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W. H. CADY

PROCESS FOR PRODUCING REENFORCED WATERPROOF COMPOSITIONS

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Fig. 1.

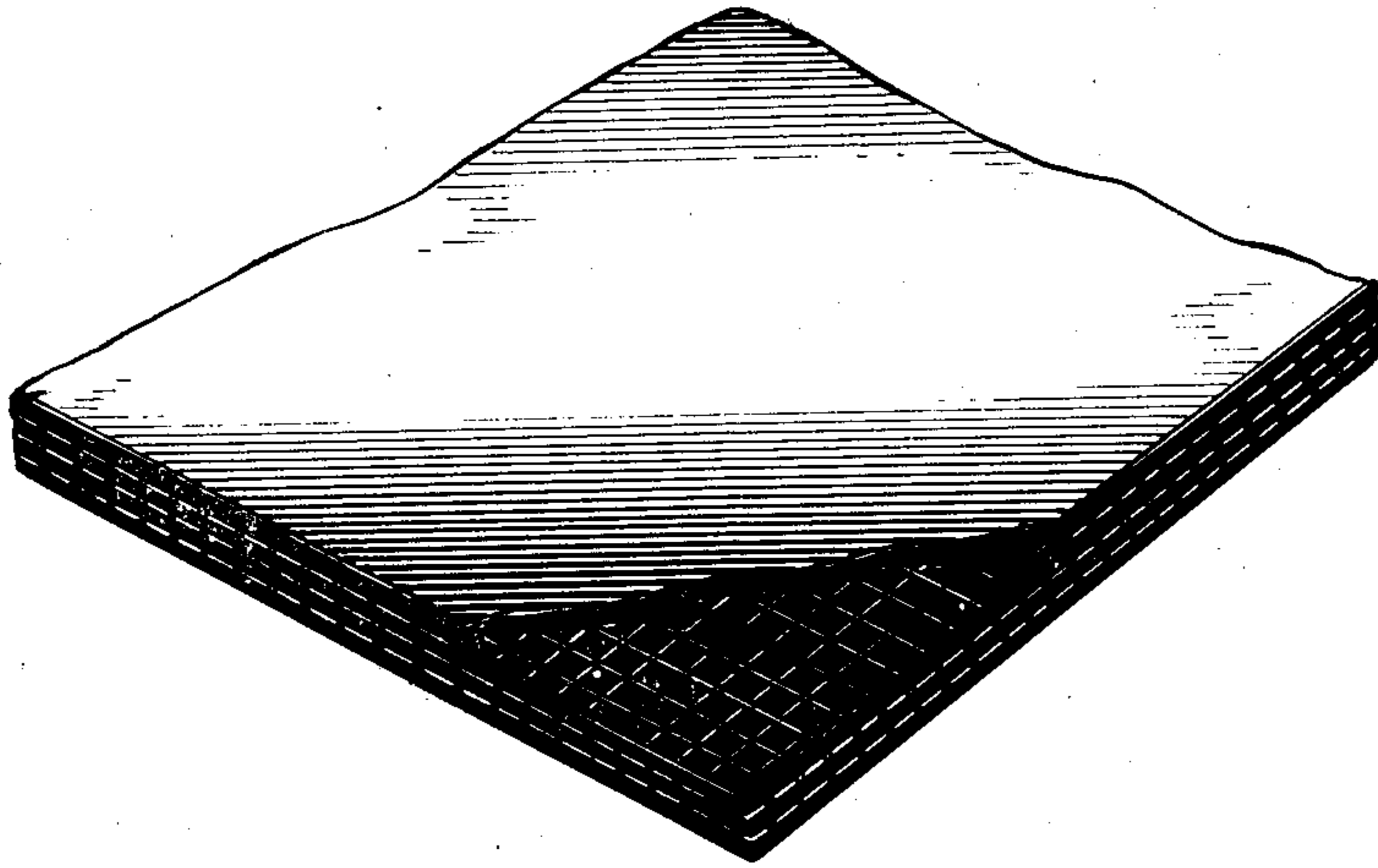
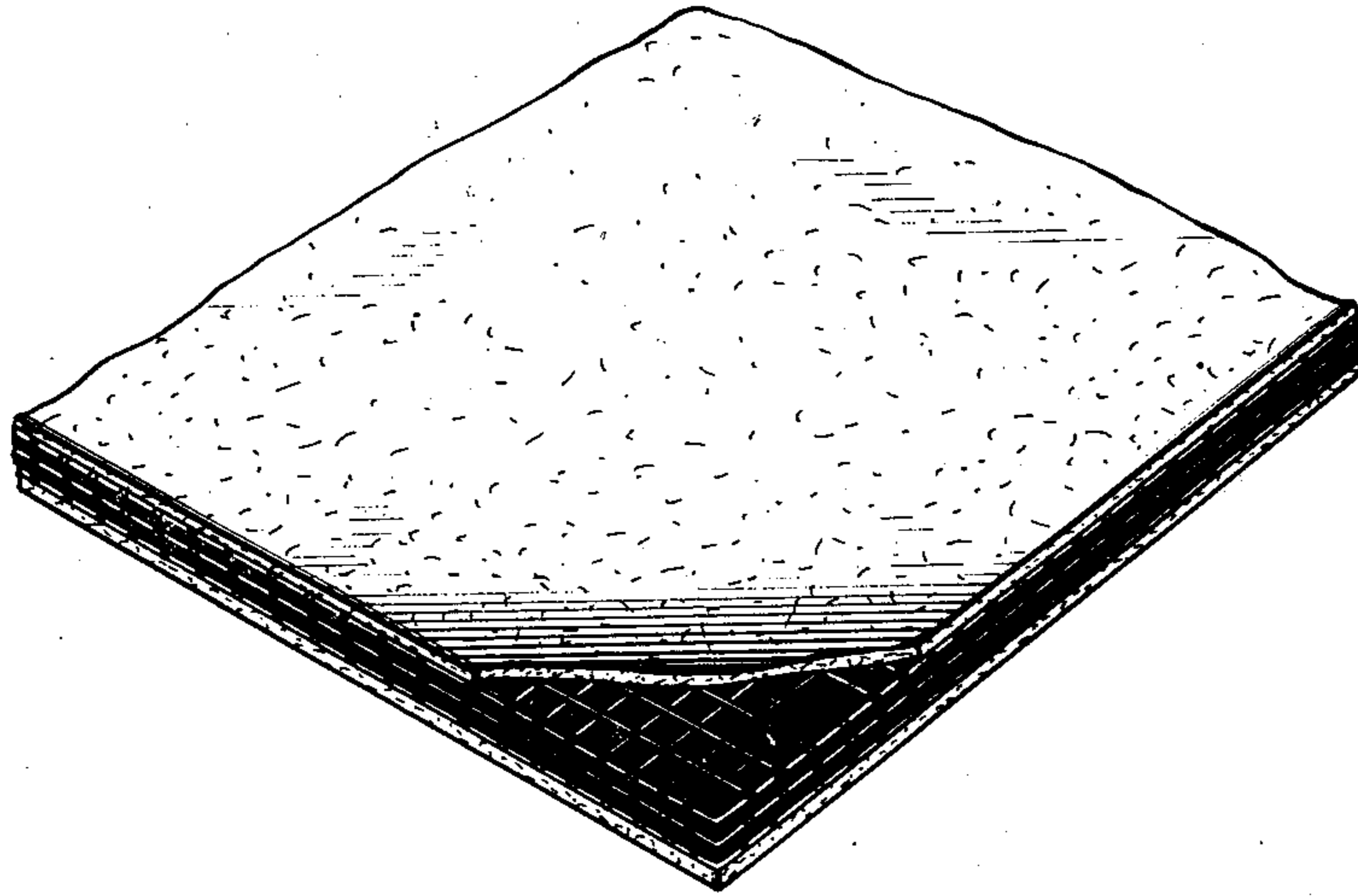


Fig. 2.



Witness:

Stephen T. Peora

Inventor.
Walter H. Cady.

by Frank I. Belknap
Att'y.

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WALTER H. CADY, OF BOSTON, MASSACHUSETTS.

PROCESS FOR PRODUCING REENFORCED WATERPROOF COMPOSITIONS.

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This invention relates to a process for producing reenforced waterproof compositions and refers more particularly to the production of a waterproofed composition which is reenforced by means of thread, string, wood fibre or other strengthening material which is laid or fed between the plies of the composition to produce a strengthening effect.

Among the salient objects of the invention are to provide a process in which plies or layers of paper, felt, or any other type of stock which may be built up in plies to form a unitary structure, is reenforced or strengthened by positioning thread, string, hemp or any other type of fiber, either organic or inorganic in form which will make the inherent quality of the composition less liable to tear or become disrupted due to the lack of binding quality of the stock or adhesive material used in the production thereof; to provide a process in which fibrous material in the form of thread, twine or metal substance may be either woven or placed between the plies of the substance to produce this reenforcing effect.

Fig. 1 is a perspective view of the product with the upper ply broken away to show the reenforcing cords.

Fig. 2 is a perspective view of a modified form of construction in which the upper and lower plies are devoid of any bituminous or asphaltic material.

In the forming of paper, particularly the heavier papers such as building material or paper for sacks or that used for other commercial purposes, there is required a stock supplied principally by kraft paper which is tough and difficult to tear. Kraft paper, while very satisfactory for some purposes, has not the strength required and is limited by the expense of the paper stock from which it is produced. The product disclosed in this invention supplies a sheeted material which is given strength by fibres which are woven or positioned in the body of the material so as to produce a strong durable sheet having the characteristics of cloth and less liable to tear as is the paper now commonly used for industrial purposes.

In the building industry, as well as numerous other industries where a very cheap grade of paper is used, the paper is of a poor quality and will not stand up against hard usage nor will its strength permit the carrying of heavy weights due to the struc-

ture of the paper which is loose and easily pulled apart.

The production of the product herein disclosed refers more particularly to a waterproof composition in which the waterproofing substances such as asphalts or other bituminous substances are incorporated into the paper during its making in a nonadhesive dispersed form. The paper stock is first produced in the usual manner comprising any desired material such as rags, paper or other pulpy substance used in the paper making industry. To this is added a combination of asphalt, clay and water which have been mixed in predetermined form so that the asphalt or any other desired bituminous substance which is to be used to waterproof the paper, is thoroughly mixed until it combines with the water and clay to form a non-adhesive emulsion with the bituminous emulsion material in a finely dispersed form and forming the internal or dispersed phase of the emulsion, the water and clay forming enveloping films thereabout. This emulsion is mixed with the paper stock and is run over the paper machine in the usual manner to produce the sheeted material. There may be produced a plurality of plies which are united on a multi-cylinder machine to form a built-up unitary structure. In certain cases, the sheet may be built up of outer plies, consisting of the plain paper stock while the inner plies contain the waterproofing material. Besides this, numerous other combinations of the built up plies may be produced to form any desirable character of paper sheet.

In the building up of the sheet, that is, just prior to the combining of the plies as they come from the separate rolls of the machine and are combined upon the blanket, there is fed therebetween fibres or strengthening twine of organic or inorganic material which is positioned between the plies longitudinally and transversely of the sheet as is the warp and woof in the textile industry. The longitudinal or warp fibres may be laid upon the plies from balls or reeled from a spindle while the transverse fibre may be positioned across the longitudinal strengthening material in the form of short lengths by means of a shuttle. The latter method, while being somewhat more expensive, would produce a sheet of greater strength. These plies are then combined to form a single sheet, which, due to the strengthening

material incorporated in the body of the sheet material, improves the quality and durability of the sheeted substance. This use of strengthening fibres in the sheet is particularly adapted to paper which is made from a poor grade of stock but incorporated in any type of paper will improve the strength of the material.

10 It is understood that this strengthening material may be used in the production of all types of paper including that made from rags, felt, wood pulp and old paper stock and besides, the paper produced from combinations of the above with sulphite, paper
15 and also in the production of waterproof papers and waterproof felted substances, where the sheeted material produced is built up from two or more plies.

20 In the making of a reenforced product of this type, the string is not introduced after the completion of the product but the strengthening fibre or fibrous material is in-

corporated in the body of the paper itself during the forming or felting operation, incorporating the strengthening substance into the paper as a unit. Further, this incorporation of the strengthening fibres with the paper stock is distinguished from the old process where two pieces of paper are pasted or glued together, the strengthening material being placed between the plies during the uniting of the plies. 25 30

I claim as my invention:

A process of producing a reenforced sheeted material consisting in simultaneously incorporating a waterproofing substance in the body of felted plies during the felting of said plies, incorporating continuous strengthening fibrous cords extending longitudinally and transversely of the plies during the combination of the plies into a unitary structure. 35 40

WALTER H. CADY.