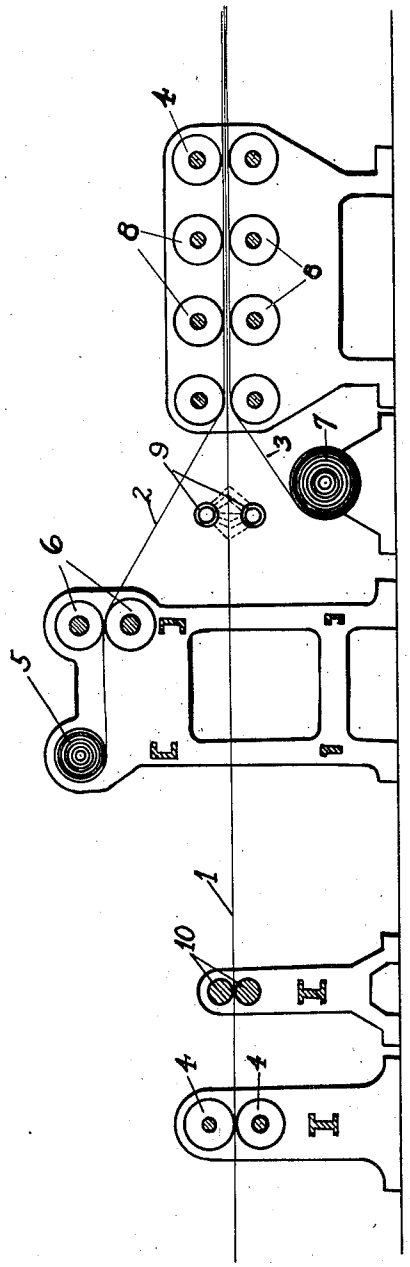
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MAKING PAPER BOARD

Filed Sept. 13, 1929



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MAKING PAPER BOARD

Application filed September 13, 1929. Serial No. 392,370.

My invention relates to the formation of paper board in plural plies which is pasted together by using asphalt or similar bituminous or heat plastic medium for the pasting.

In making such boards the inner ply may be a board which has been coated with the bituminous substance, it may be saturated and coated with the substance, or it may have a structure and composition within which is retained a large or small proportion of the same or a different bituminous substance or waterproofing agent.

The difficulty encountered in making boards using a central ply or more than one inner ply, the whole being cemented together with asphalt or other bituminous or heat plastic binder, is that the product tends to warp after it has been completed. This warping is quite undesirable, and in the making of panel board renders the board very unsatisfactory.

I have discovered a mode of utilizing a bituminous cementing agent in making plural ply board which overcomes this defect in the product, which is here concerned.

I accomplish my object by that certain mode of procedure of which an example is to be fully described, reference being had to the accompanying drawing, and the novelty of which process will be duly set forth in the claims.

In the drawing the figure is a diagram of a mechanism which may be used in forming asphalt pasted plural ply board.

In connection with the description of the example of my process which follows, it may be pointed out that I attribute the reason for the warping of asphalt pasted panel or like board, to the fact that the application of hot asphalt to the sides of the inner ply makes it very hot, and since the pasting has always been done while the asphalt is still molten, the front boards and back boards are united with the central board or boards when the former are cool and the latter are hot. When the structure cools, the inner board or boards will shrink and the adhesive joint serving to retain the parts together, the outside boards will warp.

The process which I employ permits the inner board or boards to become cool, so that the bituminous coating becomes hard or partially hard, I then apply a solvent for the coating which makes the surface soft and adhesive, and then apply the front and back boards, and if more than one center board is employed, unite the center boards together.

In the process which I will describe, I have employed in practise a single inner board which is formed of a fibrous structure in which asphalt is incorporated prior to the formation of the sheet.

Such a sheet of material is illustrated at 1, and the outer sheets are indicated at 2 and 3, these being of any preferred structure.

I have indicated at 4 the concluding rolls of a coating machine or saturating machine through which the sheet 1 is passed or by means of which the surfaces on both sides of the central board have been coated with hot asphalt. I have indicated at 5 a supply roll for the sheet 2, which sheet is fed along by means of the rolls 6. I have indicated at 7 a supply roll for the sheet 3.

At 8 I have indicated a series of rolls between which the several sheets are passed and by means of which they are pressed together.

At 9 I have indicated spray pipes in which benzine or other solvent for asphalt is sprayed upon both sides of the central sheet.

At 10 are illustrated a pair of rolls for smoothing out the asphalt coating imparted to the sheet 1. The space between the rolls 10 and the spray pipes 9 is gauged so that the sheet which has been coated will have time to cool in its travel. If necessary, air blowers or the like may be applied at this space.

In the process using the mechanism just described, the sheet 1 coated with asphalt on both sides and very hot as a result, is passed between the smoothing rolls, and then through a space during which the sheet cools and the asphalt hardens. The asphalt is then sprayed with benzine with the result of cooling further, and in addition making the surface of the coating quite tacky and suitable for pasting, which it would not be at the reduced temperature which it has attained. The front and back sheets are led so that they contact with the sheet 1, and the

three sheets are fed together between the pressing rolls 8, thereby uniting the sheets together with a board.

The board so formed will not warp as is the case with boards which are united by the use of asphalt as an adhesive when the asphalt and hence the sheet upon which it lies is hot.

As was noted, the essence of the method could be practised with a number of inner plies as well as with a single one, although this would not be regular practise. In the claims, however, when referring to a central sheet, I wish to include one which is made of one or more pieces.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. That method of uniting outer sheets to an inner sheet which consists in coating the inner sheet with a heat plastic binder while said binder is hot and non-solid, cooling the coated sheet, softening the coating by means of a solvent, and then applying the outer sheets to the inner sheet.

2. That method of uniting outer sheets to an inner sheet which consists in coating the inner sheet with a bituminous binder, cooling the coated sheet, softening the coating by means of a solvent, and then applying the outer sheets to the inner sheet.

3. That method of uniting outer sheets to an inner sheet formed of fibre with bitumen incorporated therein, which consists in forming a plastic bituminous coating on said sheet while same is hot, cooling the sheet, softening the coating with a solvent, and then applying the outer sheets to the inner sheet.

4. That method of making panel board which consists in forming a coating of hot asphalt on both sides of an inner sheet, cooling the sheet, applying a solvent to the coating on the sheet, and uniting the sheet with outer plies to be bound thereto by the said coating.

CHARLES L. KELLER.