

Manufacture of oleaginous or saponaceous compounds suitable for producing medicinal emulsions for absorption by the skin, or for disinfection / [Friedrich Wilhelm Klever].

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PROVISIONAL SPECIFICATION.

Manufacture of Oleaginous or Saponaceous Compounds suitable for Producing Medicinal Emulsions for Absorption by the Skin, or for Disinfection.

I, FRIEDRICH WILHELM KLEVER, Manufacturing Chemist, of Brandenburgerstrasse, Cologne, in the German Empire, do hereby declare the nature of this invention to be as follows:—

- My invention has for its object to impart to certain medicaments, such as creosote, 5 camphor, chloroform, ichthyol iodoform, oil of turpentine, menthol, pyoctanin, pyrogallol, chrysarobin, eucalyptus oil, and also to disinfectants, such as creolin, a permanent capacity for forming emulsions, or to increase such capacity, if already existing, and to facilitate the absorption of these medicaments and disinfectants by the skin.
- 10 For this purpose I combine the said medicaments or active ingredients with mineral oils, which have been saponified by any known method, until they are capable of forming emulsions with water and with aqueous solutions, said combination being preferably effected under pressure in a hermetically closed retort.
- By their combination with these mineral oil compounds the said medicaments 15 and disinfectants are rendered capable of forming emulsions with any desired quantities of water, milk and similar liquids, and especially also with the secretions of the skin or of wounds, or their capacity for forming such emulsions is improved, their absorption by the uninjured skin is facilitated, and as far as they are at all suitable for internal use, their application for this purpose in mixture with water, 20 milk or other beverages is facilitated. The relative quantities of the medicaments and disinfectants depend, on the medical requirements, in the case of creosole it may range from less than 1 per cent. to about 35 per cent., in the case of iodoform from less than 1 to about 5 per cent.

Dated this 22nd day of June 1893.

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FAIRFAX & WETTER,
Agents for the Applicant.

COMPLETE SPECIFICATION.

30 **Manufacture of Oleaginous or Saponaceous Compounds suitable for Producing Medicinal Emulsions for Absorption by the Skin, or for Disinfection.**

I, FRIEDRICH WILHELM KLEVER, Manufacturing Chemist, of Brandenburgerstrasse 6, Cologne, in the German Empire, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

- 35 The attempts hitherto made to take advantage, for manufacturing purposes, of the fact that mineral oils of every description will combine with oxygen and with bodies containing oxygen, such as the alkalies for example, have been confined to the employment of such mineral oils for the purpose of purification, in the manufacture of hard and soft soaps, such as are commonly met with in the market 40 and are known as "commercial" or "industrial soaps."

With this object in view, the mineral oils have been mixed with oleic acids in proportions varying from 20 to 60 % and upwards, the mixture being then subjected

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to the action of oxygen, for the purpose of enabling combinations to form with the alkalies.

After producing such a combination, animal or vegetable fat was added, not unfrequently in a rancid condition, *i.e.*, after the oxygen of the air had combined already with the fatty substances, and commenced to decompose the same. In addition to this, the mineral oils were treated with oxidizers, such as manganese ore (oxide of manganese), salts of copper, also with chloride of sodium (common salt), Glauber's salt, chloride of lime or the like. The additions of alkalies were in proportions varying between 20 and 40 *per cent*.

No effort appears, however, to have been made hitherto, to utilize mineral oils treated with oxygen and mixed with alkalies, for the purpose of medicine or surgery. The fact is, that it has not been possible to make them serviceable for these purposes in the form in which they were used in the soap manufacture. To make them applicable, therefore, to medicinal uses, it was necessary to treat them in a peculiar manner and by methods totally different from that which had been adopted before. To devise such a method has been the object of the present invention.

It is desirable, in the first place, to avoid a mixture of the mineral oils with the oleic acids, before the oxygen has produced its effect. The next point is that, in the case of medicines, no substances should, of course, be added which are likely to injure the human constitution or the animal organism, so that the use of salts of copper, chloride of lime and the like should be avoided. Admixtures of fats of a vegetable or animal nature should also be preferably refrained from. The best course is, to treat the mineral oils, in their natural condition, by the direct action of oxygen, preferably under pressure and with the employment of heat. Then, alkalies are added, preferably either sodium compounds or ammonia. The percentages of the alkaline admixtures should be as low as possible and should vary according to the nature of the mineral oil to be treated; it being undesirable for them in any case to exceed from 5 to 7 *per cent*. of the quantity of mineral oil. In the case of mineral oil containing but little acid matter, oleic acid may be super-added under pressure and preferably after the oxygen has completed its action, the proportion of the admixture being as small as possible; in fact, never exceeding from 10 to 20 *per cent*. The same result may be attained by treating the mineral oil by an open current or jet of oxygen, and adding alkalies, and, when necessary, oleic acids, especially in cases where the current of oxygen is heated to about 150° centigrade. The oxygenating process in this case lasts rather longer, however, and from 10 to 20 *per cent*. of the material are lost; besides the oxygenation is not so intense as it would be under pressure. The gases rising from liquid oxygen under pressure are preferably used for this purpose.

The pressure and temperature should be determined in accordance with the nature of the different oils, in some of which reaction sets in as soon as a pressure of from 7 to 10 atmospheres is attained, while others require 20 or more atmospheres of pressure. The precise pressure required for this, in a given case, may be readily ascertained by testing samples. All oils will stand temperatures up to about 200° centigrade. The higher the temperature reached, or in other words, the greater the heat which the oil is capable of sustaining, the more rapidly will the process be completed. To ascertain, whether it is completed or not, it may also be expedient to take samples from time to time, whereby the final temperature may be readily found. Temperatures exceeding 200° centigrade are apt to become dangerous and to cause explosions. In an open vessel or boiler the temperature should not rise beyond 150° centigrade. If it did, a considerable amount of material would be lost, while at the same time the oil would become thick and assume a dark colour.

The mineral oils treated in this manner will be found sufficiently oxygenated for medicinal or medico-cosmetic purposes such as are herein contemplated, if they are capable of forming with water a durable emulsion from which the oil will no longer separate. The time required for sufficient oxygenation varies in the case of each

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kind of oil and must be ascertained by test-samples. The same remark applies to the proportion in which the alkalies are to be added, and also, when required, to the admixture of oleic acids. To prevent the oil from becoming thick, when oleic acids are added, a small quantity of alcohol may be superadded to it; but the alcohol should in no case exceed one or one and a half *per cent.*, as a higher percentage will interfere with the successful completion of the process.

Mineral oils of 0.900 specific gravity should be used for the purposes of this invention in preference. Besides the mineral oils belonging to the petroleum category, and especially that known by the name of vaseline, other mineral oils, such as the paraffin oils, may be employed. When vaseline oils are used, I call the products *vaselina oxygenata-vasogene*.

Besides this special treatment of mineral oils, my invention includes the discovery, that mineral oils thus treated are capable of dissolving certain well known medicaments and disinfectants in a complete and permanent manner, whereas such medicines or chemicals have hitherto been considered as quite insoluble or, if soluble at all, necessitating the employment of solvents which have up to the present time been available for use to a limited extent only, such as creosote, guaiacol, iodoform, chloroform-camphor, eucalyptol, turpentine, menthol, ichthyol, creoline. Also the discovery, that these solutions of medicaments and disinfectants have the property of forming emulsions with water or aqueous solutions, such as milk, and particularly with the secretions of the skin and of all kinds of wounds or sores, and are as such suitable for internal and external use. Also that these solutions have the extremely valuable property of being capable of absorption through the skin.

These solutions are preferably produced also in a retort or closed vessel, under pressure, though they may, if desired, be prepared by mechanical means, in which case, however, they are attended with the disadvantage of not remaining long enough in a uniform condition, but of giving off their oxygen to the air in a short time.

The proportions in which these solutions should be mixed for medical or surgical purposes are apt to vary extensively. In the case of creosote, for example, the percentage may vary between less than one and 30 *per cent.*, the usual average being about 20 *per cent.*; in the case of iodoform the proportion will fluctuate between less than 1 and 2 *per cent.*, being generally $1\frac{1}{2}$ *per cent.*; in the case of menthol it may vary from under 1 up to 30 *per cent.*; in the case of eucalyptol, from under 1, generally, up to 20 *per cent.*; in the case of ichthyol, from under 1 up to 10 *per cent.* (generally); in the case of oil of turpentine, from under 1, generally, up to 20 *per cent.*; in the case of guaiacol, from under 1, generally, up to 20 *per cent.*; in the case of chloroform-camphor, from under 1 *per cent.*, generally, up to equal parts, and in the case of creoline, from under 1 *per cent.*, generally, up to 50 *per cent.* and upwards.

All these solutions may be used, not only for medicinal and disinfecting, but also for other purposes, such as the manufacture of cosmetics, perfumery and the like; or they can be made thick or semi-solid, to be used as ointments and the like. For these latter purposes, ceresin, paraffin, fat, wax or similar substances may be added.

The compounds which the present invention thus permits to produce for healing and disinfecting purposes; in the condition of an oily liquid, or of an ointment, are capable of being applied to uses, the possibility of which has not been known or suspected before now. Well-known medicines, of the kind mentioned above, including salicylic acid, may, by means of this invention be introduced into the blood by being rubbed through the skin, and therefore rendered fit for use even in those cases where for some reason or other they cannot be taken internally.

Creosote—to take one instance—is generally acknowledged to be one of the best remedies for tuberculous consumption, and it is generally administered in capsules and pills for internal use, owing to the fact that it has an extremely corrosive action on the skin, and is particularly apt to destroy the mucous membranes. In

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fact, the mere repeated application of it to the unbroken epidermis results in corrosion. And it is well known, that consumptive persons, even though they be very strong, as regards their stomach and digestive organs, can put up with a treatment by creosote but for a very short time, while some invalids cannot support any creosote at all, in the form in which it has heretofore been supplied. 5
Now this invention enables creosote solutions to be produced, which can either be imparted to the circulation through the skin or, with equal convenience, given to the patient in doses varying between 10 and 60 drops per glass of water or milk, with or without the addition of brandy, wine or other alcoholic liquor four or five times daily, without bringing about the least disorder. Again, creosote-vasogene 10
at 20 *per cent.* will remove inflammations of the lymphatic glands by being simply rubbed into the skin.

Iodoform vasogene at 1 and a half *per cent.* obtained by the method herein described, and applied as stated, will heal wounds without suppuration more quickly than heretofore; it will also rapidly remove piles. 15

Creoline-vasogene at 15 *per cent.* offers a new means for sterilising the membranes in dyptheria. When applied to the pseudo membranes in the form of pads or tampons, liberally soaked with creoline-vasogene, it will at once permeate the same and destroy the bacteria without in any way injuring healthy tissues; soon after its application, the pseudo-membranes will be expelled in pieces by coughing. 20

Iodoform-vasogene at one and a half *per cent.* and creoline vasogene at 5 *per cent.* will, if injected alternately in cases of gonorrhœa, destroy the gonococci and staphylococci in four applications; thus effectually curing the disease without injuring any of the healthy tissues.

The 25 *per cent.* menthol vasogene, when rubbed in the region of the spine and 25
on the top of the head, the dose being from 10 to 20 drops at a time, will remove sick headache and neuralgia in a short time, and give relief in the most obstinate cases.

Chloroform-camphor-vasogene, mixed in equal parts, for example, and rubbed into the skin, is an effective remedy for rheumatism, gout, gouty knots or swellings 30
caused by dislocations or by cartilaginous growth after fractures.

Two *per cent.* menthol vasogene, five *per cent.* creosote-vasogene and a mixture of two *per cent.* creoline-vasogene with one *per cent.* menthol-vasogene, are remedies which will prove very serviceable in laryngology, otology, and other cases. 35

Having now particularly described and ascertained the nature of the said invention, and in what manner the same is to be performed, I declare that what I claim is :—

1. The herein described manufacture from mineral oils, of oleaginous or saponaceous compounds suitable as solvents or vehicles for medicaments, disin- 40
fectants, perfumes and cosmetics.

2. The herein described manufacture of medicinal and disinfectant solutions in the shape of oils or of ointments capable of forming emulsions and of being absorbed by the skin, such as creosote-vasogene, iodoform-vasogene, chloroform- 45
camphor-vasogene, eucalyptol-vasogene, menthol-vasogene, turpentine vasogene, salicylic vasogene, guajacol-vasogene, creoline-vasogene.

3. Oleaginous or saponaceous solvents, and the solutions of medicaments, disin-
fectants, cosmetics, perfumes, such as creosote-vasogene, iodoform-vasogene, in the shape of oils or of ointments, obtainable by the processes or methods substantially 50
as described.

Dated this 24th day of March 1894.

FAIRFAX & WETTER,
433, Strand, London, Agents.





