

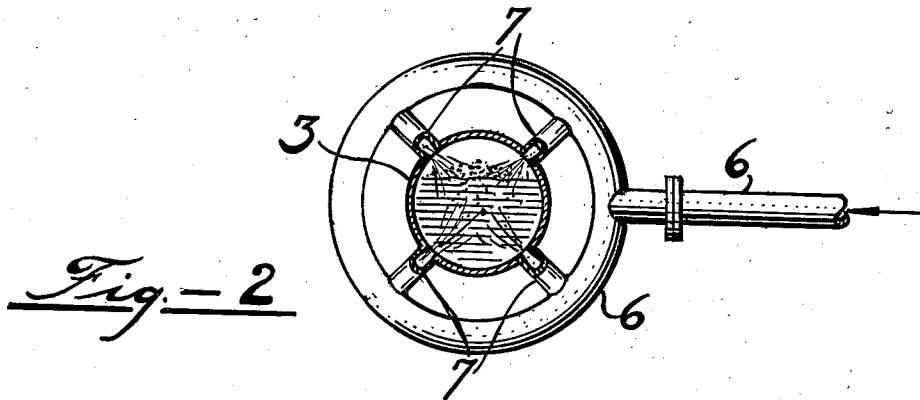
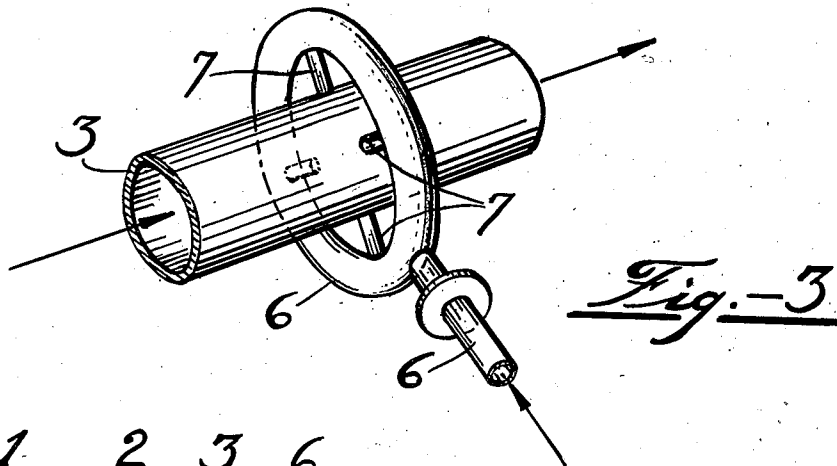
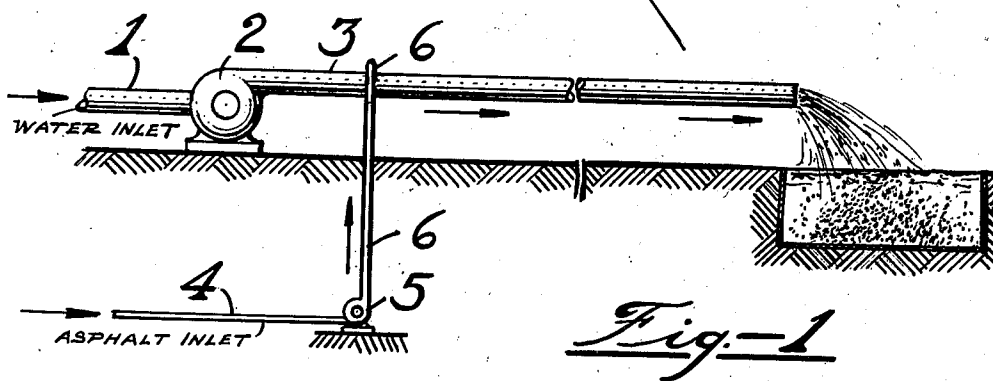
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METHOD FOR TRANSPORTING ASPHALT

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METHOD FOR TRANSPORTING ASPHALT

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2 Claims. (Cl. 83—91)

This invention relates to improvements in the transportation of normally solid substances, such as artificial or natural asphalt, bitumens, greases, natural and synthetic fats, and the like.

In transporting asphalt, the general practice is to deposit the asphalt in containers and move the said containers containing the asphalt. The disadvantage of transporting asphalt in this manner is that the asphalt solidifies and when the removal of the asphalt from the container is desired, it is necessary to either apply heat to liquefy the asphalt, or break the container. Another method of transporting asphalt is by passing it in a liquid state through closed lines or pipes, which pipes are heated to keep the asphalt in the liquid state during the transportation.

An object of this invention is to provide a method whereby the disadvantages generally encountered in moving the asphalts are avoided. A further object of this invention is to cool the asphalt in such a form so that it is easy to handle both for shipping and storage.

Further objects and advantages of this invention will be understood from the following description read in connection with the accompanying drawing in which—

Fig. 1 is a side elevation showing a preferred form of apparatus for transporting the asphalt,

Fig. 2 represents an end view of the injector device associated with a pipe with parts broken away to facilitate the showing, and

Fig. 3 is a perspective view in detail of an injector device employed.

For the purpose of illustration, the handling of asphalt will be described, but the invention is not to be limited to this use, as other material may be transported and other liquid used as the carriers.

Water obtained from a suitable source is passed through pipe 1 by means of pump 2 into pipe 3. The force and volume of the water passing into pipe 3 is regulated by means of pump 2. The temperature of the water that is used may be regulated by the source of supply as it is not generally necessary for the purpose of this invention to use water that had been refrigerated, as the normally solid material is solid at the temperature of the water or at a temperature slightly higher than that at which the water is ordinarily obtained. It is necessary to have pump 2 of sufficient capacity and hydrostatic head to deliver the required amount of water through pipe 3 to any desired location which may be several thousand feet or several miles away. Salt water is also suitable for this purpose.

Asphalt prepared from petroleum residues or other suitable source is passed while still hot and liquid from the stills or other supply of asphalt and discharged into pipe 4. Through pipe 4 the asphalt is delivered to the suction side of pump 5 which may be a rotary type of pump, but any suitable pump may be used. Pump 5 delivers the asphalt through pipe 6 at sufficient pressure to inject the asphalt through nozzles 7 into the stream of water in pipe 3. The asphalt so injected is cooled and granulated by the stream of water, which stream of water subsequently acts as a conveying vehicle to discharge the asphalt at any desired point.

Referring to Figs. 2 and 3, pipe 6 is shown as a manifold around pipe 3 with four restricted injection nozzles 7, 90° apart around pipe 3, for injecting the melted asphalt into the stream of water in pipe 3. One or any number of such nozzles may be provided, depending upon operating conditions, and such nozzles may be restricted in cross-section to increase the velocity of the hot asphalt at the point it enters the stream of water. The size of the granulated particles subsequently formed will be regulated by the velocity with which the asphalt is injected into the stream of water in relation to the velocity of the stream of water itself or the manner in which the asphalt is dispersed in the water.

The asphalt may be collected at the end of pipe 3 in a pile and being granular in form may be readily handled after the water has been allowed to drain off.

It will be obvious that the time of contact of the asphalt while in the liquid state and the water may be changed by varying the amount and the velocity of the water passing through pipe 3 and also varying the area of nozzles 7 whereby the volume of asphalt passing into the running stream of water is controlled. If it is desired to transport a substance having a fairly low melting point, it may be necessary to refrigerate the liquid carrier, for example, when transporting a grease or fatty oil.

Various changes and alternative arrangements may be made within the scope of the appended claims in which it is my intention to claim all novelty inherent in the invention as broadly as the prior art permits.

I claim:

1. A method of preparing asphalts and the like for transporting, and transporting them, which comprises forcing relatively cool water at a temperature below the melting point of asphalt through a relatively large pipe, injecting a plu-

ality of streams of a heated and melted asphalt through restricted nozzles at spaced points around said pipe and into the stream of relatively cool water being forced through said pipe whereby the liquid asphalt and water are mixed in a confined space to solidify and granulate the asphalt and a mixture of asphalt granules and water is formed, the restricted nozzles serving to increase the velocity of the hot asphalt as it enters the stream of water, transporting the mixture in said pipe to a desired point, discharging the mixture from said pipe and separating the asphalt granules from the water.

2. A method of preparing asphalts for transporting which comprises forcing relatively cool water at a temperature below the melting point of asphalt through a relatively large pipe, injecting a relatively small stream of a heated and melted asphalt into the stream of relatively cool water being forced through said pipe whereby the liquid asphalt and water are mixed in a confined space to solidify and granulate the asphalt and a mixture of asphalt granules and water is formed and transporting the mixture in said pipe to a desired point.

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