

April 29, 1941.

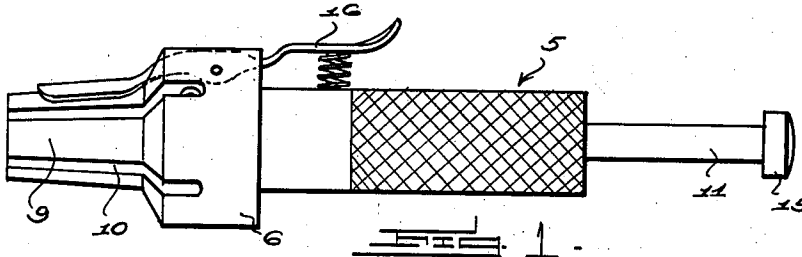
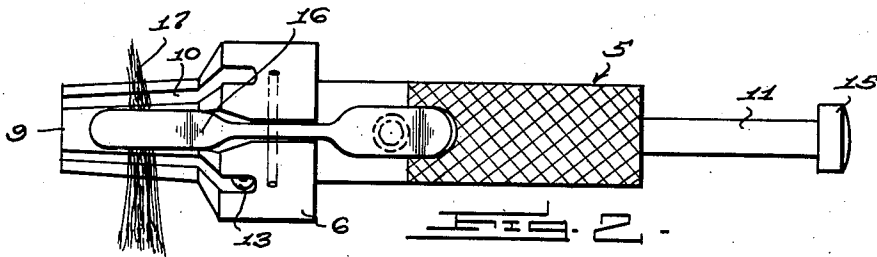
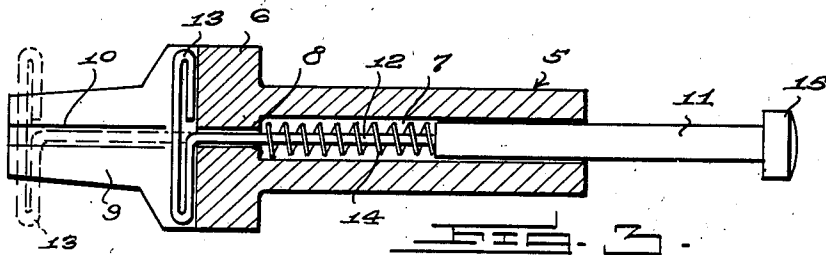
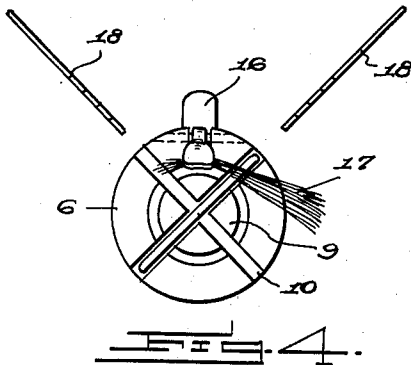
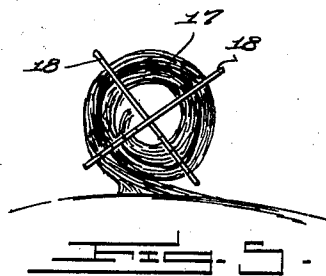
E. W. CARPER

2,240,241

HAIR CURLER

Filed June 10, 1939

2 Sheets-Sheet 1



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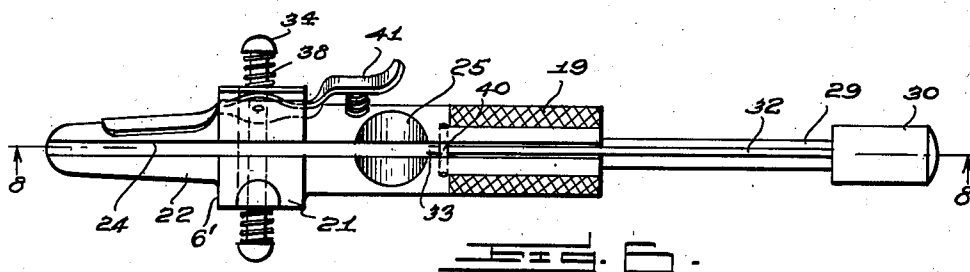
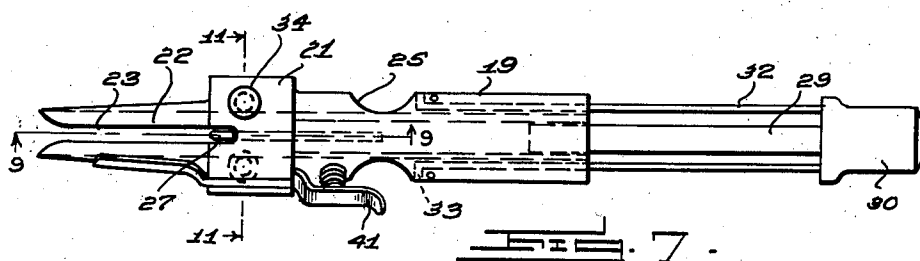
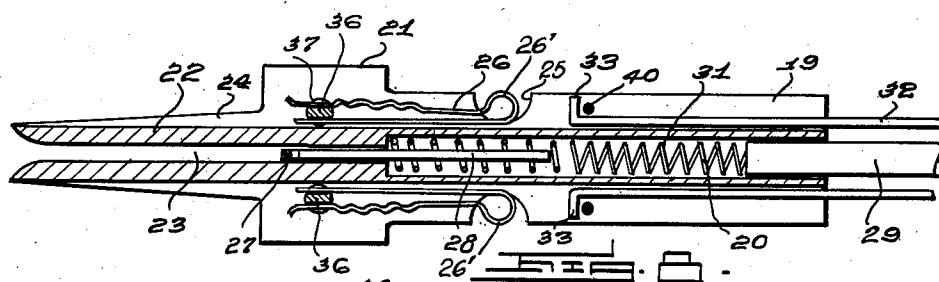
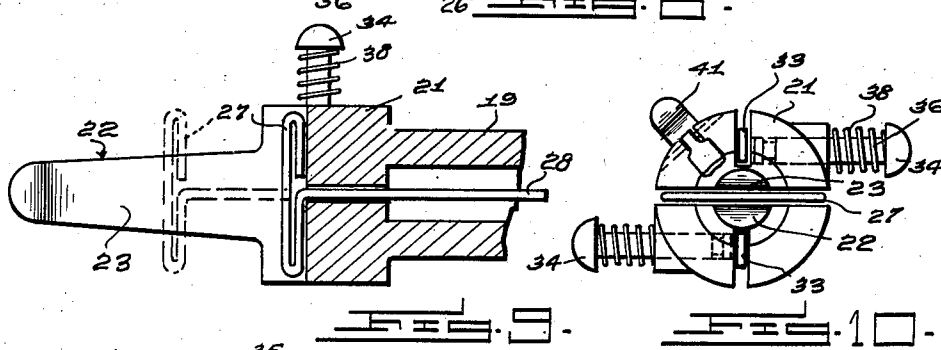
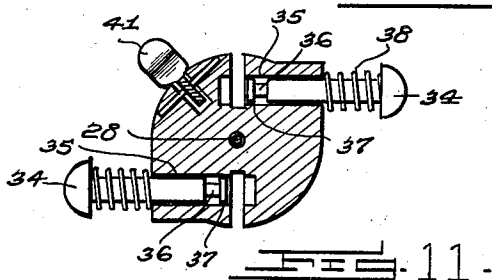
E. W. CARPER

2,240,241

HAIR CURLER

Filed June 10, 1939

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,240,241

HAIR CURLER

Earl W. Carper, Parkersburg, W. Va., assignor of twelve per cent to D. F. Zirkle, twelve per cent to Warren Shouldis, twelve per cent to J. C. Shouldis, twelve per cent to Charles Beard, and twelve per cent to Paul C. Stalnaker, all of Parkersburg, W. Va.

Application June 10, 1939, Serial No. 278,535

5 Claims. (Cl. 132—33)

This invention relates to hair curlers and more particularly to a device which is especially adapted for use by beauty parlor operators and also may be successfully employed by anyone for personal use due to its simple construction and mode of operation and will permit hair to be readily formed into curls of the ring type and of the roll type with the curls all of uniform size and with the ends of the hair disposed innermost of the curls and which eliminates the unsatisfactory practice of forming the curls on the finger.

Another object of the invention is the provision of a device of this character which will permit pinning of the hair in curl form just after the forming of the curl and prior to its removal from the device, the device including means for ejecting the curl in a pinned condition and with the pins so arranged that they will not become accidentally displaced from the curl and will remain in place during normal movement of the wearer thereby assuring setting of the hair so that when the pins are manually removed the curl remains formed for a maximum length of time.

With these and other objects in view, the invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawings, in which

Figure 1 is a side elevation illustrating a hair curler constructed in accordance with my invention.

Figure 2 is a top plan view illustrating the same and showing a fragmentary portion of a lock of hair gripped by the device.

Figure 3 is a vertical sectional view illustrating the device.

Figure 4 is an end view illustrating the device with hair pins positioned ready for inserting in the device for pinning the hair into curl form.

Figure 5 is a view showing the hair after being curled and pinned through the use of the present invention.

Figure 6 is a side elevation illustrating a modified form of my invention.

Figure 7 is a bottom plan view illustrating the same.

Figure 8 is a sectional view taken on the line 8—8 of Figure 6.

Figure 9 is a fragmentary sectional view taken on the line 9—9 of Figure 7.

Figure 10 is an end view showing the modified form of my invention.

Figure 11 is a transverse sectional view taken on the line 11—11 of Figure 7.

Referring in detail to the drawings, the numeral 5 indicates a cylindrical handle having a knurled portion so that the handle may be readily gripped without danger of slipping and said handle is provided at one end with an enlargement or head 6. The handle is provided with a bore 7 opening outwardly through the free end of the handle and extending through the head 6 in a restricted size so as to form an internal shoulder 8 within the handle.

Forming an integral part of the head 6 and arranged in alignment with the handle is a reduced mandrel 9 of substantially conical shape and having a taper extending from the head 6 to the free end thereof and is provided with slots 10 arranged at right angles to each other and communicating with each other centrally of the mandrel. The front face of the head 6 forms a shoulder 6' around the rear end of the mandrel 9 preventing hair from being wound past said end of the mandrel. The slots 10 open outwardly through the free end of the mandrel and extend well into the head 6 to establish communication with the bore 7.

A plunger 11 is slidably mounted in the bore of the handle and has fastened to one end a rod 12 which extends through the restricted portion of the bore into the slots and is bent to form an ejector cross-head 13. The cross-head 13 and the handle and rod coact in forming an ejector, the cross-head being operative in one of said slots and being constructed and arranged to extend laterally out of said slot at opposite sides of the mandrel 9 to remove hair therefrom. A coil spring 14 is mounted on the rod 12 between the plunger 11 and the shoulder 8 acting to urge the ejector cross-head 13 against the head 6 or in a retracted position. The outer end of the plunger 11 is equipped with a finger piece 15.

A spring influenced clamp 16 is pivotally mounted on the head 6 and normally has a gripping action with the mandrel 9 and may be manually moved to be free of said mandrel so that a lock of hair, as indicated by the character 17, may be placed thereunder on the mandrel and on the release of said clamp the latter grips the lock of hair on the mandrel between certain of the slots.

In operation, a lock of hair is applied onto the mandrel and gripped by the clamp 16 and with

the device held in one hand the lock of hair is then wound about the mandrel and after the completion of the winding operation, hair pins indicated by the character 18 are inserted through the slots 13 pinning the lock of hair in a curl of the ring type. Pressure is then placed on the finger piece 15 causing the ejector cross-head 13 to slide toward the free end of the mandrel bringing about removal of the curled hair from the mandrel along with the hair pins so that the lock of hair after leaving the mandrel will be in the form of a ring type curl pinned against displacement, as shown in Figure 5. As soon as pressure is relieved on the finger piece 15 the spring 14 restores the plunger 11 and ejector cross-head 13 to their normal positions whence another lock of hair may be curled on the device in the manner heretofore described.

By referring to Figure 5 it will be seen that the ends of the hair are disposed innermost of the curl which is essential in order to obtain a ring curl of the proper formation.

Through a slight rearrangement or modification of the device described a lock of hair may be formed into a curl of the roll type. This modification of the invention is clearly shown in Figures 6 to 11, inclusive, and consists of a handle 19 having a shape similar to the handle 5 and equipped with a bore 29. The handle 19 is also provided with a head 21 in which the bore 20 extends in a restricted form. A mandrel 22 is formed integrally with the head 21 and arranged in alignment with the handle 19 and is provided with a slot 23 opening outwardly through opposite sides thereof and the free end of said mandrel which extends well into the head 21 to connect with the bore 20 and for the purpose set forth with reference to the previously described form of the invention. The mandrel 22 is further provided with grooves 24 arranged opposite to each other and at right angles to the slot 23. The grooves 24 extend through the head 21 and into the handle 19, the latter being provided with notches 25 for the purpose of permitting hair pins of the "Bobbie" type and as indicated by the character 26 to be inserted in the depressions of the grooves 24 where said grooves are formed in the handle and the head 21.

An ejector cross-head 27 operates in the slot 23 and is formed on a rod 28 extending into the bore of the handle. Slidable in the bore 29 is a plunger 29 equipped with a finger piece 30. A coil spring 31 is located in the bore 20 and acts on the plunger 29 to urge the same to the right of Figure 8. Ejector rods 32 are carried by the finger piece 30 and extend into the grooves 24 and terminate in right angularly disposed ends 33 adapted to engage with the hair pins 26 on the actuation of the plunger, that is, when the plunger is moved in the direction of the head 21.

Spring pressed pins 34 are slidably mounted in the head 21, sockets 35 being provided in the head 21 for the accommodation of said pins 34 and which intersect and extend across the grooves 24. The inner ends of the pins 34 are provided with grooves 36 of annular formation forming at the free inner ends of said pins enlargements or heads 37. Coil springs 38 act on the pins 34 to move the grooves 36 thereof out of registration with the grooves 24. However, the pins may be moved inwardly manually to align the grooves 36 with the grooves 24 so that when the hair pins 26 are positioned in the grooves 24 they may straddle the pins 34 within the grooves, as clear-

ly shown in Figure 8, and when said pins 34 are released they retain the hair pins 26 in the grooves 24 for sliding movement under the influence of the plunger 29 through the rods 32.

Stop pins 40 are carried by the handle within the grooves 24 to limit the sliding movement of the rods 32 in one direction and the movement of the plunger 29 entirely out of the bore 20 of the handle.

A clamp 41 similar in construction to the clamp 16 is pivotally mounted on the head 21 to grip a lock of hair on the mandrel 22 in a manner similar to the gripping of the hair on the mandrel 10 by the clamp 16.

In the operation of the modification of the invention, "Bobbie" hair pins 26 are first inserted in the grooves 24 between the ends 33 of ejector rods 32 and the pins 34 and with the usual enlarged end loops 25' of the pins 26 rearmost. As will be understood, in the type of "Bobbie" pins utilized the end loops 25' joining the legs of the pin form eyelet-like terminals thereon of a requisite size for loosely and partially surrounding the pins 34. The pins 34 are next shoved inwardly to align the grooves 36 thereof with the grooves 24 and the hair pins 26 then shoved forwardly until the legs thereof straddle the pins 34 within the grooves 35 as best shown in Figure 8. In this position of the hair pins 26, the legs thereof and the pins 34 are interlocked for relative sliding and said legs bear against one side wall of the grooves 24 and block outward movement of the pins 34 under the urge of the springs 38. The resiliency of the hair pins 26 provides for the legs thereof slidably gripping the pins 34. A lock of hair is next wound around the mandrel 22 and secured in position by the clamp 41, and the plunger 29 moved inwardly relative to the handle 19, thereby forcing the ejector rods 32 forwardly along the grooves 24 under which operation the ends 33 of said rods abut the loops 26' of said hair pins 26 and slide the same forwardly on the pins 34 and along the grooves 24 into the wound lock of hair until the loops 26' are in surrounding relation to the pins 34. At this point, the pins 34 are freed from the legs of the pins 26 for endwise movement outwardly under the urge of the springs 38 clear of the grooves 24. The hair pins 26 are now set in the lock of wound hair and freed from the pins 34. After the plunger 29 has moved a distance inwardly of the handle to bring about the described setting of the hair pins in the wound hair on the mandrel the plunger 29 engages the rod 28 and causes the ejector cross-head 27 to travel in the slot 23 and remove from the mandrel the wound hair with the pins therein. As the wound hair passes from the mandrel it is in a rolled form being held in this form by the hair pins 26 gripping the runs of the wound hair. The pins thus applied to the hair will not become readily displaced permitting normal movements of the wearer without danger of dislodging the pins, consequently retaining the curled hair in curl form as long as it is necessary for the proper setting thereof.

It is believed that the foregoing description when taken in connection with the drawings will fully set forth the construction and advantages of this invention to those skilled in the art to which such a device relates, so that further detailed description will not be required.

What I claim is:

1. A hair curler comprising a substantially conical mandrel for curling hair wound thereon, an enlarged rear end head of cylindrical form on

said mandrel arranged axially thereof and having a front face forming a shoulder around said mandrel for preventing winding of the hair past said end thereof, a cylindrical handle extending axially from the rear of said head, said mandrel and head having a longitudinal diametrical slot therein forming a guideway extending at its inner end into said head, an ejector for removing the wound hair forwardly off said mandrel comprising a plunger slidable in said head and handle for endwise advance and retraction axially thereof, a cross-head on the front end of said plunger for advance and retraction in said guideway under operation of the plunger, said cross-head being constructed and arranged to extend laterally out of said guideway at opposite sides of the mandrel to remove the hair therefrom, said cross-head fitting into the inner end of said guideway and into said head when fully retracted to locate the same in the rear of said mandrel and thereby prevent tangling of the hair on the mandrel therewith, and means to releasably clamp the hair to said mandrel.

2. A hair curler comprising a substantially conical mandrel for curling hair wound thereon, an enlarged rear end head of cylindrical form on said mandrel arranged axially thereof and having a front face forming a shoulder around said mandrel for preventing winding of the hair past said end thereof, a cylindrical handle extending axially from the rear of said head, said mandrel and head having a longitudinal diametrical slot therein forming a guideway extending at its inner end into said head, an ejector for removing the wound hair forwardly off said mandrel comprising a plunger slidable in the head and handle for endwise advance and retraction axially thereof, a cross-head on the front end of said plunger for advance and retraction in said guideway under operation of the plunger, said cross-head being constructed and arranged to extend laterally out of said guideway at opposite sides of said mandrel to remove the hair therefrom, said cross-head fitting in the inner end of said guideway and into said head when fully retracted to locate the same in the rear of said mandrel and thereby prevent tangling of the hair on the mandrel therewith, and means to releasably clamp the hair to said mandrel, said mandrel being longitudinally slotted diametrically at a right angle to the plane of the guideway for the insertion of hair pins therethrough and through the hair on the mandrel in advance of the cross-head to be removed by the latter with the hair.

3. A hair curler comprising a substantially conical mandrel for curling hair wound thereon, an enlarged rear end head of cylindrical form on said mandrel arranged axially thereof and having a front face forming a shoulder around said mandrel for preventing winding of the hair past said rear end, said mandrel having a longitudinal diametrical slot forming a guideway therein, a cylindrical handle extending axially from the rear of said head, a pair of guide grooves extending longitudinally in said mandrel, head and handle upon diametrically opposite sides thereof for accommodating therein, legs foremost, a pair of hair pins having enlarged rounded rear ends, means to feed said hair pins forwardly into the wound hair comprising a pair of pusher rods endwise slidable in said guide grooves for advance and retraction, means to retain the hair

pins in said guide grooves during feeding thereof comprising a pair of spring tensioned plunger pins mounted in said head for advance and retraction into and out of said guide grooves, respectively, and having grooved ends slidably interlocking with the legs of the hair pins under advance thereof and retractable out of the heads of the hair pins, an ejector slidably mounted in said head for advance and retraction in said guideway, and means to advance said rods and ejector including a plunger slidable mounted in said handle.

4. A hair curler comprising a substantially conical mandrel for curling hair wound thereon, an enlarged rear end head of cylindrical form on said mandrel arranged axially thereof and having a front face forming a shoulder around said mandrel for preventing winding of the hair past said rear end, said mandrel having a longitudinal diametrical slot forming a guideway therein, a cylindrical handle extending axially from the rear of said head, a pair of guide grooves extending longitudinally in said mandrel, head and handle upon diametrically opposite sides thereof for accommodating therein, legs foremost, a pair of hair pins having enlarged rounded rear ends, means to feed said hair pins forwardly into the wound hair comprising a pair of pusher rods endwise slidable in said guide grooves for advance and retraction, means to retain the hair pins in said guide grooves during feeding thereof comprising a pair of spring tensioned plunger pins mounted in said head for advance and retraction into and out of said guide grooves, respectively, and having grooved ends slidably interlocking with the legs of said hair pins under advance thereof and retractable out of the heads of the hair pins, an ejector slidably mounted in said head for advance and retraction in said guideway, and means to advance said pusher rods and subsequently to advance said ejector.

5. A hair curler comprising a substantially conical mandrel for curling hair wound thereon, an enlarged rear end head of cylindrical form on said mandrel arranged axially thereof and having a front face forming a shoulder around said mandrel for preventing winding of the hair past said rear end, said mandrel having a longitudinal diametrical slot forming a guideway therein, a cylindrical handle extending axially from the rear of said head, a pair of guide grooves extending longitudinally in said mandrel, head and handle upon diametrically opposite sides thereof for accommodating therein, legs foremost, a pair of hair pins having enlarged rounded rear ends, means to feed said hair pins forwardly into the wound hair comprising a pair of pusher rods endwise slidable in said guide grooves for advance and retraction, means to retain the hair pins in said guide grooves during feeding thereof comprising a pair of spring tensioned plunger pins mounted in said head for advance and retraction into and out of said guide grooves, respectively, and having grooved ends slidably interlocking with the legs of said hair pins under advance thereof and retractable out of the heads of the hair pins, and means to advance said rods including a plunger slidable mounted in said handle.

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