July 20, 1937. A. MAZZOLA 2,087,521

HAIR CURLING DEVICE

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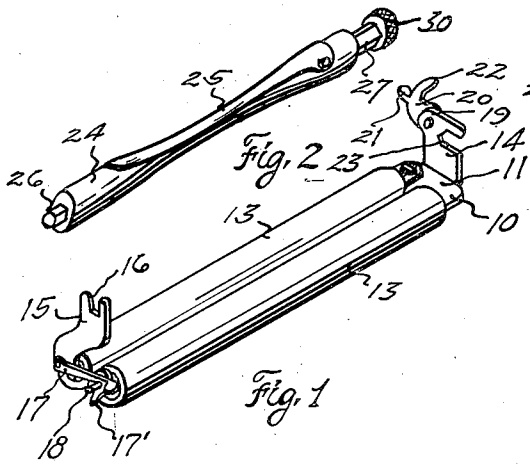


Fig. 2

Fig. 1

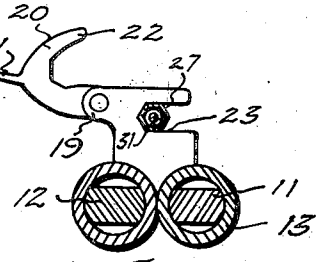


Fig. 4

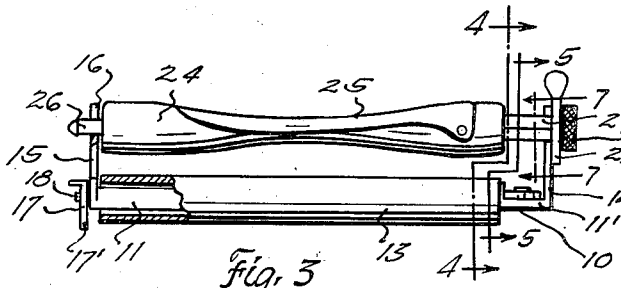


Fig. 3

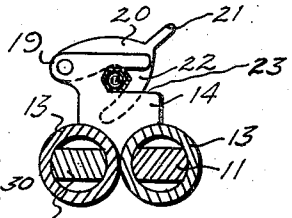


Fig. 5

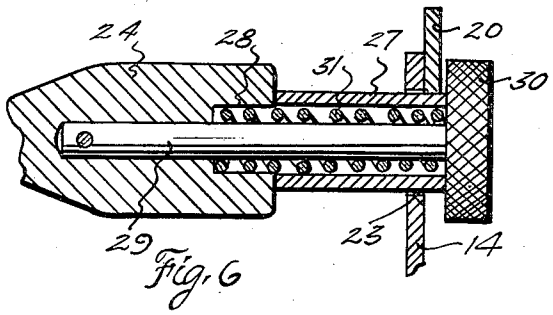


Fig. 6

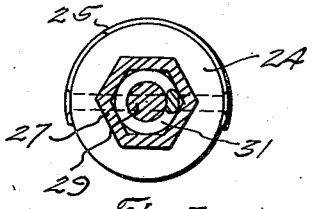


Fig. 7

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## HAIR CURLING DEVICE

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5 Claims. (Cl. 132—33)

This invention relates to new and useful improvements in hair curling devices.

One object of the invention is to provide a hair curling device having improved means for substantially eliminating back lash or backward rotation of the hair-winding roller.

A particular object of the invention is to provide improved means for frictionally holding a hair-winding roller against reverse rotation, whereby the roller may be freely rotated in one direction to wind the hair thereon, but is positively held against unwinding, so that there will be no slippage or loosening of the wound hair.

Another object of the invention is to provide a holding device for the hair-winding roller of a hair curling device, including resilient means arranged to co-act with a stationary member, so that upon imparting a winding movement to the roller and utilizing the torsional movement of said means, the roller may be freely wound, but will be positively held against unwinding, so that when the winding operation is stopped there will be no loss by slippage due to unwinding.

Still another object of the invention is to provide a latch serving to hold its hair-winding roller in its frame and also co-acting with the retaining means to fasten said roller against unwinding.

A construction designed to carry out the invention will be hereinafter described, together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawing, in which an example of the invention is shown, and wherein:

Figure 1 is a perspective view of a hair curling clamp constructed in accordance with the invention, the roller being omitted,

Figure 2 is a perspective view of the hair-winding roller for the clamp shown in Figure 1,

Figure 3 is a side elevation of the complete clamp,

Figure 4 is an enlarged transverse vertical sectional view taken on the line 4—4 of Figure 3 showing the latch open,

Figure 5 is a similar view taken on the line 5—5 of Figure 3,

Figure 6 is an enlarged detailed vertical sectional view of the retaining means, and

Figure 7 is a vertical sectional view taken on the line 7—7 of Figure 3.

In the drawing the numeral 10 designates the frame of a hair curling clamp, such as is commonly used in hair waving devices to produce what is known as a "Croquignole" wave or the like. The frame includes a pair of parallel clamping bars 11 and 12 which are encased in flexible sleeves or jackets 13. The bar 11 has a cross head 11' at one end directed at substantially right angles thereto.

A bracket 14 is bent upwardly from the outer transverse edge of the head. The other bar 12 has one end pivoted to the head and it is obvious that said bar 12 may be swung away from and toward the bar 11 to open and close the clamp. When the clamp is closed, the sleeves intimately engage each other along their entire lengths, whereby strands of hair may be clamped therebetween.

A bracket 15 is bent upwardly from the outer end of the bar 12 and at the opposite end of the clamp to the bracket 14. This bracket 15 is offset, whereby a notch 16 in its upper end is disposed relatively between the sleeves. The bracket 15 is provided with a swinging hook 17 having a downwardly extending bill 17' for engaging a stud or keeper 18 on the adjacent end of the bar 11, whereby the ends of the bars may be hooked together.

The upright bracket 14 is provided with an outwardly directed ear 19 at one side of its upper end. A latch 20 is pivoted on the ear and is formed with a thumb piece 21 and a downwardly extending bill 22. The upper portion of the bracket 14 is provided with a transverse slot 23 which extends inwardly from the side opposite to that on which the ear is located. (Figures 1, 4, and 5).

As is shown in Figures 2 and 3, a hair-winding roller 24 is provided for rotatable mounting in the brackets 14 and 15. This roller has the usual hair keeper 25 hinged thereon for confining the ends of the hairs, previously to winding the hairs on said roller. At one end, the roller has a trunnion 26 for engaging rotatably in the notch 16 of the bracket 15; while on the opposite end of said roller, a sleeve 27, polygonal in cross-section, is rotatably mounted with relation to said roller 24, but with non-rotatable engagement in the slot 23 of the bracket 14, the preferred cross section of said sleeve 27 being hexagonal, as shown more clearly in Figure 7 of the drawing.

The end of the roller 24 on which the sleeve 27 is mounted is provided with a cylindrical central recess or sump 28. An axial stub shaft 29 extends through the recess and is securely fastened in the roller, while the other end extends longitudinally from the roller. A knurled knob 30 is mounted on the outer end of the shaft

29 for rotating the roller. A coiled spring 31 surrounds the shaft intermediate its ends. One end of the spring 31 engages in the recess 28 and the other end bears against the inner face of the knob 30 (Figure 6). Said spring 31 also normally bears circumferentially upon the inner wall faces of said sleeve 27. The latch 20 is shaped to engage the angular outer faces of the sleeve 27 and being pivoted on the outer side of the bracket 14 swings down between the knob 30 and said bracket.

When the parts are assembled the spring 31 is partially wound, so that when placed in the sleeve 27 and recess 28, it will slightly unwind, thereby frictionally engaging the inner wall faces of the sleeve and the cylindrical wall of the recess and at the same time pressing endwise against the bottom of the recess and the inner face of the knob 30. The frictional fastening between the spring and the roller and a like engagement between the spring and the sleeve, causes said spring to be twisted when the knob 30 is rotated in the direction to wind the strands of hair on the roller. This is due to the fact that one portion of the expanded spring is in frictional engagement with the stationary sleeve, while the other portion is frictionally held in the rotating roller.

When the spring is twisted by turning the knob, it is wound and thereby retracted slightly in diameter, which breaks its frictional engagement with the sleeve, thus releasing the roller 24 and permitting it to be freely rotated to wind the strands of hair thereon. However, when the winding is stopped or an attempt is made to reverse the rotation of the roller, the clearances are such that the slight expansion of the coiled spring, due to its torsional movement, will quickly set up the frictional engagement between the spring and the sleeve, thus holding said roller against unwinding or back lash.

In using the hair clamp, the roller 24 is first removed from the frame as is shown in Figure 2. The keeper 25 is swung open and the ends of the strands of hair which are to be curled are placed under said keeper and partially wound around the roller, whereby the keeper is clamped in position. The hair is wound on the roller up to a short distance from the head of the person. The clamping bars 11 and 12 having been spread apart, the clamp may be inserted between the roller and the head of the person. By swinging the bars together the hair will be gripped between the sleeves 13, when the hook 17 is engaged over the stud 18.

The clamp being fastened in position, the roller with the hair wound thereon may then be placed in the frame 10, the trunnion 26 being inserted in the notch 16. When the trunnion is inserted in the notch, the sleeve 27 is swung into the slot 23 and the latch 20 is then swung down to fasten said sleeve in the slot, whereby it is held against rotation. The operator now grasps the knob 30 and rotates the same so as to continue winding the hair on said roller, until all of the slack is taken up. It is obvious that, when the knob is turned to wind the hair on the roller, the coiled spring 31 will be slightly wound, thereby releasing its friction grip within the sleeve. When the knob is released, the torsion of the spring will tend to unwind the same and this will reestablish the friction grip with the sleeve, whereby the roller will be held against unwinding, and consequently there will be no back lash or slippage and the hair will be tightly held.

It is obvious that this holding device is positive in its operation and is not dependent upon teeth or pawls. The spring being entirely enclosed there are no points exposed which might catch or break the hair and the operation of the device will not be affected by the usual wear and tear.

Having illustrated and described a preferred form of the invention, what I claim, is:

1. A hair curling device comprising, a clamp, a hair winding roller rotatably mounted on the clamp, a spring interposed between the end of the roller and the clamp arranged to permit rotation of the roller in the direction to wind hair thereon and to prevent reverse rotation of said roller, whereby the unwinding of the hair on said roller is prevented, and a non-rotatable sleeve surrounding said spring and in endwise abutting relation to said roller, normally, said spring circumferentially engaging the inner wall face of said sleeve.

2. A hair curling device comprising, a hair clamp, a hair winding roller rotatably mounted on the clamp, an axial shaft extension at the end of said roller, a knob on the outer end portion of said shaft extension, a sleeve surrounding the shaft, means for holding the sleeve on the shaft against rotation between the end of said roller and said knob, and a coiled spring interposed between the shaft and the sleeve and frictionally engaging at one end with the roller and at its opposite end with said knob, normally, said spring circumferentially engaging said sleeve.

3. A hair curling device comprising, a clamp, a hair winding roller rotatably mounted on the clamp, and a resilient retaining device interposed between the roller and the clamp comprising a helical spring arranged to be wound and contracted to permit rotation of the roller in one direction to wind hair thereon and to prevent reverse rotation of said roller, whereby the unwinding of the hair on said roller is prevented, an axle extension at the end of said roller and extending through said spring, a knob on said axle extension, and a sleeve interposed between said knob and the end of said roller and surrounding said spring and axle extension, said spring being normally expanded to contact circumferentially with the inner wall face of said sleeve.

4. A hair curling device comprising, a hair clamp, a hair winding roller rotatably mounted on the clamp, means comprising an end axle extension having a knob at its outer end for rotating said roller, and a friction retaining device interposed between said rotating means and the clamp arranged to permit rotation of the roller in one direction to wind hair thereon and to prevent reverse rotation of said roller, whereby the unwinding of the hair on said roller is prevented, said friction retaining device comprising a sleeve surrounding said axle extension and interposed between the knob thereof and the end of said roller, and the helical spring in said sleeve bearing normally at its end against said knob and the end of said roller and also bearing circumferentially against the inner wall face of the sleeve.

5. A hair curling device comprising, a hair clamp, a hair winding roller rotatably mounted on the clamp, said roller having an axial shaft

extension provided with a knob at its outer end, a coiled spring surrounding the shaft extension and having one end engaging the roller and its opposite end bearing against said knob, and a non-rotatably mounted sleeve of polygonal cross section engaging the clamp, said spring arranged to normally bear circumferentially on the inner wall base of the sleeve whereby to permit rotation of the roller in one direction and to prevent its rotation in the opposite direction.

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