

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 "perma-
5 nent 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
10 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.

15 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
20 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
25 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 alkalis, un-
30 doubtedly 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
35 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.

40 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
45 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
50 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, 55
are too energetic in action and may, if care-
lessly applied, destroy the hair, but the ac-
tion of the sulphites is just rapid and ener-
getic enough to soften the hair to the neces-
sary degree without injuring it. In the pre- 60
ferred 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 65
other soluble sulphites may be used.

The advantage of applying ammonium
sulphite appears particularly where the con-
ditions are such that the hair is not fully
or evenly heated throughout in the waving 70
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 am- 75
monium sulphite is also advantageous un-
der 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 80
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 pro- 85
portion of alkali in conjunction with am-
monium sulphite so as to produce the opti-
mum concentration of alkali in the solution
for wetting the hair. This alkali, especially
in combination with some sulphonated castor 90
oil, or a similar product, helps to emulsify
any oil on the hair and so enables the wav-
ing agents to penetrate the hair thoroughly.

It is immaterial whether the ammonium
sulphite is supplied as a solid or dissolved 95
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 contem- 100
plate 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 105
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 sulphite 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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