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UNITED STATES PATENT OFFICE

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PROCESS OF PREPARING PAPER-COATING COMPOSITIONS.

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To all whom it may concern:

Be it known that I, JOHN H. RYAN, a citizen of the United States, residing at the city and county of Kalamazoo, State of Michigan, have invented certain new and useful Improvements in Processes of Preparing Paper-Coating Compositions, of which the following is a specification.

This invention relates to improved process of preparing paper coating compositions of satin white and satin white mixtures.

The object of the invention is to provide a superior satin white or satin white composition coating of fine texture and quality at a minimum of cost.

Objects pertaining to details will definitely appear from the description to follow.

In carrying out my improved process I subject a quantity of satin white, either in the dry or the paste form, to the action of a pebble grinding mill. I mix the same with water; in the event the dry satin white is used, two parts by weight of water to one part of dry satin white, and where the paste form is used, a quantity of water sufficient to secure this proportion. This produces a thick creamy mixture comparable to a thin dough. This mixing is done in a pebble grinding mill, which is run at such a rate that the pebbles flow down over each other and through the mixture. They thereby grind all particles of grit to an impalpable powder and, owing to their action upon the doughy mass, distribute the pulverized grit, which may be of a crystalline character, throughout the colloidal mass in such a way that no grit of considerable size can form anyhow.

When this is done I add sizing material, such as a proper solution of casein glue or hydrated starch, and the mixture is further ground therein until a complete blend of the sizing material has taken place, at the same time that there has been a thorough distribution of the minute grit above referred to. This last grinding consumes about twenty minutes to half an hour. The first period of grinding depends on the initial condition of the material and requires much longer. With the improved dry satin white about one hour is sufficient.

Where casein is employed in the sizing material, the necessary amount of alkaline compound, such as caustic soda, is added to insure its complete solution.

To the satin white may be added a quantity of clay in the first instance and the mixture may be treated the same as above. By following this method, paper coating compounds are produced of high grade and quality, which are capable of producing papers of high grade and quality, without extensive screening of the mass heretofore found necessary.

I have heretofore in my Patent No. 1,407,773, dated Feb. 28, 1922, claimed this method broadly for the treatment of clay, and I am here presenting a specific claim for the treatment of satin white and satin white clay mixtures, and desire to claim the same specifically in the present patent application.

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

1. The treatment of satin white consisting in admixing the same with water until of a thin doughy consistency, subjecting the same to the action of pebbles in a pebble grinding mill, adding the usual sizing solution, and then further grinding the same in the said pebble grinding mill to insure mixing and pulverizing and the elimination of all grit, as specified.

2. The treatment of satin white and clay mixture consisting in admixing the same with water until of a thin doughy consistency, subjecting the same to the action of pebbles in a pebble grinding mill, adding the usual sizing solution, and then further grinding the same in the said pebble grinding mill to insure mixing and pulverizing and the elimination of all grit, as specified.

3. The method of preparing satin white coating composition which consists in first grinding the satin white with water, then adding sizing material including an alkaline compound, and further grinding the resulting mixture, substantially as described.

4. The method of preparing a satin white mixture coating composition which consists in first grinding the satin white mixture with water, then adding sizing material including an alkaline compound, and further grinding the resulting mixture, substantially as described.

5. The treatment of satin white which consists in adding sufficient water to form a doughy paste, subjecting the same to the action of a pebble grinding mill to pulverize

the grit therein and distribute the fine particles throughout the colloidal mass, as specified.

6. The treatment of a satin white mixture which consists in adding sufficient water to form a doughy paste, subjecting the same to the action of a pebble grinding mill to pulverize the grit therein and distribute the fine particles throughout the colloidal mass, as specified.

In witness whereof, I have hereunto set my hand and seal.

JOHN H. RYAN. [L. S.]