

UNITED STATES PATENT OFFICE.

EDMUND N. TODD, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE CELLULOID MANUFACTURING COMPANY, OF NEW YORK.

VARNISH.

SPECIFICATION forming part of Letters Patent No. 450,264, dated April 14, 1891.

Application filed April 25, 1888. Serial No. 271,839. (No specimens.)

To all whom it may concern:

Be it known that I, EDMUND NEVILLE TODD, a citizen of the United States, residing at Newark, in the county of Essex, State of New Jersey, have invented a new and useful Process of Making a Solvent Ingredient Useful for Pyroxyline and other Varnishes, of which the following is a specification.

My invention embodies an improved process for the production of an amyl-acetate-benzine solvent, which is produced at a relatively lower cost or by the use of a smaller quantity of acetic acid than is necessary when the ordinary process is employed.

The ingredient which has been found most useful in pyroxyline varnishes is amyl acetate, and the solution consisting of pyroxyline and amyl acetate would have valuable properties; but owing to the comparatively great expense of amyl acetate, and the necessity of using with it some thinning-liquid in order to obtain the proper consistency, it has not been practicable to use it alone. A compound of amyl acetate and benzine alone has been well known as a useful solvent of pyroxyline for varnishes; but the ingredients the process of making which is herein described, and which I have called an "amyl-acetate-benzine solvent," is superior to a simple mixture of amyl acetate and benzine, and has qualities which a compound of those two substances formed by a simple admixture would not lead a person to expect.

According to my process I first mix fusel-oil (by which I mean those bodies or compounds which accompany the distillation of ethyl alcohol, being by-products of the distillation of ethyl alcohol, possessing higher boiling-points, and all of which may be classed under the generic name of fusel-oil on account of their bad odor and other characteristics) and a suitable hydrocarbon, such as benzine—say in the proportion of ten barrels of fusel-oil and one barrel of benzine. The appearance of this mixture is similar in being cloudy to a mixture of amyl acetate and benzine; but being allowed to stand, the watery liquid settles down from the mixture, which then becomes clear. I then draw off or separate the watery part of this mixture and distill the clear mixture of benzine and fusel-oil

with acetic acid in the usual way of making amyl acetate from fusel-oil; but I use less acetic acid to the proportion of fusel-oil than is required when the amyl acetate is made from the fusel-oil alone. Thus, for instance, I may use say two and one-half gallons of acetic acid to eight gallons of the mixture of fusel-oil and benzine.

The distillate formed by this process is an active solvent of pyroxyline, to which more benzine can be added if required, and besides, being anhydrous and consequently valuable for the manufacture of varnishes or lacquers, possesses a solvent strength which a simple mixture of benzine and amyl acetate does not have; or, in other words, the distillate is a stronger solvent than could be expected from a simple knowledge derived from experience of mixtures of benzine and amyl acetate separately or combined in the usual way.

I have compared my new solvent, made in the way just specified, with a mixture of amyl acetate and benzine; but it will be evident to those having a knowledge of the different fusel-oils or by-products accompanying the manufacture of ethyl alcohol that in a strict chemical sense my distillate is not a mixture of amyl acetate and benzine; but I employ the word in a commercial sense from a knowledge that generically all the fusel-oils have received the commercial designation of amyl alcohol from the fact that such fusel-oils contain usually an excess of amyl alcohol over the other ingredients, and that the product of distilling acetic acid with fusel-oil is commercially termed "acetate of amyl;" but, as previously stated in this specification, I use the words "fusel-oil" as meaning all the by-products accompanying the production of ethyl alcohol having a higher boiling-point than ethyl alcohol.

I have specified benzine as a useful solvent to mix with the fusel-oil; but I do not limit myself to the use of benzine, as any suitable hydrocarbon or product of petroleum of about the right consistency may be used with good results—such, for instance, as kerosene. Nor do I limit myself to petroleum hydrocarbons, for common turpentine or other members of the class of volatile vegetable hydrocarbons of which it is a representative—

such as oil of origanum or oil of spruce—are also effective; but benzine is the hydrocarbon which I specially recommend as being preferable to all other ingredients which, according to my experience, can be used, and this on account of its very desirable properties of cleanliness, freedom from color, or any tendency to oxidize or change, as well as its cheapness and high volatility.

10 My new solvent, or distillate from a mixture of fusel-oil and a suitable hydrocarbon, as above specified, is a useful ingredient for the usual gum-varnishes, such as shellac, copal, &c., and I therefore do not limit myself to its use with a pyroxyline varnish.

Of course I do not limit myself to the exact proportions of the ingredients from which I produce my distillate or to the employment of free acetic acid, because such proportions may be varied without departing from my process, and acetates may be substituted for the acetic acid, as is well known.

What I claim, and desire to secure by Letters Patent, is—

1. The process herein described of making a distillate by first mixing fusel-oil and a suitable hydrocarbon; second, separating the watery part therefrom, and, third, distilling the mixture with acetic acid, substantially as described.

2. The process herein described of making a distillate by first mixing fusel-oil and benzine; second, separating the watery part therefrom, and, third, distilling such mixture with acetic acid, substantially as described.

3. The improved solvent consisting of a distillate of fusel-oil, a suitable hydrocarbon, and acetic acid, substantially as herein described.

4. The improved solvent consisting of a distillate of fusel-oil, benzine, and acetic acid, substantially as herein described.

New York, April 23, 1888.

EDMUND N. TODD.

Witnesses:

HENRY E. EVERDING,
J. NOTTINGHAM WILLIAMS.