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H. F. WATERS
CONTAINER AND PACKAGE
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2,278,502

Fig. 1.

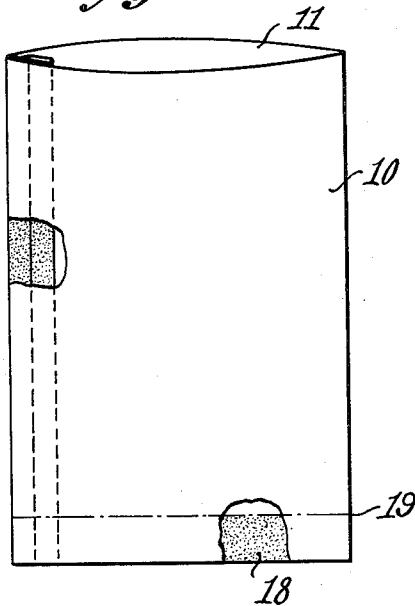


Fig. 2.

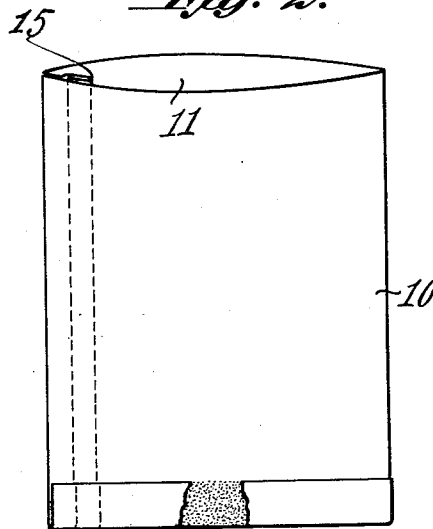


Fig. 3.

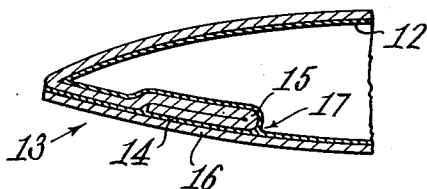


Fig. 4.

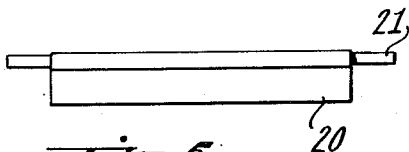
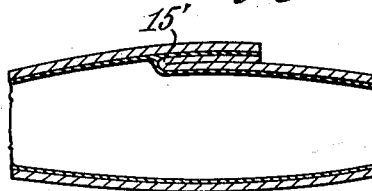
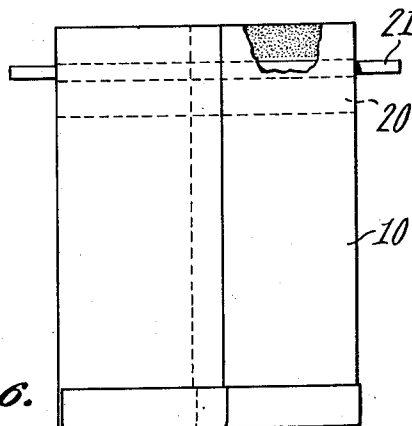


Fig. 5.

Fig. 6.



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CONTAINER AND PACKAGE

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Application July 18, 1936, Serial No. 91,363

6 Claims. (Cl. 229—3.5)

My present invention relates to improvements in containers and packages, and more particularly to a container especially suitable for the packaging of liquids and normally damp or wet commodities such as, for example, sauerkraut and the like.

In the packaging of liquids, such as oil, milk, and the like, containers and bags may be used provided the inner surface thereof is coated with some form of a liquidproof coating preferably of the type which may be sealed by the application of heat and pressure, or by the application of heat alone. If desired, instead of using a coated material, a laminated sheet may be used providing that the ply of the sheet which is in contact with the liquid is made of moistureproof material. In my copending application Ser. No. 91,364, filed July 18, 1936, now Patent No. 2,159,835, granted May 23, 1939, I have disclosed one form of coated material, or a laminated material, as for example; a sheet of paper coated with a fluidproof, thermoplastic material, or a sheet of Pliofilm laminated to paper.

I have found that in the use of such materials to form a suitable container for liquid materials, any leakage which may occur always takes place adjacent the seams necessarily formed in the construction of the container. This leakage may not be due entirely to pin-holes in the coating, but may also be due to the capillary flow or wicking of the liquids through the seams. Accordingly, one of the many objects of my present invention is to provide an improved seam construction wherein the liquidproof surface of the container is in part utilized to form a liquidproof seam and wherein the construction of the seam is such as to permit the use of a liquidproof coating in making up the seams.

Another object of my present invention is to provide a liquid-tight seam for containers of the class above described wherein the liquidproof surfaces are secured to themselves alone, the overlying edges of the material forming the seams. With these general objects set forth other objects will become more apparent from a study of the following description taken with reference to the attached drawing in which:

Fig. 1 is a view in side elevation of a bag embodying the features of my invention;

Fig. 2 is a view similar to Fig. 1, but showing the construction of the bag after the bottom has been completed;

Fig. 3 is an enlarged detail view of the side seam of the container shown in Fig. 1;

Fig. 4 is a view similar to Fig. 3, but showing

the formed seam as it will be formed on a conventional bag-making machine;

Fig. 5 shows the closure for the bag; and

Fig. 6 shows the completed bag having the closure attached thereto.

In the manufacture of bags and similar containers the material, as for example, paper or analogous fibrous material is usually fed in a continuous manner through mechanism which forms it into a tube formed by overlapping and seaming together the longitudinal free edges of the material. As will be appreciated, the inner surface of one of the overlapping edges of the tube will inevitably be secured to the opposite or inner surface of the overlapping edge of the material. Since, as is usually the case, but one surface of the material is coated, the seam will be formed by adjoining a coated and a non-coated surface together, thereby setting up the condition above referred to in which there is danger of leakage of the contents of the container through the seam by capillary flow even though the coating itself has not been broken.

With the above introduction to the invention in mind reference is now made to the drawing and more particularly to Figs. 1 to 4 inclusive, in which like numerals indicate like parts, and wherein I have shown a bag of the "flat" type. It is to be understood, however, that my invention is not limited to bags of this type since it will be appreciated by those skilled in the art that my invention may be applied to other forms of bags and containers as, for example, those types generally designated in the art as "square," "satchel-bottom," "automatic opening," "multiply," "gusseted" and the like. The bag comprises a front wall 10 and a back wall 11 formed by flattening the tube from which the bag is made. One surface of the material is provided with a liquidproof coating 12 of a thermoplastic character. Although the composition of the coating may vary, it will usually include as one of its ingredients rubber or a compound of rubber. If desired, the waterproofing material may be laminated to the material forming the body of the container.

In forming the seam designated generally by the numeral 13, one of the free edges 14 of the material is bent back upon itself to form a fold 15 extending the full length of the bag so as to present a coated surface for adhesion to the coated surface of the other free edge 16. In Fig. 3 the free edge is carried to the edge of the bag so as to provide a better appearing bag. By the application of heat and pressure or by the ap-

plication of heat alone the coating material is bonded together and flows to an extent sufficient to present a smooth surface 17 at the point where the free edges are secured together. In this way the inner surface of the completed bag presents a continuous and unbroken moistureproof surface and rough edges normally occurring in the usual type of seam are thereby eliminated, thus it is impossible for any leakage to occur through the seam by reason of the capillary flow of the liquids through the seam.

In Fig. 4 the same type of seam is shown, but in this instance it is provided at the center of the bag. It is this modification which normally would be manufactured by the use of a conventional bag making machine having a former or other means adapted to provide the fold 15'. The seam shown in Fig. 3 would be more adaptable to manufacture on other types of machinery such as, for example, an envelope machine. However, both seams could be made on any of the usual type of container-forming mechanisms.

The bottom 18 of the bag is formed by applying heat to the end edges of the tube thereby forming a sealed area within the end edge of the bag and the dotted line 19. This sealed area may be folded against either the front or back wall of a bag to complete the bottom, as is shown in Fig. 2.

In order to provide a suitable closure for the bag I have shown a type of closure which I have found to be extremely satisfactory in use. This closure comprises a strip of material 20, such as paper or the like, having secured thereto along one of its lateral edges a tie-tape 21. The closure is secured to either the front or back wall of the bag by means of adhesive or the like, and is so positioned as to be below the closed end of the bag and below the sealed area forming the closure. The top closure of the bag proper is itself formed by the application of heat to the free top edges of the bag in the same manner as the bottom of the bag is formed. After the container is filled with the desired liquid or other wet commodity, the top closure is formed and then bent over against either the front or back wall. The ends of the tie strip are then grasped by the operator and twisted and turned so as to turn the closure of the bag proper and the supplementary closure against the wall of the bag. Adhesive may be used to secure the composite closure in position. When it is desired to open a bag the ends of the tie-tape are rotated in a reverse direction until the sealed area of the bag closure proper is exposed. By cutting the sealed area the bag is opened for the dispensing of the contained material. If all of the contents of the bag are not to be used, it is very easy to close the bag merely by turning the tie-tape so as to close the supplementary closure.

Although I have illustrated and described a preferred embodiment of my invention it will be

obvious to those skilled in the art to which my invention pertains that many modifications may be made without departing from the spirit or scope of my invention. The scope of the invention is therefore not to be limited except by the scope of the appended claims which are to be broadly construed.

I claim:

1. A plural ply open-mouthed bag comprising an inner ply of heat-fusible material and an outer ply of other flexible material, said inner ply having an interior of integral nature with two of its seams formed by fusion, at least one of said fused seams being transverse the bag and being faced on both sides by the outer ply secured thereto.

2. A plural ply open-mouthed bag comprising an inner ply of heat-fusible material and an outer ply of other flexible material adhered thereto by an interposed layer of flexible adhesive, said inner ply having an interior of integral nature with two of its seams formed by fusion, at least one of said fused seams being transverse the bag and being faced on both sides by the outer ply secured thereto.

3. A plural ply open-mouthed bag comprising an inner ply of heat fusible material and an outer ply of other flexible material, said inner ply having an interior of integral nature with two of its seams formed by fusion, at least one of said fused seams extending longitudinally of the bag and being faced on both sides by the outer ply secured thereto.

4. A plural ply open-mouthed bag comprising an inner ply of heat fusible material and an outer ply of other flexible material, said inner ply having an interior of integral nature with all of its seams formed by fusion, at least one of said fused seams extending longitudinally of the bag and formed by face to face fusion of marginal regions of the inner surface of said inner ply, and being faced on both sides by the outer ply secured thereto.

5. A plural ply open-mouthed bag comprising an inner ply of heat fusible material and an outer ply of other flexible material, said inner ply having an interior of integral nature with all of its seams formed by fusion, all of said fused seams being formed by face to face fusion of marginal regions of the inner surface of said inner ply, and being faced on both sides by the outer ply secured thereto.

6. A plural ply open-mouthed bag comprising an inner ply of heat fusible material and an outer ply of other flexible material, said inner ply having an interior of integral nature with all of its seams formed by fusion, at least one of said fused seams being formed by face to face fusion of marginal regions of the inner surface of said inner ply and being faced on both sides by the outer ply being secured thereto.

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