

United States Patent

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[54] **PLASTER COLORANT SYSTEM**
5 Claims, 2 Drawing Figs.

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B65d 85/00

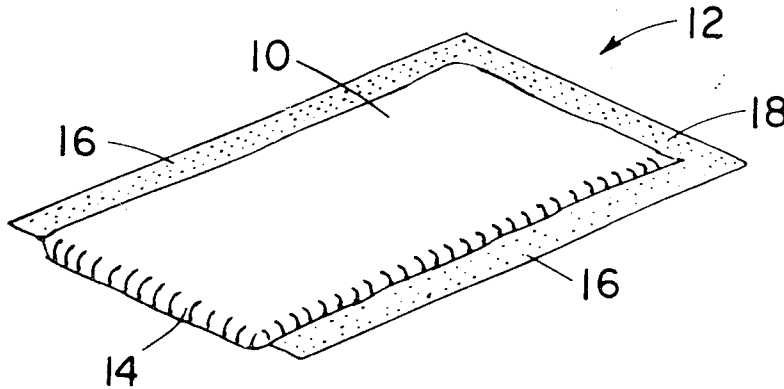
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ABSTRACT: A set of water-soluble film packets each containing one of several available finely ground pigments and, when so desired, an additional amount of finely ground white extender, which are added singly or in any desired multiples to a container of gauging water to which is added a readily available standard quantity of dry cementitious powder, such as plaster, for providing controlled pigmented plaster for precolored plaster walls.



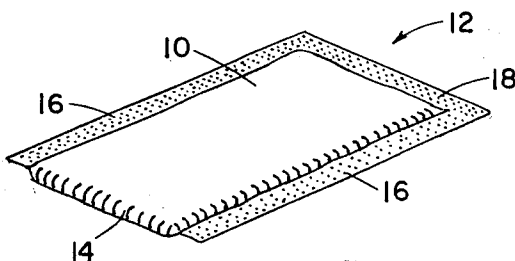
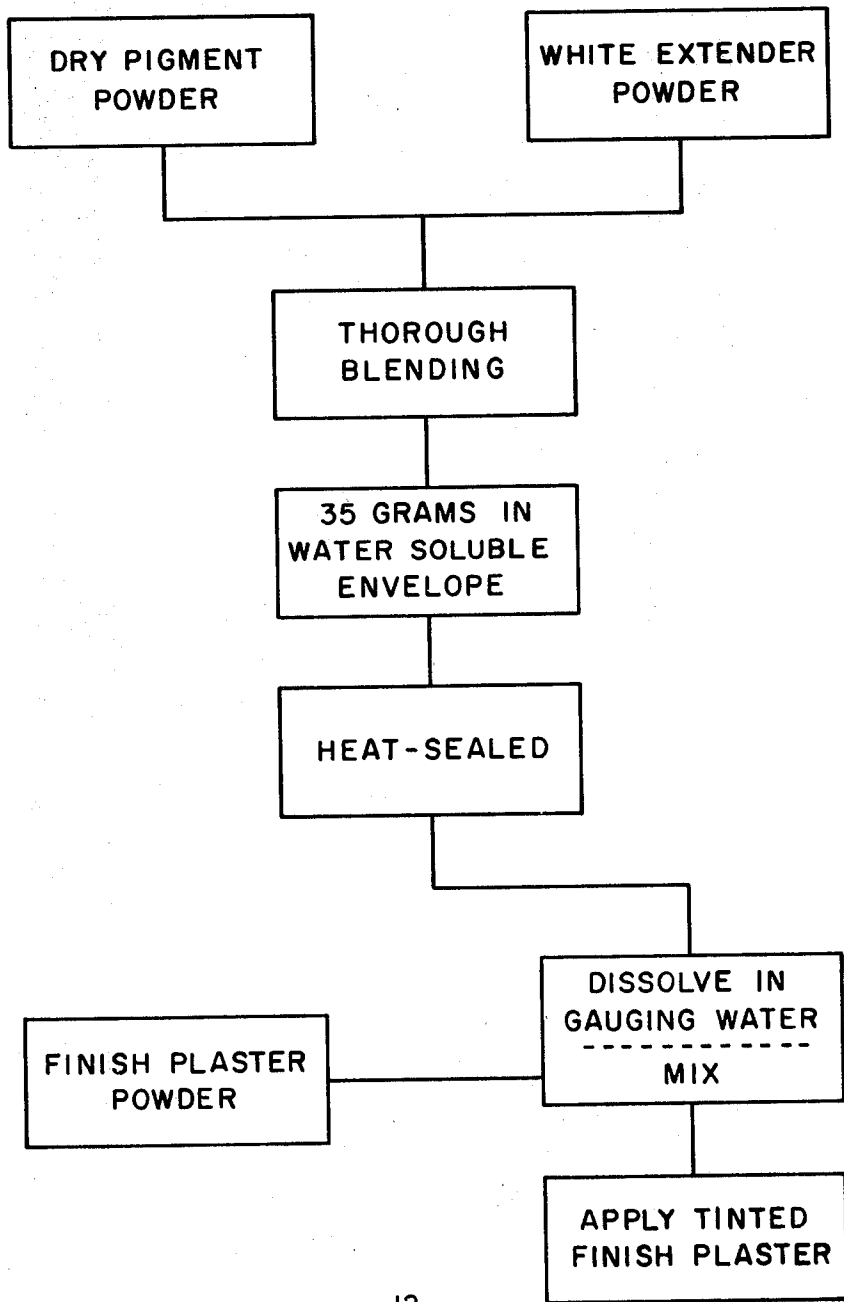


Fig. 2

Fig. 1

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PLASTER COLORANT SYSTEM

BACKGROUND OF THE INVENTION

Prior commercial systems for pigmentation of settable cementitious materials suffered from many problems, dependent on the particular prior system used, to the extent that such prior systems were substantially unsuccessful. These problems are generally all related to the need to be able to produce one batch after another of pigmented cementitious material without noticeable color variation between batches. Plastering contractors have used dry pigment powders in plaster mixes, measuring by level spoonfuls or a level cupful per 50 pound bag of plaster. Even with a high degree of care this will not produce uniformly colored plaster walls. Two different techniques of scooping powder out of a container will introduce an intolerable variation in powder density, in the measuring device, to say nothing of the variations in making the "level" spoonful or cupful.

A typical amount of dry pigment powder to be added to a preferred batch of a 50 pound bag of plaster may be as little as about 10 grams, which is about 0.02 pound. An allowable tolerance of dry pigment has been found to be about ± 2 percent, or about ± 0.0004 pound. One reason the allowable tolerance is this small is that there are so many other variations commonly occurring, to be allowed for. The common commercial 50 pound bag of plaster, when emptied, will provide 50 pounds, ± 3 percent, or anywhere from about 48.5 to 51.5 pounds of plaster. Common variations in the ratio of water to plaster will result in a variation in the ultimate density of the plastered wall, or in other words the area of wall coverage may vary with a constant thickness of coating. Thus it will be seen how other large variations, like on the job measurement of 0.02 pound of a dry pigment powder, will inevitably produce intolerable total color variations.

Another approach has been the addition of prepared liquid dispersions of pigment, such as the addition to a batch of plaster of a measured volume of water-based paint. Here, again, jobsite measuring techniques produce unacceptable variations in color from batch to batch.

Another solution to the problem is to mix, all at once, a sufficient quantity of plaster to complete an entire room. This method is satisfactory for small rooms but creates many obvious problems when the size of the room is somewhat larger.

SUMMARY OF THE INVENTION

The present invention relates to providing factory sealed packets of measured quantities of dry pigment and when desired an extender, with the packets being made of water-soluble film, whereby the packet and contents are placed as a unit in the water to which is added dry cementitious powders for producing a uniformly pigmented cementitious slurry.

DRAWINGS AND DESCRIPTIONS

FIG. 1 is a flow chart of the novel process of the present invention.

FIG. 2 is an isometric view of a water-soluble packet containing pigment, in accordance with the invention.

In accordance with the invention, a dry powder pigment 10, for use in preparing tinted finish plaster, is packaged in small water-soluble envelopes 12, which may be used by simply dissolving the envelope and dispersing the pigment in the water which is to be mixed with the finish plaster powder to form a workable plaster slurry or paste.

The dry powder pigments may be any commonly available, inert dry powder, of a fineness that substantially all passes through a 100 mesh sieve, having color characteristics suitable for producing a desired color when combined with a gypsum finish plaster, or other inorganic cementitious material. For example, a series of colors may be provided using selected combinations of a series of dry powder pigments sold by Harmon Colors, a Division of the Allied Chemical Company, and referred to by Harmon Colors as Dry Colors.

The development of a desired series of colors to be produced in a finished plaster wall involves, first, the determination of the ratio of addition of the basic commercial dry color pigments to one another and, second, the ratio of combined pigments to dry plaster. For example, a desired beige finish plaster may be provided by combining 40 percent yellow pigment, 45 percent orange pigment and 15 percent black pigment, and using 35 grams of the combination per 50 pounds of plaster. A desired pale green finish plaster may be provided by combining 50 percent yellow pigment and 50 percent green pigment and using 14 grams of the combination per 50 pounds of plaster.

In a preferred form of the invention a series of about eight colors of desired finish plaster are selected and ratios of pigments to be combined and ratios of total pigment to plaster are both determined by trial and error. A batch of combinations of pigment is then thoroughly blended for each end color to be offered for sale. The batch, for each end color, is then divided into units of the amount to be used with 50 pounds of plaster, since this is a commonly available measured unit of plaster, such units being per the above examples 35 gram units of the beige combination of pigments and 14 grams of the pale green combination of pigments. These units are then each packaged in individual water soluble film packets, as discussed further below.

Alternatively, the above combinations of pigments may be combined and blended with a fine white powder extender. This preferably will be done, in accordance with the invention, to the extent that all of the series of colors, as packaged in the packets to be sold, will include an equal weight of dry solids. For example, if the series of colors to be packaged includes the 35 gram unit of beige combination of pigments, and no combination of pigments requiring more than 35 grams per packet, then all combinations of pigment requiring less than 35 grams of pigment per packet are combined with sufficient white extender such that a total of 35 grams of blended pigment and extender are packaged in each packet. Thus in preparing the combination of pigments for the above discussed pale green, in accordance with this embodiment, 14 weight units of a 50-50 blend of yellow pigment and green pigment are further blended thoroughly with 21 weight units of white extender powder, which combination is then divided into 35 gram units for packaging for use with 50 pounds of plaster. One advantage is the improved market acceptability of products with apparently equal material provided in each of the several different colors offered.

Of greater importance is the advantage of improved quality control by improved control of the weight tolerance when dividing the finally blended powders into packet weight units. The tolerance potential of a process of dividing the blended material is essentially the same weight tolerance, whether dividing into 14 gram units or into 35 gram units. Accordingly, in a process having a tolerance potential of about 0.7 gram, a relatively unacceptable tolerance of ± 5 percent is occasioned with 14 gram units whereas the tolerance is only a reasonable ± 2 percent with 35 gram units.

The amount of extender to be added in accordance with the invention may be such that all colors of a series are extended, if a need for further improved tolerances justifies the increased cost of extender.

A suitable white extender has been found to be finely divided calcium carbonate, such as precipitated calcium carbonate or finely ground limestone.

The water-soluble packets 12 are preferably made by folding as at 14 and heat-sealing two edges 16,16, prior to filling, and a third edge 18 after filling, using a 0.003 inch film of polyethylene oxide. Polyvinyl alcohol films, soluble in water, are also suitable.

Having completed a detailed disclosure of the preferred embodiments of my invention, so that others may practice the same, I contemplate that variations may be made without departing from the essence of the invention or the scope of the appended claims.

I claim:

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1. A set of pigment packets for coloring cementitious products, said set including packets each of which comprises a small packet of a water-soluble thin film, said packets each having sealed therewithin a premeasured weight of dry pigment powder, at least some of said packets containing a blended mixture of dry pigment powder and a white extender powder, substantially all of the contents of each of said packets being of a fineness to pass through a 100 mesh sieve, said set including packets of substantially different colored pigment combinations, said packets of different colored pigment combinations having different weights respectively of pigment, said packets of said set all having substantially equal weights of combined pigment and white extender powder.

2. A set of pigment packets as defined in claim 1 wherein each of said packets contains a blended mixture of dry pigment powder and a white extender powder.

3. A set of pigment packets as defined in claim 1 wherein the packets of pigment powder of at least one color are free of said white extender powder.

4. A set of pigment packets as defined in claim 1 wherein said water-soluble thin film is selected from the class consisting of polyethylene oxide and polyvinyl alcohol.

5. A set of pigment packets as defined in claim 1 wherein said water-soluble film is of about 0.003 inch thickness.

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