

UNITED STATES PATENT OFFICE.

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METHOD OF CREOSOTING WOOD, &c.

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To all whom it may concern:

Be it known that I, CHARLES S. FRIEDMAN, a citizen of the United States, and a resident of the city of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Methods of Creosoting, of which the following is a full, clear, and exact description.

In "creosoting" by usual practice the wood or other material under treatment needs to be thoroughly dried beforehand. Traces of water which are often detained within the compact cell structure serve to repel the oily creosote and so far defeat its preservative effect, whereas were saturation complete the inflammable character of the creosote markedly increases the risks from destruction by fire. According to the present invention the creosote is provided with a suitable vehicle, such as will enable it to readily permeate the more remote interstices despite the presence of water, while the vehicle, owing to its solid non-combustible character when set, suffices besides to counteract the evils due to the inflammability of the creosote.

In keeping with the method good results are obtained by use of a compound having ingredients and proportions as follows, viz: glue, one pound; water, two quarts; potash bichromate, ($K_2Cr_2O_7$) three ounces; zinc chlorid, ($ZnCl_2$) four ounces; creosote, two gallons. At the outset the glue is weighed off and soaked cold in the requisite amount of water for some three or four hours until the water is well absorbed, after which the temperature is raised to about 150° Fahrenheit, thus melting the glue to the consistency of a thin soup. The zinc chlorid ($ZnCl_2$) is next stirred in and dissolved, after which the bichromate of potash ($K_2Cr_2O_7$) previously prepared as a separate solution at 125° to 150° Fahrenheit (four ounces of water to one ounce of bichromate) is added to complete the creosote vehicle. This vehicle becomes insoluble and non-inflammable when its water dries out. A second vessel, fitted with a mechanical agitator, contains creosote of, *e. g.*, 1.05 specific gravity, in requisite proportion, heated to about 125° Fahrenheit. The prepared vehicle is run into this vessel and there thoroughly admixed with the creosote present, which latter becomes minutely diffused through and through the mass after the manner of an emulsion, owing to the viscosity of

the vehicle. The finished compound passes thence into the ordinary creosoting-tank and at suitable temperature—*e. g.*, 150° to 175° Fahrenheit—is forced into the wood or other material to be impregnated, as in familiar practice.

If preferred, the zinc chlorid ($ZnCl_2$) separately dissolved in water may be admixed with the creosote and only the bichromate of potash be stirred into the glue soup. The chemical reactions characteristic of the finished vehicle will then occur in presence of the creosote at the time of final union and while the unstable emulsion is forming. Under either procedure it is seen that the creosote becomes intimately diffused and is carried in and remains with the vehicle when the latter hardens and sets along the minute recesses of the body under treatment.

In practice preference is given to creosote of, *e. g.*, 1.05 to 1.10 specific gravity, rich in taracids and completely liquid at 100° Fahrenheit. The creosote should contain at least twenty-five per cent. of constituents that do not distil over at 600° Fahrenheit. Thinner creosotes may be used; but they are less efficacious than the heavier oils.

Obviously the proportions and temperatures heretofore stated are given only in way of illustration and may be varied at suggestion of those skilled in the art without essential departure from the invention. In lieu of zinc chlorid (or zinc sulfate) the corresponding salts of copper can be taken; but they are more costly. The same objection applies were effort made to replace ordinary glue by other substitutes.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The method of creosoting wood or other materials which consists in emulsifying creosote at proper temperature with a viscid vehicle having a glue base and suitable chromium salt to react thereon, and after thorough admixture to complete the so-called emulsion, forcing the same into the interstices of the substance under treatment, substantially as described.

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Witnesses:

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