Patented July 6, 1937 2,085,806

UNITED STATES PATENT OFFICE

2,085,806

EMBALMING FLUID

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No Drawing. Application February 23, 1935
Serial No. 7,838

14 Claims. (Cl. 27—21)

My invention relates to embalming fluids and provides an improved composition which will harden the tissues and at the same time prevent or greatly retard decomposition.

Formaldehyde has been found useful in the embalming art for hardening tissues, but has the disadvantage of being readily subject to oxidation, yielding formic acid, which is of limited utility as an embalming substance.

According to one phase of my invention, I prevent or retard the decomposition of formaldehyde and thus obtain its maximum efficiency.

My invention contemplates the use of a phenolic germicidal agent in admixture with an aqueous formalin solution containing aluminum and formate ions. My preferred germicidal agent is parachlormetacresol, which has been found to give by far the most satisfactory results in this connection to any other compound. However, various other phenolic germicidal agents may be used with good results, such as parachlormetaxylenol or paraisoamylphenol, or a mixture of the substances which I have mentioned. The presence of the aluminum ion not only enhances the hardening effect of the formaldehyde on the tissues but also serves as a powerful deodorant. It is thought that this effect is due to its reaction with sulphur compounds in the body. The presence of the formate ion in the solution, which may be introduced in the form of a metallic salt, either as aluminum formate or in combination with some other metal, for example, sodium formate, is desirable for the reason that the formate ion acts in common with the same ion in the formalin, by mass action, to retard the oxidation of the formaldehyde and thus acts to stabilize the solution. Where the formate is introduced in the form of, say, sodium formate, then the aluminum may be introduced in the form of some other salt, for example, aluminum chloride.

I also prefer to use a substance, such as sodium lauryl sulphonate, for its lubricating effect, to facilitate passage of the embalming fluid and is especially valuable where the circulatory system contains obstructions, such as fibrinous clots. It is preferable to other lubricants which have previously been used in this relation, such as sodium oleate and triethanolamine oleate, because it is not affected by hard water or calcareous deposits in the circulatory system, whereas other soaps are precipitated by such substances.

Example

The following is an example of one preferred embodiment of my invention, and is to be considered as illustrative and not in any sense limiting:

Twenty pounds of parachlormetacresol are dissolved in 85 pounds of an alcohol, preferably synthetic methanol. There is also added to 236 pounds of 40 per cent formalin, 60 pounds of aluminum formate solution, 30 per cent. The two solutions are then admixed and to 300 pounds of this mixture are added, with constant stirring, 150 grams of sodium lauryl sulphonate or nitrate, or similar substance, for its lubricating effect. This procedure is found most expedient for getting the material into solution.

The solution is now ready for use and is quite stable over long periods of time.

The aluminum salt, as stated above, enhances the action of the formaldehyde by setting the tissues very hard and also serving as a deodorant. When the formate is used the deterrent mass action of the formate ion tends greatly to stabilize the formaldehyde against oxidation. By the same principle the methyl alcohol also acts to stabilize the formaldehyde.

Modifications coming within the spirit of my invention will doubtless suggest themselves to those skilled in the art. Hence, I do not wish to be limited to the specific embodiments disclosed above except to the extent shown by the appended claims, which are to be interpreted as broadly as the state of the art will permit.

I claim as my invention:

1. An embalming fluid, containing substantial proportions of formaldehyde, an ionizable aluminum salt, and a germicidal agent.

2. An embalming fluid, containing substantial proportions of an ionizable aluminum salt, and a phenolic germicidal agent.

3. An embalming fluid, containing substantial proportions of formaldehyde, an ionizable aluminum salt, and a germicidal agent which is a member of the group consisting of parachlormetacresol, parachlormetaxylenol, and paraisoamylphenol.

4. An embalming fluid, containing substantial proportions of formaldehyde, aluminum formate, and a germicidal agent.

5. An embalming fluid, containing substantial proportions of formaldehyde, aluminum formate, and a phenolic germicidal agent.

6. An embalming fluid, containing substantial proportions of formaldehyde, aluminum formate, and a parachlormetacresol.

7. An embalming fluid, containing substantial proportions of formaldehyde, aluminum formate, methyl alcohol, and a germicidal agent.

8. An embalming fluid, containing substantial proportions of formaldehyde, aluminum formate, methyl alcohol, and a phenolic germicidal agent.

9. An embalming fluid, containing substantial proportions of formaldehyde, aluminum formate, methyl alcohol, and parachlormetacresol.

10. An embalming fluid, containing substantial proportions of formaldehyde, material containing aluminum and formate ions, and a phenolic germicidal agent.

11. An embalming fluid, containing substantial proportions of formaldehyde, an aluminum salt, a germicidal agent and a soluble soap of an acid derivative of lauryl alcohol.

12. An embalming fluid, containing substantial proportions of formaldehyde, material containing aluminum and formate ions, a germicidal agent and a soluble soap of an acid derivative of lauryl alcohol.

13. An embalming fluid for injection, containing substantial proportions of formaldehyde, aluminum formate, a germicidal agent and a water-soluble soap which will not precipitate in the presence of calcareous material, said soap serving as a lubricant.

14. An embalming fluid for injection, containing substantial proportions of formaldehyde, aluminum formate, a germicidal agent and a water-soluble soap which is a member of the class consisting of sodium lauryl sulphonate and sodium lauryl nitrate.

HILTON IRA JONES.

CERTIFICATE OF CORRECTION.

Patent No. 2,085,806. July 6, 1937.

HILTON IRA JONES.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, second column, line 36, claim 2, after "of" insert the word and comma formaldehyde,; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 21st day of September, A. D. 1937.

Henry Van Arsdale

(Seal) Acting Commissioner of Patents.

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