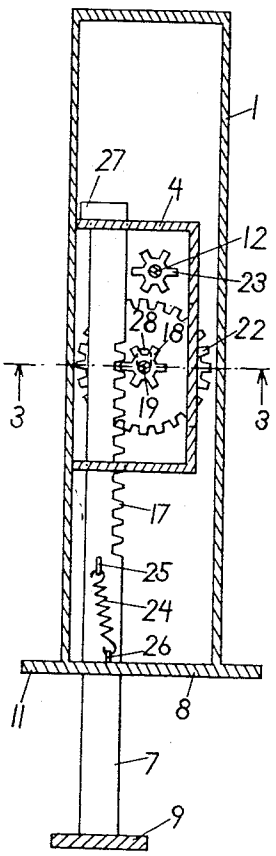
Dec. 2, 1952 F. L. GIORDANO 2,619,971

HAIR CURLER

Filed Oct. 14, 1950

Fig. 2



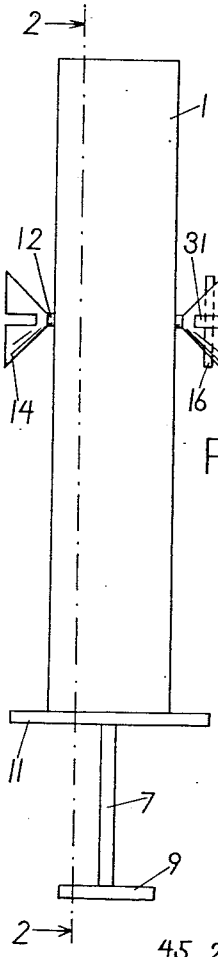


Fig. 1

Fig. 4

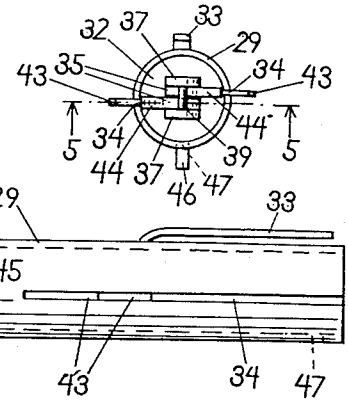


Fig. 6

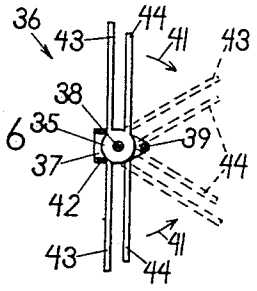
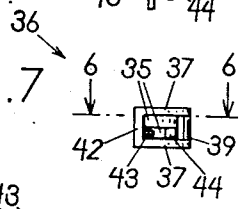


Fig. 7



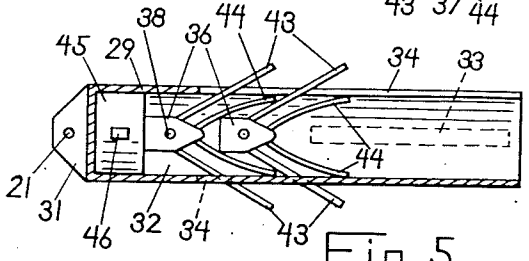
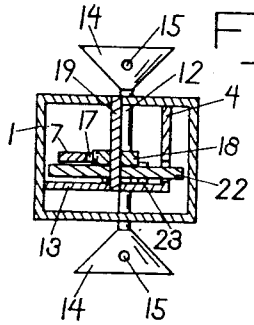


Fig. 5

Fig. 3



Inventor:
FRANCIS L. GIORDANO

By Maurice J. Block

Attorney

Patented Dec. 2, 1952

2,619,971

UNITED STATES PATENT OFFICE

2,619,971

HAIR CURLER

Francis L. Giordano, Brooklyn, N. Y.

Application October 14, 1950, Serial No. 190,164

6 Claims. (Cl. 132—34)

1

My invention relates to hair curlers and some of its objects are to make the curling operation easier, quicker and more accurate.

Other objects are to provide a hair curler that can be conveniently held and operated in a position where the curling core rotates about an axis substantially perpendicular to the scalp of the person whose hair is being curled, to operate the rotation of the curling core by a movement substantially parallel to the surface of this scalp, and thereby to make the formation of curls adjacent to this surface more convenient and accurate.

Further objects are to provide a hair curler with a shaft having two opposite ends, each of which can be co-axially connected with the curling core, thereby to provide optional use of either shaft end, thereby to make possible the rotation of the core in either of the two opposite turning directions, and to hold and operate the curler in each of these two cases in substantially the same convenient and efficient manner.

Still other objects are to secure the curled condition of the hair before the curl is removed from the core by means present in the hair curler, thereby to avoid the picking up of hair pins while the curl is not finally secured, thereby to avoid damage to the shape of the formed curl, and to accelerate the formation of one curl and of a series of curls.

Still further objects are to facilitate the removal of the curls from the curling core in secured condition and in the correct position of the curls parallel to the head surface, to increase the radial tension of the secured curls, and thereby to make well shaped curls.

Still other objects are to attain these results with simple and inexpensive means, and to provide a hair curler that can be easily assembled and handled and that operates reliably.

Still other objects and advantages will appear from the following description of an exemplifying embodiment of my invention, from the appended claims and from the accompanying drawing in which:

Fig. 1 shows a side view of an illustrative embodiment of my invention at a somewhat increased scale.

Fig. 2 shows a cross-section taken along the line 2—2 in Fig. 1.

Fig. 3 shows a cross-section taken along the line 3—3 in Fig 2, the curling core being omitted.

Fig. 4 shows a view of the curling core and of its accessories, seen from the right side in Fig. 1.

2

Fig. 5 shows a bottom view of the curling core and of its accessories, the curling core being represented in cross-section taken along the line 5—5 in Fig. 4.

Fig. 6 shows a cross-section of a member which is one of the accessories shown in Figs. 4 and 5, said cross-section being seen in the same direction as Fig. 5 and being taken along the line 6—6 in Fig. 7, the mutual position of parts of this member being different from that shown in Figs. 1, 4 and 5.

Fig. 7 shows a bottom view of the member shown in Fig. 6.

Referring to the drawing, numeral 1 indicates a frame or housing of elongated shape. A smaller frame 4 may be positioned in and affixed to the frame 1. These frames support a mechanism which comprises a rack or toothed rod 7 passing slidably through a slot in an end wall 8 of the frame 1 and through similar slots of the frame 4. The outer end of the rod 7 is provided with a button 9. The wall 8 has a projecting rim 11 whereby the rack 7 can be pushed inwardly by compressing the button 9 and the rim 11 between fingers of one hand.

A shaft 12 passes rotatably through the housing 1 and through a wall 13 of the frame 4 in a direction crossing the longitudinal direction of the housing 1 and of the rod 7. Both outer ends of the shaft 12 are adapted for co-axial connection with a curling core that will be described later. For example, a slotted cone 14 is affixed to each of these shaft ends and is provided with a bore 15 for the passage of a connecting pin 16.

The housing 1 contains a gear or driving mechanism adapted to establish a driving connection between the rack 7 and the shaft 12. This mechanism, for example, may have the following structure:

The rack 7 has a row of teeth 17 engaging a pinion 18 affixed to a shaft 19 which passes rotatably through a wall of the housing 1 and through the parallel wall 13 of the frame 4. A toothed wheel 22 is affixed to the same shaft 19. The wheel 22 can engage another pinion 23 which is affixed to the shaft 12.

Preferably the wheel 22 engages the pinion 23 only when the rack 7 is pushed inwardly. A spring 24 has an end attached to a hook-shaped projection 25 of the rack and has another end attached to a hook-shaped projection 26 of the wall 8. The tension of the spring 24 pulls the rack into the shown position in which a projection 27 of the inner rack end contacts the frame 4 and stops further contraction of the spring.

When the rack is pushed inwardly against the tension of the spring 24, the teeth 17 move the pinion 18 together with the shaft 19 and the wheel 22 toward the pinion 23 until the wheel 22 and the pinion 23 engage each other. Further movement of the rack in the same direction rotates the pinion 18, the wheel 22 and the pinion 23. When the pressure on the bottom 9 which was used for pushing the rack ceases, the spring moves the rack back into the shown position, disengaging the wheel 22 from the pinion 23.

During this operation, the shaft 19 moves guidedly in a short slot 28 of the wall 13 and in a similar parallel slot of the housing 1 between the ends of these slots.

A curling core 29 of generally cylindrical shape is co-axially affixed to the shaft 12. Preferably this element is adapted for optional attachment to either one of the two shaft ends. Hence the element may be rotated by the rack 7 either in clockwise direction, seen from its free end, or in counter-clockwise direction.

The core 29 may be affixed or coupled to the shaft 12 by means of a flat plate 31 which forms an axial projection of this element and fits the slot of either cone 14. The plate 31 has a crossing bore 21 which, in coupled position, forms a continuation of the bores 15 of the cone 14. The pin 16 passes through the bores 15 and 21 and thereby secures the plate 31 to the cone 14. By withdrawal of the pin 16, the element 29 may be detached from one shaft end whereupon the element may be attached to the other shaft end.

The core 29 is hollow and its cylindrical inner space 32 extends as far as the free end of the core. This free end is open. The core is provided with clamping means for the attachment of a strand of hair. For example, a resilient arm 33 has one end affixed to the outside of the core 29 and extends in the longitudinal direction of the core toward another end positioned near the open end of the core whereby the arm 33 together with the core forms a clamp adapted for gripping a strand of hair and for releasing this strand when the latter is withdrawn beyond the free end of the core.

The core 29 has two longitudinal slots 34 which extend from the open end, are longer than the arm 33 and are preferably positioned diametrically opposite to each other. Each of these slots serves for the passage of one leg of a hair pin 35, the remaining part of which is positioned in the core and is slidably guided therein in axial direction of the core. Preferably there are two pins 35 with heads which are rotatably connected. These pins may be parts of a member 36 which has two side plates 37 connected by a pivot axle 38 passing through bores of the two pins 35. A little bar 39 connects the plates 37 and is so positioned that the bar forms a stop for the mutual rotation of the pins whereby the latter are prevented from approaching each other more than shown in dotted lines in Fig. 6 when the pins are turned in the direction of the arrows 41. Other stops 42 may connect the plates 37 at the other side of the pins and may prevent rotation in the opposite direction beyond the position shown in full lines in Fig. 6.

Each pin 35 has two resilient legs or prongs 43 and 44. The leg 43 has a thickness smaller or at least not larger than the width of the slot 34, measured in axial direction of the axle 38, whereby this leg can pass through and slide along this slot. The leg 44 is thicker, measured in the same direction, and cannot pass through this slot. The leg 44 may be slightly shorter than the leg 43.

A plurality of members 36 is preferably used. These members are arranged in a row extending in the longitudinal direction of the core. For example, Fig. 5 shows two members 36, one positioned before the other, seen from the open end of the core. The legs 43 of each member, when inserted in the core as shown in Fig. 5, extend through the slots 34 beyond the lateral surface of the core in obliquely spreading directions. The legs 44 spread in the same directions, but are confined within the core because of their larger thickness. These legs contact the inner side of the core's wall and are slightly bent toward each other by the resistance of this wall. The inserted members 36 can be pushed along and out of the core while their legs 44 slide along the wall of the core.

In order to facilitate this pushing operation, a pushing member 45 is positioned slidably within the core. The member 45 may have a cylindrical shape and a projection 46 reaching through a longitudinal slot 47 of the core which slot ends at a short distance from the core's open end.

The above described hair curler operates as follows:

After one or several members 36 are inserted in the core 29 as shown in Fig. 5, a strand of hair is clamped under the arm 33. The curler is preferably held in a position where the longitudinal direction of the curling core is perpendicular to the surface of the scalp. Then, the core is rotated by pressing the button 9 whereby a curl is wound closely around the core. Then, the pushing member 45 is moved toward the open end of the core until the first member 36 emerges from the core. During this movement, the tips of the legs 43 move outside of the formed curl, and the tips of the legs 44 move inside of the same whereby the emerging pins 35 grip the curl from two sides and hold the curl in wound condition. After the first member 36 has been so applied to a curl, this member is straightened by turning its pins into the position shown in Fig. 6 in full lines.

Then, the remaining members 36 and the member 45 are pushed back from the open core end, and the curl forming and securing operation is repeated with the next member 36 being active. In this manner a series of curls may be made accurately and uniformly in quick succession.

I desire it understood that my invention is not confined to the particular embodiment shown and described, the same being merely illustrative, and that my invention may be carried out in other ways within the scope of the appended claims without departing from the spirit of my invention, as it is obvious that the particular embodiment shown and described is only one of the many that may be employed to attain the objects of my invention.

Having described the nature of my invention, what I claim and desire to protect by Letters Patent is:

1. A hair curler comprising a hollow elongated curling core having an open end and two longitudinal slots extending from said end, clamping means affixed to said core for gripping hair releasably, and two hair pins having connected heads positioned in said core, each of said pins having one leg projecting through one of said

slots beyond said core and having another leg confined in said core.

2. A hair curler comprising a hollow elongated curling core having an open end and two longitudinal slots extending from said end, clamping means affixed to said core for gripping hair releasably, a member comprising two hair pins having rotatably connected heads positioned in said core, each of said pins having one leg projecting through one of said slots beyond said core and having another leg, thicker than said first leg and than the width of said slot whereby said latter leg is confined in said core, and a stop affixed to said member and limiting the mutual rotation of said two pins toward each other to an angle where the thicker legs of the two pins are sufficiently spaced to contact said core.

3. A hair curler comprising a hollow elongated curling core having an open end and two longitudinal slots extending from said end, clamping means affixed to said core for gripping hair releasably, a member comprising two hairpins having rotatably connected heads positioned in said core, each of said pins having one leg projecting through one of said slots beyond said core and having another leg confined in said core, and stops affixed to said member and limiting the mutual rotation of said two pins between one position in which the confined legs of said pins are inclined toward each other and are sufficiently spaced to contact said core and another position in which said pins are spread in opposite directions.

4. A hair curler comprising a hollow elongated curling core having an open end and two longitudinal slots extending from said end, clamping means affixed to said core for gripping hair releasably, and a row of members guided in said core and movable toward and out of said open end, each of said members comprising two hair pins having connected heads, each pin having one leg projecting through one of said slots beyond said core and having another leg confined in said core.

5. A hair curler comprising a hollow elongated curling core having an open end and two longitudinal slots extending from said end, clamping means affixed to said core for gripping hair releasably, and a member guided in said core and movable toward and out of said open end, said member comprising two hair pins having movably connected heads, each pin having one leg projecting through one of said slots beyond said core and having another leg thicker than said first leg and than the width of said slot whereby said latter leg is confined in said core.

6. A hair curler comprising a hollow elongated curling core having an open end and two longitudinal slots extending from said end, and having a third longitudinal slot, clamping means affixed to said core for gripping hair releasably, a pushing member guided in said core slidably in longitudinal direction of said core as far as said open end and having a handle projecting through said third slot, and a pair of hair pins having connected heads positioned in said core farther to said open end than said pushing member, each pin having one leg projecting through one of said first mentioned slots and having another leg confined in said core.

FRANCIS L. GIORDANO.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,589,117	Cotter	June 15, 1926
2,226,351	Spreckels	Dec. 24, 1940
2,276,760	Carbonel	Mar. 17, 1942
2,492,641	Interrante	Dec. 27, 1949

FOREIGN PATENTS

Number	Country	Date
832,470	France	July 4, 1938