

# UNITED STATES PATENT OFFICE.

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SUBSTANCES TO BE USED AS VARNISHES AND FOR IMPREGNATION AND INSULATION  
AND METHOD FOR THEIR PRODUCTION.

967,737.

Specification of Letters Patent. Patented Aug. 16, 1910.

Original application filed August 14, 1908, Serial No. 448,628. Divided and this application filed May 17, 1909. Serial No. 496,490.

*To all whom it may concern:*

Be it known that I, GOTTLIEB GOTTFRIED DIESSER, a citizen of the Swiss Confederation, and resident of Zürich-Wollishofen, Switzerland, have invented certain new and useful Substances to be Used as Varnishes and for Impregnation and Insulation and Method for Their Production, of which the following is a specification.

10 The present invention is a division of application No. 448,628, and relates to hitherto unknown substances and to methods for their production, such substances being especially suitable for purposes of manufacturing varnish, for impregnation and insulation. According to this invention these bodies are formed by chemical reactions between fatty acids or substances containing fatty acids, for instance, fatty oils, 15 and amino-acids, for instance, glycocoll, or substances containing amino-acids (albumen and albuminous substances, albuminoids) or mixtures of the enumerated substances; the reactions being brought about at a temperature exceeding the limit of decomposition of the reacting substances present. The resulting products are remarkably resistant against chemical changes and atmospheric influences. While these 20 new bodies may be used for a variety of purposes, they are to be particularly employed for manufacturing varnishes, lacquers and painting colors, by being to this end added to agglutinants or coloring matters. Moreover the products are intended for electro-technical uses, as materials for impregnating, as insulating varnishes and insulating solids, these different uses resulting according to the specific kind of material operated 25 upon.

The bodies produced by the foregoing method can be vulcanized by either cold or hot processes. They may be transformed into solids with or without the aid of agglutinants, and in given cases, by catalytic agents.

The following are specific illustrations of the manner in which the new substances may be formed:

Example I: About 15 parts in weight of

keratin or of substances containing keratin, are heated with about one hundred parts in weight of raw or boiled linseed oil or the fatty acids of linseed-oil (or wood oil, or fatty acids of wood oil, or other fatty oils and the fatty acids contained in them). 50 The heating is continued during 3-6 hours at a temperature exceeding the limit of decomposition of the reacting substances present, *i. e.* at above 300° C. The volatile products of decomposition are preferably 55 allowed to escape from the heating vessel. The above enumerated substances may also be heated in the autoclave at a temperature exceeding their limits of decomposition or in a current of indifferent gases such as carbon dioxid, illuminating gas and the like. 60 The product of the reaction may be absorbed by benzol or other solvents, and the solution filtered and purified to a higher degree of purity according to the methods 65 used in the analysis of fats. The solution of the product obtained by a suitable solvent can be used for varnishing, impregnating and insulating purposes; or the product itself can be submitted to subsequent treatment, such as vulcanizing and the like, as 70 already stated.

Example II: 6 parts of spongin or fibroin are heated with 90 parts of fatty acids of linseed oil, wood-oil, castor-oil or other 75 fatty acids: or of the corresponding fatty oils, in the same manner as set forth in Example I.

Example III: 15 parts of casein are heated with 85 parts of fatty acids of linseed-oil, wood-oil, castor-oil or other fatty acids: or of the corresponding fatty oils, in the same manner as set forth in Example I.

Example IV: 20 parts of albumen are heated with 80 parts of the fatty acids of 80 linseed-oil, wood-oil, castor-oil, or other fatty acids: or of the corresponding fatty oils, in the same manner as set forth in Example I.

It is to be well understood that the experimental conditions need not be always the same as described in the examples. They may be modified by the specialist to suit 85



the individual case. The execution furthermore is not bound down to the given examples.

I claim:—

5 1. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing fatty acids to react upon amino-acids at a temper-  
10 ature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

2. A process for manufacturing new substances adapted to be used as varnishes, as  
15 materials for impregnation and insulation and the like, consisting in causing fatty acids to react upon substances containing amino-acids at a temperature exceeding the limit of decomposition of the reacting sub-  
20 stances present, substantially as and for the purpose set forth.

3. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation  
25 and the like, consisting in causing fatty acids to react upon albuminous substances at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

30 4. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing fatty acids to react upon keratin at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

5. A process for manufacturing new substances adapted to be used as varnishes, as  
40 materials for impregnation and insulation and the like, consisting in causing substances containing fatty acids to react upon amino-acids at a temperature exceeding the limit of decomposition of the reacting sub-  
45 stances present, substantially as and for the purpose set forth.

6. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation  
50 and the like, consisting in causing substances containing fatty acids to react upon substances containing amino-acids at a temperature exceeding the limit of decomposition of the reacting substances present, sub-  
55 stantially as and for the purpose set forth.

7. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation  
60 and the like, consisting in causing substances containing fatty acids to react upon albuminous substances at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

65 8. A process for manufacturing new sub-

stances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing substances containing fatty acids to react upon keratin at a temperature exceeding the  
70 limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

9. A process for manufacturing new substances adapted to be used as varnishes, as  
75 materials for impregnation and insulation and the like, consisting in causing fatty acids to react upon amino-acids at a temperature exceeding the limit of decomposition of the reacting substances present, the vola-  
80 tile products developed by the said reaction being allowed to escape, substantially as and for the purpose set forth.

10. A process for manufacturing new substances adapted to be used as varnishes, as  
85 materials for impregnation and insulation and the like, consisting in causing fatty acids to react upon substances containing amino-acids at a temperature exceeding the limit of decomposition of the reacting sub-  
90 stances present, the volatile products developed by the said reaction being allowed to escape, substantially as and for the purpose set forth.

11. A process for manufacturing new sub-  
95 stances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing fatty acids to react upon albuminous substances at a temperature exceeding the limit of de-  
100 composition of the reacting substances present, the volatile products developed by the said reaction being allowed to escape, substantially as and for the purpose set forth.

12. A process for manufacturing new sub-  
105 stances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing fatty acids to react upon keratin at a temperature exceeding the limit of decomposition of the  
110 reacting substances present, the volatile products developed by the said reaction being allowed to escape, substantially as and for the purpose set forth.

13. A process for manufacturing new sub-  
115 stances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing fatty acids to react upon amino-acids under pressure at a temperature exceeding the limit of  
120 decomposition of the reacting substances present, substantially as and for the purpose set forth.

14. A process for manufacturing new substances adapted to be used as varnishes, as  
125 materials for impregnation and insulation and the like, consisting in causing fatty acids to react upon substances containing amino-acids under pressure at a temperature exceeding the limit of decomposition of the  
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substantially as and for the purpose set forth.

22. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing substances containing fatty acids to react upon substances containing amino-acids at a temperature exceeding the limit of decomposition of the reacting substances present, the volatile products developed by the said reaction being allowed to escape, substantially as and for the purpose set forth.

23. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing substances containing fatty acids to react upon albuminous substances at a temperature exceeding the limit of decomposition of the reacting substances present, the volatile products developed by the said reaction being allowed to escape, substantially as and for the purpose set forth.

24. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing substances containing fatty acids to react upon keratin at a temperature exceeding the limit of decomposition of the reacting substances present, the volatile products developed by the said reaction being allowed to escape, substantially as and for the purpose set forth.

25. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing substances containing fatty acids to react upon amino-acids under pressure at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

26. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing substances containing fatty acids to react upon substances containing amino-acids under pressure at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

27. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing substances containing fatty acids to react upon albuminous substances under pressure at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

28. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation 130



and the like, consisting in causing substances containing fatty acids to react upon keratin under pressure at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

29. A process for manufacturing new substances adapted to be used as varnishes as materials for impregnation and insulation and the like, consisting in causing substances containing fatty acids to react upon amino-acids in an indifferent atmosphere at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

30. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing substances containing fatty acids to react upon substances containing amino-acids in an indifferent atmosphere at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

31. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing substances containing fatty acids to react upon albuminous substances in an indifferent atmosphere at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

32. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing substances containing fatty acids to react upon keratin in an indifferent atmosphere at a temperature exceeding the limit of decomposition of the reacting substances present substantially as and for the purpose set forth.

33. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing the fatty acids of linseed oil to react upon amino-acids at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

34. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing the fatty acids of linseed oil to react upon substances containing amino-acids at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

35. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation

and the like, consisting in causing the fatty acids of linseed oil to react upon albuminous substances at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

36. A process for manufacturing new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, consisting in causing the fatty acids of linseed oil to react upon keratin at a temperature exceeding the limit of decomposition of the reacting substances present, substantially as and for the purpose set forth.

37. The herein described new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, being the products resulting from the reaction of fatty acids upon amino-acids at a temperature exceeding the limit of decomposition of the reacting substances.

38. The herein described new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, being the products resulting from the reaction of fatty acids upon substances containing amino-acids at a temperature exceeding the limit of decomposition of the reacting substances.

39. The herein described new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, being the products resulting from the reaction of fatty acids upon albuminous substances at a temperature exceeding the limit of decomposition of the reacting substances.

40. The herein described new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, being the products resulting from the reaction of fatty acids upon keratin at a temperature exceeding the limit of decomposition of the reacting substances.

41. The herein described new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, being the products resulting from the reaction of substances containing fatty acids upon amino-acids at a temperature exceeding the limit of decomposition of the reacting substances.

42. The herein described new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, being the products resulting from the reaction of substances containing fatty acids upon substances containing amino-acids at a temperature exceeding the limit of decomposition of the reacting substances.

43. The herein described new substances adapted to be used as varnishes, as materials for impregnation and insulation and the like, being the products resulting from the reaction of substances containing fatty acids



upon albuminous substances at a temperature exceeding the limit of decomposition of the reacting substances.

44. The herein described new substances  
5 adapted to be used as varnishes, as materials for impregnation and insulation and the like, being the products resulting from the reaction of substances containing fatty acids upon keratin at a temperature exceeding

the limit of decomposition of the reacting 10 substances.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

GOTTLIEB GOTTFRIED DIESSER.

Witnesses:

WILHELM TWELLER,  
JEAN GRUND.