UNITED STATES PATENT OFFICE.

HAROLD M. CHASE AND JOHN L. GRAFFLIN, OF WILMINGTON, NORTH CAROLINA, ASSIGNORS TO NATIONAL WOOD DISTILLING COMPANY, OF WILMINGTON, NORTH CAROLINA, A CORPORATION OF NORTH CAROLINA.

PROCESS FOR REDISTILLATION OF PRODUCTS OF DESTRUCTIVE DISTILLATION.

1,161,844. Specification of Letters Patent. Patented Nov. 30, 1915.

No Drawing. Application filed April 17, 1915. Serial No. 22,030.

To all whom it may concern:

Be it known that we, HAROLD M. CHASE and JOHN L. GRAFFLIN, both citizens of the United States, residing at Wilmington, in the county of New Hanover, State of North Carolina, have invented certain new and useful Improvements in Processes for Redistillation of Products of Destructive Distillation, of which the following is a description.

Our invention relates to a process of redistillation of products produced from resinous wood by destructive distillation and to the product produced by such redistillation, and has for its object to produce from such products, which are necessarily characterized by creosote or tarry odor and by heavy residual matter, as to render them incapable of use except for preserving wood or other material and for other uses in which their odor is not objectionable, oils which are clear, viscid, free from creosote or creosote odor and capable of use for purposes such as those for which so-called rosin oil is used. By the use of our invention it is possible to produce from such products of destructive distillation, which, by reason of their characteristics and limited use, are of comparatively little value, oils which are of comparatively high value to an amount which is a considerable fraction of the amount of the original product treated and at the same time to leave the remainder in such condition that it will be capable of the uses for which the original product was adapted. In other words, by the use of our invention a considerable proportion of the original product is extracted in such condition that it is of relatively high value while the value of the remainder is not lessened.

With these and other objects in view, our invention consists in the process hereinafter described and claimed and in the product hereinafter described and claimed.

In carrying out our invention no particular apparatus is required other than a still and condenser of ordinary construction, except that the means for heating the still must be so arranged as to be capable of regulation, so as to distil off successive products at successive definite temperatures. The product to be treated may be creosote oil, pitch or tar produced from pine or other resinous wood by destructive distillation; that is, by distillation at a temperature sufficiently high to cause destructive distillation and the consequent formation of pyroligneous acid or wood creosote or like substances characterized by what is commonly termed a creosote odor. This product is placed in the still and the contents are first heated to a temperature not over 500 degrees Fahrenheit and maintained at this temperature until the substances which volatilize at this temperature are driven off. The substances so driven off when condensed form a light oil which carries a strong creosote odor and what is left in the still is free from such odor. After this first fractional distillate is driven off the contents of the still are heated to a temperature not exceeding 700 degrees Fahrenheit, with the result that the substances volatilized and driven off when condensed form a relatively heavy, clear viscid oil, free from creosote oil, clear in color, with much of the characteristics of rosin oil and adapted for any of the uses for which rosin oil is adapted. After the contents of the still have been thus subjected to distillation at this higher heat for as long a period as may be found practicable, so as to recover as much of this oil resembling rosin oil as can be recovered without too great cost of time and heat, the heating is discontinued and the residue if any, which remains in the still as a thick tarry substance when hot, but solid when cold should be removed while hot and should preferably be mixed with the light creosote oil obtained as the first fractional distillate. When this residue and the light creosote oil are mixed together a product is formed adapted for the uses for which the ordinary creosote oil is adapted, having the preservative qualities of ordinary creosote oil and having a consistency more or less like that of ordinary creosote oil, depending somewhat on the proportions of light creosote oil and final residue obtained.

When ordinary creosote oil is used as the material to which our process is applied, a larger proportion of light creosote oil is produced than when pitch or tar is used and less of this product will be obtained from pitch than from tar, and, of course, when the material treated consists of a mixture of creosote oil, pitch and tar, the proportion of light creosote oil produced will depend upon

the proportionate content of this substance in the material treated.

Having thus described our invention, what we claim is:

1. The process of treating products obtained by destructive distillation of resinous wood characterized by creosote odor to produce a clear, viscid oil free from creosote odor, which consists in heating such product to a temperature not exceeding 500 degrees Fahrenheit and maintaining it at such temperature until all substances having creosote oil have been distilled off, and then raising the temperature to not exceeding 700 degrees Fahrenheit and distilling off oil free from creosote odor.

2. The process of treating pitch and tar obtained by destructive distillation or resinous wood, which consists in heating the pitch or tar to a temperature not exceeding 500 degrees Fahrenheit and maintaining it at such temperature until all substances having creosote odor have been distilled off and then raising the temperature to not exceeding 700 degrees Fahrenheit and distilling off oil free from creosote odor.

This specification signed and witnessed this 18th day of May, A. D. 1914.

HAROLD M. CHASE.
JOHN L. GRAFFLIN.

In the presence of—
C. H. HARRISS,
M. I. HARRISS.