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VARNISH AND PROCESS OF MAKING

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This invention relates generally to a building surface coating and more particularly to a mastic capable of being applied to the building surface by spraying.

The principal object of this invention is the provision of a mastic having an asphalt base which can be applied to building surfaces by spraying and which will provide a waterproof coating that has high adhesion characteristics both as to the surface to which it is applied and particles applied thereto.

Another object of this invention is the provision of a mastic coating material that can be applied and is compatible with most any character of building surface, such as masonry wall, smooth tin surfaces, aged roofing materials such as paper, asphalt, stone, slate, tile, wooden and asbestos shingles, and the like. The compatibility of this mastic is determined by the constituents thereof, which is a very important feature of this invention.

Another object of this invention is the provision of a mastic for coating building surfaces which after being applied retains a plasticity regardless of extreme weather conditions of temperature and the elements. This material by reason of the constituents is provided with an elastic quality making it appear to be alive in that it is very slow to get hard or become brittle or lose its power of cohesion, and is therefore referred to as a live plastic. The extreme heat or extreme cold weather will not vary the structural characteristics of this mastic and it retains its plasticity even in the coldest weather and does not lose its adhering properties.

These advantages can be obtained by employing an asphalt material known as "gilsonite" and tempering the same with a softer asphalt known as 180° asphalt. These asphaltic materials are further tempered or controlled to make the material plastic with oils. However the oils do not control entirely the tempering of the final product as this is gained through the combination of both the asphalts and the oils, which is the principal advantage of this material, providing an improved mastic.

The oils employed to control the mastic are preferably bodied and are preferably of a vegetable type, although other oils may be employed, but it has been found that the best results are obtained if the vegetable oils are used as they are less apt to be acetic.

We find particular advantage in employing linseed and soybean oil in combination as they increase the compatibility of the mastic and induce a higher adhesion without destroying the cohesion properties, even that over other types of vegetable oils, such as China-wood oil, which could be employed but is not as good. However the other types of oil, fish oils and petroleum oils, tend to be too acetic and will materially reduce the adhesion and cohesion qualities of the mastic.

To the asphaltic materials and the bodied oils a thinner is added to condition this mastic for application by blowing, spraying or otherwise applying it to the building surface. This thinner must not be excessive as it will create bleeding of the mastic, giving it a surface tension that causes the material to creep along any surface that it comes in contact with. When granules are applied to the surface excessive mineral spirits in the mastic will cause the mastic, which is black, to coat itself over the surface of the granules. If the mastic has been blown on the vertical or horizontal surface of the building and has too much of the mineral spirits it will creep along the surface and discolor an adjacent surface which is not intended to have the mastic applied thereto. A common instance of this character would be where the material is employed as a waterproofing and it crept up the surface of the wall of the building beyond where it has been applied. Thus it is important to accurately control the proportions of the asphaltic ingredients, bodied oils, and the mineral spirits in compounding this mastic.

The three ingredients, that is, the asphaltic materials, bodied oils, and the mineral spirits are defined herein as a varnish to which is added a pigment that is defined herein as an asbestos material. The asbestos fiber materials may be purchased in the open market and have a long fiber, a short fiber, and a fine fiber. The pigment comprising long and short asbestos fibers may be provided in proportions of 50% each. However for blowing purposes it is best to restrict the mastic to the short and the finer fibers, which pigment induces a quality unlike other fibers to this mastic. The asbestos fiber materials has the property of being capable of absorbing the oils and the mixture, and thereby aids in retaining the plasticity of the mastic over a materially longer period of time as the absorbent material within the fibers are protected and prevented from migrating to where they would be subject to drying or volatilization. Aside from this advantage the fibers of course provide a mechanical or structural strength to the mastic but do not prevent it from being sprayed or otherwise blown onto the surface to be coated.

Another object of this invention is the method of compounding this mastic and of selecting the most desirable proportions of the constituents for the different purposes of application.

To formulate a body of the varnish the following percentages of materials may be employed:

Example No. 1

	Percent
Gilsonite	17.26
Asphalt, 180° F	26.48
Linseed oil (bodied)	10.00
Soybean oil (bodied)	6.85
Mineral spirits	39.41

Example No. 2

	Percent
Gilsonite	18.5
Asphalt, 180° F	25.00
Linseed oil (bodied)	10.5
Soybean oil (bodied)	6.00
Mineral spirits	40.00

Example No. 3

	Percent
Gilsonite	15 to 19
Asphalt, 180° F	18 to 34
Linseed oil (bodied)	9 to 12
Soybean oil (bodied)	6 to 8
Mineral spirits	35 to 40

Of these proportions the first example was discovered to be the most readily adaptable combination of this mastic and is preferable for most all applications and under most all weather and temperature conditions.

In formulating this varnish the oils are mixed together and heated to body the same. They are heated from 580° F. to 600° F. for over a period of six to eight

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hours to obtain a body of approximately Z6 as registered on a Henry A. Gardner scale. This body of the oil increases the size of the molecules of the oil, giving it strength and tackiness and when mixed with the asphaltic material provides it with cohesion qualities so that it will not separate from the mastic and penetrate independently the surface to which it is applied. The enlarged molecule of the bodied oil also aids in retaining the life of the mastic over a longer period of time. The bodied oil also has the characteristic of retarding entire structural change in the mastic itself owing to the variations in temperature and weather in which this mastic might be applied.

The asphaltic materials, that is the gilsonite and the asphalt, are mixed into the hot bodied oil and stirred until the asphalt materials are completely melted and the mass becomes homogeneous. The insertion of the asphaltic materials to the hot bodied oil will reduce the temperature of the oil, which sometimes requires the reheating of the mixture so as to obtain homogeneity in the mixture.

After the mixture is homogeneous it is permitted to cool to a temperature of from 300° F. to 350° F. and the thinner or mineral spirits are then added while the mixture is stirred or otherwise agitated so as to permit quick dissemination of the mineral spirits in the mixture. By this process the varnish is completed and it may be mixed with the pigment when it is hot or when it is cold.

The pigment in this instance is an asbestos fiber preferably made of 50% short asbestos fibers and 50% fine asbestos fibers. This half and half mixture of asbestos fibers is added to the varnish in the percentage of 34.7% mixture of the pigment or fibers to 65.26% of the varnish. This percentage can be varied within a few percent either way. However it has been found preferable to retain these constituents very close to these proportions because of the absorption qualities of the fibers themselves. In other words, the fiber must be of the characteristic that it will absorb a certain percentage of the oil and thinner mixture. Otherwise the oils and thinner might tend to separate themselves from the varnish and provide independent characteristics that are undesirable in the surface conditions and life of the mastic.

In formulating this mastic the gilsonite is tempered by the asphalt and the oils which control the wearing qualities and the temperature resistance after it is applied. If the gilsonite is not tempered by the asphalt the material becomes incompatible with many forms of building surfaces. Thus the tempering of the gilsonite with the asphalt makes the mastic more uniformly adaptable and the gilsonite adds stability to the tempering elements, namely, the asphalt and the oils. Thus the combination must be controlled within the percentages as given. When the gilsonite is properly tempered with the asphalt and bodied oils, a material percentage of which is absorbed by the asbestos fibers, the constituents are maintained in a close knit mastic that retains its property over a longer period of time and provides the proper cohesion and adhesion characteristics, preventing complete penetration and surface application but permitting sufficient penetration to anchor the granules or particles applied without disrupting or rupturing the coating. Thus when the mastic is applied to the building surface and granules are applied to the mastic, the granules will penetrate the mastic sufficient to anchor them in place without completely penetrating or rupturing the waterproof coating over the surface, which is a material advantage in this character of waterproofing. The coating is approximately one-eighth of an inch.

Another form of the invention is provided after the mixture of the gilsonite and asphalt is made homogeneous at a temperature of from 580° F. to 600° F. and is then permitted to cool to a temperature of about 225° F. to 350° F., at which time we add thereto a soybean oil which has been heated to a temperature of 250° F. and then blown by the insertion of a pipe discharging air into the bottom of the hot soybean oil until it completely aerates the same, giving it a frothy appearance. This is referred to as a blown soybean oil and has a viscosity of Z9 in the Henry A. Gardner scale. This blown soybean oil is then added to a batch of any of the foregoing three examples when at a temperature of from 225° or 300° to 350° F., which completes the varnish. Since the varnish is completed it may then mix with the pigment when it remains at the temperature of 225° F. to 350° F. or when it is cooler. The pigment, which is made up of 50% short asbestos fibers and 50% fine asbestos fibers, is mixed with this varnish in the same percentages of 34.7% of the fibers to 65.26% of the varnish and thus produces a surface coating that is very tacky and takes many years to dry when exposed to normal weather conditions. The soybean oil adds more life and elasticity and improves the adhesion for the granules, such as chipped marble and stone that is laid over the surface of this mastic.

We claim:

1. A varnish comprising 15% to 19% gilsonite, 18% to 34% of 180° F. asphalt, 9% to 12% bodied linseed oil, 6% to 8% bodied soybean oil, and 35% to 40% mineral spirits.

2. A mastic comprising 65.26% of the varnish of claim 1 mixed with 34.7% pigment.

3. The mastic of claim 2 characterized in that the pigment comprises 50% short asbestos fibers and 50% long asbestos fibers.

4. The process of making a varnish which comprises bodying 9% to 12% of linseed oil with 6% to 8% of soybean oil at a temperature of from 580° F. to 600° F. for a period of six to eight hours, mixing therewith 15% to 19% gilsonite and 18% to 34% of 180° F. asphalt until the same becomes a homogeneous mixture, permitting the homogeneous mixture to cool to a temperature of 225° F. to 350° F., adding to the cooled homogeneous mixture a thinner of 35% to 40% of mineral spirits, blowing 6% to 8% of soybean oil by heating the same to 250° F. and then aerating the same by blowing air into the hot oil to froth the same, and adding the hot blown oil to the cooled homogeneous mixture with its added thinner when at a temperature of from 225° to 350° F.

5. The process of claim 4 which also includes the addition of 34.7% pigment to 65.26% of the varnish.

6. The process of claim 5 characterized in that the pigment comprises 50% of short asbestos fibers and 50% of fine asbestos fibers.

7. The process of claim 4 characterized in that the pigment is added to the varnish when the latter is at a temperature of 300° F. to 350° F.

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CERTIFICATE OF CORRECTION

Patent No. 2,875,080 February 24, 1959

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It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 56, for the claim reference numeral "4" read -- 5 --.

Signed and sealed this 23rd day of June 1959.

(SEAL)
Attest:
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