Dec. 27, 1949 C. W. PRIEST 2,492,500

METAL END CLOSURE FOR WAXED PAPER CONTAINER BODIES

Filed April 14, 1947

Fig. 1

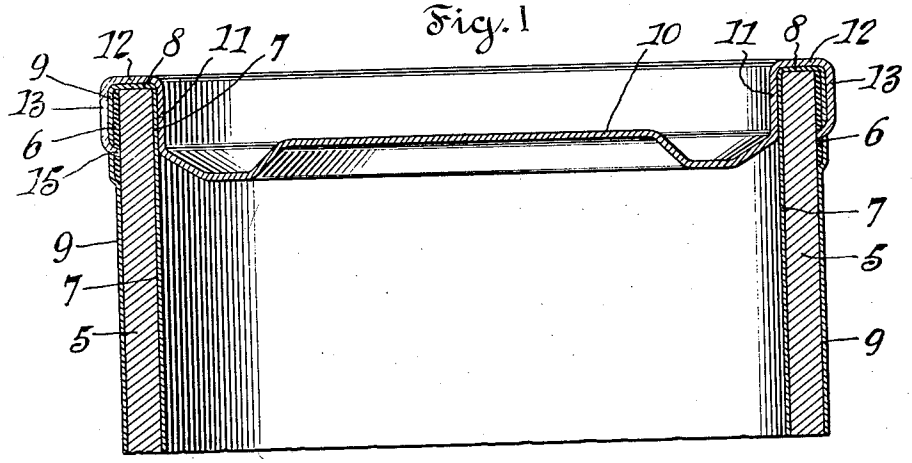


Fig. 2

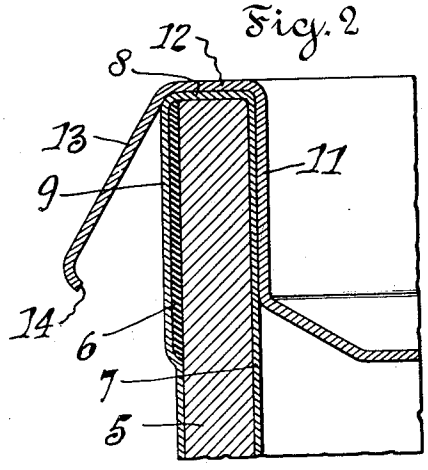
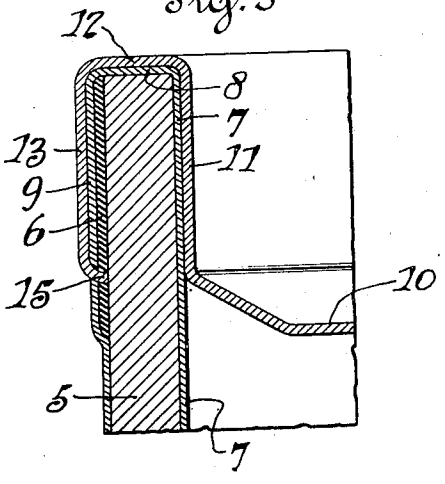


Fig. 3



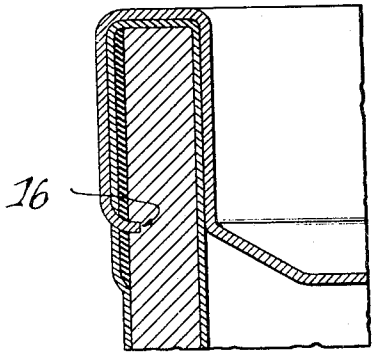


Fig. 4

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METAL END CLOSURE FOR WAXED PAPER CONTAINER BODIES

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7 Claims. (Cl. 229—5.5)

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The invention relates generally to the art of manufacturing containers having paper bodies and metal end closures, and it primarily seeks to provide a novel end closure particularly adaptable for use on containers of the character stated which are intended for the packaging of products to be frozen and maintained in a frozen state prior to use.

Containers having paper bodies and metal end closures are, of course, well known. It is also well known in the art to impregnate, or to interiorly and exteriorly coat the paper bodies with paraffin or other waxes so as to minimize moisture vapor transmission through the container wall structures. The penetration of the wax into the interstices in the paper wall structures incidental to said impregnation or coating serves to provide a very insecure anchorage for the metal end closures, even in containers wherein edge portions of the closures are indented or curled into the body wall structures in an effort to provide a satisfactorily secure closure attachment. Difficulties have been experienced in maintaining the desired secure attachment of metal end closures on containers in which products are packaged and then frozen because the waxed fibers in the paper wall structures provided slippery, insecure anchorage for the crimped or indented metal end closures, and the expansion of the frozen food products very often resulted in an objectionable loosening or complete detachment of said end closures. It is an object of the present invention to provide a novel end closure in which the difficulties referred to are avoided.

In its more detailed nature the invention resides in providing a container end closure of the character stated in which the paper body is coated internally and externally and over its end edge with paraffin or any other suitable moisture repelling wax, an anchor coating of an adhesive material effective to prevent penetration of said paraffin or other wax coating into the fibers of the body wall structure externally of and adjacent the end of the body being provided by application prior to the waxing of said body, and said body end being inserted in the channel of the metal end closure and the outer skirt defining said channel being pressed against the anchor coated and waxed outer surface of the body end with its edge indented or curled into or against the body wall structure within the limits of the excluding anchor coating.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference

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to the following detailed description, the appended claims, and the several views illustrated in the accompanying drawing.

In the drawing:

Figure 1 is a fragmentary vertical cross sectional view illustrating a container end closure.

Figure 2 is an enlarged fragmentary sectional view illustrating the end closure at one side of the container prior to the clamping of the body end within the closure channel.

Figure 3 is a view similar to Figure 2 showing the body end firmly clamped in the closure channel.

Figure 4 is a view similar to Figure 3 and illustrating a slight modification of the invention in which the terminal edge of the closure skirt is extended through the adhesive anchor coating and embedded in the paper body wall structure inwardly of said coating.

In the example of embodiment of the invention herein disclosed, there is shown a container structure including a paper body 5 having a wall structure of any conventional form. Such paper body wall structures may be spirally or convolutely wound, and either form of body wall structure is comprehended within the present invention. The paper body is provided with an anchor coating 6 at its outer wall adjacent the end extremity, and this anchor coating preferably takes the form of an adhesive coating. A well plasticized elastomer type compound is preferred. Polyvinyl acetate elastomers or rubber type elastomers may be used as the basis for the adhesive. A paraffin or other wax coating 7 is applied over the inner wall of the paper body wall structure, and this wax coating is also extended over the end edge of the wall structure as at 8, and over the outer wall of the body wall structure as at 9. It is to be understood that the anchor coating 6 serves to separate that portion of the wax coating 9 which extends thereover from the portion of the paper body wall structure 5 to which the anchor coating adheres, and by this means, penetration of the fibers of the body wall structure underlying the anchor coating is prevented.

The metal end closure generally designated 10 includes a heel 11 dimensioned to snugly fit within the end of the body in the manner clearly illustrated in Figure 1, and an annulus 12 extends outwardly from said heel and merges into the annular skirt 13 which cooperates with the heel 11 and said annulus in providing a channel in which to receive the end extremity of the body wall structure 5. The skirt 13 terminates in an inwardly turned edge 14, and it will be apparent

by reference to the drawing that the skirt is of less length than the anchor coating 6 so that the edge terminus 14 of the skirt will lie opposite an intermediate portion of said anchor coating.

In the formation of the closure the container body end is inserted in the receiving channel of the closure 10 in the manner indicated in Figure 2, after which the skirt is forced against the exterior of the body in the manner illustrated in Figure 3 to firmly clamp the body end within the closure channel with the inwardly turned end extremity 14 of the skirt 13 passing through the external wax coating 9 and embedded in and extending through the anchor coating 6 against the body wall structure 5 in the manner clearly illustrated in Figure 3.

In Figure 4 of the drawing there is illustrated a slight modification of the invention in which the inwardly turned edge extremity of the closure skirt is embedded in the paper body wall structure in the manner clearly illustrated at 16.

By providing the anchor coating 6, impregnation of the paper fibers directly underlying the anchor coating with the wax of the exterior coating 9 is avoided. It was found that when attempts were made to anchor edge extremities of the closure skirt in wax impregnated fibers of paper body wall structures, the slippery anchoring surfaces provided by the wax impregnation of the fibers were unable to retain the closure with sufficient security to avoid displacement resulting from internal pressures. Such pressures as were effective to objectionably loosen or completely displace end closures were frequently encountered in the packaging of frozen foods, the displacing pressure being exerted as an incident to the expansion of the packaged products during freezing. It has been found that by isolating the wall portion of the paper body wall structure in which the anchoring of the end closure is to be effected from the external wax coating 9 so as to bring about an anchoring of the closure skirt edge terminus as at 15 in the anchor coating 6, as in Figure 3, or in the non-waxed paper body portion itself as at 16 in Figure 4, the danger of having the end closures objectionably loosened or entirely displaced during the freezing of the packaged products is eliminated.

While one form of the invention has been shown for purposes of illustration, it is to be clearly understood that various changes in the details of construction and arrangement of parts may be made without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. In a container closure, a tubular body of paper or equivalent fibrous material, and a metal end closure, said end closure being formed to include an annular channel defined at least in part by a heel wall and a skirt between which the end of said body is tightly clamped, said body having an anchor band coated thereon at its outer surface lying opposite said skirt and being coated internally and externally with wax with said band being effective to prevent impregnation of the wax into that part of the body to which the anchor band is applied, and said skirt terminating in an inwardly turned edge indented in said anchor band.

2. In a container closure, a tubular body of paper or equivalent fibrous material, and a metal end closure, said end closure being formed to include an annular channel defined at least in part by a heel wall and a skirt between which the end of said body is tightly clamped, said body having an anchor band coated thereon at its outer surface lying opposite said skirt and being coated internally and externally with wax with said band being effective to prevent impregnation of the wax into that part of the body to which the anchor band is applied, and said skirt terminating in an inwardly turned edge indented in said anchor band and against the non-waxed body surface underlying said band.

3. In a container closure, a tubular body of paper or equivalent fibrous material, and a metal end closure, said end closure being formed to include an annular channel defined at least in part by a heel wall and a skirt between which the end of said body is tightly clamped, said body having an anchor band coated thereon at its outer surface lying opposite said skirt and being coated internally and externally with wax with said band being effective to prevent impregnation of the wax into that part of the body to which the anchor band is applied, and said skirt terminating in an inwardly turned edge forced through the anchor band and indented in the non-waxed body surface underlying the same.

4. In a container closure, a tubular body of paper or equivalent fibrous material, and a metal end closure, said end closure being formed to include an annular channel defined at least in part by a heel wall and a skirt between which the end of said body is tightly clamped, said skirt terminating in an inwardly turned edge, said body having an anchor band coated thereon at that portion of its outer surface opposite the inwardly turned edge of said skirt and being coated internally and externally with wax with said band effective to prevent impregnation of the wax into that part of the body to which the anchor band is applied, and said skirt edge being indented in said anchor band.

5. In a container closure, a tubular body of paper or equivalent fibrous material, and a metal end closure, said end closure being formed to include an annular channel defined at least in part by a heel wall and a skirt between which the end of said body is tightly clamped, said skirt terminating in an inwardly turned edge, said body having an anchor band coated thereon at that portion of its outer surface opposite the inwardly turned edge of said skirt and being coated internally and externally with wax with said band effective to prevent impregnation of the wax into that part of the body to which the anchor band is applied, and said skirt edge being forced through the anchor band and indented in the non-waxed body surface underlying the same.

6. In a container closure, a tubular body of paper or equivalent fibrous material, and a metal end closure, said end closure being formed to include an annular channel defined at least in part by a heel wall and a skirt between which the end of said body is tightly clamped, said skirt terminating in an inwardly turned edge, said body having an adhesive anchor band coated thereon at that portion of its outer surface opposite the inwardly turned edge of said skirt and being coated internally and externally with wax with said band effective to prevent impregnation of the wax into that part of the body to which the anchor band is applied, and said skirt edge being indented in said anchor band.

7. In a container closure, a tubular body of paper or equivalent fibrous material, and a metal end closure, said end closure being formed to include an annular channel defined at least in

part by a heel wall and a skirt between which the end of said body is tightly clamped, said skirt terminating in an inwardly turned edge, said body having an adhesive anchor band coated thereon at that portion of its outer surface opposite the inwardly turned edge of said skirt and being coated internally and externally with wax with said band effective to prevent impregnation of the wax into that part of the body to which the anchor band is applied, and said skirt edge being forced through the anchor band and indented in the non-waxed body surface underlying the same.

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