Sept. 10, 1940. H. BERNSTEIN 2,214,318

EYELASH CURLER

Filed Jan. 12, 1940

Fig. 1.

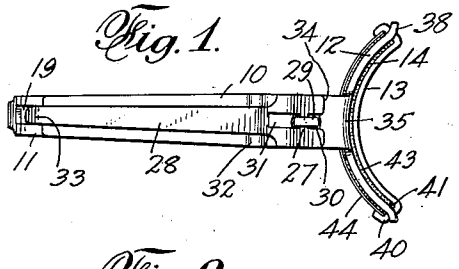


Fig. 2.

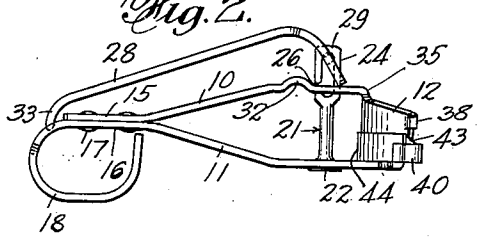


Fig. 3.

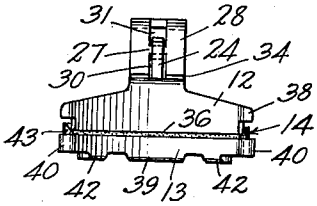


Fig. 4.

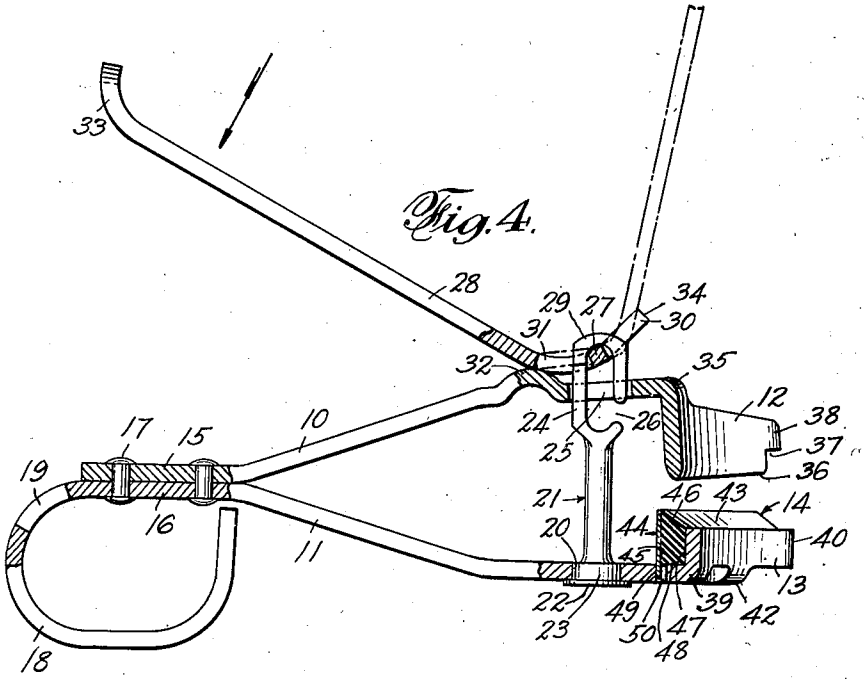
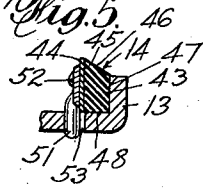


Fig. 5.



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EYELASH CURLER

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23 Claims. (Cl. 132—32)

This invention relates to eyelash curlers.

In such curlers, a comparatively bulky system of linkage and guides have heretofore been used for operating the arcuate curling jaws. Such mechanism is subject to considerable wear and frequently does not permit the user to exert sufficient pressure on the jaws to perform the curling operation effectively. Furthermore, the rubber member used in one of the jaws changes in time in shape and length and otherwise deteriorates and needs to be replaced, but the operation of replacement is frequently beyond the skill of the user.

My invention therefore contemplates among other things, the provision of a simple and efficient curler adapted to be economically produced from sheet metal and to be locked into compact form when not in use, while designed to be readily unlocked when it is to be used, and when so unlocked, being fully under the control of the user to exert heavy or light pressure over a wide range on the eyelash.

My invention further contemplates the provision of arcuate cooperating members each integrally formed at the free end of a spring arm and movable away from each other in a substantially straight line path under the spring action of the arms without the necessity for linkage, pivots, guides or other mechanism, said members being movable toward each other in a substantially straight line path by force exerted directly thereupon by a hand lever whereby not only is the curling pressure accurately controlled but connecting linkage and other operating means subjected to substantial wear, are eliminated.

My invention further contemplates the provision of simple means for so supporting the rubber member that it may quickly and easily be removed and replaced by unskilled persons and without the necessity for the use of channels or equivalent devices which have the tendency to bend the hairs abruptly and frequently cause them to break.

My invention further contemplates the provision of a yieldable member permanently secured to a spring metal member and arcuately shaped and pre-formed thereby into the proper shape for mounting on its support.

My invention further contemplates the provision of a suitably shaped rubber member in such curlers, having a bevelled curling surface arranged at an angle other than a right angle to the sides of the member and higher at the front than at the back thereof whereby the curling action is quickly initiated by said surface and the curling operation more quickly and easily completed.

The various objects of the invention will be clear from the description which follows and from the drawing, in which,

Fig. 1 is a top plan view of my improved curler as it appears in its locked or inoperative position.

Fig. 2 is a side elevation of the same.

Fig. 3 is a rear or end elevation of the same.

Fig. 4 is a vertical section of the same as it appears unlocked and the lever arranged in position for operation of the curling members.

Fig. 5 is a vertical section of a modified form of the yieldable member.

In the practical embodiment of my invention which I have shown by way of example, a pair of sheet metal spring arms 10 and 11 each preferably though not necessarily of a single piece of material are provided, the arm 10 carrying the rigid curling member 12 at its front end, and the arm 11 carrying the support 13 for the resilient and yieldable cooperating curling member 14. Said arms are provided with diverging portions, spaced apart at their rear end parts sufficiently to maintain the adjacent edges of the members 12 and 14 in substantial spaced relation and thereby to permit the easy insertion of the eyelash between said members when the curler is unlocked ready for operation.

The front end portion 15 of the arm 10 is bent at an obtuse angle to the remainder of said arm and is suitably and permanently secured (as by means of the rivets or the like 17) to the adjacent similarly bent portion 16 of the arm 11 in face to face relation thereto. The finger loop 18 is integral with the portion 16 and extends therefrom and is bent thereunder, being intended for the reception of the thumb tip of the user. A suitable slot as 19 is formed in the upper part of the finger loop for the purpose later to be described, while that part of the loop extending past the slot is reduced to a narrow width.

Carried by the arm 11 at the perforation 20 thereof is the pin 21 formed with an enlarged head 22, a short cylindrical part 23 fitted into the perforation and an elongated shank terminating in the flattened loop 24 passing through the preferably circular opening 25 of the arm 10. Said loop 24 is cut away as at 26 to permit the cross bar 27 of the operating lever 28 to be inserted into the loop and to be normally held in engagement with the upper end part 29 thereof under the spring action of the arms 10 and 11, which tend to spread apart or open up and thereby constitute flat springs. Said cross bar 27 is arranged between and separates the slots 30 and 31. The slot 30 extends forwardly from the rear edge of the lever 28, being arranged midway between the side edges of said lever, while the slot 31 is similarly arranged between said side edges but forwardly of the cross bar. One side arm of the loop 24 therefore lies in the slot 30 and the other in the slot 31.

An upwardly projecting cam or hump 32 is integrally formed in the arm 10 just forwardly of the opening 25 and is arranged to engage the convex rear end portion of the lever 28 when said lever has first been rotated into the position of Fig. 4 and is then swung in the direction of the arrow of said figure about the cross bar 27 as a pivot. Preferably the lever is so swung by inserting the thumb of the hand in the loop, resting one or more fingers on the lever, and pressing the thumb and fingers together against the spring action of the arms 10 and 11. The cross bar 27 is thereby raised, the loop 24 drawn upwardly through the opening 25 and the arms 10 and 11 as well as the members 12 and 14 carried thereby forced toward each other to perform the curling operation.

It will be understood that while I have hereinbefore referred to the arms 10 and 11 as spring arms, one of said arms may if desired be made comparatively rigid and unyielding as compared to the other. In other words, it is not necessary that both arms become distorted when the members 12 and 13 are moved toward each other, it being sufficient if one of the arms is capable of spring action and consequent movement relatively to the other. In such case, one of the arms is made of comparatively thin spring material and the other made of comparatively thick and rigid material, it being substantially immaterial which arm is the spring arm.

Normally, the parts are in the positions shown in Figs. 1, 2, and 3 in which the lever 28 has been rotated into an upside down position relatively to that shown in Fig. 4, and the bent front end 33 thereof has been inserted into and locked in the slot 19 of the arm 10. In this position, the members 12 and 14 are closed together, the rear end edge 34 of the lever 28 being sufficiently below the top 29 of the loop 24 to have forced the arms 10 and 11 together by the pressure of said end 34 upon that part of the arm 10 to the right of the cross bar 27 or by the upward pull of the cross bar upon the pin 21.

To move the lever from the position of Fig. 4 to that of Figs. 1, 2 and 3, the end 33 of the lever is rotated in a horizontal plane as viewed in Fig. 4 until it is arranged on the right hand side of the loop 24 as shown by the dash-dot lines of Fig. 4, the cross bar 27 during such swinging movement causing the loop 24 and the pin 21 to rotate about the axis of the pin through an angle of 180°. The end 33 is then swung in a vertical plane to the left and downwardly about the bar 27 as a pivot into its locked position, the convex rear part of the lever acting as a crank to exert upward force upon the pin 21 and downward force on the arm 10 and thereby to move the pin and the arm 11 upwardly relatively to the arm 10. Owing to the tendency of the arms 10 and 11 to move apart, an upward force is exerted upon the end 34 of the lever tending to rotate it in a counter-clockwise direction about the bar 27 and thereby holding the end 33 down in the slot 19.

The curler in this position is locked to occupy little space for carrying about as in a handbag or to be put away until it is ready for use. To unlock the parts for operation, the above described movements are reversed. That is, the lever end 33 is raised out of the slot 19, then swung in a vertical plane to the dash-dot line position thereof shown in Fig. 4, permitting the arms 10 and 11 to spread apart under the spring action thereof and the pin 21 to be lowered relatively to the arm 10, whereafter the lever end 33 is swung in a horizontal plane to the full-line position of the lever in Fig. 4 simultaneously rotating the pin 21 through an angle of 180° with the members 12 and 14 ready for the reception of the eyelash, and the lever ready for the depression thereof to force the curling members together.

The upper curling member 12 is preferably formed integrally with the arm 10 being joined to the rear end of said arm by the substantially right angle bend 35 and being of sufficient width, greater than that of the arm 10, to properly engage the entire eyelash of the user. Said member is made arcuate or curved for that purpose as is customary. Its lower edge 36 is rounded to obtain the desired curling action without danger of cutting or breaking the eyelash hairs. The edge 36 may be notched at its ends as at 37 to make said edge of the same length between notches as the length of the member 14, while the material 38 of the member 12 above the notch is preferably bent forwardly to better fit the eye and to provide rounded end portions on said member.

The lower or support member 13 is of substantially lesser height than that of the member 12, but is similarly made of corresponding arcuate or curved form being joined to the arm 11 by the bend 39. Each of the free end portions 40 of the member 13 is bent forwardly and then parallel to the main portion of said member to form a bottomless groove as 41 at each end of the member for the reception of the respective ends of the yieldable member 14. (Fig. 1). That part of the arm 11 just in front of the member 13 and the bend 39 serves as the bottom support for said member 14. If desired, additional integral bottom supports may be provided by the spaced lugs 42 extending forwardly and integrally from the lower edge of the member 13 and at substantially right angles thereto.

An important feature of the present invention is the removable and replaceable yieldable member 14 which eliminates the necessity for the use of channels or their equivalents in either of the curling members.

Said member 14 comprises the elongated rubber member 43 and a metallic spring backing plate 44 which is initially bent slightly into a generally arcuate shape and permanently secured as by suitable adhesive to the front wall 45 of said member 43. The initial curvature of the plate is preferably less than that of the member 13, that is on a curve of greater radius. Since the manner of so securing rubber to metal is well known, no further description thereof is deemed necessary. It will be noted that the top surface 46 of the rubber member 43 is bevelled or in other words, arranged at angles other than right angles to the front wall 45 and the parallel back wall 47 of the member 43, and that the bottom wall 48 is preferably at right angles to the walls 45 and 47. Due to the inclination of the top wall, the eyelash hairs are given an initial upward inclination as the curling members are brought together and even before any pressure is applied thereto. Consequently, no sharp or abrupt bends or crimps are formed in the hairs and no cutting or breaking thereof is possible.

The curling member 14 is readily arranged on its support 13 by merely placing the bottom wall on the horizontal part 42 with the end of said member including the ends of plate 44 in the respective grooves 41 and the rear wall 47 in con-

tact with the front wall of the member 13. The spring plate 44 being bent into its final arcuate shape to correspond with the arcuate shape of the member 13 when the ends of the member 14 are inserted into the grooves 41, the tendency of the plate and of the rubber member 43 to straighten out serves to maintain the entire member 14 in position on its support. However, the member 14 may be additionally held on its support if desired, by means of the integral lugs 49 extending downwardly from the plate and inserted into suitable spaced perforations 50 in the arm portion. Preferably, the rear wall 47 of the rubber member is of the same height as the member 13 and does not project thereabove when the member 14 is in place, but the plate 44 is higher to provide the bevelled surface 46.

As shown in Fig. 5, separate pins as 51 may be secured to the front face of the plate 44, as by rivets 52, said pins entering the spaced perforations 53.

When the edge 36 of the curling member 12 is forced down on to the top wall 46 of the rubber member, the eyelash hairs are curled, the time of curling being hastened on greater pressure applied by forcing said edge 36 into the rubber member to the desired extent. Such pressure merely distorts the rubber member, stretching the front upper part thereof and compressing the remainder. Should the member 14 become worn or cut, or should it otherwise deteriorate, it is easily lifted out of the grooves 41, the lugs 49 or 51 being at the same time removed from the perforations 50. A new member 14 is then readily inserted into said grooves by unskilled persons, the plate 44 thereof being of material aid for that purpose because of its smoothness and because it slides easily along the metal surfaces of the walls of the grooves. The entire member 14 is easily handled in its pre-formed shape imparted thereto by the spring plate and can easily be bent into its final form against the spring action of the plate, and maintained in that form by said plate after the plate has been inserted into the grooves 41.

It will thus be seen that I have provided a simple curler well designed for the purposes for which it is intended and to meet the requirements of practical use.

While I have shown and described certain specific embodiments of my invention, I do not wish to be understood as limiting myself thereto, since I intend to claim my invention as broadly as may be permitted by the state of the prior art and the scope of the appended claims.

I claim:

1. In an eyelash curler, a pair of diverging arms fixedly secured together at the adjacent ends thereof against any relative movement of said ends in any direction and each carrying an arcuate member at the other free end thereof, at least one of said arms being a flat spring and normally arranged with its arcuate member in spaced relation to the arcuate member of the other arm, and means including a lever arranged on one side of one arm and reversible end for end and upside down for moving said members and arms toward each other.

2. In an eyelash curler, a pair of diverging arms each having a free end, means securing the other ends of said arms together, at least one of said arms being of bendable spring material, an arcuate curling member bent from the free end of one arm and extending therefrom in one direction, an arcuate support bent and extending from the free end of the other arm in the other direction, a yieldable curling member carried by the support, and means carried by said arms for bending the bendable arm and thereby pressing said curling members together.

3. In an eyelash curler, a pair of diverging arms, at least one of said arms being resilient and bendable, means securing corresponding ends of said arms together, and arcuate curling members at the other ends of said arms, said members being movable into operative relation on the bending of the bendable arm, and movable means revoluble into a locked inoperative position for relatively moving said arms and members.

4. In an eyelash curler, a yieldable curling member comprising a rubber member and a metallic arcuate plate permanently secured to a face of the rubber member and imparting an arcuate shape thereto, said member and plate being laterally deformable as a unit, and said member being yieldable transversely independently of the plate.

5. In an eyelash curler, a curling member preformed into an arcuate shape and ocmprising an elongated rubber member, and a thin resilient spring adhesively secured to a face of the rubber member and having an initial arcuate shape, said member and spring being bendable as a unit out of said initial arcuate shape into an arcuate shape of different curvature.

6. In an eyelash curler, a yieldable curling member comprising a solid, imperforate strip of rubber of substantially rectangular cross-section and a spring having an initial arcuate shape secured to a face of the strip and substantially coextensive therewith, said spring imparting an arcuate shape to the strip, and said spring and strip being bendable as a unit.

7. A yieldable curling unit for an eyelash curler comprising a pair of strips adhesively secured together in face to face relation, one of said strips being of rubber and the other being a metal spring, said unit being bendable into an arcuate shape to fit an arcuate holding jaw and assuming its initial shape when removed from the jaw.

8. A yieldable curling member for an eyelash curler comprising a rubber strip having a bevelled operative surface and a backing spring adhesively secured to a face of the strip.

9. A yieldable curling member for an eyelash curler comprising a rubber strip having a bevelled operative surface and having a thin, resilient metallic spring secured to another surface of the rubber strip and bendable as a unit therewith against the action of the spring.

10. A yieldable curling member for an eyelash curler comprising a rubber strip and a bendable spring secured to the strip, said spring having means to detachably hold the member to a support.

11. A yieldable curling member for an eyelash curler including a plate spring, holding lugs on the spring, and a solid rubber strip adhesively secured to a face of the spring.

12. In an eyelash curler, a sheet metal arm, a sheet metal spring extending longitudinally of the arm, means securing the end of the arm to the corresponding end of the spring, an arcuate member inturned from the other end of the arm and the spring, one of said members having the end portions thereof bent toward each other to form lugs laterally spaced from the remainder of the member, and a yieldable curling member

including a spring having its ends removably held by said lugs.

13. In an eyelash curler, a pair of diverging arms each free at one end and each secured at its other end to the other arm, a curling member at the free end of one arm, a support for a yieldable curling member at the free end of the other arm, said support having a bent extension at each end thereof providing a pair of spaced end grooves therein, and a yieldable resilient member removably carried by the support, said resilient member including a spring, the ends of the spring being removably inserted into said end grooves.

14. In an eyelash curler, a pair of cooperating arcuate curling members, one of said members being rigid and the other comprising a rigid arcuate support provided with spaced end grooves and a yieldable member extending between and having its ends removably inserted into said grooves, said yieldable member including a rubber strip backed by a metal spring secured to a face of the strip, means for pressing the curling members together including a pair of arms each carrying one of said members and at least one of the arms being a spring, a pin extending transversely through the arms and an operating lever pivotally mounted at an end of the pin and adjacent one arm in position to exert forces in opposite directions on the pin and on the arm adjacent the lever respectively.

15. In an eyelash curler, a pair of diverging arms each free at one end and each secured at its other end to the other arm, at least one of the arms being resilient, a curling member at the free end of each arm, and means for moving said arms toward each other and for pressing said members together comprising a headed pin having a shank passing through said arms and terminating in a loop adjacent one of the arms, a lever having a cross bar pivotally mounted in said loop and having a curved operating portion adapted to engage the arm adjacent the loop on the pivotal movement of the lever about the cross bar whereby the pin and the other arm is pulled in one direction by the lever and said adjacent arm is pressed in the other direction.

16. In an eyelash curler, a pair of arms each carrying a curling member at one end and secured to the other arm at the other end thereof, one of said arms having a cam projection thereon intermediate its ends, a pin passing through perforations in said arms and having means thereon for supporting a lever, and a lever pivoted to said means and having an operating portion movable into engagement with the cam projection.

17. In an eyelash curler, an elongated, wide, thin arm spring of sheet metal terminating in an arcuate curling member, an elongated wide, thin sheet metal arm terminating in an arcuate support for a curling member, rivets securing the end of the arm remote from the curling member to the corresponding end of the arm spring in face to face relation, inwardly turned end lugs on the support, bottom lugs on the support, a removable curling member on the support comprising an elongated rubber strip backed by a thin sheet metal backing spring on a face thereof, said backing spring and strip being bent out of their normal shapes to fit said support and being removably held by said end and bottom lugs, and means for bending the arm spring to carry said fixed curling members of the arm spring against the strip, part of said strip yielding relatively to the backing spring during the curling operation.

18. In an eyelash curler, an elongated, wide, thin arm spring of sheet metal terminating in an arcuate curling member, an elongated wide, thin sheet metal arm terminating in an arcuate support for a curling member, rivets securing the end of the arm remote from the curling member to the corresponding end of the arm spring in face to face relation, inwardly turned end lugs on the support, bottom lugs on the support, a removable curling member on the support comprising an elongated rubber strip backed by a thin sheet metal backing spring on a face thereof, said backing spring and strip being bent out of their normal shapes to fit said support and being removably held by said end and bottom lugs, and means for bending the arm spring to carry said fixed curling members of the arm spring against the strip, part of said strip yielding relatively to the backing spring during the curling operation, said bending means comprising a pin having a head engaging the outer face of the arm, a shank passing through an opening in the arm and through an opening in the arm spring and terminating in a loop, a lever having a cross bar passing through the loop and rotatable in a plane about the cross bar as a pivot and also rotatable about the axis of the pin with the pin as a unit to reverse the lever end for end and also to turn the lever upside down, and a bent operating portion on the lever adjacent the arm spring.

19. An eyelash curler comprising a spring of comparatively wide and thin sheet metal terminating at its free end in an integral arcuate curling member, an arm of comparatively wide and thin sheet metal terminating at its free end in a cooperating integral arcuate curling member and means permanently and relatively immovably securing together the other ends of the spring and the arm in face to face contacting relation.

20. A curling unit for an eyelash curler yieldable in the direction of its thickness and also yieldable in the direction of its width comprising a thin and comparatively wide metallic spring arcuately bent into partly cylindrical form and having a perdetermined normal radius of curvature, a rubber strip having one of its faces secured by adhesive to a wide face of the spring and held thereto solely by said adhesive, said spring imparting its curvature to the strip and said unit being adapted to be bent out of its normal curvature and inserted into an arcuate holding jaw of different curvature in an eyelash curler.

21. An eyelash curler comprising a pair of flat springs having their corresponding ends fixedly secured in face to face relation at one end of the curler, an arcuate eyelash curling member at the other end of each spring, and means for bending said springs toward each other.

22. An eyelash curling unit for insertion and removal from an eyelash curler comprising a rubber strip and a spring adhesively secured together.

23. An eyelash curling unit for insertion and removal from an eyelash curler comprising a rubber strip and a spring forming a backing for a face of the strip and adhesively secured thereto.

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