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UNITED STATES PATENT OFFICE.

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SIZING COMPOSITION.

No Drawing.

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To all whom it may concern:

Be it known that I, REUBEN KAISER, residing at 2320 Powell Avenue, Bronx, New York city, in the county of New York, State of New York, have invented certain new and useful Improvements in Sizing Composition; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same

This invention relates to sizing compositions, and it has for its object the provision of an improved sizing composition adapted to be used in the treating, coating and printing of papers and textiles as a substitute for glue, soluble gums, casein and various farinaceous materials.

In the manufacture of coated paper a coating material such as clay, or the like, is ordinarily mixed with an adhesive material or size to cause it to adhere uniformly to the fibres of the paper so as to fill the body of the paper and form the desired surface. A size is also employed in the printing of wall paper and textile fabrics, being mixed with the coloring pigments and fillers to cause these materials to adhere evenly to the paper or fabric.

In order for a size to be best adapted for this purpose, it must render the paper or fabric nonabsorbent of ink or other liquids applied to them, and it should flow freely and dry quickly. Glue, gums, casein and various farinaceous materials are widely used at present in these arts, but they are objectionable for well-known reasons.

I have discovered that a size which possesses these qualities to a remarkable degree can be made from Karaya gum. This improved size, when used in printing wall paper or fabric, also helps to bring out the colors to obtain the desired effect and, at the same time, improves the permanence of the shades of the colors. The use of this size imparts a cloth-like appearance to the paper which has been printed with an ink containing it. It also prevents curling of the paper and makes it less liable to become brittle, as it tends to resist the action of the natural elements, thus causing the paper to endure and to retain its original lustre and cloth-like appearance for a remarkable length of time. Moreover, in the treatment of either

paper or fabric, it makes the coloring pigments go further. My improved sizing composition possesses these properties to a greater extent than any other size of which I am aware.

In addition to these qualities, my improved sizing composition is much less expensive because of its great covering power, and its adhesiveness even when greatly diluted.

Karaya gum, sometimes called Kadaya gum, is an article of commerce similar to gum tragacanth and possesses somewhat similar properties, but its cost is much less than that of gum tragacanth. Karaya gum is derived from certain species of *Sterculia* and *Cochlospermum gossypium* D. C. deciduous trees which grow abundantly in India, the more common species being *Sterculia urens* Roxb., *Sterculia tragacantha* Lind., and *Sterculia vilosa* Roxb.

Karaya gum, however, unlike gum tragacanth, will not go into complete solution in water, but merely absorbs water and swells to a very great degree. I have discovered that Karaya gum can be made to dissolve in water, very much like gum tragacanth, instead of merely swelling or absorbing water as above, by adding a relatively small amount of oxalic acid.

Finished colors, or printing inks, prepared with my improved size, hold their original consistency over a considerable period of time, with practically no decomposition, separation, or change in viscosity.

In carrying out my invention in its preferred form I proceed according to the following specific example:—The Karaya gum is reduced to a powder and about 98½ parts of powdered gum intimately mixed with about 1½ parts of oxalic acid in the form of small crystals or powder. This mixture is then added to a relatively large amount of water, for example, in the ratio of about 100 parts of powder mixture to about 6000 parts of water. The resulting solution may then be mixed with inks of various colors which are to be used in the printing of the paper or fabric. It may also be mixed with an appropriate coating material, such as clay, starch, or the like, which is to be applied to a cellulosic base for the manufacture of coated paper. When used for such purposes, the consistency of the liquid

adhesive or size may be varied to suit the conditions, by using more or less water.

It will be understood that in the foregoing example I may make various changes in the proportions of the ingredients and in the method of mixing same without departing from the scope or spirit of my invention.

Thus, in place of the oxalic acid I may use other dry acids having a strength comparable to that of oxalic acid or I may treat the gum with an acid solution prepared from other organic or even from inorganic acids, the said solution having an acidity, or hydrogen ion concentration, comparable to the acidity of the oxalic acid, as used in the above example, afterwards evaporating, or otherwise removing the excess moisture so as to obtain a solid dry product.

I claim:

1. A sizing composition comprising Ka-

raya gum, and an acidic substance having an acidity comparable to that of oxalic acid.

2. A sizing composition comprising Karaya gum, oxalic acid and water.

3. A dry product soluble in water comprising Karaya gum and oxalic acid.

4. A dry product containing Karaya gum and a sufficient amount of oxalic acid to render it water soluble.

5. A coated paper product comprising a paper base, and a coating containing Karaya gum and oxalic acid.

6. A dry product soluble in water comprising about 98½% by weight of Karaya gum, and about 1½% by weight of oxalic acid.

In testimony whereof I affix my signature.

REUBEN KAISER.