Sept. 12, 1933. L. NAPOLITAN 1,926,054

HAIR CURLING DEVICE

Filed March 23, 1932

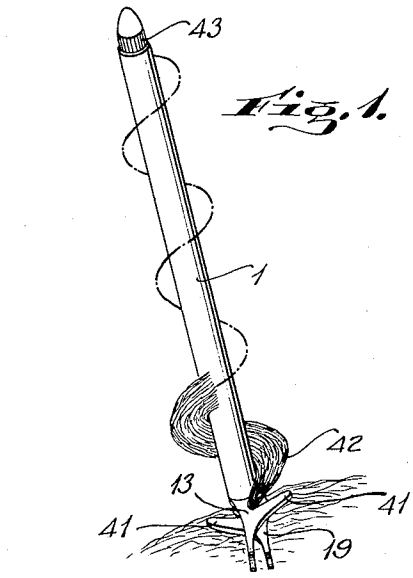


Fig. 1.

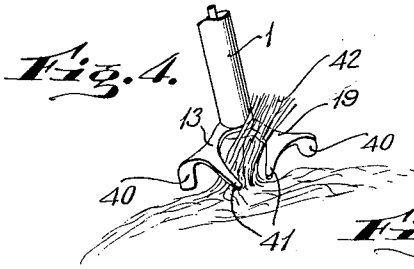


Fig. 4.

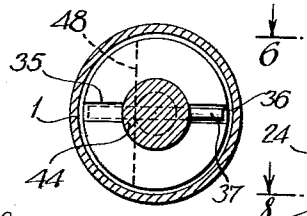


Fig. 5.

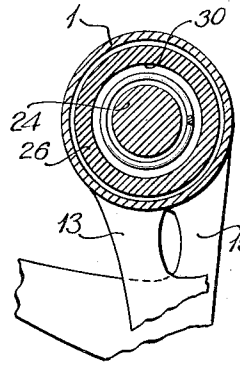


Fig. 6.

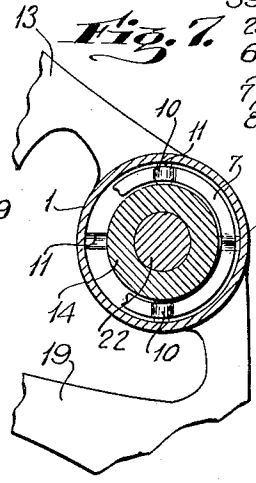


Fig. 7.

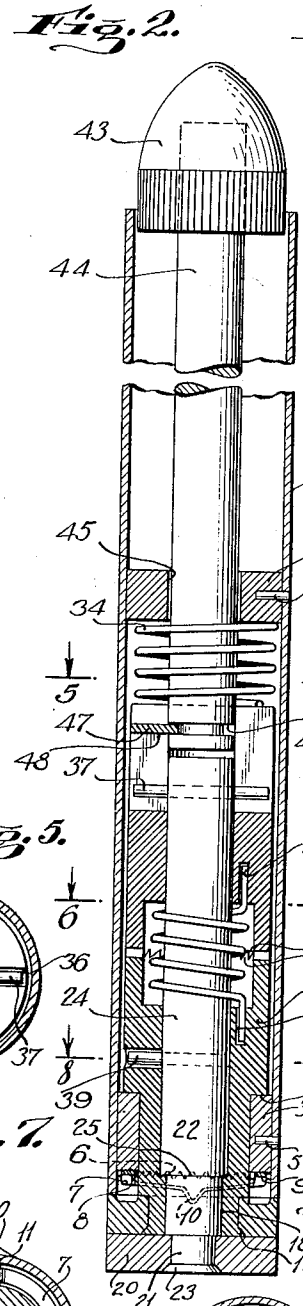


Fig. 2.

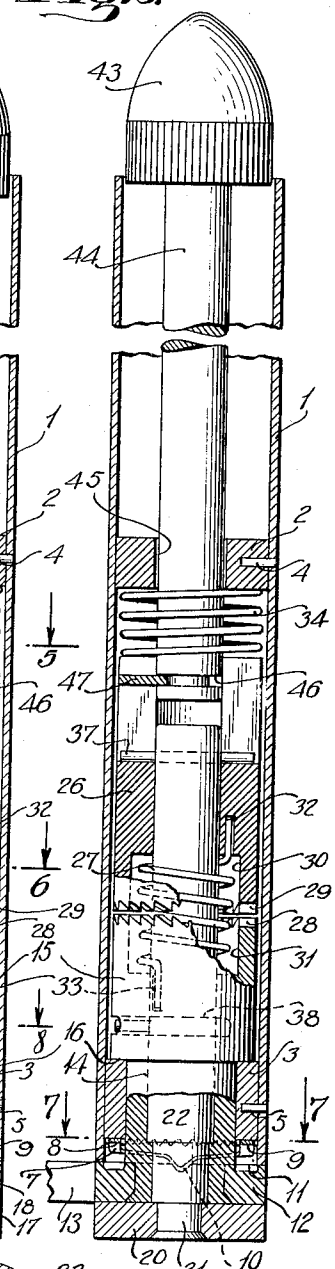


Fig. 3.

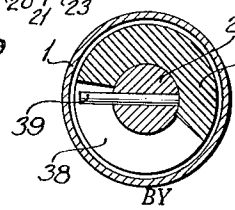


Fig. 8.

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Patented Sept. 12, 1933 1,926,054

UNITED STATES PATENT OFFICE

1,926,054

HAIR CURLING DEVICE

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Application March 23, 1932. Serial No. 600,651

14 Claims. (Cl. 132—33)

This invention relates to hair curling devices in general and more especially to winding devices for use with permanent hair waving machines and the like.

Among the objects of the present invention, it is aimed to provide an improved winding device for use with permanent hair waving machines in general consisting of a curler upon which the hair is wound and positioned preparatory to the treatment to which it may be subjected.

It is still another object of the present invention to provide an improved curler to one end of which the inner end portion of the lock of hair to be curled is attached and upon the main shaft of which such lock of hair may be wound in either direction so that these devices may be used both by a left handed operator as well as a right handed operator.

It is still another object of the present invention to provide an improved curler having a shaft on which the lock of hair to be wound may be wound in either a right handed curl or a left handed curl and having anchoring means which may with facility be operated to both anchor and release the lock of hair to be treated.

These and other features, capabilities and advantages of the invention will appear from the subjoined detail description of one specific embodiment thereof illustrated in the accompanying drawing in which

Figure 1 is a perspective of a device made according to the present invention showing a lock of hair diagrammatically;

Fig. 2 shows a transverse section of the device partly broken away when in hair locking position;

Fig. 3 is a transverse section partly broken away showing the active parts when the anchoring device is being released;

Fig. 4 is a fragmental perspective showing the gripping end of the device ready to receive a lock of hair;

Fig. 5 is a section on the line 5—5 of Fig. 2;

Fig. 6 is a section on the line 6—6 of Fig. 2;

Fig. 7 is a section on the line 7—7 of Fig. 3; and

Fig. 8 is a section on the line 8—8 of Fig. 2.

In the embodiment illustrated, there is provided a cylinder 1 which constitutes the shaft upon which the hair is wound. This cylinder is provided with two collars 2 and 3 which may be secured to the cylinder 1 in any suitable manner, either by being frictionally driven into place or by the pins 4 and 5 illustrated.

The collar 2 is disposed removed from the ends of the cylinder 1. The collar 3 on the other hand is disposed adjacent to the anchoring means for the inner end of the lock of hair to be wound. The outer face of the collar 3 is provided with a plurality of teeth 6 to cooperate with the spring annulus 7 which has two teeth or projections 8 and 9 extending inwardly to cooperate with the teeth 6 and two projections 10 extending in the opposite direction to cooperate with the teeth 11 in the hub 12 of the claw 13.

The hub 12 of the claw 13 is fixed on the diminished end of the inner cylinder 14 which cylinder 14 is rotatably mounted in the collar 3. The inner cylinder 14 has an enlargement 15 which forms a shoulder at 16 to engage the inner end of the collar 3 while the hub 12 engages the outer end of the cylinder 1, it being anchored in place by the upturned portion 17 at the end of the diminished portion 18 of the inner cylinder 14.

The outer claw 19 extends from the hub 20 which is fixed to the diminished portion 21 of the spindle 22 by the upturned portion 23. The spindle 22 has an enlarged portion 24 which has a shoulder at 25 to engage the diminished portion 18 of the cylinder 14 and thus lock the spindle onto the cylinder against displacement. From the foregoing, it will thus be seen that the spindle 22 and its claw 19 are rotatably mounted in the cylinder 14 and its claw 13 and that both these devices in turn are rotatably mounted in the cylinder 1 but locked against slidable displacement.

The spring annulus 7 yieldably anchors the cylinder 14 and its claw 13 against free rotation but permits the cylinder 1 to be rotated relative to the cylinder 14 and its claw 13 when necessary in opposition to the spring annulus 7 for tightening the lock of hair onto the shaft 1 during the winding operation.

The cylinder 14 and claw 13 as one unit and the spindle 22 and claw 19 as the other unit are rotatable relative to one another as aforesaid but may be locked in any position relative to one another, either the closed position illustrated in Fig. 1, the open position illustrated in Fig. 4 or any other position. This position anchoring effect is produced by the cooperation of the auxiliary cylinder 26 with the cylinder 14 and the coil spring 27. The cylinder 14 has an annular row of ratchet teeth 28 on its inner end opposed to the ratchet teeth 29 on the auxiliary cylinder 26 to cooperate with the same and be resiliently maintained in locking engagement by the coil spring 27 which is housed in the chamber formed by the opposing recesses 30 and 31 in the cylinders 26 and 14.

One end of the spring 27 is secured to the auxiliary cylinder in the notch 32 and the other end of the spring 27 is secured to the cylinder 14 by extending into the notch 33 formed in the cylinder 14. The spring 27 will be so fitted in these cylinders that it will exercise a normal annular tension on these cylinders to cause the teeth 28 and 29 to engage one another. The auxiliary cylinder 26 is further yieldably urged toward the cylinder 14 by the tension spring 34 which is tensed between the collar 2 and the end of the cylinder 26 remote from the cylinder 14. From the foregoing, it will be seen that the spring 34 urges the teeth 29 of the cylinder 26 into engagement with the teeth 28 in an axial direction and that the spring 27 urges the teeth 29 and 28 of the opposing cylinders into gripping engagement with one another.

The cylinder 26 is secured to rotate with the spindle 22 but to be axially slidable relative thereto by means of the connection now to be described. The cylinder 26 is provided with the axial slots 35 and 36 to receive the pin 37 extending through the spindle 22. On the other hand, the cylinder 14 is permitted to rotate preferably a limited extent relative to the spindle 22 to define the innermost and outermost positions of the claws 13 and 19 relative to one another. For this purpose a segmental recess 38 is cut extending radially from the spindle 22 in the cylinder 14 to receive the pin 39 extending from the spindle 22.

The claws 13 and 19 are complements of one another as indicated, each having a downwardly extending ear 40, axial to the cylinder 14 and laterally extending fingers 41 radially to the cylinder 1. The ears 40 are provided preferably to permit the operator to actuate the claws 13 and 19 toward one another and the fingers 41 on the other end are provided to grip the lock of hair 42 as indicated in Figs. 1 and 2 between them.

When the claws 13 and 19 are so engaged by the ears 40, if a lock of hair 42 is disposed between the fingers 41, the claws 13 and 19 may be moved toward one another into the closed position indicated in Fig. 1 against the opposition of the coil spring 27 in which operation the opposing ratchet teeth 28 and 29 will ride over one another. When the claws 13 and 19 are then released, they will be locked against accidental opening by the teeth 28 and 29.

In the operation, it is then usual for the operator to turn the lock of hair around the cylinder 1 constituting the curler or winding shaft.

It has been found that very frequently one operator finds it convenient to turn the hair in a left hand direction as against the opposite direction preferred by another operator. This is especially so if the operator is a left handed person. With the present device, the strand of hair may be turned around the device in either direction relative to the shaft 1 since the claws 13 and 19 when once squeezed together into locking position will remain so locked relative to one another irrespective of the turn given to the strand of hair. Frequently, especially when a tight curl is required to be produced, the operator will after the initial winding more tightly twist the strand on the cylinder 1. If the cylinder 1 during this action were fixed relative to the claws 13 and 19, disarrangement of the hairs engaging the shaft 1 would result.

In the present instance, to provide against such disarrangement and the resulting injury to the hair, the cylinder 1 is provided rotatable relative to the claws 13 and 19, the spring annulus 7 alone opposing the rotation of the cylinder 1 relative to the claws 13 and 19. Since the hair must necessarily be tightly gripped during this second twisting action, the spring annulus 7 will yield and permit the cylinder 1 to be rotated with the strand of hair relative to the claws 13 and 19. In this instance, it will be noted that the cylinder 1 may be rotated in either direction relative to the claws 13 and 19.

In order to release the claws 13 and 19 from the strand of hair 42 after the operation is complete, it is only necessary to exercise a pulling action on the knob or button 43. This button extends from the end of the cylinder or shaft 1 remote from the claws 13 and 19 and is formed at the end of a spindle 44 which extends through the shaft 1 and into and through the central opening 45 formed in the collar 2, its inner end being provided with an annular slot or recess 46 to receive the locking key or plate 47 which extends radially to the spindle 44 and is secured in the radially extending slot 48 formed in the auxiliary cylinder 26.

By this connection, it will thus appear that the auxiliary cylinder 26 will be rotatable relative to the spindle 44 and knob 43 but fixed to slide axially with one another.

From the foregoing, it will thus appear that if the knob 43 is pulled after the curling operation has been completed, that it is submitted to a pulling force relative to the shaft 1, it will pull the auxiliary cylinder 26 out with it in opposition to the spring 34 and thus clear the teeth 28 from the teeth 29 to permit the coil spring 27 to expand and open the claws 13 and 19 relative to one another.

It is obvious that various changes and modifications may be made to the details of construction without departing from the general spirit of the invention as set forth in the appended claims.

I claim:

1. The combination with a winding shaft, of a pair of hair engaging claws, means for rotatably securing said claws relative to said winding shaft, means for locking said claws in closed position after gripping a strand of hair, and independent means for releasing said claws.

2. The combination with a winding shaft, of a pair of claws rotatably mounted on said winding shaft, means for locking said claws in closed position after gripping a strand of hair, a spring normally urging said claws into open position, and means for releasing said locking means to permit said spring to open said claws.

3. The combination with a spindle, of a cylinder for receiving said spindle, gripping claws on said spindle and cylinder, a winding shaft receiving said cylinder, means for locking said claws in hair gripping position, said cylinder being free to rotate in either direction in said winding shaft, and a spring for yieldably opposing the rotation of said cylinder in said shaft.

4. The combination with a cylinder, of a gripping claw fixed on said cylinder, a spindle mounted in said cylinder, a second gripping claw fixed to said spindle to permit cooperation of said claws to grip a strand of hair, a winding shaft to receive said cylinder and be rotatable in either direction relative to said cylinder, and a spring for yieldably opposing the rotation of said shaft relative to said cylinder.

5. The combination with a cylinder having a gripping claw formed thereon, of a spindle

mounted in said cylinder also having a gripping claw mounted thereon in position to cooperate with said first gripping claw, a winding shaft for receiving said cylinder, means for normally maintaining said claws in open position, a locking device for anchoring said cylinder and spindle with their gripping claws in closed position, and means for opening said locking device.

6. The combination with a cylinder having a gripping claw formed thereon, of a spindle mounted in said cylinder also having a gripping claw mounted thereon in position to cooperate with said first gripping claw, a winding shaft for receiving said cylinder, a spring for normally maintaining said claws in open position, a locking device for anchoring said cylinder and spindle with their gripping claws in closed position, and means for opening said locking device and thereupon permit said spring again to open said gripping claws.

7. The combination with a cylinder having a gripping claw, of a spindle rotatably mounted in said cylinder and having a gripping claw in operative relation to the gripping claw of said cylinder, a winding shaft for receiving said cylinder, automatic locking means for temporarily locking said cylinder and spindle to act as a unit when said claws are in hair gripping position, and a spring for yieldably opposing the rotation of said winding shaft relative to said cylinder and spindle.

8. The combination with a main cylinder having a gripping claw, of a spindle rotatably mounted in said cylinder and having a gripping claw in operative relation to the gripping claw of said cylinder, a winding shaft for receiving said main cylinder, an auxiliary cylinder slidably mounted on but fixed to rotate with said spindle, ratchet teeth on said auxiliary cylinder, ratchet teeth on said main cylinder, a tension spring for pressing said teeth into locking engagement with one another, a coil spring for urging said ratchet teeth into locking position in one direction but permitting the movement of said ratchet teeth relative to one another in the opposite direction or closing position of the gripping claws, a second spindle rotatable in said auxiliary cylinder but fixed to move axially therewith, and an enlargement at the end of said second spindle projecting from said winding shaft, to be engaged to draw said auxiliary cylinder out of ratchet teeth locking position against the tension of said tension spring to liberate said coil spring to open said gripping claws.

9. The combination with a main cylinder having a gripping claw, of a spindle rotatably mounted in said cylinder and having a gripping claw in operative relation to the gripping claw of said cylinder, a winding shaft for receiving said main cylinder, an auxiliary cylinder slidably mounted on but fixed to rotate with said spindle, ratchet teeth on said auxiliary cylinder, ratchet teeth on said main cylinder, a tension spring for pressing said teeth into locking engagement with one another, a coil spring for urging said ratchet teeth into locking position in one direction but permitting the movement of said ratchet teeth relative to one another in the opposite direction or closing position of the gripping claws, and means for withdrawing said auxiliary cylinder against the tension of said tension spring out of ratchet teeth locking position with said main cylinder to permit said coil spring to open said gripping claws.

10. The combination with a main cylinder having a gripping claw, of a spindle rotatably mounted in said cylinder also having a gripping claw, a winding shaft to receive said main cylinder with both gripping claws extending adjacent to one another and in sliding engagement with the free end of one end of said shaft, means for limiting the rotatable movement of said cylinder relative to said spindle in turn to limit the movement of said claws relative to one another, means for locking said cylinder and spindle relative to one another in closing position of said gripping claws, a spring for normally urging said spindle and cylinder into the open position of said gripping claws, a second spindle operatively connected to said locking means for opening the same in turn to permit said spring to open said claws, and an enlargement on the end of said second spindle extending from the end of said shaft remote from said gripping claws to serve as a handle for the claw opening means.

11. The combination with a winding shaft having an inner and an outer collar formed therein, a main cylinder having a gripping claw rotatably mounted on said outer collar but locked against axial movement, a spindle having a gripping claw rotatably mounted in said main cylinder but locked against axial displacement relative thereto, a spring annulus yieldably opposing the rotation of said main cylinder relative to said shaft, an auxiliary cylinder fixed to rotate with said spindle but slidable relative to said cylinder, ratchet teeth on the opposing faces of said cylinders, and a spring disposed between said inner collar and said auxiliary cylinder for urging the ratchet teeth of the opposing faces of said cylinders into locking engagement with one another.

12. The combination with a winding shaft having an inner and an outer collar formed therein, a main cylinder having a gripping claw rotatably mounted on said outer collar but locked against axial movement, a spindle having a gripping claw rotatably mounted in said main cylinder but locked against axial displacement relative thereto, a spring annulus yieldably opposing the rotation of said main cylinder relative to said shaft, an auxiliary cylinder fixed to rotate with said spindle but slidable relative to said cylinder, ratchet teeth on the opposing faces of said cylinders, a spring disposed between said inner collar and said auxiliary cylinder for urging the ratchet teeth of the opposing faces of said cylinders into engagement with one another, and a coil spring for imparting an annular movement to said cylinders relative to one another for urging the ratchet teeth of their opposing faces into locking engagement with one another.

13. The combination with a winding shaft having an inner and an outer collar formed therein, a main cylinder having a gripping claw rotatably mounted on said outer collar but locked against axial movement, a spindle having a gripping claw rotatably mounted in said main cylinder but locked against axial displacement relative thereto, a spring annulus yieldably opposing the rotation of said main cylinder relative to said shaft, an auxiliary cylinder fixed to rotate with said spindle but slidable relative to said cylinder, ratchet teeth on the opposing faces of said cylinders, a spring disposed between said inner collar and said auxiliary cylinder for urging the ratchet teeth of the opposing faces of said cylinders into engagement with one another, a coil spring for imparting an annular movement to said cylinders rela-

tive to one another for urging the ratchet teeth of their opposing faces into locking engagement with one another, a second spindle rotatable in said auxiliary cylinder but fixed to move axially therewith, and an enlargement at the end of said second spindle projected from said winding shaft to be engaged to draw said auxiliary cylinder out of ratchet teeth locking position against the tension of said tension spring, to liberate said coil spring to open said gripping claws.

14. The combination with a winding shaft having an inner and an outer collar formed therein, a main cylinder having a gripping claw rotatably mounted on said outer collar but locked against axial movement, a spindle having a gripping claw rotatably mounted in said main cylinder but locked against axial displacement relative thereto, a spring annulus yieldably opposing the rotation of said main cylinder relative to said shaft, an auxiliary cylinder fixed to rotate with said spindle but slidable relative to said cylinder, ratchet teeth on the opposing faces of said cylinders, a spring disposed between said inner collar and said auxiliary cylinder for urging the ratchet teeth of the opposing faces of said cylinders into engagement with one another, a coil spring for imparting an annular movement to said cylinders relative to one another for urging the ratchet teeth of their opposing faces into locking engagement with one another, and means for withdrawing said auxiliary cylinder against the tension of said tension spring out of ratchet teeth locking position with said main cylinder to permit said coil spring to open said gripping claws.

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