soon as the clamp is moved beyond "dead center" the spring hinge immediately returns the clamp to closed position.

The free end of the mandrel may be formed with aligned notches 9 and 10 for the reception of the free end of the elastic cord or hair retainer 3. After the winding action is completed and it is desired to retain the hair on the curler and the curler in position on the head of the user, the free end of retainer is pulled outwardly and inserted in notch 9 or 10 as desired, the knot 4 being larger than the width of the slots 9 and 10 holds the free end of the cord in operative position. If a tighter fit is desired the elastic may be stretched further so that it enters the lower notch and is held there by knot 4, as shown in dotted lines in Figure 2.

To permit air circulation through the curler or ventilation for the hair, the clamp and the mandrel may be perforated as shown in Figure 1. Such perforations also tend to lighten the parts.

In the operation of the device, the improved hair curler is first separated as shown in Figure 1 by disengaging the knot 4 from the slot 9 or 10, as the case may be, and swinging the clamp 2

laterally and at right angles to the plane of the knots 7 and 8. If desired, the free end of the clamp 2 may be first lifted off the mandrel, as shown in dotted lines in Figure 2, and then swung laterally. This action places tension on the elastic hinge as before described. The end of the lock or wisp of hair is then placed on the mandrel 1 and the clamp 2 permitted to spring back to its normal position as shown in Figure 2, thereby clamping the end of the hair on the mandrel 1. The lock or wisp of hair is then wound on the mandrel and clamp and the hair may be retained in its wound position on the mandrel by inserting the free end of the cord 3 in one of the notches 9 or 10 of the mandrel, so that the knot 4 is below the desired notch. The lock of hair will then be held wound on the mandrel by means of the elastic and extensible hair retainer 3 and at the same time the curler is held on the head of the user.

Having thus described my invention what I claim is:

1. A hair curler, comprising three parts, a mandrel, a clamp and a retaining means, the clamp and the mandrel being resiliently secured together by the retaining means passing through the clamp and a portion of the mandrel near one of their ends, said retaining means adapted to engage the other end of the mandrel.

2. A hair curler, comprising a mandrel, a clamp for clamping the hair on the mandrel, a resilient and extensible hair retaining means having one end passing through aligned opening in the clamp and mandrel, means for securing the retaining means in position, whereby the retaining means will serve as a spring hinge between the mandrel and the clamp and means for securing the hair retaining means at the other end of the mandrel.

3. A hair curler, comprising a mandrel having an opening near one end, a clamp for clamping hair on the mandrel, also having an opening near one end in alignment with the opening in the mandrel, an elastic and extensible hair retaining means having one end passing through the aligned openings of the mandrel and clamp, means for securing one end of the elastic hair retaining means in position in the openings and to permit the elastic retaining means to serve as a spring hinge between the clamp and mandrel and means at the other end of the mandrel for engaging the free end of the hair retaining means.

4. A hair curler comprising a mandrel with its ends of greater diameter than its intermediate portion, a clamp for clamping hair on the mandrel, said clamp being arcuate in cross-section and shaped longitudinally to conform to the contour of the mandrel, both the clamp and the mandrel having aligned openings near one end, and elastic and extensible hair retaining means having one end passing through the aligned opening in the mandrel and clamp, an enlargement at the end of the retaining means, said enlargement being disposed below the opening in the mandrel, a second enlargement on the hair retainer disposed above the opening in the clamp, the portion of the hair retaining means between the two enlargements permitting relative lateral movement between the clamp and the mandrel with said hair retainer serving as a spring hinge between the clamp and mandrel.

5. A hair curler comprising a mandrel, provided with an opening near one end, a clamp on the mandrel for clamping the hair between it and the mandrel and provided with an opening for alignment with the opening in the mandrel, a flexible and elastic hair retainer inserted through the aligned openings and provided with an enlargement in engagement with the mandrel adjacent its opening, a second enlargement on the hair retainer above the opening in the clamp and in engagement with the clamp adjacent said opening, the portion of the hair retainer between the enlargements hingedly connecting the clamp and mandrel together, the mandrel and the clamp being so shaped that upon lateral relative movement of the clamp and mandrel, their hinged ends will tend to separate and thereby place that portion of the hair retainer between the enlargements under tension for returning the clamp to normal position on the mandrel.

6. A hair curler comprising three parts, a mandrel, a clamp and an elastic retaining means, the retaining means being formed of a single cord-like strand and having one end passing through the clamp and a portion of the mandrel near one of their ends, the elastic retaining means having enlargements on either side of the clamp and mandrel one enlargement being adjacent the clamp and the other enlargement being adjacent the mandrel to prevent its withdrawal and to serve as a resilient and spring-like connection between the clamp and mandrel.

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