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CONTAINER FOR ASPHALT, TAR AND LIKE PRODUCTS

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FIG-1-

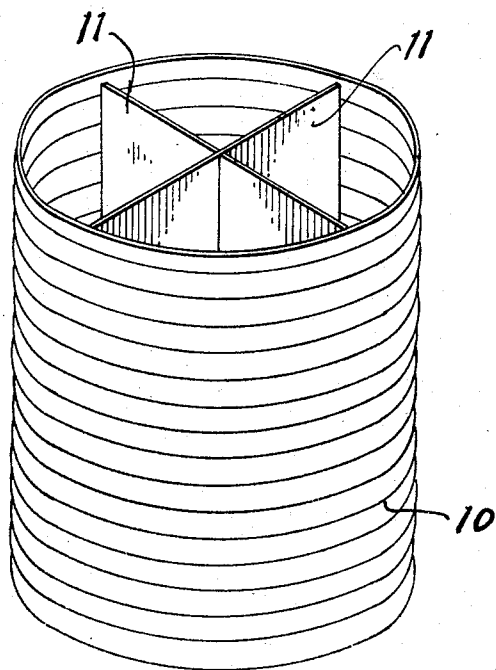


FIG-3-

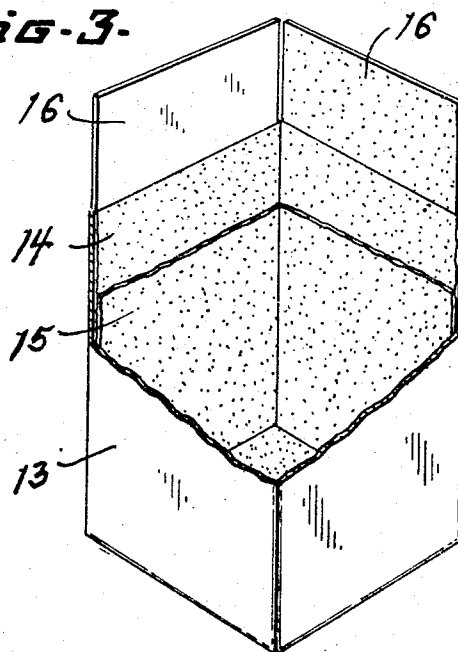
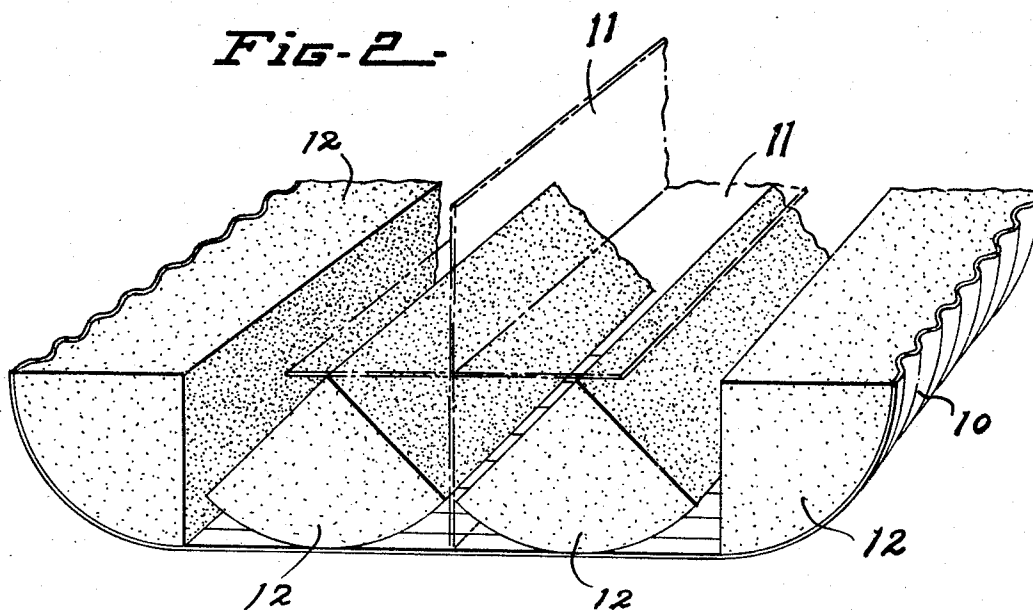


FIG-2-



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CONTAINER FOR ASPHALT, TAR, AND LIKE PRODUCTS

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5 Claims. (Cl. 220-64)

The present invention relates to containers, and more particularly to a protective lining for barrels, drums and cartons or the like that are provided for shipping and storing solid or semi-solid substances such as tar, asphalt and pitch and derivatives thereof, which by virtue of their physical or chemical properties have a tendency to adhere to the walls of the container.

An object of the present invention is to provide an improved container for solid or semi-solid hot poured materials in which an adhesion of the solidified material to the walls of the container is avoided.

Another object of the invention is to provide a coating for the walls of a metallic container for hot poured asphalt, tar or pitch which will not check under the action of heat when the product is poured therein and which will prevent adhesion between the product and the walls of the container.

A further object of the invention is to provide an improved coating for the walls of a cardboard or other non-metallic container for hot poured asphalt, tar, pitch and like products which will prevent an adhesion of the products to the walls of the container upon solidification.

Another object of the invention is to provide a new and improved container for dispensing tar, asphalt, pitch and like products from which portions of the product may be removed in a simple and convenient manner.

Other objects and advantages of the invention will appear hereinafter as the description proceeds.

In the past, for the purpose of preventing the adhesion of tar, asphalt and like products to the surfaces of its container, it has been proposed to coat the inner surfaces of the containers with clay, lime or similar material so that such coatings will prevent an adhesion of the product to the surfaces of the container and thus greatly facilitate the unpacking thereof when in the solid or semi-solid state. These coatings have not been found entirely satisfactory because they possess little mechanical strength and have little adherence to the metal, and if cracked, broken or displaced during the handling or transport of the container, such imperfections in the coatings enable the asphalt to penetrate through to the metal and adhere thereto. Another disadvantage of these coatings is that they remain for the most part attached to the surfaces of the unpacked product and thereby spoil its appearance, and being foreign to its nature may impair its subsequent utilization in the industry.

In accordance with the present invention, the above difficulties are eliminated in metallic containers by the provision of an inexpensive liquid coating, of the character to be described, which may be sprayed, brushed or washed upon the interior of the container to provide a single uniform coating which will completely cover the surfaces to which it is applied. Where the containers are formed of cardboard or other like absorbent material, the container surfaces are first treated with a non-absorbent coating over which the above liquid coating is applied.

A coating containing the following ingredients has been found to give the most satisfactory results in metallic containers: cellulose acetate, synthetic resin commercially known as "Santolite M. H. P.," as manufactured by the Monsanto Chemical Co., acetone, glycerine and denatured alcohol, plus a suitable color pigment where desired. The resin referred to is a toluene sulfonamide-formaldehyde resin which is clear, hard and nearly colorless, softens at about 62° C., is soluble in acetone, and is easily worked into formulae containing cellulose acetate. And in the case of non-metallic containers, a suitable non-absorbent preliminary coating of equal parts of sodium silicate and talc has been found to give satisfactory results. A representative formula for the first above coating is as follows:

30	Solution of acetone and cellulose acetate-----part (by volume) ..	1
	Solution of acetone and synthetic Santolite M. H. P. resin--part (by volume) ..	1
35	Glycerine -----do-----	½ to 1
	Alcohol -----do-----	1

In the above formula the solution of acetone and cellulose acetate is prepared by dissolving one-half pound of cellulose acetate in one gallon of acetone; and the acetone and Santolite M. H. P. solution is prepared separately by dissolving three and one-quarter pounds of the synthetic resin in one gallon of acetone. When the coating material is prepared in accordance with the above formula, the result is a clear colorless liquid which is difficult to detect when applied as a thin coat to the surface of a metal container and, therefore, as an additional ingredient I have found it advisable to add a color pigment thereto which will render the coating visible and thereby provide a means by which the spreading and continuity of the coating upon a surface may be observed. As a pigment I have found that ordinary lamp black produces the desired result and in addition a pigment of this character has the ad-

vantage that it also improves the drying and hardening characteristics of the coating.

At this point it should be stated that while I have set forth above the preferred proportions of the several ingredients of my improved coating, it is to be understood that variations may be made in these proportions as will be determined by the nature and character of the materials with which they are used. As for the glycerine ingredient, which is specified as varying from one-half part to one part, it may be explained that the proportion of glycerine will be determined by the character of the surface upon which the coating is to be applied. For example, if the coating is applied to a surface of an absorbent character, a greater amount of glycerine will be required than where the coating is used upon a sheet metal surface. When the material is applied to a surface, the ingredients are thoroughly and completely mixed and the coating becomes hard and dry, but as the hot tar, pitch or asphalt is poured into the container over the coating, the ingredients thereof appear to separate, the resin moving toward and becoming attached to the surface of the container as an adhesive, while the glycerine comes to the surface to engage the hot tar, pitch or asphalt. The cellulose acetate mixture acts as a binder and drying or setting agent, and the alcohol serves as a solvent or thinner for the glycerine component of the coating.

As has been explained above, where the tar, asphalt or pitch is to be shipped in containers of an absorbent character, such for example as cardboard, I propose to provide a preliminary coating upon the inner surface of these containers which will render them more or less impervious to absorption of the several ingredients, and more particularly the glycerine. A coating which has been found to possess the required characteristics can be formed of equal parts of sodium silicate (water glass) and talc—thinned to the proper consistency with from 10% to 25% water. This coating is first applied to the interior of the container and allowed to dry, after which the protective coating above described is applied.

In the accompanying drawing, which is submitted for the purpose of illustrating the invention, Figure 1 is a perspective view showing a metallic container of the so-called drum type, Figure 2 is a perspective view showing the container of Figure 1 as it appears when broken open, and

Figure 3 is a perspective view showing a non-metallic container coated in accordance with the invention.

As is well understood in the art, when tar, pitch, asphalt and other like solid and semi-solid materials are shipped in metallic containers, the containers are usually constructed of relatively light sheet metal and have a capacity of fifty (50) gallons or approximately four hundred (400) pounds. When the tar, pitch or like material is received in such a container, it is the custom to cut the container along one side and strip it from the solidified material therein and then chop the solidified material into smaller pieces so that the pieces can be introduced into a melting pot or kettle for heating preparatory to its application to the surface upon which it is to be applied. An objection to these larger containers is that where small jobs are involved, the problem of removing a small portion of the contents of the drum is difficult. To overcome this objection, various producers have resorted to the use of smaller

containers having a capacity of approximately one hundred (100) pounds. These smaller containers are generally constructed of cardboard and can be readily stripped from the solid material at their point of use by tearing away the walls of the carton.

As an improvement upon the larger containers, the drum, designated by the numeral 10 in Figure 1 of the drawing, is shown as having transversely extending partitions 11 that divide the interior of the drum 10 into four equal sectors. With this arrangement when the interior of the drum 10 and the sides of the transversely extending partitions 11 are coated with the formula described above, it will be possible to remove the solidified tar therefrom in a simple and convenient manner by merely cutting the wall of the drum 10 along a vertical line. When the drum 10 is thus cut, it will be possible to unroll the walls thereof to expose the four divisions of the tar which will separate from the drum and from each other, as is illustrated in Figure 2 of the drawing. In this latter figure of the drawing the sectors of tar are designated by the numeral 12 and the partition forming member 11 is shown in dot and dash lines. It has been found that when the tar is packaged and shipped in this manner, the surface thereof carries a film of glycerine which can be easily wiped off before use. On the other hand, if the tar is not used immediately, it will be found that this film of glycerine will serve to prevent adhesion of the semi-solid tar to any surface upon which it might be later laid.

As shown in Figure 3 of the drawing, when a paper carton, here designated by the numeral 13, is used it will be provided with a coating 14 composed of sodium silicate and talc, as described above, over which, after drying, a coating 15, prepared in accordance with the above formula, will be applied. The carton 13 is here shown as having end flaps 16, the two innermost ones of which will likewise be provided with the two coatings above referred to.

While I have, for the sake of clearness and in order to disclose my invention so that the same can be readily understood, described specific ingredients and proportions, I desire to have it understood that this invention is not limited in this respect, but may be embodied in other ways that will suggest themselves to persons skilled in the art. It is believed that this invention is new and it is desired to claim it so that all such changes as come within the scope of the appended claims are to be considered as part of this invention.

In the appended claims, I use the term "bituminous material" to include asphalt, tar, pitch, and the like.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A coating composition for providing a coating on the inside of a container for normally solid or semi-solid bituminous material to be poured hot thereinto and allowed to harden therein and to which said material normally adheres, said container being easily separable from said hardened material when said coating is thereon, said composition comprising a fluid containing glycerine, alcohol, acetone, cellulose acetate and toluene sulfonamide-formaldehyde resin which is clear, hard and nearly colorless, softens at about 62° C., is soluble in acetone, and is easily worked into formulae containing cellulose acetate.

2. A coating composition for providing a coating on the inside of a container for normally

solid or semi-solid bituminous material to be poured hot thereinto and allowed to harden therein and to which said material normally adheres, said container being easily separable from said hardened material when said coating is thereon, said composition comprising a fluid containing glycerine, denatured alcohol, acetone, lamp black, cellulose acetate, and toluene sulfonamide-formaldehyde resin which is clear, hard and nearly colorless, softens at about 62° C., is soluble in acetone, and is easily worked into formulae containing cellulose acetate.

3. A coating composition for providing a coating on the inside of a container for normally solid or semi-solid bituminous material to be poured hot thereinto and allowed to harden therein and to which said material normally adheres, said container being easily separable from said hardened material when said coating is thereon, said composition comprising about one part of a solution of one-half pound of cellulose acetate in one gallon of acetone, about one part of a solution of one gallon of acetone and three and one-quarter pounds of toluene sulfonamide-formaldehyde resin which is clear, hard and nearly colorless, softens at about 62° C., is soluble in acetone, and is easily worked into formulae containing cellulose acetate.

5 hyde resin which is clear, hard and nearly colorless, softens at about 62° C., is soluble in acetone, and is easily worked into formulae containing cellulose acetate, about one-half to one part of glycerine, and about one part of alcohol, said parts being by volume.

4. A container into which hot fluid bituminous material is to be poured and allowed to harden therein, having a coating on the inside thereof comprising glycerine, cellulose acetate, and toluene sulfonamide-formaldehyde resin which is clear, hard and nearly colorless, softens at about 62° C., is soluble in acetone, and is easily worked into formulae containing cellulose acetate.

5. A container into which hot fluid bituminous material is to be poured and allowed to harden therein, having a coating on the inside thereof comprising glycerine, lamp black, cellulose acetate, and toluene sulfonamide-formaldehyde resin which is clear, hard and nearly colorless, softens at about 62° C., is soluble in acetone, and is easily worked into formulae containing cellulose acetate.

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