July 15, 1952 H. M. BUCHANAN 2,603,225

APPLIANCE FOR PREVENTING FRIZZING AND KINKING OF HAIR DURING PERMANENT WAVING OPERATION

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Fig. 1

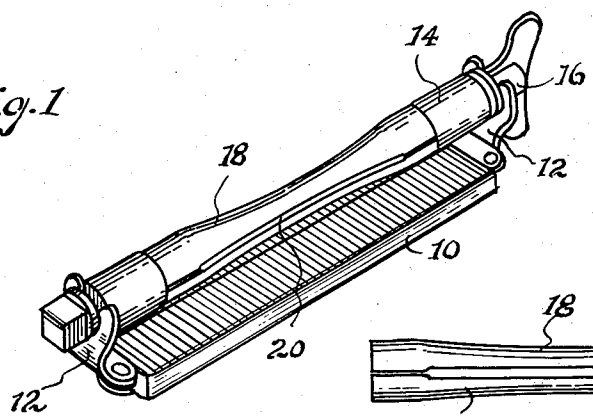


Fig. 3

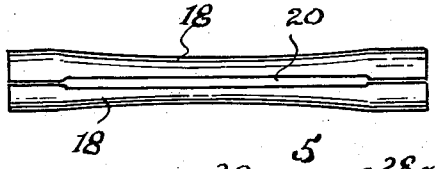


Fig. 2

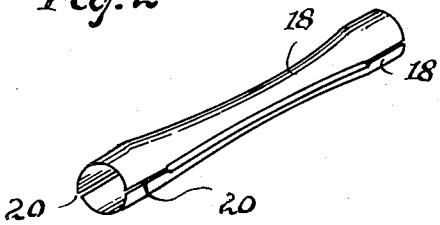
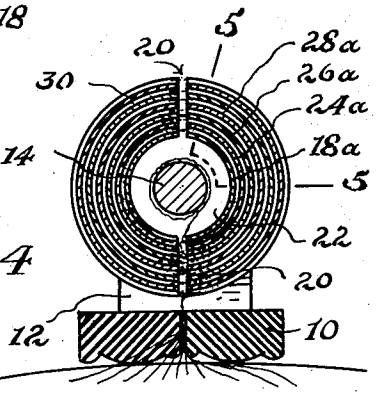


Fig. 4



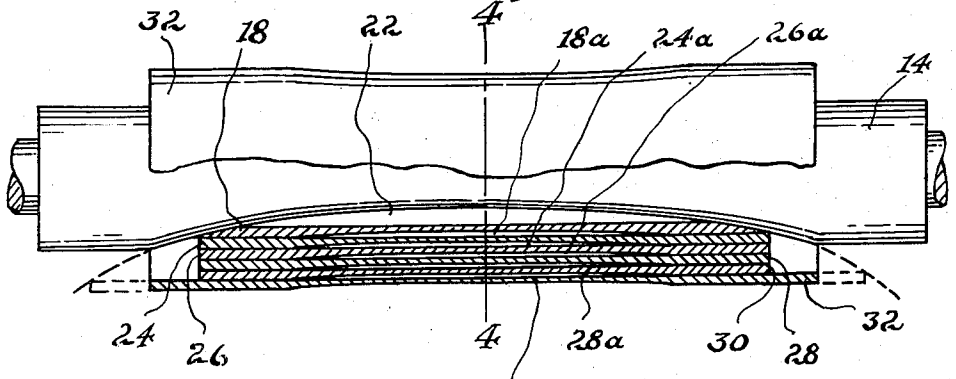


Fig. 5

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APPLIANCE FOR PREVENTING FRIZZING AND KINKING OF HAIR DURING PERMANENT WAVING OPERATION

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2 Claims. (Cl. 132—33)

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This invention relates to apparatus and methods for the permanent waving and curling of hair, and particularly to apparatus of such character in which the hair is first wound or wrapped around metal rods and heat applied externally or internally to the mass of hair after being wound.

One serious disadvantage of this method of treating hair has been the danger of damaging the hair by overheating, and lack of control of the application of heat during the treatment, this manifesting itself in undesirable frizzing and kinking and unnecessary damage to the structure and vitality of the hair.

Such conditions as those described have rendered it difficult to perform such operations on hair of any texture without frizzing or kinking, which imparts an unsightly appearance to the hair.

Therefore, one of the principal obects of the present invention is the provision of an appliance suitable for use in cooperation with various types of units for permanent waving and curling of hair, by means of which such operations can be successfully performed, without frizzing or kinking of hair of any type, through control of the application of heat to the different layers of the curl.

Another object of the invention is the provision of an effective appliance for the purpose mentioned which will not only insure positive control of heat applied to the hair in a permanent waving operation, but will also be simple and economical in construction and convenient to use in such operations.

A still further object of the invention is the provision of an appliance adapted for the purpose mentioned which will be readily applicable to various designs and makes of permanent waving units, using either external or internal heat of electric or chemical source, now in general use, without physical or chemical damage to the hair.

More specifically, the present invention contemplates means to control the application of heat during the waving or curling process through the different layers of hair so that at no time will any part of the hair be subjected to excessive heat, which would cause frizzing or kinking.

In the present embodiment of the invention the heat control means consists of a series of thin cylindrical shells formed from semi-cylindrical halves made of metal or other material having heat conductivity, said shells being made interfitting and in successively increasing diameters outwardly, and arranged by the operator in pairs in concentric relation with any usual type of curling rod, upon which the free ends of the hair are wound during the course of the waving operation, to afford additional hair winding and heat distribution surfaces. In the preferred form of the invention the innermost pair of shell halves is superimposed upon the curling rod, and the outer halves are each superimposed upon the halves of the next lesser diameter, so that at the completion of the hair winding process there is direct contact of all the shells through one another with the central curling rod.

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An important feature of the invention is the provision of space between the respective adjacent surfaces of the shells to receive the layers of hair wound on the successive shells and also space between the halves of shells to accommodate the strands of hair being passed from the curling rod or an inner shell to a shell of the next larger diameter upon which it is to be wound. The hair is first wound at its free ends about the curling rod and then around the successive cylindrical shells as they are placed in position by the operator of the waving process. The number of shells required is determined by the texture and length of the hair to be treated.

From the foregoing explanation it will be apparent that the operator will have more effective control of the distribution of heat within each curling unit than is possible when an entire lock of hair is wound upon a single rod, it being understood that hair on different parts of a scalp varies in texture, length and composition, as well as in conditions of the hair due to previous treatments.

Other objects and advantages of the invention will appear from the following specification and the accompanying drawing in which:

Fig. 1 is a perspective view showing an ordinary permanent waving unit with the innermost pair of shells of this invention applied thereto.

Fig. 2 is a perspective of the pair of shells shown in Fig. 1.

Fig. 3 is a plan view of the same shells shown in Figs. 1 and 2.

Fig. 4 is an enlarged transverse section through a series of shells as they are applied in use, this section being taken on the line 4—4 of Fig. 5.

Fig. 5 is a partial longitudinal section taken on the line 5—5 of Fig. 4, with portions of the appliance shown in elevation.

Referring to the drawing by numerals in which like numerals designate like parts in the several views, 10 is a usual type of spacer having end supports, 12 for a curling rod, 14, the latter being provided with a ratchet device 16 by means of which the rod may be rotated in one direction only, this being intended to hold the lock of hair wound on said rod under desired tension after the entire length of hair has been wound upon the curling rod.

It has been customary in permanent waving operations to attach the spacer 10, which is a form of clamp having relatively soft rubber jaws, to a lock of hair at the scalp and to wind the entire length of hair onto the curling rod while the latter is detached from the supports 12, beginning at the free ends of the hair, and then inserting the ends of the rod into the supports. Then the rod is subjected to one-way rotation to place the lock of hair under some tension. The hair is then saturated with some type of fluid and heat applied to the mass of hair either externally or internally.

In Fig. 1 is shown a pair of semi-circular shell members 18 made of metal or other heat conduc-

tive material superimposed on the curling rod **14**. It will be seen that said shells are of such interior diameter that when the ends are in direct contact with the curling rod **14** spaces **20** are left between the edges of the halves. As shown in Figs. 1, 2, and 3 the spaces **20** are preferably somewhat narrower at their ends than at their intermediate portions, but it is entirely practical to make the spaces of uniform width from end to end. It will be seen also that due to the spool-like formation of the rod **14** there is an annular space **22** between said rod and the interior walls of the shell members **18**. The latter space serves to contain the layers of hair wound upon said rod, and the former spaces accommodate the strands of hair passed from the rod to the shell members to be wound thereon.

Referring to Figs. 4 and 5 it is to be understood that a complete working set of shell members may consist of several pairs of such members as indicated by the numerals **18, 24, 26, 28, 30** and **32**, the number required, depending upon the texture and length of hair to be treated, which may be more or fewer than those illustrated. As clearly shown in Figs. 4 and 5, the several shell members are so formed that they fit snugly within each other at their ends, with the exception of the inner pair **18** which is made to fit the end surfaces of the rod **14**, the shells being made in successively increasing diameters outwardly from said rod. The external surfaces of each pair of shell members are reduced in diameter along their intermediate portions to provide spaces **18***a*, **24***a*, **26***a*, **28***a* and **30***a*, between such reduced surfaces and the respective adjacent surfaces of the next larger shells, these spaces serving to contain the layers of hair wound upon the various shells. Each pair of semi-cylindrical shells is also formed to provide spaces between their edges in the same manner as the spaces **20** of the shells **18**.

As shown in dotted lines in Fig. 5 the curling rod **14** and the outer shells **32** may be so formed that the shell ends will be in direct contact with said rod, or so that the ends of each of the shell members will be in direct contact with said rod, if desired.

In the use of the shells shown and described it is to be understood that the initial winding of the free ends of the hair is performed with the curling rod **14** while it is detached and free from the supports **12**. After two or more turns are made on this rod the inner pair of shells **18** is assembled on the rod in the position shown in Fig. 4, with the narrow spaces **20** preferably aligned vertically, the free strands of hair resting in these spaces. The whole unit is then rotated two or more times to wind the hair on the shells **18**. Next the pair of shells **24** is assembled on the shells **18** with the free strands of hair resting in the spaces between the edges in the same manner as with the shells **18** and spaces **20**. The next larger pair of shells **26** is then assembled, and so on until the entire set has been assembled. The operator will then wind the remainder of the length of hair several times about the outer shells **32** until the unit approaches near enough to the scalp to permit inserting the ends of the rod **14**, into the bearings **12**. The operator will then tighten the hair by means of the ratchet device **16** to the desired tension. After all the hair on the scalp to be permanently waved has been wound, the hair may be saturated with a fluid and subjected to the required heat to set the hair in the permanent waves. As already pointed out, heat may be applied to the mass of hair either externally or internally and from various sources such as electrical or chemical heat generators.

From the foregoing description it will be seen that the hair is placed in thin layers between heat conductive and distributive shells which have direct contact through one another with the central curling rod **20**, so that it is not required to heat through a relatively thick mass of hair, as is necessary when the entire length of hair is tightly wound on a single rod. Moreover with the shell members of the present invention there is radial distribution and redistribution of the heat between the curling rod and the outer shell. Therefore a lower degree of applied heat is sufficient to permanently wave the hair being treated with the appliance of the present invention, and with adequate control of the heat to insure against frizzing or kinking of the hair as a result of overheating.

It is to be understood that changes within the scope of the following claims may be made without departing from the spirit of the invention.

I claim:

1. An appliance for preventing frizzing and kinking of hair during a permanent waving operation, comprising, in combination, a central curling rod, upon which the end portions of the hair are initially wound, and a series of pairs of interfitting, heat conductive and distributing semi-cylindrical shells of successively increasing diameters adapted to be assembled concentrically about said rod to provide additional hair winding and heat radiating redistribution surfaces, the walls of said shells having their end portions of substantially uniform thickness but of less thickness intermediate their ends so that when assembled they will have direct contact through the end portions only with said rod, and so that the shells when assembled will afford positive heat conductivity and redistribution radially from said rod to the outermost pair of shells and vice versa, and also provide spaces between their respective adjacent surfaces to contain multiple layers of hair wound about said shells, said pairs of shells having also provision of space between their edges for accommodating the single layers of hair being passed to such pair of shells from the next inner pair.

2. A device of the character described comprising, in combination, a central curling rod, and a series of pairs of interfitting, heat conductive and distributing semi-cylindrical shells of successively increasing diameters adapted to be assembled concentrically about said rod, said shells having radially projecting end portions adapted for contact with the end surfaces of respective adjacent shells for providing narrow spaces between the intermediate adjacent surfaces of said shells when assembled, to contain hair wound on said shells, said pairs of shells having also provision of spaces between their edges for accommodating the single layers of hair being passed to such pair of shells from the next inner pair.

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