June 14, 1927. 1,631,990

W. T. TABB

HAIR CURLER

Filed Oct. 30, 1925

Fig. 1

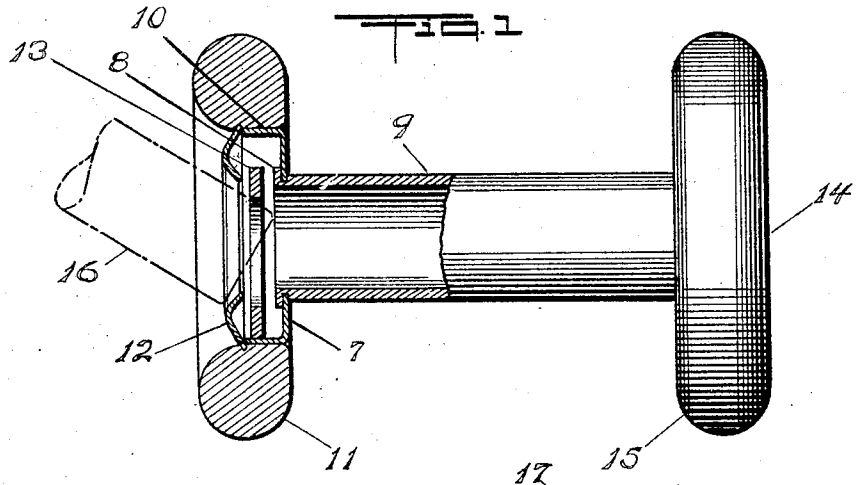


Fig. 2

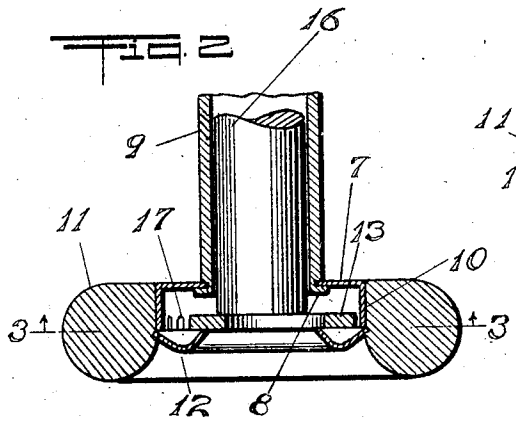


Fig. 3

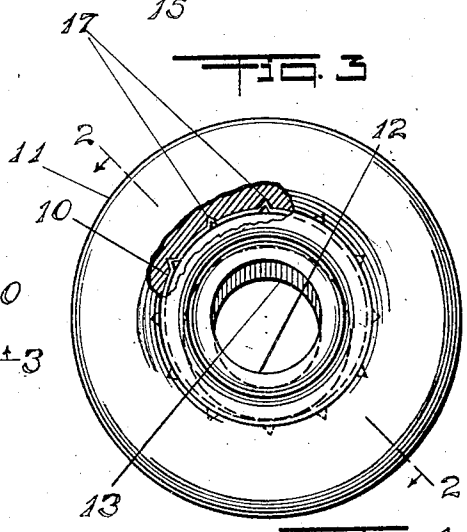


Fig. 5

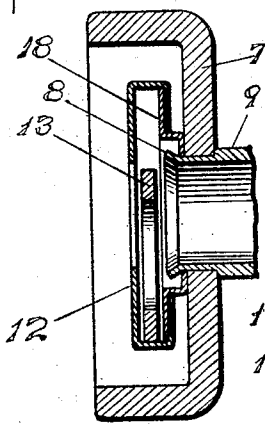


Fig. 6

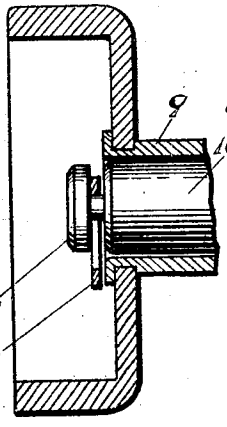
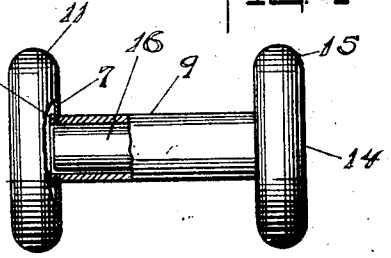


Fig. 4



INVENTOR

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BY Kinnel

AS HIS ATTORNEY

Patented June 14, 1927. 1,631,990

UNITED STATES PATENT OFFICE.

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HAIR CURLER.

Application filed October 30, 1925. Serial No. 65,838.

This invention relates particularly to hair curlers of the type having a removable heating element internal of the spindle or body on which the hair is wound; more particularly to the means of retaining such a heating element in position.

Customarily such heating elements have been retained by the resilient clamp provided for confining the hair after winding, or otherwise by a longitudinally extending resilient member inside or lying flat against the spindle. In the former case the interdependence of the clamp and retaining means have made it impractical to adjust the hair after the retaining means is in place and has involved the possible disarrangement of the hair by the act of attaching the element. On the other hand a resilient member lying close to the spindle is subjected to a considerable heating action which may cause corrosion or may affect the resilience of the member under certain conditions. In some cases the heating element has been retained by its own weight, or a component thereof, acting longitudinally of the spindle, but such arrangements require a vertical or properly inclined position of the spindle and so are not suited to all conditions.

A purpose of this invention is to provide a retaining means for a heating element of a hair curler, which will permit of the insertion and retention and likewise the removal of the heating element either after or before the hair is wound on the spindle and which will permit the hair to be wound, unwound, or adjusted without affecting such retaining means.

A further purpose is to provide a retaining member for such an element as the above which may be shifted to or from its effective position without disturbing other elements of the curler.

A further purpose is to provide such a member as the above which may be placed in any convenient relation to a curler spindle or heating element with no possibility of injury by heat, and which may be of such compact formation as to permit of location in positions well protected from accidental contact or disturbance.

This invention is adaptable in a variety of ways to curlers of various forms. The drawings which form a part of this specification show in detail certain constructions utilizing this invention and by reference to the following description will clearly show how the above and other purposes of the invention may be accomplished, by one skilled in the art to which this invention relates.

Certain parts and arrangements shown in the specification are not claimed herein, but form a part of my previous invention which is specified in the application, Serial No. 745,316 copending herewith.

In the drawings:—

Figure 1 shows portions of a curler including a spindle of flanged formation constituting a winding body and especially designed to embody my retaining means in a flange thereof. The winding body is presented in side view, partly in vertical longitudinal section, with its axis horizontal and a retaining member in its free position, with a heating element at the point of being inserted.

Figure 2 is a sectional view on line 2—2 of Figure 3 and shows portions of a winding body similar to that of Figure 1, with its axis vertical and a heating element retained in the spindle.

Figure 3 is an end view of a winding body similar to that shown in Figure 1, with the addition of some constructional features shown in partial section taken on line 3—3 of Figure 2.

Figure 4 shows the winding body of Figure 1 to a smaller scale and partly in longitudinal section, and includes a heating element in place in the spindle.

Figure 5 shows in vertical longitudinal section a different form of winding body with my retaining means embodied in a hub attached to the spindle.

Figure 6 is a vertical longitudinal section of portions of a curler, with a form of my retaining member attached to the heating element.

Referring particularly to Figures 1, 2, 3 and 4; a flange 7 is shown attached to an end 8 of a hollow spindle 9 and has a cylindrical extension 10 from its outer edge which carries a rim 11 of substantially toric formation. This rim 11 is preferably constructed of a material such as wood which has a low conductivity for heat. The cylindrical space defined by the extension 10 is partially closed by the dished cap 12 which retains therein the shutter 13 of annular

disc formation. The spindle 9 carries at the end 14 of the winding body a member 15 having the same peripheral shape as the rim 11. This member may be a duplicate of the rim 11 and the constructions shown adjacent the rim 11 may be duplicated at the end 14. Or otherwise the spindle 9 may be permanently closed at the end 14 as by a portion of the member 15 itself, and the essential functions of the retaining means will not be affected.

The cap 12 has an inside diameter equal to or greater than that of the spindle 9 and its inner periphery is concentric therewith. The shutter 13 has an inside diameter substantially the same as that of the spindle 9 so that when the shutter 13 is lifted, by means of the heating element 16 as indicated in Figure 1 or otherwise, to a position concentric with the spindle 9, the element 16 which is proportioned to fit loosely in the spindle, will pass freely through the cap 12 and the shutter 13, and being of the proper length may lie in the spindle 9 as shown in Figure 4. By reference to Figure 4 it will be noted that the element 16 lies well within the spindle at the end 8, so that when the element 16 has been inserted as shown, the shutter 13 will be free to fall by gravity to its normal position as shown by Figures 1 and 3. In this position the shutter forms a partial closure of the spindle end as is shown most clearly at 13 of Figure 3. It will be noted that the shutter 13 normally lies excentric with the spindle 9 and is free to roll inside the cylindrical extension 10 of the flange 7 and will therefore maintain its excentric position regardless of rotation of the winding body about its axis. Likewise if the winding body is rotated about a line normal to its axis to a position such as is shown in Figure 2 the shutter will continue to occupy an excentric position. When the heating element 16 is in place in the spindle 9 as shown in Figure 2 the weight of the element 16 will act to hold the shutter 13 in effective position with additional security. If it is desired to withdraw the heating element 16 from the spindle this may be done conviently by bringing the winding body to the position of Figure 2, centering the shutter 13 with the ball of the finger and allowing the element 16 to drop out by its own weight; otherwise with the winding body in any convenient position the shutter may be lifted with the finger nail or whatever instrument is available and the heating element may be allowed to slide out or may be forced out from the end 14 if an opening there is provided.

In production the cap 12 may be made initially of a smaller diameter than is shown and with a greater dish and may be expanded into place by a longitudinal pressure forcing the cap 12 against the rim extension 10 as in the common case of the so-called Welsh plug. A convenient method of attaching the rim 11 to the flange 7 is by a staking process extruding teeth 17 from the extension 10 as shown in Figures 2 and 3. To provide for the attachment of the flange 7 to the spindle 9 as shown at 8 an outside portion of a tube of the proper dimensions may be machined to fit the inside of the flange 7 and, with the flange in position, the end of the tube may be flared as shown at 8. The flanged portion of curler spindle, as shown by Figures 1 to 4 inclusive, besides providing for a retaining means as described, also serves to confine the wound hair longitudinally of the spindle 9, and if the rim 11 and the member 15 are constructed of wood or other material having a low conductivity for heat, will constitute an effective insulation of the hot portions of the curler.

The arrangement shown in Figure 5 illustrates a form of my invention in which the shutter 13 together with the cap 12 and the disc 18 form a self-contained unit or hub which may be attached to the spindle 9 as such, the flaring of the end of the spindle tube as at 8 being the final operation, the flange 7 being secured by the same operation. This arrangement is particularly adapted to curlers in which no flange is ordinarily provided or in which the form or material of the flange is unsuited to such an arrangement as is shown in Figure 1. The operation of the retaining means here is the same as has been described above.

The arrangement of Figure 6 is also adaptable to curlers of the types mentioned in connection with Figure 5. The shutter 13 in this case is attached to the heating element 16 by means of the pin 19 which has an outside diameter larger than the inside of the shutter 13. The shutter 13 is made of sufficiently small outside diameter to pass through the spindle 9 when raised to a concentric relation therewith, which may be accomplished conveniently when inserting the heating element 16 by inclining the same in an opposite manner to that shown in Figure 1. Otherwise the operation of the retaining means is substantially the same as described in connection with Figures 1 to 4 inclusive. It must be noted however that the spindle in this case should be open at each end, although a projecting transverse pin, a flange or other alternative may replace the shutter at one end of the heating element 16.

The winding bodies shown in the drawings and described above are of the type intended to be used with detachable resilient clamps for holding the hair. These clamps have been omitted as they form no part of the present invention, and may be of any of the usual forms.

Having thus described my invention, what I claim and what I desire United States Letters Patent for is:

1. Gravity means to retain a heating element in a hollow spindle of a hair curler, said means comprising a ring normally excentric with respect to said spindle and rotatable about the axis of said spindle.

2. Means to retain a heating element in a hollow spindle of a hair curler; said means comprising a member movable by translation transverse said spindle and rotatable about the axis of said spindle.

3. In a hair curler having a hollow spindle and a member internal thereof; a ring movable to a position excentric with said spindle to retain said member therein, and likewise movable to a position concentric with said spindle to permit the removal of said member from said spindle.

4. In a hair curler having a hollow member and a member insertable therein; a ring shaped shutter engageable with said members to retain the same in operative relation, said shutter being movable transversely of said members to effect the engagement of said shutter with said members.

5. In a hair curler having a hollow member and a member insertable therein; means to retain said members in operative relation, said means comprising a roller movable with respect to said members in a substantially epicyclic fashion.

6. A hair curler including a hollow spindle and a heating element internal thereof and means to retain said heating element in said spindle; said means comprising a member free to move with respect to said spindle and said element within limits provided; said member being movable within limits to a neutral position permitting the withdrawal of said element from said spindle, but normally held by gravity action in a position effective to retain said heating element in said spindle.

7. In a hair curler having a hollow spindle; means to retain a heating element in said spindle; said means comprising a flange attached to said spindle, and a member carried by said flange movable with respect to said spindle in a plane transverse the axis of said spindle.

8. In a hair curler having a hollow spindle with an open end and a flange adjacent said end; a shutter carried by said flange, said shutter being movable transversely of said spindle to partially close said end.

9. In a hair curler a hollow body on which to wind the hair and a recess in said body to retain a gravity member, said recess being open radially inward but otherwise substantially closed, and a gravity member carried by said recess, said gravity member constituting a latch to retain a heatable member insertable into said spindle.

In witness whereof I have affixed my hand this 29th day of October 1925.

WARNER T. TABB.