Sept. 10, 1935. B. J. MOORE 2,013,831

PERMANENT WAVE SPINDLE

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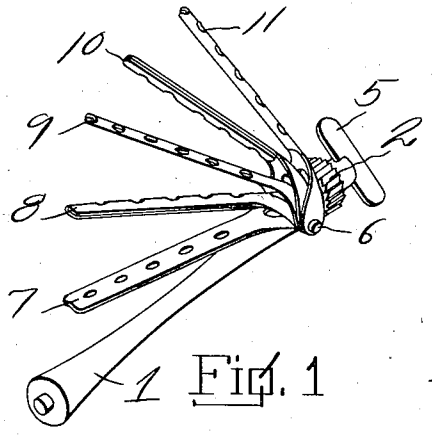


Fig. 1

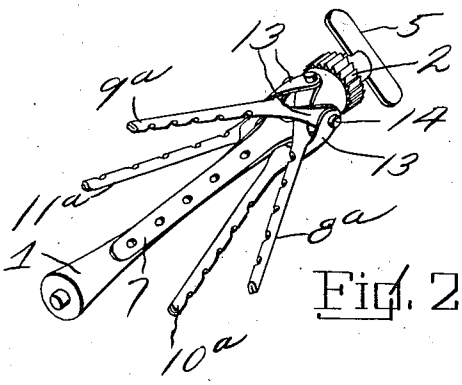


Fig. 2

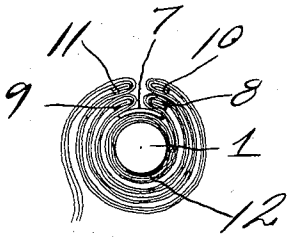


Fig. 3

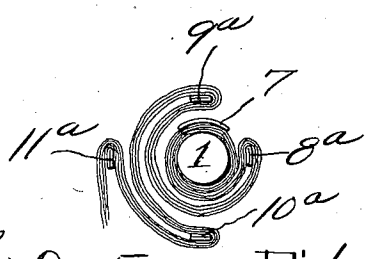


Fig. 4

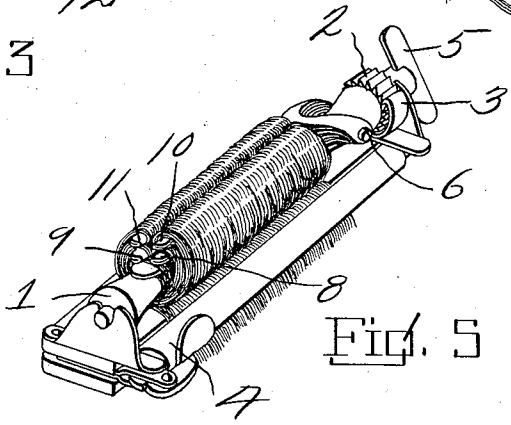


Fig. 5

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PERMANENT WAVE SPINDLE

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7 Claims. (Cl. 132—33)

The invention relates to spindles of the type used in connection with permanent waving machines wherein the spindle is placed in a tightening device and the tightening device with the spindle therein is placed in a heating element, and has for its object to provide a spindle around which hair may be wrapped in a manner whereby, after the heating operation, it will not be necessary to finger-wave the hair.

A further object is to provide a permanent wave spindle comprising a mandrel around which the outer ends of the hair are wrapped, continuously in one direction, and then hinged arms carried by the mandrel, adjacent one end thereof and adapted to be moved into a parallel plane to the mandrel and over which the hair may be alternately bent or passed for imparting reversed bends therein and for waving the hair at a point spaced inwardly from the outer ends thereof.

A further object is to hingedly connect the arms, and to position the arms whereby when they are in closed position, alternate arms will be out of registration, thereby preventing bunching of the hair at the points of reverse bends. Also to make the inner hinged arm relatively wide so that when it is in closed position it will engage the hair convolutions around the mandrel and will also form a base for the other arms when in closed position.

A further object is to provide a permanent wave spindle wherein the mandrel tapers from its ends towards its center and around which convolutions of the hair pass and a plurality of hinged arms carried by the spindle mandrel, said arms being hingedly movable towards the mandrel in different planes and around which reverse bends of the hair may be passed whereby, after the heating operation, a wave is formed in the hair and it will not be necessary to finger wave the hair, as is the practice at the present time.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawing, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawing:

Figure 1 is a perspective view of the spindle showing the same in open position to better illustrate the structure.

Figure 2 is a perspective view of a modified form of spindle.

Figure 3 is an outer end view of the spindle shown in Figure 1.

Figure 4 is an outer end view of the device shown in Figure 2 with the arms slightly open to better illustrate the structure.

Figure 5 is a perspective view of the spindle shown in Figure 1, showing the hair around the same and in a conventional form of tightening device.

Referring to the drawing and particularly to Figures 1 and 3, the numeral 1 designates a mandrel which is preferably tapered inwardly from its ends, thereby allowing the reception of a number of end convolutions of the hair when wrapped around the same. One end of the mandrel is provided with a ratchet wheel 2 adapted to be held against rotation by the spring detent 3 after the tightening operation when the spindle is in a conventional form of tightening device 4, as shown in Figure 5. The mandrel 1 is provided with a thumb member 5 so that it can be readily rotated in the tightening device.

Hingedly connected on a pin 6 extending through the mandrel 1 are arms 7, 8, 9, 10 and 11. It is to be understood however that any number of arms may be used, and five are shown for the purposes of illustration only. It will be noted that the arm 7, which is a clamping arm for the initial hair wrapped around the mandrel 1 is wider than the other arms, and the other arms are in superimposed relation to the clamping arm 7, and are spaced alternately to the sides of each other as clearly shown in Figure 3.

The hair is first wrapped around the mandrel 1 the desired number of convolutions so that the waves will be spaced inwardly therefrom, as clearly shown in Figure 3. After the wrapping of the first convolutions 12 around the mandrel the clamping arm 7 is then moved into engagement with the convolutions 12, and after which the next arm 8 is moved downwardly into engagement with the hair and a reverse bend is placed in the hair, and the hair passed around the mandrel, and then the next arm 9 is moved into engagement with the hair and another reverse bend is placed in the hair around the spindle, and the operation continues around the hinged arms 10 and 11, therefore it will be seen that a plurality of reverse bends are formed in the hair, and that the arms 7 and 8 and 10, as well as 9 and 11 are in superimposed relation, hence the clamping plate 7 will positively grip the inner convolutions. After the wrapping op-

eration the spindle as a whole is then placed in the spindle tightener 4 in the usual manner with the hair end 12a clamped therein and then the spindle may be tightened in the usual manner.

In the forms shown in Figures 1 and 3, the bites of the hair extend substantially entirely around the spindle, however where it is desired to have shorter waves, the form of device shown in Figures 2 and 4 may be used. In this form it will be noted that the reverse bends or bites of the hair extend for different degrees around the spindle; the outer bites extending entirely around the spindle mandrel 1 and future bites of decreasing length, hence it will be seen that a varying wave effect will be obtained. In this form the hinged arms hinge inwardly from all sides of the mandrel.

In the form shown in Figures 2 and 4 the clamping arm 7 is of the same construction as the arm 7 in Figure 1 and operates in the same manner, however in this form the reverse bend arms 8a, 9a, 10a and 11a are not in superimposed relation, and have their inner ends provided with bifurcations forming spaced arms 13 pivoted on pins 14 extending through the mandrel 1 at right angles. It will be noted that adjacent arms 13 of adjacent reverse bend arms 8a, 9a, 10a and 11a are in crossed relation, thereby allowing said arms to swing inwardly towards the axis of the mandrel 1 from opposite sides of the mandrel and all around the mandrel, otherwise the operation of this form is the same as in Figure 1.

From the above it will be seen that a permanent wave spindle is provided which is simple in construction and one wherein reverse bends may be placed in the hair whereby it will not be necessary to finger wave the hair after the heating operation.

The invention having been set forth what is claimed as new and useful is:

1. A permanent wave spindle comprising a mandrel around which convolutions of the hair are passed, a hinged clamping arm carried by the mandrel for said convolutions and a plurality of circumferentially spaced hinged arms carried by the mandrel in superimposed relation to the clamping arm and around which reverse bends of the hair may be passed.

2. A device as set forth in claim 1 wherein the inner ends of the hinged arms are bifurcated thereby forming arms at opposite sides of the mandrel and pivotal means extending through said arms and mandrel.

3. A device as set forth in claim 1 including bifurcated inner ends carried by the arms and having their arms hingedly connected to the mandrel at opposite sides thereof.

4. A permanent wave spindle comprising a mandrel, a plurality of circumferentially spaced arms pivotally connected to said mandrel at one end thereof and movable towards said mandrel independently of each other from opposite sides of the mandrel.

5. A permanent wave spindle comprising a mandrel, a plurality of hinged circumferentially spaced arms connected to one end of said mandrel and movable towards the mandrel from different sides thereof, the inner ends of said arms being bifurcated thereby forming diverging arms, said diverging arms of each hinged arm terminating at opposite sides of the mandrel and hingedly connected thereto, the adjacent arms having their adjacent diverging arms in crossed relation.

6. A device as set forth in claim 1 wherein the circumferentially hinged arms when in closed substantially horizontal relation to the mandrel are at different radial distances from the axis of the mandrel.

7. A device as set forth in claim 1 wherein the arms when in closed position are at different successive distances from the axis of the mandrel.

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