FIBER CAN BODY

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1 Claim. (Cl. 138—64)

The present invention relates to improvements in the construction of fiber can bodies designed to be impervious to the passage of fluids, depending upon the use to which the can is to be put, and some of these proposals have gone into commercial practice. Can bodies of this sort, heretofore manufactured and sold, are, however, not entirely satisfactory and are open to certain inherent objections and disadvantages, among which may be mentioned the additional cost due to waste of material used, the difficulty of cheaply manufacturing them, their undue weight which increases handling and shipping charges, and their inefficiency in protecting the contents of the cans. For example, there are now on the market can bodies formed by pasting together a strip of coarse cardboard or relatively heavy cheap paper and a relatively thinner strip of impervious material, and convolutely winding the laminated or composite sheet into tubular form with the adjacent convolutions adhering to one another. A can body, so formed, is relatively expensive because the impervious sheet (which is considerably more costly per unit area than the coarse cardboard sheet) extends throughout all the convolutions of the body and, therefore, is of relatively large area. Also, with that arrangement, the can body is not impervious to gases or liquids, for the reason that the sheet of course fibrous material presents a raw, uncovered edge at the inside surface of the can, thus permitting this sheet to act as a wick. With that arrangement, if the material within the can contains any liquid or moisture, the liquid or moisture, due to capillary action, will work its way through the can body following the convolutions of the coarse material, and if the can contains hydroscopic material, moisture will work from the outside to the inside of the can.

It has also been proposed to make a can body by forming an outside body or container of relatively heavy coarse paper or cardboard wound into a series of convolutions; forming a separate inside impervious container or lining, and slipping the inside container into, and expanding it into contact with, the outside one, but a can of that nature requires that the inside container be of sufficient weight or thickness to be self-supporting, which means that an inside lining of extreme thinness cannot be employed and, therefore, the weight of the completed can body is unduly increased. Also, difficulty is experienced in conforming the lining, and adhering it, to the inside surface of the outer body.

The aim of the present invention is to provide an improved fiber can body construction wherein the above and other disadvantages and objections to fiber can bodies, as heretofore made, are substantially eliminated.

More particularly, the aim of the invention is to provide a fiber can body which is highly efficient with respect to imperviousness to passage of liquids and gases therethrough; which, while being relatively strong and durable, is light in weight; and which, considering its efficiency and strength, is relatively easy and cheap to manufacture.

My invention consists in a fiber can body having an inner container or lining composed of a sheet of thin, flimsy material with impervious characteristics and shaped to form a tube of suitable cross section with an overlap at one side and which overlap is pasted so as to form a seal; and an outer container or body formed of a stiff sheet of cardboard, heavy coarse paper, or similar fibrous material convolutely wound about the inner container or lining; the outer surface of the lining and the inner surface of the outer container being glued together throughout substantially the entire exterior area of the lining. By preference, in forming the can, glue is applied to the outer surface of the sheet forming the lining and to the outer surface of the sheet or strip from which the outer container is formed so that, in winding this latter strip about the lining, the inside surface of the tube will adhere to the lining, and the several convolutions of the tube will closely adhere to one another. The lining, as skated, is made of extremely thin material and, in fact, so thin that, if moistened, it is not self-sustaining. The lining may be formed, for example, of very thin metal foil or thin sheets of cellulose derivatives, such as Cellophane or glassine. The material of which the lining is composed will depend, of course, upon the character of the food, oils, or other material to be placed in the can, and the imperviousness of the lining will also depend in character and degree upon the characteristics of the material to be placed in the can.

In the accompanying drawing forming a part of this specification:

Figure 1 is a perspective view of a can body constructed in accordance with the present in-
vention, portions being broken away to more clearly illustrate the disclosure;
Fig. 2 is a vertical cross sectional view through the can body; and
Fig. 3 is a horizontal sectional view throughout.

In the drawing, the relative thickness of the can body layers or convolutions is somewhat exaggerated for greater clearness of disclosure, and this is particularly true of the lining which, as stated, should be extremely thin. Also, the can body is shown as being generally rectangular in cross section, but it is understood that this is by way of example only as it is obvious it may be square, round, or of any other suitable shape and, for purposes of terminology and claiming, the terms "tube" or "tubular" are employed to generically cover the various forms which the can body may take.

In the drawing, A designates the outer container or body, and B designates the lining or inner container. The inner container or lining B is composed of a material of the character above described and preferably comprises a single ply which may be shaped about a mandrel to form a tube having at one side an overlap. The outer surface of the lining sheet has an application of glue over its entire area so that the opposed surfaces of the overlap will adhere and form an overlapped fluid-tight seam, and the outer surface of the lining will adhere to the inner wall of the outer container when the latter is formed therearound. The glued surfaces are indicated by stippling. The outer body or container A, which is composed of cardboard, heavy coarse paper, or other fibrous material, has glue applied to its outer surface and is wound convolutely about the lining while the latter is supported on the forming mandrel so that the inner surface of the innermost convolution of the outer body will adhere to the outer surface of the lining throughout the entire area of the latter, and the several convolutions of the outer body will adhere to one another. The outer glued surface of the outer body is adapted to receive a label, not shown. It is, of course, understood that the ends of the can body will be provided with suitable fluid-tight closures, but as such closures may be of any well-known sort and form no part of the present invention, they are not disclosed in the drawing.

It will be observed, from the foregoing description taken in connection with the accompanying drawing, that I provide a fiber can body having the many advantages heretofore described. The lining is composed of a minimum amount of material so that a saving is had in cost and weight. The lining, while being formed of extremely thin material, is effectively supported throughout its length and circumference owing to the fact that it is glued to the inside surface of the outer container. The inner container forms a continuous, unbroken wall wholly within the outer container and closely adhering thereto so that it forms an effective seal for preventing moisture, etc., from passing through the can wall either from the outside in or from the inside out. The outer container may be readily formed about the lining and, as the lining forms an effective seal, the material of the outer container may be composed of relatively cheap, coarse material.

I claim as my invention:

A fiber can body impervious to fluids, comprising an inner lining and an outer supporting body, said inner lining being a single sheet of thin material impervious to selected fluids and convolutely wound to provide an overlap with the outer face of the overlying material of the overlap adhesively secured to the inner face of the underlying material of the overlap to provide within the outer body a continuous unbroken wall overlapping itself in opposite directions, the outer supporting body being composed of a single sheet of coarse fibrous material convolutely wound around the inner lining and around itself into a series of contacting coils, and a continuous layer of adhesive interposed between the lining and the outer body and between the convolutions of the outer body and extending from the longitudinal edge of the lining material to the outermost longitudinal edge of the body and bonding said lining and body material into a substantially rigid one-piece body structure.

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