

UNITED STATES PATENT OFFICE.

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METHOD AND MEANS OF TREATING HAIR.

No Drawing.

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This invention relates to waving human hair, and more particularly to new and useful improvements in the method and means of producing what is known as a "permanent wave."

It has long been known that a lasting wave can be produced in cut hair by heating it, while wound and under suitable tension, for a considerable time at the temperature of boiling water. The time required in this method may be shortened if the hair is heated in a closed vessel with water or steam under pressure and at a correspondingly higher pressure.

Either of these methods is impractical for waving hair while it is still on the human head; many ways have been devised and used to produce a lasting wave in a short time without resorting to the use of steam under pressure. All of these methods are based on the use of aqueous solutions of alkaline substances and differ from one another in the fact that they use a number of different alkaline substances and so produce different effective alkalinities. Alkaline solutions soften the hair more rapidly than water alone and thereby enable the hair to take a "set" more quickly.

Water alone, or water and alkalies, undoubtedly act by producing a certain partial hydrolysis of the protein material which is the main constituent of hair. The extent of this hydrolysis varies with the particular combination of chemicals and temperatures employed. Where this breaking down of the hair structure is carried too far, either through excessive alkalinity or temperature, or a combination of the two, the hair may be seriously injured.

The present invention is based on the discovery that softening of hair involves something more than simple hydrolysis. It is well known to those familiar with hair waving that a characteristic, sulphur-like odor develops when hair is waved by any of the usual methods. The present invention is based on the thought that sulphur-removing substances should make effective waving agents. In other words, our invention involves the application to the hair of an agent capable of removing sulphur therefrom.

Of the many substances that combine with sulphur, it appears that the sulphites as a

class are the best suited for the requirements of hair waving. Sulphides, for example, are too energetic in action and may, if carelessly applied, destroy the hair, but the action of the sulphites is just rapid and energetic enough to soften the hair to the necessary degree without injuring it. In the preferred practice of our invention ammonium sulphite is the compound which has been found to be best suited. All the sulphites of the alkali metals for example, sodium and potassium sulphites and apparently any other soluble sulphites may be used.

The advantage of applying ammonium sulphite appears particularly where the conditions are such that the hair is not fully or evenly heated throughout in the waving process. In fact, ammonium sulphite acts exothermically,—that is to say, when hair is wet with ammonium sulphite solution there is a development of heat and the hair becomes sensibly warm. The use of ammonium sulphite is also advantageous under conditions where a very strong alkali would otherwise be required, for in such cases it is often possible to wave hair with safety by means of ammonium sulphite when it would not otherwise be possible.

Ammonium sulphite or its equivalents may be employed as waving agents either alone or in combination with other materials. Thus it is advantageous to use a small proportion of alkali in conjunction with ammonium sulphite so as to produce the optimum concentration of alkali in the solution for wetting the hair. This alkali, especially in combination with some sulphonated castor oil, or a similar product, helps to emulsify any oil on the hair and so enables the waving agents to penetrate the hair thoroughly.

It is immaterial whether the ammonium sulphite is supplied as a solid or dissolved in solution, or on a pad saturated with the ammonium sulphite. For the practice of the present invention, all of these forms of supplying the sulphur-removing agent are completely equivalent. While we contemplate applying the agents mentioned above in conjunction with well known methods of waving hair which include folding the hair and applying heat to the hair, we do not care to be limited other than by the claims appended hereto.

We claim:

1. The method of waving hair comprising heating the hair in the presence of ammonium sulphite in solution applied to the hair and maintaining the application of the ammonium sulphite in contact with the hair for a sufficient period of time to soften the hair, thereby removing sulphur from the thus softened hair.
2. A composition of matter for use in waving hair, comprising a soluble sulphite adapted to be applied to the hair.
3. A composition of matter for use in waving hair, comprising alkali sulphite in solution adapted to be applied to the hair.
4. A composition of matter for use in waving hair, comprising ammonium sul-

phite in solution adapted to be applied to the hair.

5. A composition of matter for use in waving hair, comprising a soluble sulphite, sulphonated castor oil, and an alkali.

6. The method of waving hair, comprising the application thereto of sulphonated oil in solution with a sulphur removing agent, thereby at least partially emulsifying the natural oil of the hair to permit the removing agent to act.

In testimony whereof, we hereunto affix our signatures.

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