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SIZING COMPOSITION FOR PAPER OR THE LIKE

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More particularly, my invention pertains in part to that portion of the field for sizing compositions of matter made wholly or in part of cellulose fibres, wherein such compositions of matter do not receive either a degree of heat or a length of drying time, or both, that is commonly used in the manufacture of paper.

Also, through using the products and processes embodied in the present invention, it is possible to reduce, in the manufacture of paper, paper board and other fibrous products composed wholly or in part of cellulose fibres, the use of high temperatures and prolonged drying time heretofore necessary in the prior art.

It is a fact that, in order to secure the optimum sizing effect in compositions of matter containing cellulose fibres, either wholly or in part, it has hitherto been necessary to very thoroughly dry such compositions of matter. This extreme degree of drying has entailed much difficulty in its accomplishment, particularly when the cellulose compositions hereinbefore mentioned have been thick and possess a high degree of insulating value. However, in any case, even in thin sheets of paper, unless a most exacting and rigorous degree of dryness is attained, the paper will not be adequately sized to the optimum degree.

The scope of the present invention is, therefore, twofold, first, to increase the sizing of relatively thick compositions of matter composed wholly or in part of cellulose fibres, and which offer a high degree of insulating value during their drying process; and, second, to permit of making relatively thin compositions of matter composed wholly or in part of cellulose fibres in a more expeditious manner with the same amount of heat as hitherto used, and at the same rate of present production with less drying equipment.

From the foregoing it is possible, although not proven, that ordinary rosin size such as papermakers use requires the removal of moisture from it beyond a certain point or degree in order to have it exert its optimum sizing effect. Whether this is true or not, it is a fact that, unless compositions of matter sized in the ordinary manner with rosin size, are dried to a certain point the optimum degree of sizing is not attained.

I have found that the hereinbefore-mentioned and other disadvantages of ordinary rosin size can be overcome wholly or in part by incorporating into the rosin size an oleaginous material derived from the so-called tall pine, particularly, but not wholly, indigenous to the Scandinavian countries.

This oil, known in Sweden as "flytande harts", appears on the market and is commonly known as tallol, Swedish resinous oil, pineolin, Swedish olein. In most cases, the just-mentioned oleaginous material is a by-product derived from the well-known soda pulp. It also may be specially extracted from the wood by suitable alkaline solutions and is obtained in Scandinavia by treating rosin-rich conifer wood with 10° Bé. sodium hydroxide and hydrolyzing the soaps obtained by mineral acids. It is a dark brown relatively fluid oil which does not solidify ordinarily at 20° C., is easily soluble in alcohol, acetone and ether but incompletely soluble in spirits of turpentine and in benzone.

More specifically, in cooking rosin size according to known means, wherein rosin is added to aqueous solutions of compounds of alkali metals, I add also, and simultaneously cook, the hereinbefore-mentioned Swedish tallol.

As an example of the present invention, I may take one hundred parts of rosin, by weight, and add it little by little to an aqueous solution containing water to the amount of forty parts by weight of the rosin, in which is dissolved twenty parts by weight of soda ash, cook the beforementioned ingredients until the mass is molten, and then add ten parts by weight of the rosin of Swedish tallol. I may then cook the resulting mixture about five hours until homogeneity is secured and a chemical, or quasi-chemical, or colloidal paste results.

The foregoing is an example of my process and the product resulting therefrom; but I do not in any wise restrict myself to the hereinbefore-mentioned proportions. I may, without in any wise departing from the scope of my invention, add as much as thirty percent of Swedish tallol instead of ten percent as hereinbefore mentioned, both quantities being by weight of the original rosin. And I may use more soda ash, more water, etc., but the feature common in every case is that I include tallol in the rosin size for the purpose of reducing the melting point of the rosin size; and through this or other means permitting of the optimum sizing of paper at final moisture contents in excess of those hitherto attained.

In sizing paper, paper board and other compositions of matter composed wholly or in part of cellulose fibres according to the present invention, I take the hereinbefore-mentioned combination or mixture of Swedish tallol, rosin size and water, and, according to known means, incorporate the same into the fibrous products hereinbefore mentioned, preferably during their formation and also preferably during the well-

known beating process. I precipitate the hereinbefore-mentioned mixture of tallol, rosin size and water, after adding it to the beater and thoroughly incorporating it with the cellulose pulp, by the addition of sulphate of alumina, the alums or other known means.

The resulting mixture of sized pulp is then processed according to the desired method in order to produce the desired finished article, according to known methods; except that, as hereinbefore described, the materials may be run more rapidly during the drying process, or run at the same rate with a shorter drying period.

I claim:

1. A sizing composition of matter containing refined tallol incorporated in rosin size.

2. A sizing composition of matter containing rosin, refined tallol and water.

3. A sizing composition of matter containing rosin size and water and not more than thirty percent, by weight, of refined tallol.

4. A process for reducing the melting point of rosin size by adding thereto refined tallol to an amount not exceeding thirty percent, by weight, of the rosin originally used.

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