March 24, 1936. G. E. NICHOLSON ET AL 2,034,729

HAIR CURLING APPARATUS

Filed April 20, 1934 3 Sheets-Sheet 1

FIG. 1.

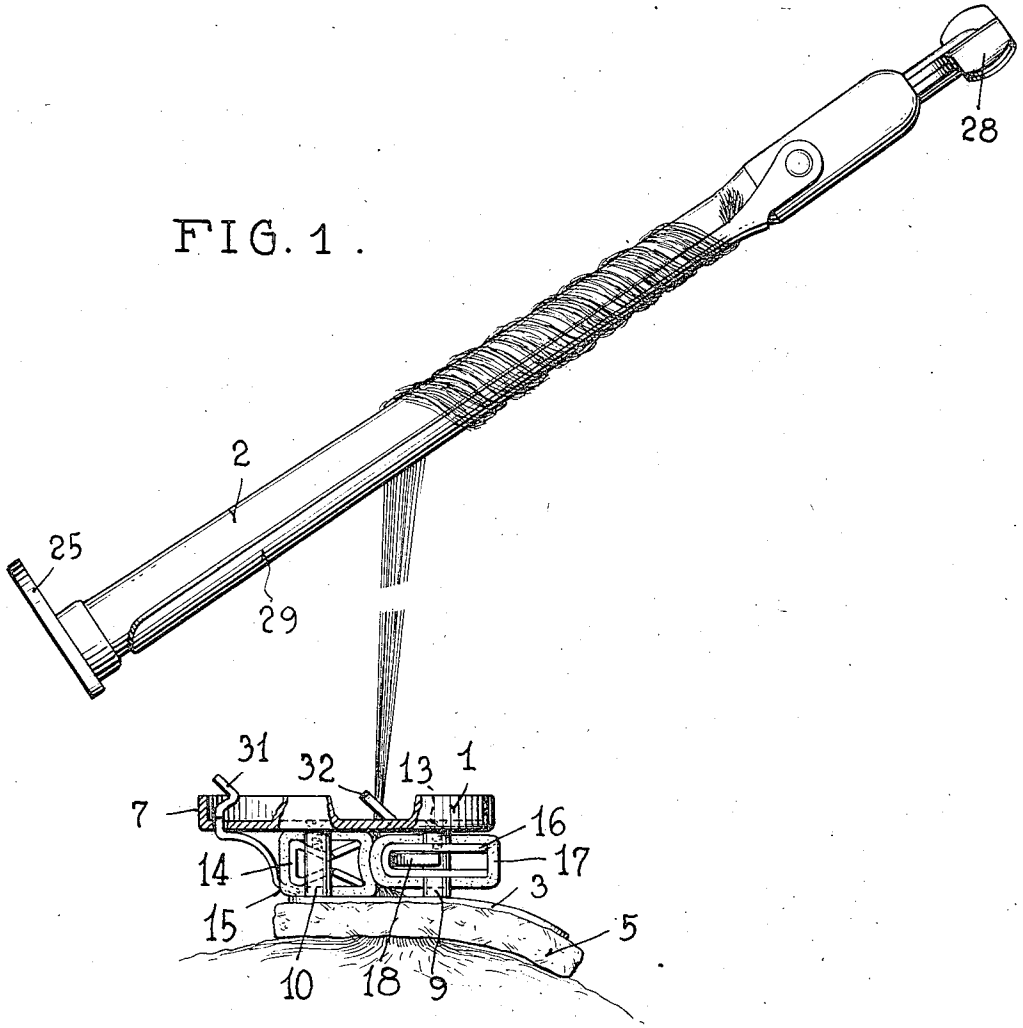
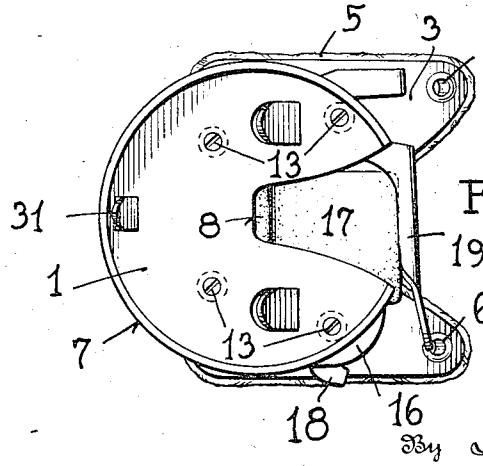


FIG. 2.



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Filed April 20, 1934 3 Sheets-Sheet 2

FIG. 3.

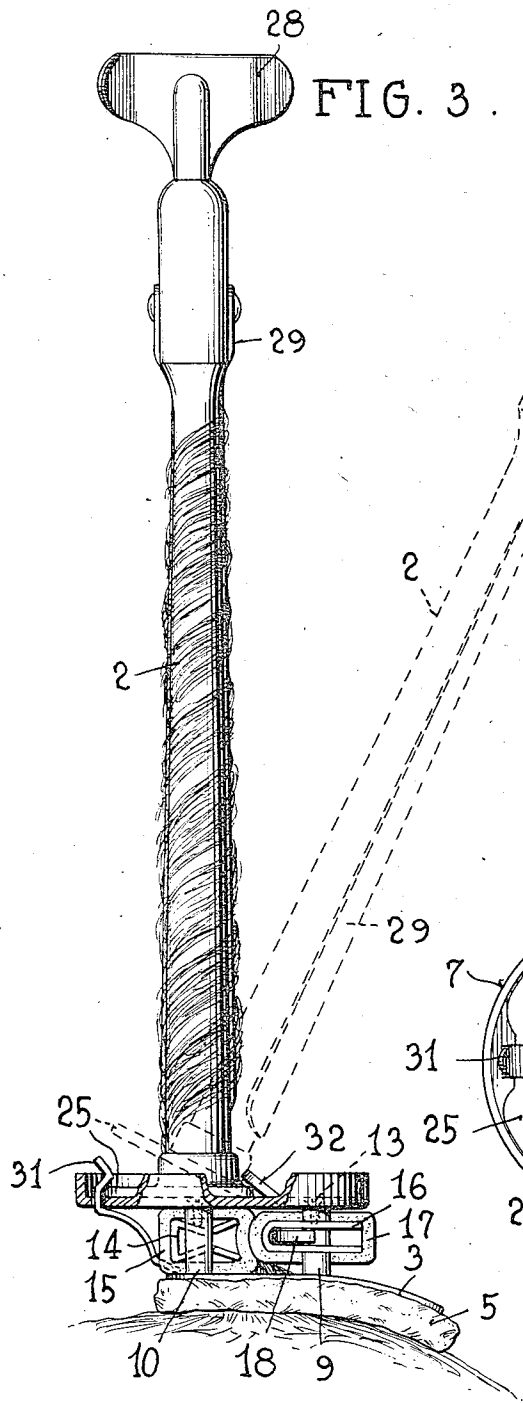


FIG. 5.

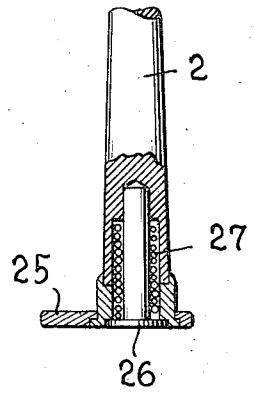
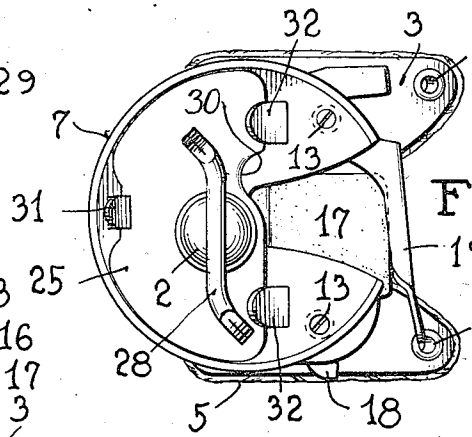


FIG. 4.



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Filed April 20, 1934 3 Sheets-Sheet 3

FIG. 6.

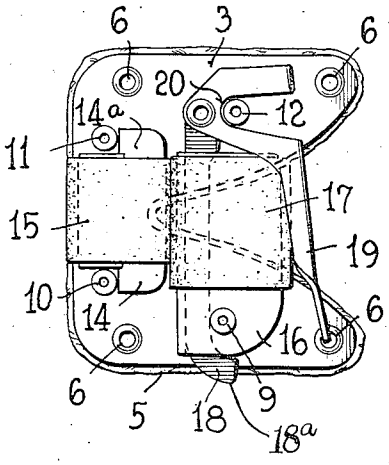


FIG. 7.

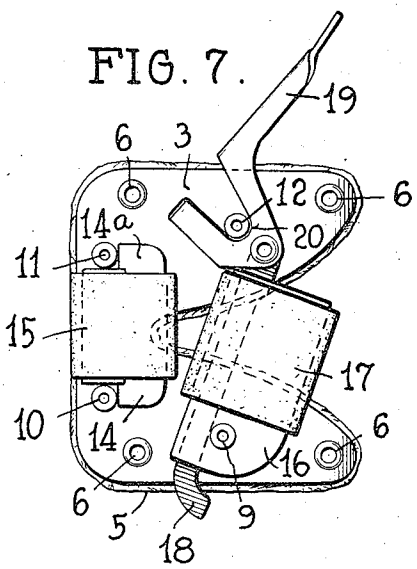


FIG. 8.

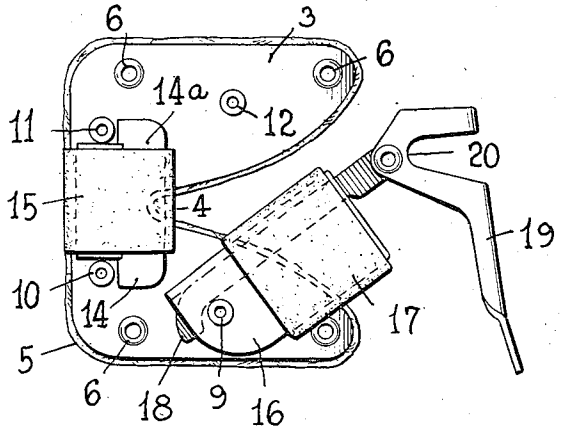


FIG. 9.

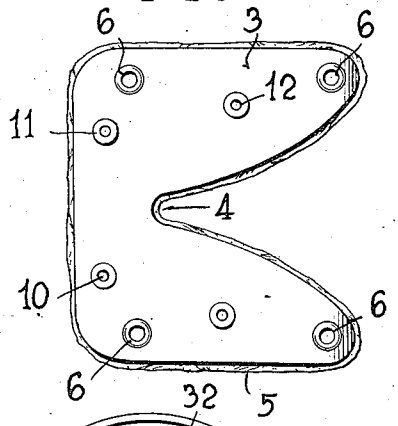


FIG. 10.

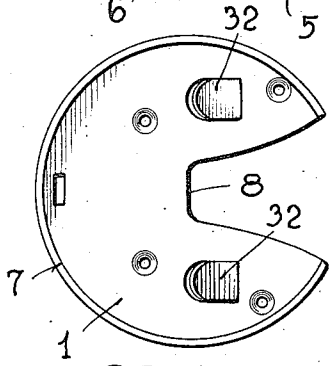
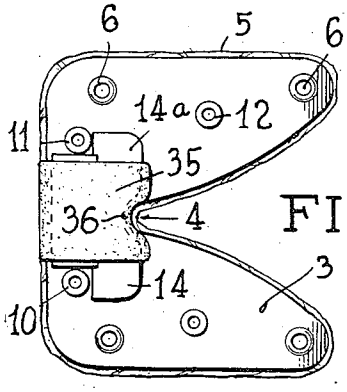


FIG. 11.



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UNITED STATES PATENT OFFICE

2,034,729

HAIR CURLING APPARATUS

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Application April 20, 1934, Serial No. 721,582

7 Claims. (Cl. 132—33)

This invention relates to hair curlers and hair curling. More particularly, it relates to that general type of hair curling known as permanent waving.

As is well known, there are two generic methods in common use for permanently waving hair. Although these two methods have some steps in common, the curls produced and the apparatus used differ materially.

In one common method of producing permanently waved curls, a strand of hair is clamped adjacent the scalp and then commencing with the free end is wound spirally upon a spindle. This results, when the hair is completely wound in having the spindle closely adjacent and substantially parallel to the scalp. When the hair has been wound in this way, it is necessary to employ a two part heater, generally constructed in the form of a pair of tongs which will substantially surround the wound spindle.

In the second method referred to, the winding operation is commenced with the portion of the strand of hair adjacent the scalp. The hair is wound on an upstanding spindle helically outwardly away from the scalp. When the hair is thus wound, it is possible to use a tubular heater which may be telescoped onto the spindle axially.

The advantages of the former method are chiefly that the hair may be wound considerably tighter with less pulling of the scalp while in the latter method the type of heater which may be used has been found to produce more satisfactory results.

It is essential that the hair wound upon the spindle be subjected to a continuous and uniform heating in order to produce the best possible curl, and it has been found that a cylindrical type of heater produces much more beneficial results than a two-part heater which may only surround a portion of the wound strand.

Another object of the invention consists in the provision of apparatus such that although the hair is wound commencing with its outer free ends, the spindle, when completely wound may assume a position substantially perpendicular to the scalp thus permitting the use of a tubular heater which may be slid onto the spindle axially thereof.

Yet another object of the invention consists in the provision of a protector clamp for securing the strand of hair to be curled, which carries means by which it may be detachably mounted on the spindle in an upright position.

Still further, the invention contemplates the use of a spindle having a foot and means on the protector clamp for detachably securing the spindle foot thereto, the spindle being connected to the foot by means of a one-way clutch mechanism whereby unwinding of the hair on the spindle is prevented.

Another object of the invention consists in the provision of a clamp for securing the hair to be curled which is simple in construction, cheap to manufacture and is easily disassembled to renew or replace the parts thereof.

Many other and further advantageous features of the invention will become apparent from the following specification when considered in connection with the accompanying drawings.

In the drawings:

Fig. 1 is a side elevation of the apparatus showing a helical wind partially complete;

Fig. 2 is a plan view of the clamp with the spindle removed;

Fig. 3 is a side elevation showing the manner in which the spindle is attached to the clamp;

Fig. 4 is a plan view of the clamp showing the spindle attached thereto;

Fig. 5 is a detail view of the lower end of the spindle, partly in section, showing the ratchet mechanism for securing the spindle foot;

Figs. 6, 7 and 8 are plan views of the clamp with the spindle support plate removed, Fig. 6 showing the jaws locked together, Fig. 7 showing the jaws partially opened, and Fig. 8 showing the jaws opened wider;

Fig. 9 is a plan view of the base plate;

Fig. 10 is a plan view of the spindle support plate; and

Fig. 11 shows a modified form of stationary jaw mounted on the base plate.

With more particular reference to the drawings, the improved apparatus in its preferred form comprises a protector clamp 1 and a spindle 2 detachably mounted thereon.

The protector clamp preferably comprises a sheet metal base member 3 shown in plan in Fig. 9 having a surface curvature adapted to conform to the scalp. The base plate 3 has a deep tapering slot 4 therein extending from one side to a point preferably past the center. This slot serves to gather the strand of hair into a bunch in order that it may be conveniently clamped.

The under side of the base plate is provided with a resilient pad 5 substantially coextensive therewith. This pad may be made of felt or any other suitable material and is permanently secured to the base plate by means of eyelets 6 or other convenient fastening means. It will be seen that the lower surface of the pad 5 will,

because of the conformation of the base plate, have a curvature adapted to conform to the scalp.

Spaced from the base plate and lying in a plane substantially parallel thereto is a spindle support plate 7 shown in plan in Fig. 10. As illustrated, this spindle support plate may be substantially circular, having an upturned edge to provide additional rigidity and protect the scalp from moisture and heat, and having an inwardly projecting gradually converging slot 8 substantially the same shape and adapted to register with the slot 4 of the base plate.

The spindle support plate 7 is maintained in fixed spaced relation to the base plate 3 by means of four studs 9, 10, 11 and 12, each mounted in the base plate and threaded internally at their upper ends. The spindle support plate is secured to these studs by means of screws 13 passing therethrough into the upper ends of the studs.

The jaws for gripping the strand of hair to be curled are located between the base plate and the spindle support plate. These jaws comprise a stationary jaw 14 preferably consisting of sheet metal, bent so as to have two parallel edges adjacent the bottom of the slots 4 and 8. The jaw member is considerably wider adjacent these edges than in the body portion, thus forming ears 14a which abut against the studs 10 and 11 to hold the stationary jaw member in position. The jaw member 14 is surrounded by a tubular resilient covering 15 of rubber or other suitable material in order that the hair engaging surfaces thereof will be provided with a resilient gripping face adjacent the base of the slots.

A movable jaw member 16 is provided journalled upon the stud 9 for pivotal movement therearound. This jaw member is preferably constructed in substantially the same manner as the jaw member 14. The sheet metal is folded upon itself to form two spaced parallel coextensive sections joined at the fold thereof. The holes through these sections through which the stud 9 passes are so located that, as the movable jaw is swung about its pivot, the folded edge will lie in a position parallel to the hair engaging surface of the stationary jaw member at about the time it engages this surface. The portion of this pivoted jaw which lies adjacent the vertex of the slot when in the closed position is, as in the case of the stationary jaw, covered with a resilient sleeve 17, so that the surfaces of both of these jaws will be provided with a resilient covering throughout the area thereof which may come into contact with the hair being clamped. These coacting resilient surfaces serve not only to grip the strand of hair firmly, but also serve to protect the scalp from moisture and chemicals used during the curling operation, as well as from the heat of the heater.

In order to actuate the movable jaw a toggle is provided comprising a member 18 movable laterally through the jaw member 16 between the two sections thereof and a lock-up cam 19 pivoted thereto. The lock-up cam has a slot 20 therein adapted to engage the stud 12 and is so pivoted to the member 18 that as its handle is moved in an arc, to the position shown in Fig. 6, the member 18 will be moved laterally through the jaw 16 until the pivot lies directly behind the stud 12 and the jaws are locked in position.

The laterally movable member 18 is provided with a curved end 18a which is adapted to engage the stud 9 and normally prevent the member from being removed from the jaw 16. However, it will be seen that the laterally slidable member 18, if moved sufficiently with respect to the pivoted clamp, may be completely removed therefrom. When this member has been removed therefrom, the resilient covering may be removed for replacement. It is also apparent that after these portions have been removed and the pivoted jaw swung out of the way, the stationary jaw may be moved forwardly and bodily removed from the protector clamp. This is possible due to the fact that the studs 9 and 12 are more widely spaced than are the studs 10 and 11, and the stationary jaw member may be moved forwardly between the studs 9 and 12. It will thus be seen that the resilient covering on the stationary jaw member may also be replaced very simply.

In Fig. 8 the jaws are shown in open position. In Fig. 7 the slot 20 has been brought into engagement with the stud 12 and the jaws thereby partially closed. In Fig. 6 the cam member has been completely swung around and the jaws locked in engagement. As seen in Fig. 1 the folded edge of the movable jaw has a tendency to enter between the separated edges of the stationary jaw.

Due to the resilience of the coverings on the respective jaw members, it has been found that the strand of hair grasped by these jaw members, when completely closed and locked in position, is substantially oval in cross section. In some cases, it has been found desirable to grasp a cluster of hair which is substantially circular in cross section. For this purpose, a modified form of stationary jaw member 35 may be employed. As will be seen, this modified form of jaw member has a slot 36 in the forward face thereof adjacent the base of the slot 4 and substantially conforming with the shape of the slots 4 and 8 of the base plate and spindle supporting plate respectively. This particular type of stationary jaw member has been found satisfactory where the strand of hair being clamped is unusually large.

The spindle 2 is mounted for one way rotation in a spindle foot 25 as shown in detail in Fig. 5. This ratchet mechanism comprises a pin 26 for securing the foot to the spindle engaging the spindle 2 with a tight driven fit. The spindle 2 and spindle foot 25 between the head of the pin 25 and the point of its engagement with the spindle 2 are bored out to form an annular chamber in which is located a tightly coiled helical spring 27. It is apparent that this construction permits rotation of the spindle with respect to the foot in one direction while rotation in the other direction is prohibited.

The spindle is provided at its upper end with a wing tip 28 to facilitate manual rotation thereof. Pivoted to the upper end of the spindle and extending substantially throughout its length is a gripping strip 29 adapted to hold the tip ends of the hair during the winding operation.

The spindle foot 25 as is seen in Fig. 4 is substantially segmental in configuration and along the chord thereof is provided with a rounded notch 30 to permit the strand of hair leaving the jaws of the clamp to run directly to the spindle.

Adjacent the periphery of the spindle support plate is a slot through which projects a spring latch 31, preferably made of spring steel and having its lower end wedged under the stationary jaw 14. The resilient covering 15 of the stationary jaw serves to provide additional resilience

to the latch. A pair of lugs **32** are struck up from the spindle support plate adapted to engage the straight side of the spindle foot.

The improved apparatus is used substantially as follows: The hair is blocked into areas about the size of the area covered by the base plate, and on which the clamp is placed with the jaws in the open position. The strand of hair from this area is drawn into the slots **4** and **8**. The pivoted jaw **16** is then closed, locking the strand of hair tightly between it and the stationary jaw **14**, the resilient surfaces of these jaws tightly gripping the strand of hair. The strand of hair thus gripped will hold the clamp closely adjacent the scalp.

The tip ends of this strand of hair are then inserted between the gripping strip **29** and the spindle **2** and the spindle is rotated, winding the strand of hair thereon. In Fig. 1 the apparatus is shown with the strand of hair partially wound upon the spindle. It will be apparent that as the hair is wound, the spindle will be drawn closer and closer to the base plate, the spindle preferably kept in a position substantially parallel to the base plate during the winding operation.

When the winding operation is substantially completed the straight edge of the spindle foot is slipped under the lugs **32** and the spindle is swung to upright position, as shown in Fig. 3, the outer edge of the spindle foot being engaged by latch **31**. The spindle with the strand of hair wound thereon is thus held in a position substantially perpendicular to the protector clamp. The wound hair may now be tightened on the spindle by slight additional rotation of the spindle, unwinding of the hair being prevented by the ratchet mechanism **27**.

After the hair has thus been wound, it may be treated with a suitable solution as is conventional in the art and then covered with a suitable protective wrapping. A tubular heater may then be telescoped on the spindle and the hair subjected to the customary heat treatment to set the curl.

With the apparatus herein shown and described, it is possible to wind many and various types of curls. For example, the hair may be flattened out after leaving the jaws of the clamp and distributed evenly along the length of the spindle under the gripping strip. This flat strip of hair may then be wound spirally during the first portion of the winding and then gradually transformed to a helical wind as the spindle approaches the clamp. As illustrated in the drawings, it may be wound helically throughout the length of the spindle, this method having the marked advantage over the customary method of helical winding in that it is possible to commence the winding at the outer ends of the strand. This gives the particular advantage that it is possible to wind the hair much tighter with a minimum of pull exerted on the scalp.

We claim:

1. In a hair curler, a clamp for securing a strand of hair to be curled comprising a base, having one surface adapted to lie closely adjacent the scalp and shaped in accordance with the conformation thereof, said base adapted to partially surround said strand, and clamping means mounted on said base adapted to engage and hold said strand, said clamping means being spaced from the scalp by said base.

2. In a hair curler, a clamp for securing a strand of hair to be curled comprising a base, one surface of said base having a resilient covering adapted to lie closely adjacent said scalp and conform to the curvature thereof, said base adapted to surround partially said strand, and clamping means mounted on said base adapted to engage and hold said strand, said clamping means being spaced from the scalp by said base.

3. In a hair curler, a clamp having means for holding a strand of hair to be curled, a spindle for winding said strand, said spindle having a foot and shank, said shank being rotatable relative to said foot and means for detachably securing said spindle foot to said clamp.

4. In a hair curler, a base, a clamp mounted therein and having means for holding a strand of hair to be curled, a spindle for winding said strand, said spindle having a foot and a shank, ratchet means therebetween whereby said spindle may rotate in one direction only with respect to said foot, and means for detachably securing said spindle foot to said base.

5. In a hair curler, a base, a clamp mounted therein and having means for securing a strand of hair to be curled, a spindle for winding said strand, said spindle having a foot and a shank mounted for unidirectional rotation with respect thereto, and means for detachably securing said spindle to said base in a position substantially perpendicular thereto.

6. In a hair curler, a clamp having a spindle support plate, a spindle having a foot, and means for mounting said spindle foot on said spindle support plate comprising a pair of lugs formed on said spindle support plate adapted to engage one side of said spindle foot and a latch mounted on said clamp adapted to engage the opposite side of said spindle foot.

7. In a hair curler, a clamp having a spindle support plate, a spindle having a foot and means for detachably mounting said spindle on said spindle support plate comprising a resiliently mounted latch extending through said spindle support plate.

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