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PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

Improvements in or relating to Plastic Self-hardening Compositions

We, PATRICK PIERCE BUTLER CORMAC, a British Subject, of 104, Dacre Park, Blackheath, London, S.E.13, and RUBBER CEMENT PRODUCTS LIMITED, a British Company, of King William Street House, Arthur Street, London, E.C.4, do hereby declare the nature of this invention to be as follows:—

This invention relates to plastic self-hardening compositions and more particularly to rubber-cement compositions formed by mixing aqueous dispersions of natural or synthetic rubber with cement. Compositions of this kind have been described *inter alia*, in specification No. 369,561.

The invention aims at delaying the setting period of such compositions for the purpose of enabling comparatively large batches of mix to be made up and used over prolonged periods without danger of setting.

To this end, the present invention comprises incorporating with the cement intended to be used for such compositions, a colloidal organic material such as casein or similar albuminous material, which is adapted to surround the comparatively large cement particles by a thin water-repellent moisture-absorbing layer, which prevents access of the water to the cement particle until said layer has become completely saturated with water.

In carrying out the invention dry casein or like organic colloid is intimately mixed with and preferably ground into the cement in the proportion of for example 2 to 5% by weight of the cement.

According to one method of carrying out the invention, 96 parts of cement and 4 parts of casein are intimately mixed together in a grinding mill, whereupon there is incorporated with the mixture 50 parts by weight of a concentrated rubber latex known under the Registered Trade Mark "Revertex" and consisting of concentrated rubber latex containing approximately 68% of dry rubber substance together with a small proportion, e.g. 5% of stabilising and vulcanising ingredients. Sufficient water is added to the latex-cement mixture to render the same workable.

The foregoing latex-cement mix can be used as an adhesive, which will keep for a substantial period without setting, thus enabling a batch to be prepared for use over a considerable period.

Moreover, the addition of the hereinbefore specified colloidal albuminous materials enables relatively unstable rubber dispersions to be employed and is also advantageous when using quick-setting cements such as Portland cement or the cement known under the Registered Trade Mark "Snowcrete". The setting period of the mix can be still further retarded by adding up to 25% by weight of water.

Dated this 2nd day of December, 1938.

ALBERT L. MOND & THIEMANN,
19, Southampton Buildings,
Chancery Lane, London, W.C.2,
Agents for the Applicants.

COMPLETE SPECIFICATION

Improvements in or relating to Plastic Self-hardening Compositions

We, PATRICK PIERCE BUTLER CORMAC, a British Subject, of 104, Dacre Park, Blackheath, London, S.E.13, and RUBBER CEMENT PRODUCTS LIMITED, a British Company, of King William Street House, Arthur Street, London, E.C.4, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to plastic self-hardening compositions and more particularly to rubber-cement compositions formed by mixing aqueous dispersions of rubber with cement. Compositions of this kind have been described *inter alia*, in specification No. 369,561.

The term "rubber" used herein is intended to include not only natural rubber (caoutchouc) but also allied vegetable resins, such as guttapercha and balata, and synthetic rubbers such as derivatives of butadiene and chloroprene.

[~~Price 1/-~~]

The invention aims at delaying the setting period of compositions of the foregoing type, for the purpose of enabling comparatively large batches of mix to be made up and used over prolonged periods without danger of premature setting.

To this end, the present invention comprises incorporating with the cement intended to be used for such compositions, a colloidal organic material such as casein, glue, hæmoglobin, blood albumin or similar proteinous material, which is adapted to surround the comparatively large cement particles by a thin, initially water-repellent but slowly moisture-absorbing layer which delays access of the water to the cement particle until said layer has become saturated with water.

In carrying out the invention the dry casein or like organic colloid is intimately mixed with and preferably ground into the cement in the proportion of for example 0.5 to 5% by weight of the cement, prior to the incorporation of said cement with the rubber dispersion.

According to one method of carrying out the invention, 96 parts of cement and 4 parts of casein are intimately mixed together in a grinding mill for a period of 8 hours, whereupon there is incorporated with the mixture 50 parts by weight of a concentrated rubber latex mix known under the Registered Trade Mark "Revertex" and consisting of concentrated rubber latex together with a small proportion, e.g. 5% of stabilising and vulcanising ingredients. Sufficient water is added to the latex-cement mixture to render the same workable.

The foregoing latex-cement mix can be used as an adhesive, which will keep for a substantial period without setting, thus enabling a batch to be prepared for use over several hours.

Moreover, the addition of the hereinbefore specified colloidal proteinous materials enables relatively unstable rubber dispersions to be employed and is also advantageous when using quick-setting cements such as Portland cement or the cement known under the Registered Trade Mark "Snowcrete". The setting period of the mix can be still further retarded by adding to the ready prepared rubber-cement mixture up to 25% by weight of water additional to that already present in said mixture.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. In a method of preparing plastic self-hardening compositions of the type hereinbefore set forth, the step which comprises previously incorporating with the cement intended to be used for such compositions, a colloidal organic material which is adapted to surround the particles of said cement by a thin, initially water-repellent but slowly moisture-absorbing layer, which delays access of water to the cement particle until said layer has become saturated with water.

2. Method as claimed in claim 1, in which the colloidal organic material consists of casein, glue, hæmoglobin or blood albumin.

3. Method as claimed in claim 1 or 2, in which the colloidal organic material is incorporated with the cement in the proportion of between 2 and 5% by weight of the latter.

4. Method as claimed in any of the preceding claims, in which the colloidal organic material is ground into or together with the cement.

5. Method as claimed in any of the preceding claims, in which up to 25% by weight of additional water is added to the ready prepared rubber-cement mixture.

6. The method of preparing plastic self-hardening compositions of the type hereinbefore set forth, substantially as described.

7. Plastic self-hardening compositions, whenever prepared by the method claimed in any of the preceding claims.

Dated this 2nd day of January, 1940.
ALBERT L. MOND & THIEMANN.
14—18, Holborn, London, E.C.1.
Agents for the Applicants.

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