

UNITED STATES PATENT OFFICE.

RICHARD JOHN FRISWELL, OF LONDON, ENGLAND, ASSIGNOR OF ONE-HALF TO THE BRITISH URALITE COMPANY, LIMITED, OF LONDON, ENGLAND.

MANUFACTURE OF FLEXIBLE FIRE-RESISTING MATERIAL.

SPECIFICATION forming part of Letters Patent No. 737,557, dated August 25, 1903.

Application filed August 4, 1902. Serial No. 118,401. (No specimens.)

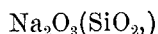
To all whom it may concern:

Be it known that I, RICHARD JOHN FRISWELL, a subject of the King of Great Britain, residing at London, England, have invented certain new and useful Improvements in the Manufacture of Flexible Fire-Resisting Material, of which the following is a specification.

This invention relates to the manufacture of a fire-resisting material in the form of a sheet containing gelatinous silica precipitated throughout the mass thereof in sufficient quantity to stiffen said sheet after the same has been dried at a temperature of about 105° centigrade, so as to permit of its being handled and sawed or pierced with nails, screws, or the like, but not in sufficient quantity to render the sheet dense, hard, and non-flexible when dried.

My improved fire-resisting sheets possess the property of flexibility and at the same time contain the necessary air-space to render them suitable for resisting fire.

I manufacture the aforesaid sheets by preparing a pulp of finely-disintegrated asbestos with chalk or other filling material, as in the manufacture of uralite, as set forth in Patent No. 631,719, granted to A. Imschenetzky. This pulp is made into sheets—for example, by means of a millboard-making machine—and the superfluous moisture is pressed out of them preferably by a roller pressing against the drum around which the sheet of pulp passes. During the winding of the layers on the cylinder of the millboard-machine each layer is subjected to a sparging with a solution of sodium silicate and sodium bicarbonate of such composition as will set fairly quickly—for example, in twenty minutes—and leave in the sheets from three to seven per cent. of silica. The sparging solution may advantageously consist of a mixture of about two parts of a 40° Twaddell solution of the green or neutral sodium silicate,



with about one part of a 10° Twaddell solution of bicarbonate of soda; but the strengths and proportions may be varied as found convenient, provided that the resultant mixture

will fulfil the requirements stated above. After sparging the material is dried at a temperature of about 105° centigrade and is then ready for use. If due precautions are taken, a similar result may be obtained by forming the pulp by means of a weak solution of the substances above referred to instead of using water only. If desired, the sodium salts resulting from the reaction can be washed out of the material by any convenient method, and in the same way the material may be saturated, if desired, by a salt or other solution if required for any special purposes.

Other suitable alkaline silicates can be used in place of sodium silicate. Moreover, bicarbonate of ammonium or of potassium or other alkali metal or of calcium or other alkaline-earth metal can be employed instead of the bicarbonate of sodium for decomposing the alkaline silicate.

What I claim is—

1. A process for the manufacture of flexible fire-resisting material, consisting in preparing a pulp of finely-disintegrated asbestos with a filling material, forming said pulp into sheets, sparging said sheets with a sufficient quantity of a solution of sodium silicate and sodium bicarbonate to leave from three to seven per cent. of silica in the sheets, and finally drying the product, substantially as described.

2. A process for the manufacture of flexible fire-resisting material, consisting in preparing a pulp of finely-disintegrated asbestos with a filling material, forming said pulp into sheets, sparging said sheets with a sufficient quantity of a solution of an alkaline silicate and of a substance for decomposing said alkaline silicate to leave from three to seven per cent. of silica in the sheets, and finally drying the product, substantially as described.

3. A process for the manufacture of flexible fire-resisting material, consisting in preparing a pulp of finely-disintegrated asbestos with chalk, forming said pulp into sheets, pressing out the superfluous moisture therefrom, sparging said sheets with a sufficient quantity of a solution of sodium silicate and sodium bicarbonate to leave from three to seven per cent. of silica in the sheets, and

finally drying the product, substantially as described.

4. A process for the manufacture of flexible fire-resisting material, consisting in preparing a pulp of finely-disintegrated asbestos with a filling material, forming said pulp into sheets, pressing out the superfluous moisture therefrom, sparging said sheets with a sufficient quantity of a solution of sodium silicate and sodium bicarbonate to leave from three to seven per cent. of silica in the sheets, drying the product, and lastly washing out the sodium salts resulting from the reaction, substantially as described.
5. A process for the manufacture of flexible fire-resisting material, consisting in preparing a pulp of finely-disintegrated asbestos

with a filling material, forming said pulp into sheets, pressing said sheets so as to remove the superfluous moisture therefrom, sparging said sheets with a sufficient quantity of a solution of an alkaline silicate and of a substance for decomposing said alkaline silicate to leave from three to seven per cent. of silica in the sheets, and finally drying the product, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

RICHARD JOHN FRISWELL.

Witnesses:

T. H. ARMSTRONG,
SIDNEY SMITH.