

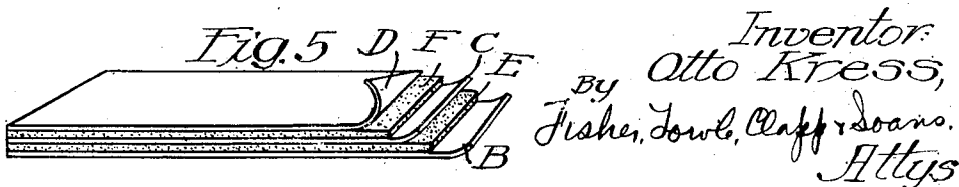
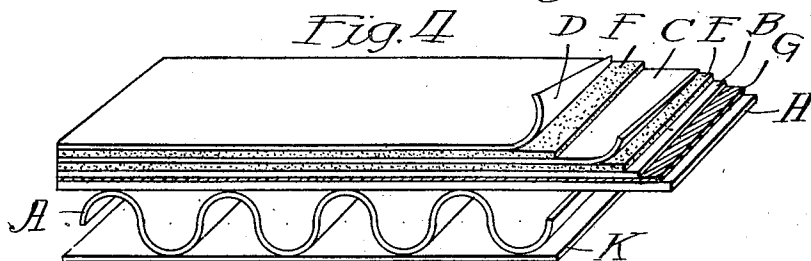
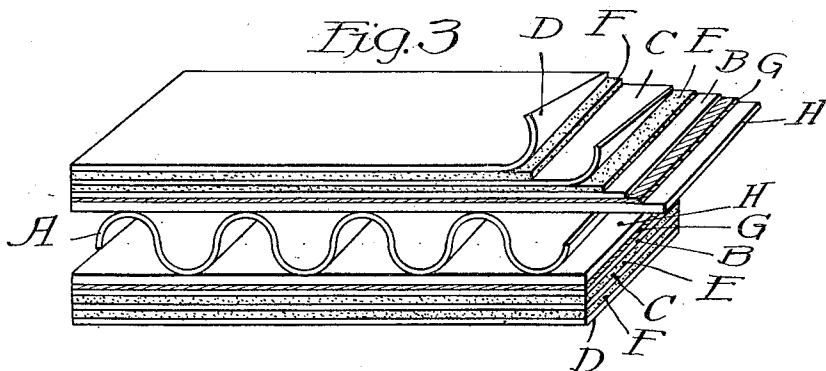
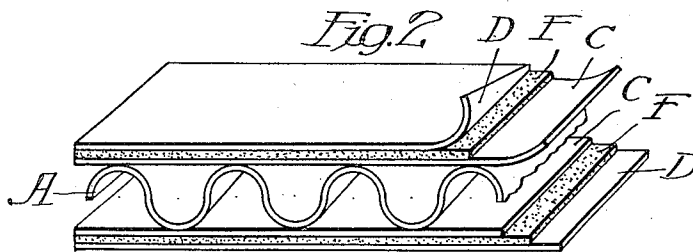
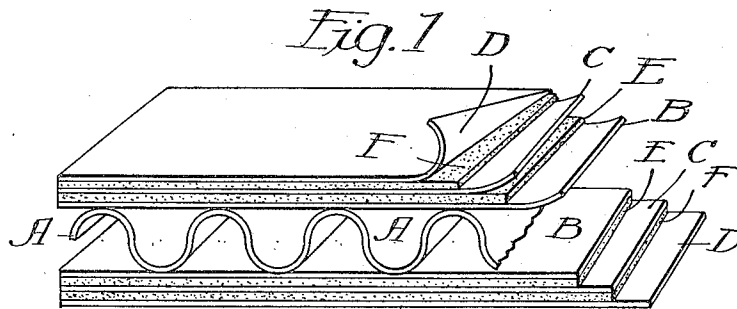
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1,561,471

O. KRESS

COMPOSITE MOISTUREPROOF PAPER BOARD

Filed July 26, 1924



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UNITED STATES PATENT OFFICE.

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COMPOSITE MOISTUREPROOF PAPER BOARD.

Application filed July 26, 1924. Serial No. 728,324.

To all whom it may concern:

Be it known that I, OTTO KRESS, a citizen of the United States, residing at Appleton, county of Outagamie, State of Wisconsin, have invented certain new and useful Improvements in Composite Moistureproof Paper Board, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My present invention in its preferred embodiment has relation to the improvement of that class of moisture proof board intended for use in forming boxes, caddies, cartons, and like containers intended for the packaging of products from which moisture is to be excluded or the moisture content of which products is to be retained. Features of the invention, however, will be found capable of wider application.

The invention consists in the features of novelty herein described, illustrated in the accompanying drawing and particularly pointed out in the claims at the end of this specification.

In the drawings, Figure 1 is a perspective view of a moisture proof board embodying my invention. Figures 2, 3 and 4 are views similar to Fig. 1 but showing several modifications of the invention. Figure 5 is a perspective view of a compound sheet formed of three sheets of paper united by films of asphalt, similar to the upper compound sheet shown in Fig. 1.

In certain respects, the present invention is designed as an improvement upon that set forth in Patent No. 1,503,957 granted to my assignee August 5, 1924.

In forming composite moisture proof board or compound paper sheets by uniting together a plurality of sheets of paper by means of asphalt, it is found that there is a tendency of the residual oil present in the asphalt to strike through the paper sheets and stain or discolor the surfaces thereof. My present invention overcomes this objection by employing for the outer or exposed surfaces of the composite board or compound paper sheets, a sheet of sized paper that will tend to resist the passage there-through of the residual oil present in the asphalt and to employ for one or more of the remaining sheets forming the board, a

sheet or sheets of unsized paper that will readily absorb the residual oils of the asphalt and so prevent the passage of such oils through the outer sheet or sheets. This feature of my invention will be found adapted for use for a variety of purposes, although it is of particular value in connection with the manufacture of a moisture proof corrugated box or container, as hereinafter described.

It has heretofore been proposed to form boxes, caddies and like containers of corrugated straw board surfaced with a top and bottom sheet of paper or board, the top and bottom surfacing sheets in some instances being made of waterproof material, with a view to excluding moisture from the contents of the containers and with a view also to preventing access to the corrugated straw board of moisture which tends to impair its strength and hence the strength of the container as a whole. By the present invention, a box or container may be made which will more effectively serve not only to exclude the moisture from its contents, but also to guard against the weakening of the corrugated straw board by excluding moisture therefrom.

In the several figures of the drawing, the sheets of paper and the films of asphalt are shown of exaggerated thickness, for the purpose of better illustration, but it will be understood that these sheets of paper and films of asphalt will be preferably of the thicknesses and weights hereinafter designated.

Referring to the form of the invention illustrated in Fig. 1, A designates a sheet of corrugated straw board of the weight and thickness commonly employed in the manufacture of moisture proof board. To the upper and lower surfaces of this corrugated sheet of straw board are applied the composite paper boards or compound paper sheets next to be described, it being understood that the lower composite paper board or compound paper sheet is the same as the upper sheet and it being understood also that the thickness and weight of the sheets will vary somewhat according to the strength and thickness of the finished box or container. In Fig. 1, the upper and lower composite board or compound paper sheets are shown each as formed of three

sheets of paper designated respectively B, C and D, united by thin films of asphalt E and F. Preferably, the sheets B and D are of kraft paper that may weigh about 65 pounds to the ream (480 sheets), this weight being based on a ream of sheets 24 x 36 inches. The center sheets C may be of paper weighing approximately from 10 to 25 pounds to the ream (of sheets 24 x 36 inches), and the central sheet C is united to the sheets B and D by two films of asphalt E and F that may weigh from 20 to 30 pounds each to the ream.

In order to prevent the residual oils present in the asphalt film F from striking through the outer sheet D and staining or discoloring its surface, I make the central sheet C of unsized paper that will readily absorb such residual oils from the asphalt. Preferably, also, the inner sheet B will be formed of unsized paper in order to enable the silicate of soda or like cement that will be used to unite the sheet B to the corrugated straw board A to better penetrate the sheet B and thus effect a more secure and permanent bond between the corrugated board A and the sheet B. The outer sheets D are preferably made of sized paper which tends to prevent the penetration of the residual oils of the asphalt to the outer surface of such sheets.

When a box or container is made of the composite moisture proof board last described, it will be seen that the inner and outer composite sheets formed of paper and asphalt will serve effectively not only to prevent the passage of moisture to or from the contents of the box or container, but will also serve to guard the corrugated straw board sheet A from becoming damp or soggy and so losing its strength.

In the form of the invention illustrated in Fig. 2 of the drawing, the upper and lower composite sheets of paper and asphalt are shown as each comprising two sheets of paper C and D united by films of asphalt F, the inner sheets being cemented—preferably by silicate of soda—to the corrugated sheet of straw board A. In this form of the invention, the sheets D are preferably of kraft paper weighing approximately 70 to 90 pounds to the ream, while the films of asphalt F may weigh from 40 to 50 pounds to the ream. The inner sheets C are of unsized paper and thus more effectively serve not only to absorb the residual oils from the asphalt films F and prevent such oils staining or discoloring the outer surface of the sheets D, but also serve to permit a more rapid and better penetration of the silicate of soda that is used in uniting the sheets C to the tips or crowns of the corrugated straw board A.

In Fig. 3 of the drawing, the corrugated sheet of straw board A is shown as faced

upon its opposite sides with composite moisture proof boards which are similar to the moisture proof board set forth in the hereinbefore mentioned Patent No. 1,503,957. That is to say, the moisture proof boards upon the opposite sides of the corrugated straw board A each comprises three sheets of paper designated B, C and D that are united together by thin films of asphalt E and F, and the sheets B are united by a suitable adhesive such as silicate of soda G to light stiffening paper boards H, these boards H being united by silicate of soda or other suitable cement to the tips or crowns of the arches of the corrugated straw board A. The weights of the individual plies or sheets making up the asphalted sheets of paper, as well as the weights of the film or films of asphalt used, will vary, depending upon the thickness and strength required in the finished container. In this form of the invention, however, the sheet C will be of unsized paper, to prevent the passage of the residual oils from the asphalt through the outer sheets D, and the thin sheets of stiffened board H are preferably unsized so as to permit the better penetration therinto of the silicate of soda or like adhesive which serves to unite the boards H to the crowns or tips of the corrugated straw board A.

In the form of the invention illustrated in Fig. 4 of the drawing, the corrugated straw board A is shown as faced upon its inner surface with a sheet K of ordinary straw board, or if preferred, of a jute lined straw board, and upon its outer surface with a composite moisture proof board similar to that illustrated in Fig. 3 and above described. That is to say, the composite board upon the outer surface of the corrugated sheet A shown in Fig. 4, consists of sheets of paper B, C and D united together by films of asphalt E and F, the innermost paper sheet B being united by a film of silicate of soda G to a light paper board H, which will be cemented by a suitable adhesive, such as silicate of soda, to the crowns of the corrugations of the straw board A. In this form of the invention, as in that shown in Fig. 3, the sheet D will be of sized paper, the sheet C of unsized paper, and the light cardboard sheet H will be unsized, for the reasons already set forth.

In Fig. 5 of the drawing, I have shown a composite board or compound sheet similar to the board or sheet with which the corrugated straw board A illustrated in Fig. 1 is surfaced upon its opposite sides. A sheet thus formed may obviously be used for various purposes other than the covering of corrugated sheets, and being very thin and pliable, will be found adapted for a great many uses.

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

1. A composite moisture-proof paper board or compound paper comprising a plurality of sheets of paper united together by asphalt, the outer one of said sheets being of sized paper and another of said sheets being of unsized paper adapted to absorb the residual oil from the asphalt and so prevent discoloration of the outer sheet.

2. A composite moisture-proof paper board or compound paper comprising at least three sheets of paper united together by thin films of asphalt, one at least of the outer sheets being of sized paper and the inner or central one of said sheets being unsized paper adapted to absorb the residual oil from the asphalt and so prevent discoloration of the sized sheet.

3. A composite moisture proof paper board comprising a sheet of corrugated board having adhesively connected to one side thereof a composite paper board composed of a plurality of sheets of paper united together by asphalt, the sheet next to the corrugated board being of unsized paper.

4. A composite moisture proof paper

board comprising a sheet of corrugated board having adhesively connected to one side thereof a composite paper board composed of at least three sheets of paper united together by films of asphalt, the sheets next to the corrugated board being of unsized paper and the outer sheet being of sized paper.

5. A composite moisture proof paper board comprising a sheet of corrugated board having adhesively connected to the opposite sides thereof a composite paper board or compound paper composed of a plurality of sheets of paper united together by films of asphalt, the sheets next to the corrugated board being of unsized paper.

6. A composite moisture proof paper board comprising a sheet of corrugated board having adhesively connected to at least one side thereof a composite paper board composed of a plurality of sheets of paper united together by films of asphalt, and a sheet of light paper board adhesively connected to the innermost of said paper sheets, said light sheet of board being unsized and being cemented to said corrugated sheet.

OTTO KRESS.