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PERMANENT WAVING OF HAIR

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This invention relates to the art of waving hair upon the human head to produce so-called "permanent waves." While this art is well developed and even though it is practiced very extensively, nevertheless present methods of waving hair include certain disadvantages and subject the person whose hair is to be waved to certain hazards. These include the hazards of steam burns and burning the hair to carbon caused by the high temperatures used in softening the hair. The danger of electrical shock also exists because of the common use of electricity as a heat generating medium, although steam and chemicals are also employed. The present invention, in attaining its objects, obviates these disadvantages and hazards. Not only are the dangers of burns and shock obviated, but the person is able to follow some useful pursuit for the period while the wave in the hair is being fixed.

It is an object of the present invention to avoid the difficulties, and particularly those hereinbefore noted, which are inherent in the art of permanent waving as practiced heretofore and to provide a simple, safe and effective method of permanently waving hair on the human head.

A further object is to provide a new method of permanent waving, one not requiring the expensive apparatus heretofore employed, and yet effectively imparting a permanent wave to the hair.

The invention includes other objects and features of advantage in addition to the foregoing. These will appear in detail upon a study of the method of waving hair set forth hereinafter as the preferred present practice.

In producing waves of the "Croquinole" type, in accordance with this invention, the hair at the head is blocked off into individual strands of convenient size and each strand is then wound in spiral form toward the scalp and secured. Depending on the preference of the operator, the hair it wet before or after winding with a suitable lotion as hereinafter detailed. All protectors and heat pads are omitted. The wave is therefore started at least a half inch closer to the scalp than in the hot processes.

While as means for winding the hair in spiral form any one of the numerous spindles and clamps of the prior art can be used, such as that typified in the Bonat Patent No. 1,921,802 of August 8, 1933, I prefer to use a relatively simple structure, usually one made out of a paper covered wire or rubber covered wire, such as that illustrated in British Patent No. 260,979, of January 27, 1927.

Those skilled in the art will have no trouble in utilizing such devices, the hair on the scalp being blocked off and suitably wound upon one of the waving devices from the end thereof to closely adjacent the scalp, so that the hair is then secured in wound form. The curling device in this invention can be carried directly adjacent to the scalp and a permanent wave imparted close to the scalp, thus increasing the effectiveness of the wave, since the first curl can be placed very close to the scalp. This enables a less expensive wave to be given, for less equipment is required, the protectors, pads, clamps and heating elements of the prior art being omitted.

After the wave is in, the waving solution is thoroughly rinsed therefrom in clear water or first in a slightly acid rinse and then in water, though the acid rinse is not necessary. When the hair is taken down it is wet but the wave is in—rinsing out of the chemical is desired to the end that the next time the hair is wet the chemical will not act again, as would be the case if the chemical were permitted to remain in the hair. Preferably, the hair is not allowed to dry while waving for if it does the action of the chemical ceases. It is soft and glossy and has it natural oil and life. The omission of the baking step of the prior art prevents burned and dried out hair, as well as the dangerous scalp burns.

In forming helix curls, the hair is wound on a rod or other device usual to curl formation, the treatment being otherwise similar.

It is to be noted that the hair is not subject to such extremes that split hairs result, something common with permanent waving practiced heretofore. Instead, the hair is softened and waved under such conditions that bursting of the outer shell of the hair and burning thereof are obviated, while a satisfactory wave, one lasting as well as a high heat wave and having a better appearance, is secured.

As suitable waving materials I can employ the vapor of ammonium sulphide or ammonium hydrosulfide in the presence of water or a solution thereof as the waving solution. With these I can impart a permanent wave to hair in a short time—from one to ten minutes—at the low temperature used in the process of this invention. By permanent wave, I mean an artificial curl or wave in human hair which will successfully withstand repeated wetting and shampooing without straightening out. It must be appreciated that the size of the arc of the curl will increase in time slightly. Such a wave remains in the head hair so long that rewaving of the hair is prac-

ticed not because the previous wave is not present but because natural hair growth has occurred and therefore a length of unwaved hair is present adjacent the scalp. In other words, growth and not relaxation necessitates the re-waving.

An aqueous solution of hydrogen sulphide or a passage of ammonium sulfide or hydrogen sulfide gas into the wet wound hair waves the hair permanently.

Sulphides and hydroxides of sodium and potassium must be used in dilute solution so that the total alkalinity is low, to avoid deleterious swelling of the hair. A fraction of one percent is usually a maximum, for I do not wish to swell the hair, remove its elastic properties, nor to hydrolyze the hair or any part thereof. In fact hair waved in accordance with my invention does not exhibit any swelling which is apparent even microscopically, while the elasticity is substantially unimpaired at any time during the waving process, so much so that when a curl is drawn out, it snaps back to its curled position even while wet with waving solution.

It is a feature of this invention that the waving is done "cold" and by this I mean at temperatures below the upper limit of body tolerance (140° F.). Operation of the process is intended at room temperatures, although gentle heating, such as that from sunshine or a warm room, in contrast to scalding heat, is still within the term "cold."

The process of this invention is readily distinguished from the present practice of permanently waving hair, such as is typified by the patent to Sguerso No. 1,884,890 of September 25, 1932. In the process typically disclosed in that patent, the following essential steps are included: The hair is first divided into strands, and a heat protecting shield is then placed on or around the base of each strand and next to the scalp. Each strand is then gripped close to its shield with a clamp. The hair is then wet with a hair lotion, and is wound on a curler, the curler being positioned on the clamp when the hair has been wound closely to adjacent the scalp, and thereafter the curler is rotated upon the clamp with a key so that the hair is stretched on the curler and between the clamp and the curler. This stretching operation, essential to a heat wave, is one causing pain and discomfort to the person whose hair is being waved. The wet wound strands are covered with an absorbent pad saturated with solution and external heat is applied to each strand, this heat being sufficiently high to cause generation of steam from the solution and a cooking of the hair. The temperature will range from 212° F. to as high as 450° F. The heating is continued for about five minutes whereupon it is shut off and the hair allowed to harden in its wound position by cooling. If the hair is taken down hot the wave which has been imparted to the hair will vanish. The hair while hot is limp, loose and apparently lifeless. It is essential to permit the hair to cool and harden while wound and stretched upon the curlers, and it is only after the hair is cooled and hardened in its wound and stretched condition that the wave is permanent.

In my process, the hair can be taken down while still wet with the waving solution without any danger of the permanent wave vanishing because I do not use a softening and hardening process. In my commercial operation I recommend combing of the hair to facilitate rinsing of the hair. Hair waved by the prior art methods cannot be combed until it has hardened without removing the permanent wave. In my process, when the hair is unwound from the curlers and is still wet with the hair waving solution, the curled hair may be pulled straight, but when released the hair snaps back into its curled position without any apparent relaxation at all.

I believe that in waving hair in accordance with my invention resetting of the cells of the hair is accomplished because if the hair waving solution is left on the hair it eventually takes out much of the permanent. I believe that when hair is placed in an unusual position, that is, a position in which the hair would not normally be, and is wet with a mild acid or alkali, the cells making up each hair strand are permitted to adjust themselves so that the hair remains in the altered form. If the waving solution is then removed, the hair remains in the form which it adopted when wet with the solution and can be said to be permanently curled or waved.

Hair waved in accordance with the process of my invention is not dry nor burned, and is free from split hairs. It is common knowledge that in hair waved by the so-called "hot" permanent waving methods, burned, dry, split hairs are quite common. These are probably formed by bursting of the hair due to steam generation within it.

I further believe that no softening of the hair takes place during my process, because the hair always retains substantially the same elasticity at all times during the process. There is no swelling of the hair, and the process of my invention can therefore be distinguished readily from those processes which depend upon the use of strong electrolytes, utilizing alkalies as sodium hydroxide in concentrations of 1% or more wherein the swelling of hair actually occurs. I have examined hair so waved, and find that where, for example, the core in the hair was originally continuous, after it has been swollen and waved by the use of strong electrolytes such as that aforementioned, that this central core is broken up and is discontinuous. Thus instead of extending through the hair in the form of a rod, the central core is broken up into a plurality of short lengths spaced apart by hollow sections.

Because my process does not involve cooking, baking or hydrolysis, the hair retains its color, elasticity, strength and life and actually seems softer to the touch than before waving.

It should be obvious that the process of my invention has many advantages. For example, my process can be practiced in the home with very inexpensive supplies and no equipment. As a matter of fact, it is necessary to have equipment costing approximately $500.00 to impart the usual hot permanent wave such as that typically disclosed in the aforementioned patent to Sguerso. In addition, the wave must be imparted by an experienced operator. The hot waving equipment includes a full set of heat shields, clamps, curling rods, heaters, the heat generating or control cabinet, as well as minor accessories, such as pads, waving solutions, and winding papers.

In addition, the person having such a wave is put to the inconvenience and trouble of traveling to the beauty shop after first having made an appointment. Statistics show that only a small percentage of the women in the United States patronize beauty shops.

The process of my invention has met with wide success among all classes of women. It is possible to do housework or go on the street after the hair is wound up by merely covering the foil with a beret, or it can be left up at night and

the wave completes itself while the person is asleep.

The process of my invention also makes possible the permanent waving of hair for those persons, women and children, who cannot stand the scalding heat employed with the prior art processes typified by the Sguerso patent.

The process of my invention is not to be compared to the prior art processes utilizing the thermoplastic or hydrolytic properties of hair. Just because my process can operate successfully at lower temperatures, any temperature above freezing, it should not be inferred that it is merely a question of taking a longer time at a lower temperature, for, as a matter of fact, permanent waves can be imparted to hair successfully in even less time than a permanent wave of a comparable length of life can be imparted to hair by the so-called hot processes or by the hydrolytic process by the use of a hair softening material such as a strong sodium hydroxide in solution.

I claim:

1. The method of waving hair upon the human head which comprises dividing the hair into compact strands, wetting the hair with an alkaline sulfide solution of low total alkalinity, winding the hair strands and securing the hair in wound form to fix in the cold a permanent wave in the hair while the wound hair is wet.

2. The method of waving hair upon the human head which comprises dividing the hair into compact strands, wetting the hair with an ammonium sulfide solution, winding the hair strands and securing the hair in wound form to fix in the cold a permanent wave in the hair while keeping the wound hair wet with said solution.

3. A process for imparting a permanent wave to hair upon the human head consisting in dividing the hair into compact strands, wetting the hair with an alkaline sulfide solution of low total alkalinity, winding the hair strands in coil form on the head and securing wound coils, and keeping the hair in said wound coils wet, with said solution, until a permanent wave is imparted.

4. A process for imparting a permanent wave to hair upon the human head consisting in dividing the hair into compact strands, wetting the hair with an ammonium sulfide solution, winding the hair strands in coil form on the head and securing wound coils, and keeping the hair in said wound coils cold and wet with said solution until a permanent wave is imparted.

5. A method for permanently waving hair which comprises dividing the hair into compact strands, wetting the hair with a solution of a material selected from the group of ammonium sulfide, hydrogen sulfide, sodium sulfide and potassium sulfide, said solution having a low total alkalinity, winding the hair strands and securing the hair in wound form to fix a permanent wave in the hair in the cold while said wound hair is wet with said solution.

6. A method for permanently waving hair which comprises dividing the hair into compact strands, wetting the hair with a solution of a sulfide, said solution having a low total alkalinity, winding the hair strands and securing the hair in wound form to fix a permanent wave in the hair in the cold in from one to ten minutes and while said wound hair is wet with said solution.

7. A method for permanently waving hair which comprises dividing the hair into compact strands, wetting the hair with a solution of a sulfide, said solution having a low total alkalinity, winding the hair strands and securing the hair in wound form to fix a permanent wave in the hair in the cold in a short time while said wound hair is wet with said solution.

8. The method of cold permanent curling of hair upon the human head comprising dividing the hair into compact strands, winding the hair strands into rolls, wetting the hair with an alkaline sulfide solution of low total alkalinity, retaining the so wet hair in wound form until a permanent curl is fixed therein, and rinsing out remaining sulfide solution.

9. The method of cold permanent curling of hair upon the human head comprising winding strands of hair in coil form, wetting the hair with ammonium hydrosulfide solution and rinsing out said solution with water after a sufficient time has elapsed for said solution to produce the desired degree of permanent curling in the hair.

10. The method of cold permanent curling of hair upon the human head comprising wetting strands of hair with ammonium hydrosulfide solution, winding the strands in coil form, and securing the so wet and wound hair against unwinding until a permanent curl is produced.

11. The method of cold permanent curling of hair upon the human head comprising wetting hair strands with a water solution of hydrogen sulfide, winding the strands in coil form and securing the so wet and wound hair against unwinding until a permanent curl is produced.

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