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RALPH R. CONE, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE ASPHALT PRODUCTS CO. INC., OF SYRACUSE, NEW YORK, A CORPORATION OF DELAWARE.

BASE POWDER FOR WATERPROOFING, ETC., AND PROCESS OF PRODUCING THE SAME.

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My invention relates to an improved powder for use as a base in waterproofing, bonding, cementing, painting, and other allied operations, the object being to reduce the cost for time, labor and materials, to improve the quality of the work done, and to make available for the operations indicated, low melting-point bituminous materials, such as coal-tar pitch, asphalt, and other bitumens, and low melting-point water-proofing materials such as rosins, gums, etc., when the same are mixed with substances rendering them semi-fluid at normal temperatures.

With these ends in view my invention consists in a powder consisting of fine particles of low melting-point waterproof material refrigerated to brittleness or pulverable viscosity.

My invention further consists in a powder consisting of fine particles of low melting-point waterproof material refrigerated to brittleness or pulverable viscosity and combined with colloidal material prior to or subsequent to pulverization.

My invention further consists in a process of producing a powder for use as a base in waterproofing, bonding, cementing, painting, and allied operations, consisting in refrigerating to brittleness or pulverable viscosity a low melting-point waterproof material, then grinding the same to powder.

My invention further consists in a process of producing a powder for use as a base in waterproofing, bonding, cementing, painting, and allied operations, consisting in refrigerating to brittleness or pulverable viscosity a low melting-point waterproof material, then grinding the same to powder, with which is commingled colloidal material.

My invention further consists in the powder and the process to be hereinafter more particularly described and pointed out in the claims.

In carrying out my invention, I may employ, according to the dictation of circumstances and the particular exigencies of use, a wide range of normally viscous materials insoluble in water, such as bitumens, rosins, gums, waxes, or other allied materials, or substances characterized by being insoluble in water and semi-plastic at ordinary temperatures, or so treated as to become so. If the coalescence of the particles of the powder, after their use, is expected to take place at about normal temperatures, waterproofing materials, having a melting-point of substantially 50° C. or under, by the so-called "cube" test, should be chosen for use.

In carrying out my invention, the base material, whatever its specific character, is refrigerated to brittleness or pulverable viscosity in any convenient manner, such as by exposing the barrels or other containers in which it is supplied to the trade, to sufficiently low temperature to permit it to be readily broken up into masses small enough to be conveniently handled. The cold, broken material is then introduced into a grinding machine, which may be of any character, so long as it admits of being chilled without interference with its operation, as, for instance, by a water jacket through which cold brine is allowed to circulate. With regard to this feature of my invention, it is satisfied by the employment of any means which will so reduce the temperature of the material as to bring it into a state of pulverable viscosity, that is to say, to effect the refrigeration required for reducing the base material to a fine powder. The grinding operation should, for the best results, from my present view of the matter, be conducted at a temperature substantially 40° C. below the melting point, by the "cube" test, of the particular material being ground. The fineness to which the base material is ground will depend upon the circumstances of the intended use of the powder, which may or may not be graded by screening. If desired, the grinding operation may be continued until the particles of the base material are reduced in size far below any possibility of reducing them by the colloidal or alkali processes heretofore employed for the treatment of low melting-point bituminous materials while in a molten condition.

The base powder, produced as above described, may be used in the production of an emulsion with water or in the production of a coarse, bulky, mealy powder, according to the circumstances of use. If the base powder is to be used in the production of an emulsion, the water used should be cold enough to prevent the coalescence of the particles of the base material in suspension. Such an emulsion may be used in the pro-

duction, for instance, of many kinds of waterproof paper, into which it is introduced in the pulp-stage, it being understood that upon the elimination of the water, the particles of the base material will coalesce within the body of the paper and render the same waterproof. If preferred, and my present view is that this is the desirable course to pursue, the powder should have a sufficient quantity of powdered colloidal material combined with it to prevent the premature coalescence of its particles or at least to deter their coalescence. The amount of colloidal clay to be added for this purpose will depend upon the melting-point of the basic material, and may range from one to two per cent, so far as I am at present advised. This colloidal material may be added to the powder or to the refrigerated base material before grinding the same, and serves to prevent the coalescence of the particles of the powder, even when the emulsion is raised to normal temperatures. If, on the other hand, the powder is to be used not in an emulsion, but in the production of a coarse, mealy, bulky material, it will be combined with a filler in the form of a low-grade clay or some other form of bulk-giving material, such as asbestos or other fibrous material. The powder, if mixed with coarse clay or sand, will produce a material well adapted for repairing roads and pavements.

Inasmuch as by my invention the base material is initially reduced to a fine powder, the constituent particles thereof, when used, will be surrounded by colloidal envelopes, whatever the character of the colloidal material, whereas, in the processes of the prior art, the base material in molten form has aggregated itself about a proportion of the colloidal material, my improved powder just reversing the arrangement of the base material and the colloidal material. From this difference proceeds one of the advantages of my invention, since I am thus enabled to use only the amount of colloidal material necessary to prevent the coalescence of the particles of the base material, whereas, in the processes of the prior art, larger amounts of colloidal material were employed, since it was caught and confined by the base material in its liquefied or molten condition, whereby I avoid the introduction of unnecessary and undesirable quantities of inert material into the material to be waterproofed, bonded or cemented, etc.

I claim:

1. A product comprising pulverized refrigerated particles of waterproof material having a melting-point at or below 50° C., water and colloidal matter.

2. A process of producing a powder for use as a base in waterproofing, bonding, cementing, painting, and allied operations consisting in refrigerating to brittleness or pulverable viscosity a bituminous material, then grinding the same to a powder and commingling colloidal material therewith.

3. A process of producing a powder for use as a base in waterproofing, bonding, cementing, painting, and allied operations, consisting in refrigerating to brittleness or pulverable viscosity a bituminous material having a melting point under 50° C. then grinding the same to a powder and commingling colloidal material therewith.

In testimony whereof, I have signed this specification.

RALPH R. CONE.