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E. R. DILLEHAY ET AL
PROCESS OF PACKING ASPHALT

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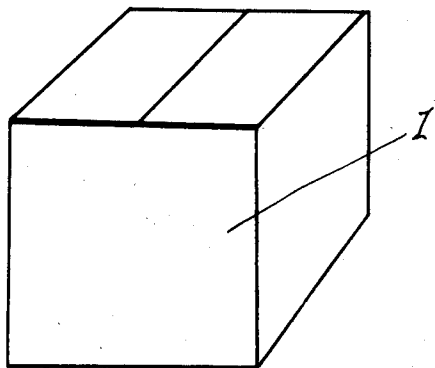


Fig 1

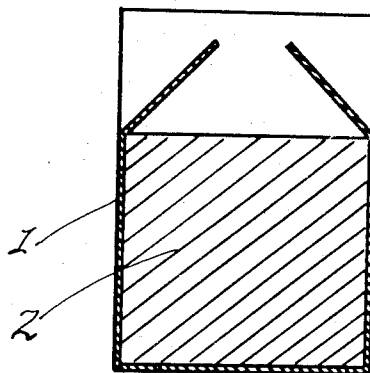


Fig 2

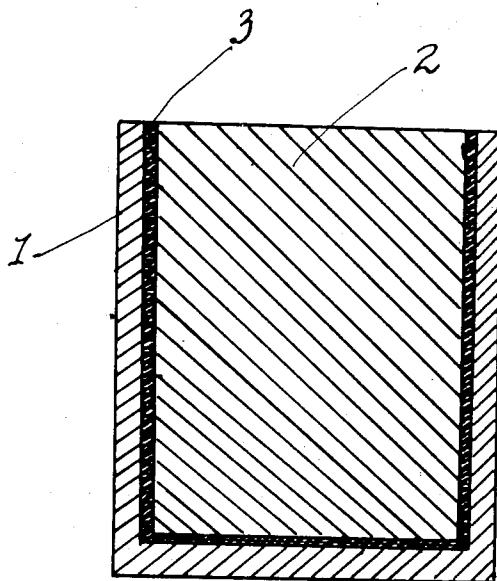


Fig 3

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PROCESS OF PACKING ASPHALT.

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To all whom it may concern:

Be it known that we, EDWARD R. DILLEHAY and ALAN R. LUKENS, citizens of the United States, and residents of Wyoming, in the county of Hamilton and State of Ohio, have invented a certain new and useful Process of Packing Asphalt, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification.

Our invention relates to means for packing asphalt for shipment and use.

The requisite for a package of asphalt is that it can be conveniently packed, shipped, and at the point of use can be readily removed from the package for melting down.

Asphalt when prepared is usually piped from the kettles, and poured into barrels or drums. These are bulky and thus very hard to handle on a building by a contractor, for example, and also it is a mean job to strip away the wood or metal from the asphalt, the containers being almost always destroyed.

It is our object to package asphalt by pouring it direct into a carton which carton can be conveniently shipped with the solidified mass therein, and on the job can be easily transported and the carton stripped away from the asphalt.

In carrying out this object, we find that we must provide some sort of a coating for the carton, which is within the range of economy for so cheap a product, and which is effective under a wide variety of conditions, such that in very hot weather, it will not break down, and that moisture will not cause it to disintegrate, and which will not so strongly adhere to the carton and the asphalt, that in removing the carton from the asphalt, large pieces of the fibrous portion of the carton are left on the asphalt.

This latter condition is bad, because the paper stock sticking to the asphalt will be likely to burn, setting fire to the asphalt as it melts, or if it is permeated with moisture, it will cause a violent foaming, which is highly unsatisfactory and often dangerous.

Among other things, we have worked out a coating for the carton material which will permit the asphalt to be poured in when hot, and after it has cooled to a solid, will permit of the asphalt being stripped away from the paper, with the coating giving

away internally, leaving most of it adherent to the asphalt and some of it to the carton, the main tendency being that the film comes away from the carton more readily than from the asphalt, the internal strength of the film being less than its adherence to the carton.

We have also investigated the limits of temperature of asphalt, which can be placed into one of our cartons without danger of breaking down the coating, and to gain greatest safety with mass pouring and cooling, we provide preferably for pumping the asphalt where its nature does not permit of any easy flow at say 300 degrees F. as we find that from around 350 degrees and up, our coating, as commercially prepared will not prevent penetration. Thus by providing a film or coating to the carton, which is not strongly adherent and flowing the asphalt into the carton at a viscosity which will not penetrate such a coating, we provide a shipping package for asphalt which is without the drawbacks noted.

We accomplish our objects by those certain steps and using those instrumentalities to be hereinafter more specifically pointed out and claimed.

In the drawing:

Figure 1 is a perspective view of one of our packages.

Figure 2 is a section taken through a filled package.

Figure 3 is a section on a larger scale taken through the carton, prior to filling.

In our process we first prepare cartons with an inner coating of particular nature, and permit the said coating to dry. We have shown a carton 1, which is the usual shipping case, and can readily be adapted to carry around 90 pounds of asphalt. Due to the rectangular shape of the carton, it is well adapted to packing in a car and for storing, in which case the several cartons assist the others in preserving a rectangular shape even where the asphalt is in a partially melted condition due to exposure to heat.

The coating 2 is formed of a dusty material, a binder and a filler. Lamp black or iron oxide which are both a dusty, finely divided material, will form the body. Lamp black is of a lubricating quality and of the same color as asphalt. Red iron oxide is of the same nature although less of a lubricat-

ing quality. We use the oxide or lamp black, whichever can be obtained most advantageously.

By preference we add to the lamp black or iron oxide, a body of finely divided clay, which is an accepted coating for barrels and drums in which asphalt is stored, but will not work on paper due to absorption and other causes. The clay forms with water an excellent base for the coating.

We also use a body of commercial pulverized lime, or some readily available talc, to give permanence to the film used in coating the paper. The action of lime or talc in this regard is similar to its action in plaster coating materials, acting to make the mass harder and to keep it from checking and chipping away, and reducing its porosity or penetrability, although the talc may also have a lubricating quality.

In one successful embodiment, we use equal parts lamp black, lime and clay, and mix slowly into the mass enough water to form a thick paste, which we then coat on the carton stock, or on the inside of the finished carton, permitting the coating to dry thoroughly, after which the cartons are ready for filling. Another formula which we use is 180 parts clay, 40 parts fine talc, 82 parts "Prince's brown" iron oxide: (parts are by weight), as in the first formula water is used as the fluid element.

In filling we preferably pump the asphalt 3 at a temperature below easy flowing temperature for asphalt used in building construction, say between 300 degrees to 325 degrees Fahrenheit. The cartons may be set side by side and the asphalt pumped through a suitable nozzle, direct into the cartons, whereupon they may be removed to storage space for cooling and hardening, being packed up closely against each other.

We find that if the cooling of the cartons is done individually, that the temperature of the asphalt when flowed into the cartons, is not so great an essential, but due to storage possibilities, it is not practical to have an individual cooling of the packages.

The drying of the carton when coated is not bound by definite limits. With the second formula and normal factory atmosphere, ten minutes' drying will often be enough to avoid foaming upon insertion of the asphalt. A prolonged exposure of the coated carton, i. e., more than say three hours, may lead to the film being jarred away in spots during the filling operations. The hot asphalt at the viscosity to be found at the temperatures given, probably drives the moisture of a film which is not too damp, out into a carton, and a certain degree of moisture is found to be desirable to hold the film against rupture. Also a certain amount of moisture cools the surface of the asphalt against the paint and retards penetration therein. The

cartons should be of unsized stock so far as possible to facilitate quick drying.

It is better to coat the built-up carton, so that seams are closed by the coating.

The cartons thus act as a mold in pouring, and as a shipping package, easy to handle in all stages of its transportation, in the factory, and on the job, and to and from a shipping vehicle.

At the point of use, at all possible atmospheric temperatures, the cartons can be quickly stripped away from the block of asphalt within, the coating splitting, as it were through the middle, leaving some adherent to the asphalt and some adherent to the carton walls.

We wish to stress particularly the use of a dusty material held together in a permanent body in a fairly thick coating with or without the viscous condition of the asphalt upon filling, as the essential features of our invention. The lime or talc, and clay, or other cementitious substance, are added features to form the pasty consistency and retain the coating when dry enough in a proper condition of permanence and partial impenetrability.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. A process of preparing asphalt for shipment which consists in forming a coating in a carton having a body of finely divided mineral matter of dusty nature held in pasty form by suitable additions, and flowing the asphalt directly into the carton, whereby the carton acts as a mold and a shipping case, and the coating will prevent the paper of the carton from adhering to the asphalt.

2. A process of preparing asphalt for shipment which consists in forming a coating in a carton having a loosely adherent nature with relation to the carton, and flowing the asphalt directly into the carton, whereby the carton acts as a mold and a shipping case, said asphalt being flowed into the carton at a temperature which results in viscosity thereof sufficient to prevent penetration of the coating.

3. A process of preparing asphalt for shipment which consists in coating the carton with a material which when dry and the asphalt has been poured into it and solidified will upon stripping away the carton, leave a portion of the coating adherent to the asphalt and a coating on the paper of the carton, and then flowing the asphalt into the carton, whereby the carton acts as a mold and shipping case combined.

4. A process of preparing asphalt for shipment which consists in forming a coating in a carton having a clay and water base, a filler to impart permanence and a dusty finely divided mineral pigment element,

eliminating enough of the water by drying, to avoid foaming, and then flowing the asphalt into the carton, for the purpose described.

5 5. A process of preparing asphalt for shipment which consists in forming a coating in a carton having a body of lamp black, lime and clay in equal parts in a paste with
10 water, said coating being permitted to dry, and then flowing the asphalt into the carton, for the purpose described.

15 6. A process of preparing asphalt for shipment which consists in forming a coating in a carton having a clay and water base, a filler to impart permanence and a

dusty finely divided pigment element, eliminating enough of the water by drying to avoid foaming, and then flowing the asphalt into the carton, at a viscosity sufficient to prevent penetration through the coating into the carton, for the purpose described. 20

7. A process of preparing asphalt for shipment which consists in forming a loosely coherent film as a coating in a carton, and flowing asphalt into the carton at a
25 viscosity insufficient to penetrate through the coating into the carton.

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