Patented July 12, 1938 2,123,560

# UNITED STATES PATENT OFFICE

2,123,560

## PITCH PAINT

George W. Bennett, Elizabeth, Pa.

No Drawing. Application August 14, 1934, Serial No. 739,841

2 Claims. (Cl. 134—52)

This invention covers a pitch paint that is an improvement over other paints of this character respecting its elastic and adhesive properties.

This paint includes coal tar pitch and a mixture of coal tar oils having boiling points of from 100 to 300 degrees centigrade, and is substantially free of tar acids and other acidic compounds as well as coal tar oils boiling above 300 degrees centigrade. Approximately 60 per cent of this mixture boils below 210 degrees centigrade, and the mixture contains some naphthalene and a relatively small percentage of poly-phenols. The pitch used is characterized in that it is produced from 100 per cent washed Pittsburgh bituminous coal.

The coal tar oils mentioned carry the pitch in practically true solution. The naphthalene and poly-phenols function to impart elastic and adhesive properties, and the pitch described is of particular value as it is found to have a low percentage of free carbon which is always troublesome since it tends to segregate rather than to remain evenly suspended in the paint.

Most pitch paints consist of coal tar pitch carried in a more or less colloidal state by solvent naphtha of which 90 per cent distills below 210 degrees centigrade, or of coal tar pitch, a coal tar solvent and a tar acid. The first type is subject to the difficulty that the pitch cannot be kept in a dispersed condition, while the second type may also be subject to this trouble and, in addition, is corrosive and does not have sufficient adhesive and elastic properties.

In manufacturing the paint covered by the present invention, washed Pittsburgh bituminous coal is coked and the coal tar is recovered from the products of this process. The washing of the coal causes the fine particles to be wet so that they are not carried over with the coke-oven gases, which are therefore relatively low in free carbon. Furthermore, the water in the washed coal lowers the temperature of the oven gases so as to retard cracking of the gases in the coking operations. The pitch is then obtained from products of this operation by means of rapid distillation in the continuous tube still. By this method the pitch is not subjected to excessive temperatures, which further assures the production of a pitch that is relatively low in free carbon. The pitch thus produced is found to have a free carbon content not exceeding 10 per cent.

The light oils resulting from this distillation which boil between 100 and 300 degrees centigrade are then treated with a weak solution of sodium hydroxide so as to remove the tar acids and the acidic compounds. This solution is sufficiently weak to leave from .5 to 1.0 per cent of the poly-phenols in the oils. Also, a known quantity of naphthalene, about 25 per cent, is left in the oils.

Although the color of these oils has no particular bearing on the ultimate paint it is desirable to use the darker colored oils since they have been found to have a certain small amount of natural gum formation which remains as a portion of the paint film and acts as an additional binder for the residual pitch.

These light oils are generally separated into two fractions, one of which has a boiling point range of from 210 to 300 degrees centigrade and the other of which has a boiling point range of from 100 to 220 degrees centigrade, 80 to 90 per cent of which boils below 210 degrees centigrade. These fractions are formed into a mixture so as to produce a solvent having a boiling point range of from 100 to 300 degrees centigrade, approximately 60 per cent of which boils below 210 degrees centigrade. The treatment with the sodium hydroxide is sufficient to reduce the tar acids and the other acidic compounds so that the oils contain not more than 1 per cent of the same.

This mixture is placed in a tank while still hot and a measured amount of liquid pitch is added while agitating the oils. The proportions of the mixture and pitch are varied, depending upon the melting points of the pitch and the fluidity required in the final product. The result is the desired paint.

I claim:

1. Paint including coal tar pitch and a mixture of coal tar oils having boiling points of from 100 to 300 degrees centigrade and which is substantially free of tar acids and other acidic compounds, said paint being substantially free of coal tar oils boiling above 300 degrees centigrade and approximately 60 per cent of said mixture boiling below 210 degrees centigrade.

2. Paint including coal tar pitch and a mixture of coal tar oils having boiling points of from 100 to 300 degrees centigrade and which is substantially free of tar acids and other acidic compounds, said paint being substantially free of coal tar oils boiling above 300 degrees centigrade and approximately 60 per cent of said mixture boiling below 210 degrees centigrade, said mixture containing some naphthalene and a relatively small percentage of poly-phenols.

GEORGE W. BENNETT.