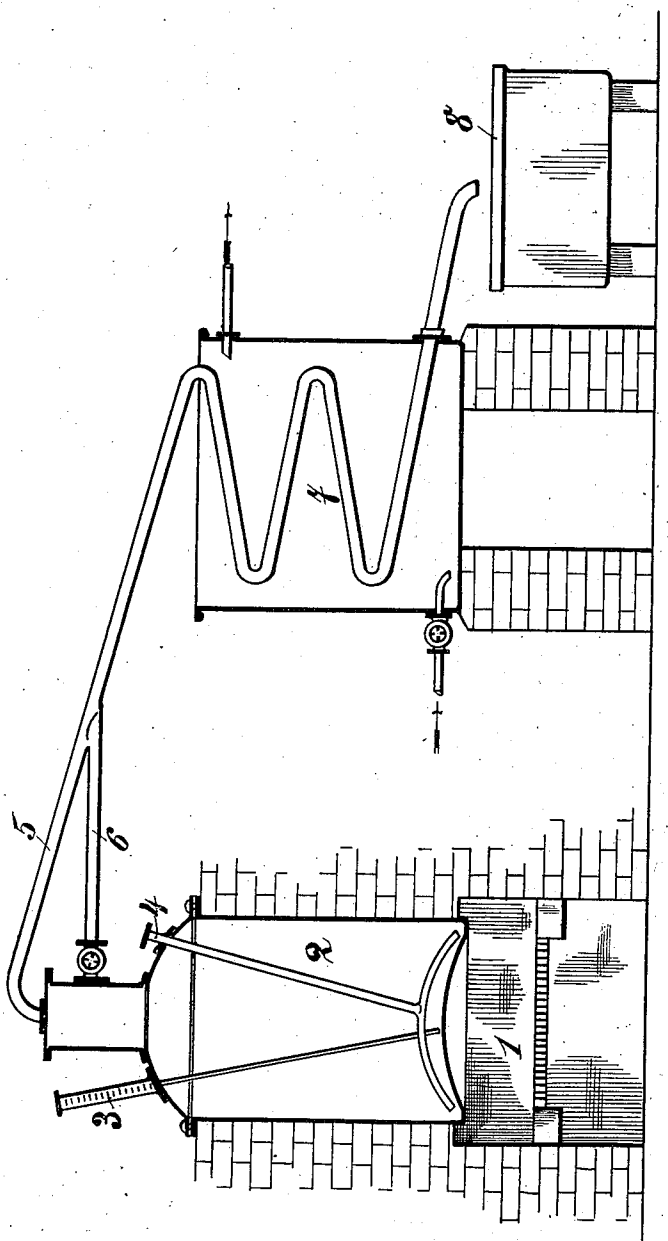
M. MELAMID.

METHOD OF PRODUCING PURE TAR DISTILLATES.

APPLICATION FILED JUNE 10, 1913.

1,201,601. Patented Oct. 17, 1916.



Witnesses:
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UNITED STATES PATENT OFFICE.

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METHOD OF PRODUCING PURE TAR DISTILLATES.

1,201,601. Specification of Letters Patent. Patented Oct. 17, 1916.

Application filed June 10, 1913. Serial No. 772,839.

To all whom it may concern:

Be it known that I, MEILICH MELAMID, a subject of the Czar of Russia, and residing at Freiburg, in the Grand Duchy of Baden, German Empire, have invented a certain new and useful Method of Producing Pure Tar Distillates, of which the following is a specification, this application being in part divided out from my copending application for Letters Patent, Serial No. 732,141, filed November 18, 1912.

It has been found that by treating tar, tar oil or other tar derivates with phosphoric acid, products of distillation are obtained the color of which is lighter than that of the products obtained by subjecting said substances to a distillation of the usual kind.

In spite of all endeavors, when treating tar, no product could be obtained up to now which was ready for use or marketable without being first subjected to a refining or purification process. Such products, however, are obtained by means of the present invention, which consists in heating the tar or the tar oil or the other tar derivates together with phosphoric acid and distilling off the products in question which are then obtained in a pure state.

The process may be carried out also in this way that phosphoric acid is heated in the still to such a degree that it is converted into other compounds; this may be done either before or after the addition of the tar or the like.

The mode of execution of the process depends in some measure upon the origin of the tar or its products of distillation; one way is the following: 100–150 kilograms of phosphoric acid of commerce are mixed with 1,000 kilograms of tar or tar oil and this mixture is subjected to distillation. Or 100 kilograms of technical phosphoric acid are heated in a still and thereafter 1,000 kilograms of tar or distillates of same or the vapors of same are conducted into the heated phosphoric acid, from which the purified distillates then escape. The distillates obtained by this method have a far lighter color and they are also far more free from asphalt than is the case with the products obtained by the methods hitherto employed.

Other examples for carrying out my process in practice are the following: 1,000 kg. tar or tar oil are well mixed with 50 kg. ortho-phosphoric acid, 10 kg. pyro-phosphoric acid, 10 kg. phosphorous acid, 10 kg. meta-phosphoric acid, 5 kg. phosphorus pentoxid (P_2O_5). After mixing, the mass is well heated and distilled or: 1,000 kg. tar or tar oil are mixed with 50 kg. HPO_3 and 50 kg. $NaPO_3$. After mixing, the mass is well heated and distilled. Or: 1,000 kg. tar or tar oil are mixed with 50 kg. pyro-phosphoric acid, 10 kg. phosphorous acid and 30 kg. meta-phosphoric acid. After mixing the mass is well heated and distilled. Preferably a heat of 150–200° C. is employed in executing my process in practice according to the above examples.

A suitable apparatus for carrying out my process is by way of example illustrated upon the accompanying sheet of drawing in which 1 is the fire-place, 2 is the distilling vessel, 3 a thermometer, and 4 a pipe for the removal of the diluted phosphoric acid, 5 is the conduit for the removal of the lighter products and 6 that for the removal of the heavier products, while 7 is the water cooled conduit leading to the receptacle 8 for the products. Thus, for instance, I have succeeded in obtaining, by my novel process, oils clear like water and perfectly white solid hydrocarbons from tars which did not yield up to now products of such a kind in one stage only. This process may be employed for tar, as well as for its distillates and for all derivates of same, such, for instance, as naphthalene, phenols and anthracene, which may be purified more and more in this way.

In using distillates and derivates of tar, any desired relative proportions may be used, as for instance, 1,000 kg. tar distillate or derivates as for instance naphthalene, phenols, anthracene are mixed with 100 kg. phosphoric acid and the mixture is then heated and distilled. The temperature prevailing during the practical execution of the process is about 300 C. and over.

Having now described my invention, what I desire to secure by a patent of the United States is:

1. The process of manufacturing pure distillates from tar or tar oils or hydrocarbons contained in the tar, consisting in distilling tar or tar oils or hydrocarbons contained in the tar with phosphoric acid, substantially as described.

2. The process of manufacturing pure dis-

tillates from tar, or tar oils, or hydrocarbons contained in the tar, consisting in distilling tar, or tar oil, or hydrocarbons contained in the tar with phosphoric acid at a high temperature.

3. The process of manufacturing pure distillates from tar, or tar oils, or hydrocarbons contained in the tar, consisting in distilling tar or tar oils, or hydrocarbons contained in the tar with phosphoric acid to approximately 300 C. and more.

In testimony whereof I affix my signature in presence of two witnesses.

DR. MEILICH MELAMID.

Witnesses:
A. DECK,
H. METZGER.