

## UNITED STATES PATENT OFFICE.

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## HAIR-TREATING COMPOSITION.

No Drawing. Original application filed October 14, 1926, Serial No. 141,475. Divided and this application filed April 11, 1927. Serial No. 183,003.

This invention relates to improvements in hair treating compositions and more particularly to a composition of matter to be used in the process of permanent hair waving, and is a division of an application filed by me on October 14, 1926, bearing Serial No. 141,475, wherein the hair treating composition was disclosed in the form of a thin wafer or cake enclosed in an envelope of cheese cloth or like fabric, and forming what is known in the art as a steam pad.

For the purpose of the present disclosure, the manner in which the composition is applied to the hair or the particular vehicle used in its application is not important, since the invention herein set forth pertains more particularly to the chemical ingredients and properties of the composition.

The chief objection to the ordinary hair treating compositions now in use is the absence of those properties which insure protection to the hair against the destructive action of excessive heat, as well as the chemical action of the ingredients. In fact, the process of hair waving as now practiced is attended with more or less uncertainty, inasmuch as the results are quite dependent upon the skill and expertness of the operator in the regulation of the intensity and duration of the heat.

The purpose therefore of the present invention is to provide a hair treating composition which has chemical properties calculated to protect the hair against the injurious effects of excessive heat and to otherwise preserve the texture of the hair in its natural fineness and luster.

The following is a full and complete description of the preferred composition of the hair treating substance and the method of compounding the same.

In general, the hair treating substance consists of an emulsified oil, mixed with a salt which when dissolved in water, shows a weak alkaline reaction, and a filler, the composition being initially prepared in a high plastic paste form.

The emulsified oil consists of a suitable vegetable, animal or other non-drying oil, an emulsifying agent, such as a suitable grade or kind of colloidal clay, and water, as the vehicle for the emulsification. By preference, I use either olive oil or castor oil and colloidal clay of the bentonite (wilkenite) type. To form the emulsion, I take

25 parts by weight of the olive oil, 5 parts by weight of bentonite (wilkenite) and 70 parts by weight of water, although the proportions may be varied somewhat from those given. These ingredients are thoroughly mixed together so that the oil is in the internal phase and the colloidal clay and water are in the external phase.

The emulsion having been prepared, a paste is then formed consisting of about 20 parts of the emulsion, 60 parts of a relatively weak alkaline salt and 20 parts of a filler, such as silica of say, 200 mesh fineness. One of several salts may be used, or a mixture of two or more salts, of which the following are examples: disodium phosphate; sodium pyrophosphate; sodium bicarbonate; ammonium bicarbonate; and/or sodium and ammonium phosphate.

In carrying out the compounding of the substance commercially, an ordinary tank mixer with agitating paddles is used in which the emulsion is prepared. Warm water and bentonite are first mixed together to form a creamy homogenous liquid, to which is added warm oil which becomes thoroughly combined with the aqueous dispersion of the clay to form the emulsion. This emulsion is very stable, and hence the separating of the oil from the suspending liquid is very slow. Consequently, large quantities of the emulsion can be prepared and stored for use as needed, since but slight agitation is required to re-establish its original creamy and uniform consistency.

The emulsion which may either be taken directly from the mixing tank or from the stored supply, is mixed and thoroughly kneaded with the alkaline salts and filler in the proportions already stated, into the form of a highly plastic paste of butter consistency. In this form it is then formed into bricks of convenient size, and thence sliced into thin cakes or slabs, either by knife, wire or other slicing means. It is in the form of these thin cakes or wafers that the hair treating composition is preferably used, namely, by enclosing them within a fabric envelope as already described. The composition may also be used in the form of a powder, a paste or in a solution, depending on which is more convenient for use in the particular method of waving being used.

As thus compounded the hair treating

compound possesses certain chemical and physical properties calculated to insure results hitherto not obtainable in the materials and methods used. When the composition is moistened and applied to the hair, the application of heat causes an alkaline steam to be generated which penetrates the hair and imparts the permanency to the wave. Accompanying the alkaline steam is also generated actual oil steam which also penetrates the hair and protects it against the excessive action of the alkaline steam and heat on the hair structure, the tendency of which, if not perfectly regulated, is to destroy the hair, leaving it lifeless, brittle and discolored. The presence of the oil steam, therefore, makes the hair soft, pliable and lustrous, at the same time counteracting the destructive action of the alkaline steam on the hair if allowed to continue too long. It therefore removes from the operation that element of uncertainty as to time of heat application, which is particularly difficult to cope with, regardless of the care and experience of the operator, owing to the difference in texture of the hair of different individuals, as well as in different parts of the scalp of the same individual.

It follows, therefore, that by the use of the hair treating substance herein disclosed, satisfactory results can be assured even in the hands of less experienced operators. Similarly, hair of light shades and dyed hair, which are particularly susceptible to discoloration, can be waved without difficulty, in fact, in the treatment of dyed hair the dye is not only preserved, but becomes more permanently fixed thus imparting new life and luster into the hair.

The results thus obtainable with the hair treating substance, may be attributed to the fact that while the steam works under the scale of the hair, the presence of the oil steam prevents the alkaline steam from attacking the body of the hair, with the disastrous results already described.

The physical properties of the substance are also of importance as compared with the loose and powdered form of the ordinary borax now in use. In the first place, the presence of bentonite, not only acts as an emulsifying agent, but also as a plasticizing and bonding agent which unites the entire mass into a porous structure which does not crumble when dry and gives it highly plastic properties when moistened, allowing a close contact with the hair. Moreover, the substance has inherent adhesive properties, increased viscosity when heated and decreased expansion, all of which add greatly to ease of application and the elimination of many of the trying aspects of the present hair waving treatments. Finally, the physical properties of the substance is such that when enclosed in a fabric envelope, it pro-

vides a leakproof pad which may be shipped and handled without the crumbling of the substance and its sifting through or shifting in, the envelope.

Having thus disclosed a preferred embodiment of my invention consisting of a composition of matter having certain chemical and physical properties as advantageous in the treatment of hair in the process of hair waving, it is to be understood that certain modifications or variations in the exact nature or proportions of the ingredients used as well as in the process of compounding the same may be resorted to, without departing from the spirit of my invention.

I claim as my invention:

1. A composition of matter for the purpose described, consisting of a mixture of an emulsion of a non-drying oil, a colloidal clay, and water, and an alkaline salt.

2. A composition of matter for the purpose described, consisting of an emulsion of a non-drying oil, a colloidal clay and water, a relatively weak alkaline salt, and a mineral filler.

3. A composition of matter for the purpose described, consisting of an emulsion of olive oil, colloidal clay of the bentonite type and water, to which is added a salt showing a weak alkaline reaction, and a mineral filler.

4. A composition of matter for the purpose described, consisting of an emulsion of substantially twenty-five parts of a non-drying oil, five parts of a colloidal clay, and seventy parts of water, to which is added an alkaline salt and a filler to a plastic consistency.

5. A composition of matter for the purpose described, consisting of an emulsion of substantially twenty-five parts of a non-drying oil, five parts of colloidal clay, of the bentonite type, and seventy parts of water, mixed with an alkaline salt and a mineral filler in the proportion of substantially twenty to sixty to twenty parts, respectively.

6. A composition of matter for the purpose described, consisting of a physical mixture of twenty parts of an emulsion of substantially twenty-five parts of olive oil, five parts of bentonite (wilkenite) with seventy parts of water and sixty parts of a salt having a relatively weak alkaline reaction, and twenty parts of fine silica.

7. A hair treating composition for the purpose described, comprising in combination with an alkaline steam producing agent, of an emulsion of a non-drying vegetable-oil a colloidal clay of the bentonite type and water.

8. A method of compounding a composition of matter for the purpose described, consisting of forming an emulsion of oil, bentonite and water, adding an alkaline

salt and a mineral filler to the emulsion, kneading the mixture to a consistency of butter, and dividing the same into thin wafers.

- 5 9. A method of compounding a composition of matter for the purpose described, consisting of preparing an emulsion of olive oil, bentonite and water, agitating the

emulsion to a creamy consistency, adding an alkaline salt to the emulsion, and sufficient 10 fine silica to reduce the mixture to a pasty consistency capable of being divided into thin wafer form.

Signed at Chicago, Ill., this 22nd day of March, 1927.

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