This invention relates to an improved method of and means for waterproofing textile and other materials and has for its object so treating textile and other materials as to render them absolutely waterproof. The methods hitherto more usually employed for waterproofing textile materials, particularly when made up into wearing apparel consisted either in the use of india rubber proofing solution, or spirit proofing solution containing wax. The use of India rubber proofing solution is hygienically bad inasmuch as articles so treated do not allow a free circulation of air through them and a further drawback to the use of India rubber for such a purpose is that while after a while, the India rubber deteriorates and allows water to pass through the treated material. In other processes using wax solutions which are hygienically better, it has been usually necessary to employ a very closely woven material in order to ensure the garment made therefrom being waterproof so that it has not hitherto been possible to effectually waterproof a loosely woven material and even with closely woven material, the proofing after a time loses its efficiency so that constant re-proofing is necessary. Now according to this invention the drawbacks inseparable from existing methods are entirely obviated and not only the most loosely woven or knitted materials, such as for example artificial silk stockings, but also closely woven materials and even paper can be effectually waterproofed.

A further advantage arising from the present invention is the fact that clothes made from the cheapest textile materials, such as shoddy or mungo are not only effectually waterproofed in a lasting manner but keep their original shape in wear. The present invention comprises essentially treating the material to be waterproofed with an emulsion consisting of palm oil, tallow, ammonia, glycerine, borax, wax and karaya gum.

In some cases the material, particularly in the case of textile materials is preferably treated to a metal sulphate bath after treatment with the emulsion and then dried by heat. The essential feature of the present invention is the use of karaya gum in combination with other well known ingredients for the production of a waterproofing emulsion.
the above described soap and water after which a proportion of the gum slime is added, thoroughly mixed and finally passed through an emulsifying machine to bring into an emulsion. Convenient proportions of these various ingredients are 4 parts by weight of wax, 1 part by weight of soap, 12 parts by weight of water and 12 parts by weight of the 4% gum slime.

The textile material to be waterproofed is then soaked in this emulsion until thoroughly wetted after which it is wrung out or centrifuged, then passed through about a 2% aqueous solution of titanium sulphate, zinc sulphate or alum, but preferably the titanium sulphate solution is employed. The material is then wrung out or centrifuged and dried at a temperature of approximately 120° F. In some cases when waterproofing delicate materials, such as artificial silk stockings, the material after treatment in the sulphate or fixing bath is rinsed in water before drying.

In the treatment of paper to render it waterproof a slightly larger percentage of wax (about 10% extra) is preferably employed and the sulphate or fixing bath is omitted. The paper after manufacture is preferably passed through rollers in a trough containing the emulsion and then through a calendering machine to dry it.

In some cases, particularly in the waterproofing of paper, strawboard and the like, a suitable dye may be added to the emulsion so as to produce a surface dyeing and waterproofing at one operation.

Although it is preferable to waterproof paper after the paper has been manufac-
tured, in some cases the emulsion may be added to the pulp before manufacture.

I declare that what I claim and desire to secure by Letters Patent is:

1. A process for waterproofing textile material consisting firstly in treating the material with an emulsion of palm oil, tallow, ammonia, glycerine, borax, wax and karaya gum and secondly with a metallic sulphate solution and finally drying by heat, as set forth.

2. A water proofing solution comprising an emulsion of palm oil, tallow, ammonia, glycerine, borax, and karaya gum, as set forth.

3. A process for waterproofing textile and other material consisting in soaking the material with an emulsion of palm oil, tallow, ammonia, glycerine, borax, paraffin and carnauba wax, and karaya gum, wringing or centrifuging the soaked material, treating with an aqueous solution of titanium or zinc sulphate, then wringing or centrifuging and finally drying by heat, as set forth.

4. A process for the production of a waterproofing solution consisting firstly in preparing a soap by boiling together palm oil, tallow, glycerine, borax and liquid ammonia, secondly soaking karaya gum in water to produce a jelly like mass and then dissolving the mass in liquid ammonia to produce a slime which is then diluted with water and thirdly in thoroughly mixing the soap and diluted slime together by passing through an emulsifying machine, as set forth.

CHARLES JOSEPH MORETON.