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W. H. LATUS.

PROCESS OF APPLYING SURFACE PAPER TO CORRUGATED PACKING BOARDS.

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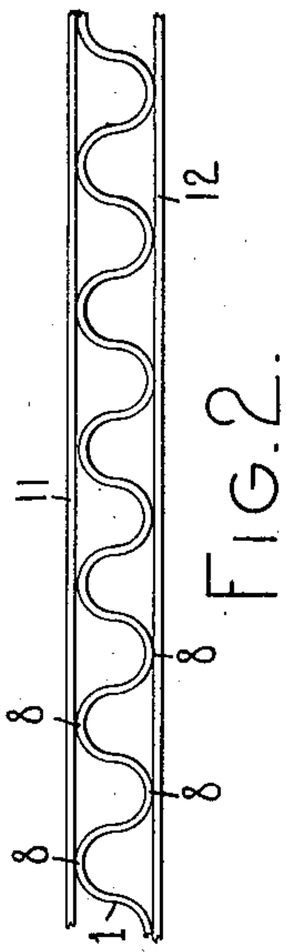

FIG. 2.

FIG. 1.

WITNESSES:

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PROCESS OF APPLYING SURFACE PAPER TO CORRUGATED PACKING-BOARDS.

No. 891,428. Specification of Letters Patent. Patented June 23, 1908.

Application filed April 11, 1907. Serial No. 367,493.

To all whom it may concern:

Be it known that I, WILLIAM H. LATUS, citizen of the United States, and resident of the borough of Brooklyn, city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Processes of Applying Surface Paper to Corrugated Packing-Boards, of which the following is a specification.

My invention relates to processes of applying surface paper to corrugated packing boards.

Heretofore in the manufacture of corrugated paper packing board it has been customary to apply on one or both sides of the corrugated sheet, flat or plane paper boards or sheets to give strength and rigidity to the packing board as a whole and to prevent the corrugations in the board from being flattened out in use and thereby destroying or greatly reducing the efficiency of the board for the purposes for which it was intended.

Heretofore it has been customary to secure the outer sheet or sheets to the corrugated sheet by pasting the sheets together by an adhesive that required the application of heat in order to dry the adhesive and cause the sheet to hold together, it requiring in some instances about twenty-four hours for the adhesive to dry and the sheets to be properly connected. Where flat sheets were employed on both sides of the corrugated sheet it was customary to first paste one flat sheet on the corrugated sheet, dry the composite sheet for, say, twenty-four hours, then run the composite sheet through the machine again applying the second flat sheet to the opposite side of the corrugated sheet and then subject the board thus made to another drying process for, say, twenty-four hours. It has also been customary heretofore to make a so-called cork packing board by applying an adhesive to one side of a flat paper board and applying a layer of granulated cork to the adhesive. The adhesive used, like that employed in making the corrugated board, required the application of heat to dry it and make the granulated cork adhere to the flat paper board sheet. Both of these methods required much time and a great amount of space, drying room, drying racks, etc., in manufacturing the packing boards.

The object of my invention is to overcome the above and other difficulties heretofore encountered in the manufacture of packing boards of the characters specified and to produce an efficient packing board and to save much time and labor in the production of the board.

To the above and other ends which will hereinafter appear, my invention consists of the article and method hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a diagrammatic sectional view showing one form of machine on which corrugated paper board may be made in accordance with my invention. Fig. 2 is a longitudinal sectional view of a fragment of one form of corrugated paper board made in accordance with my invention.

It should be understood that the board of my invention may be made on many different characters of machines and that the method may be carried out on any of such machines or by hand and that the machine shown in the present instance merely illustrates one form of machine or sufficient number of parts of one character of machine to carry out my invention rapidly and economically.

In making one character of board in accordance with my invention I employ any suitable stock such as that ordinarily employed for making composite packing paper board, the sheet 1 to be corrugated being carried from a roll or reel 2 to hollow rolls 3 corrugated at 4 and heated by steam or otherwise. The sheet or web 1 in passing between the rolls 3 is corrugated as represented in Fig. 2 and thence passes between the rolls 5 and 6. Each of these rolls is heated by steam or otherwise and turns in a tank 7 containing an adhesive substance which will be quickly hardened when chilled. In practice I have found that tar answers the purpose but from the broad aspect of my invention do not restrict myself to the particular adhesive material employed so long as it is an adhesive that will quickly harden when chilled. The rolls 5 and 6 apply a coating of tar or other equivalent adhesive to the tips 8 of the corrugations as the corrugated sheet passes between the coating rolls 5 and 6. In case a plane or flat sheet is to be applied to only one side of the corrugated sheet then only one coating roll 5 or 6 is employed; but where a flat sheet is to be applied to both sides of the corrugated sheet as shown in Fig. 2 then both coating rolls will be used.

Each of the rolls 5 and 6 is preferably hol-

low and is heated by steam or otherwise to maintain the tar or other adhesive in the tanks 7 sufficiently soft to enable it to be carried on the surface of the rolls and applied to the corrugated sheet at 8. The corrugated sheet passes from the coating rolls between rolls 9 and 10 which are preferably hollow and may be maintained heated. Flat sheets 11 and 12 of paper board are carried from rollers or reels 13 and 14 respectively around the rolls 9 and 10 respectively and into contact with the coated corrugations on opposite sides of the sheet 1, sufficient pressure being applied by the rolls 9 and 10 to cause the sheets 11 and 12 to adhere to the corrugated sheet. If only one flat sheet is to be employed one of the sheets 11 or 12 will, of course, be dispensed with. The composite corrugated packing board, made up of the corrugated sheets 1 and the sheets 11 and 12, pass from the rolls 9 and 10 between flat hollow platens 15 and 16 spaced apart at adjacent flat faces corresponding substantially to the thickness of the composite board. Cold water or any other chilling medium is contained in the platens and as the composite sheet is drawn through the machine by rollers 17 and 18, or otherwise, the tar is quickly chilled and the flat sheets adhered to the corrugated sheet 1.

The composite board is immediately in condition for shipment or for use as soon as it is delivered from the machine, thus saving much time in the manufacture of the board and rendering it unnecessary to maintain extensive drying rooms, dry racks, etc.

In making so-called cork board in accordance with my invention a coating of tar or equivalent adhesive is applied in the usual manner to the flat paper board and the layer of granulated cork is applied to the adhesive which is then chilled to harden it and the board is immediately ready for use.

Various changes may be made in the board and various changes may be employed in carrying out the method of manufacture without departing from my invention.

What I claim as new and desire to secure by Letters Patent, is:—

The herein described process of applying surface paper to corrugated packing boards, which consists in coating the crowns or tips of the corrugations of the paper boards with heated tar, applying the surface paper in a continuous strip to the tar-coated crowns of the corrugations, and passing the product between hollow smoothing platens containing a cooling medium to chill and "set" the tar.

Signed at the borough of Manhattan, city of New York, in the county of Kings, and State of New York, this 8th day of April A. D. 1907.

WILLIAM H. LATUS.

Witnesses:
CHARLES E. SMITH,
HENRY A. ROBERTS.