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W. E. TAYLOR

2,178,618

CONTAINER

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Fig. 1

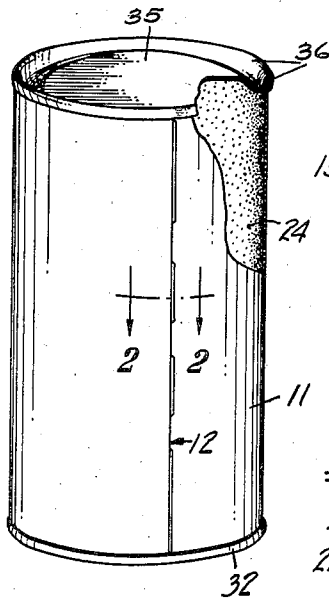


Fig. 2

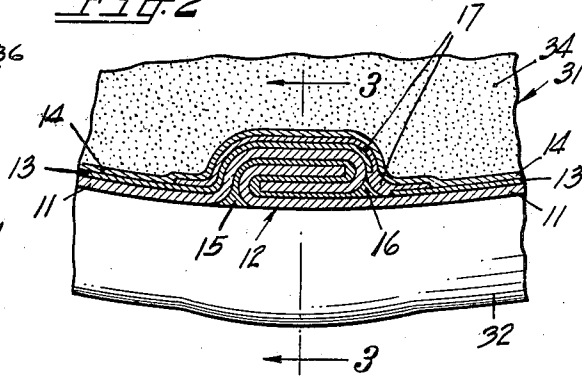


Fig. 4

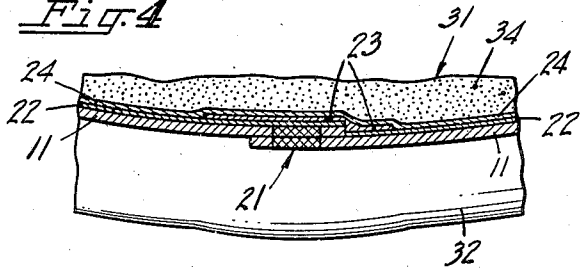
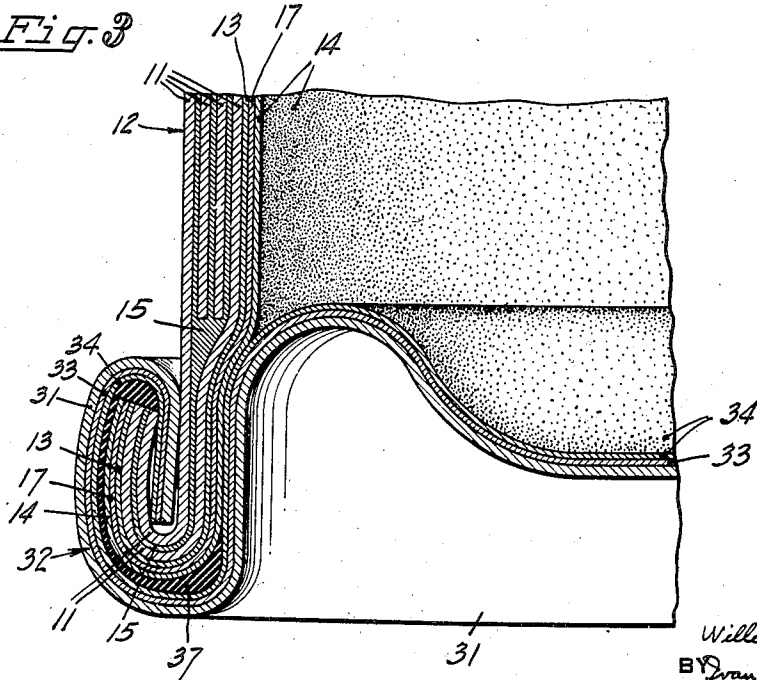


Fig. 3



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CONTAINER

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3 Claims. (Cl. 220-64)

The present invention relates to a metallic container for beer and other products and has particular reference to a container including a can body formed with a side seam, the entire inner surface of the container being covered with a protecting coating material and the side seam of the can body being further and additionally covered by a protecting lining strip.

In the use of sheet metal containers or cans for the packaging of products such as beer, for example, which chemically attack any exposed metal of the can, the interior surface of the can is usually coated with a lacquer or other suitable coating material to prevent the contents from coming into contact with the wall of the can. This coating material when the can is used for beer or the like, is best provided as a double lining, one prime coat being applied to the flat blank before the body is formed or shaped and the second coat after the body with its side seam is completed. Such a coating is inert to beer and must be of such a nature as to have no clouding effect upon the beer.

After formation of the seam there is usually a thin line of exposed solder where the side seam is soldered or exposed spots where the side seam is welded which come on the inside of the body and which even the second coat will not always fully cover.

The instant invention contemplates a lined container in which such interiorly exposed side seam section of the can body is additionally and locally coated or covered with a lining strip so that this side seam part of the body, which ordinarily is a vulnerable point of attack by the contents of the can, is fully protected against such attacks.

An object of the invention therefore is the provision of a lined container, the can body portion of which is formed with a side seam, the container being interiorly coated to prevent exposure of the metal of the container, the side seam area on the inside of the can being completely covered with an additional lining strip.

Another object is the provision for a container of the character described, of a lined or coated can body having a soldered or welded side seam which is fully protected by the usual interior coating and in addition by a localized lining strip which fully covers the interior surface of the side seam.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying

drawing, discloses a preferred embodiment thereof.

Referring to the drawing:

Figure 1 is a perspective view of a side seam container having a protective interior lining and exemplifying the instant invention, part of the front wall being broken away to show the interior lining;

Fig. 2 is an enlarged fragmentary section taken substantially along the line 2-2 of Fig. 1 and illustrating a cross section of the lined can body at its soldered side seam;

Fig. 3 is a longitudinal fragmentary section taken through the side seam at the bottom of the can as indicated by section line 3-3 in Fig. 2; and

Fig. 4 is a view similar to Fig. 2 illustrating a container which has a welded side seam.

The lined metallic container illustrated in the drawing includes a metal can body 11 having two of its edges joined together in a side seam 12. This side seam may be of the usual soldered lock and lap type such as is illustrated in Figs. 1, 2 and 3 of the drawing wherein two edges are interlocked along certain sections of the seam and are lapped in other sections, all sections being further soldered to provide a hermetically tight joint.

According to the usual can manufacturing practice a can body of this type is formed from a flat blank which in some cases has been coated over most of one surface with a prime coating material or lining 13. Such a prime coat may be of suitable resinous material the exact kind depending upon the contents for which the can is being made, it being necessary that the coating be of such nature as to properly adhere to the metal surface to which it is applied and which when a double coating is desired, will form a proper foundation for a secondary or final lining coat 14.

This final coat may also be of a resinous nature depending upon the can contents and must have no clouding effect upon whatever product is canned. It is the usual practice in manufacturing cans of the double lined soldered side seam type to apply the prime coat 13 to the can body while it is in the flat and to leave uncoated the two edges of the blank which enter into the side seam. Such resinous coating is usually dried in a high temperature oven which makes the lining coat with a hard baked inner surface. Following such prime coating step it is usual to then form the hooks or inter-engaging sections of the can body to produce the side seam 12, the can

body thereafter being brought into cylindrical or other tubular form and the inter-engaging hook and lapped parts brought into final position in the side seam.

5 In soldering the side seam 12 it is the usual practice to apply the solder from the outside of the can body and the solder, indicated by the numeral 15 in Figs. 2 and 3, works its way in between the inter-hooked parts of the side seam to effect a solder bond. It happens that part of this solder usually works its way around through 10 the joint and appears as a thin line of solder 16 (Fig. 2) on the inside of the can. This solder exposure presents a vulnerable section for attack 15 of the contents of the container after it is filled and sealed as will be further explained.

The secondary lining or final coat 14 may be applied to the container after the body is formed and after the side seam is soldered. Such a coating may be formed of a suitable resinous material but is usually of a different nature from that forming the prime coat. By reason of the soldered side seam such coating cannot be high baked but is usually merely heat dried in suitable ovens. Under ideal conditions this coat covers over all of the interior surfaces of the can body but the presence of the exposed solder directly beneath always presents a vulnerable region for some canned products and thus a potential danger by reason of the fact that solder is hard to cover as the final coating film will not properly adhere to it.

Commercially, therefore, it may be said that the final coat does not completely cover over the solder exposed inside of the can. In addition the uncoated (prime coating) can body wall at the side seam may also not be fully covered for the most satisfactory final lining coat to be successful must rest on a prime coat and not on bare metal. It will be understood, however, that for some products that are canned a single coating instead of the double coating mentioned may be used.

According to the present invention the container is provided with an additional lining strip 17 (Figs. 2 and 3) which is situated on the inside of the can body and locally confined at the side seam 12. This lining strip is positioned so that it entirely covers the side seam and is preferably 50 applied prior to the application of the continuous or final coat 14 although it is also satisfactory for the purpose when applied over the final coat. In any event, the lining strip 17 merges with the final coat and extends laterally of the side edges of the side seam a sufficient distance on either side to provide a complete coverage of the can body wall at the seam. The lining strip 17 may be heat dried in any suitable manner as desired.

A satisfactory container for holding beer or other products which have a tendency to chemically attack raw metal such as the iron base of the can or the tin coat may be made as an alternate form by joining the edges of the can body 11 into a welded side seam 21 (Fig. 4). The 65 joined edges of the body wall in a welded side seam are overlapped and then bonded or fused together by the welding of its engaged parts.

Where such a welded side seam is used instead of a soldered seam the interior surface of the welded body is covered with a prime coat 22, 70 which may be applied to the can body blank while in the flat and prior to its being formed into can body shape. This prime coat may cover the entire inner surface of the blank prior to the welding operation although a better welding bond is

produced where the lapped edges of the blank are left free of any lining. In either case the welding of the side seam produces an exposed metallic surface (welding spots) on the inside of the can which is not satisfactorily covered by the prime coating 22.

According to the present invention a protecting localized lining strip 23 is preferably applied on the inside of the can body along the side seam and it extends laterally a sufficient distance on both sides of the side seam to fully protect or cover the welded seam on the interior of the can body. The container is then subjected to a further lining step so that there is produced a continuous final coat 24 on the inside of the can body.

In the welded type of can it is also not necessary to interpose the lining strip 23 between the prime coating 22 and the final coat 24 but this lining strip may be applied over the final coat if 20 desired.

With the can body properly joined at its side seam either soldered or welded and fully lined as just described it may then be secured to a can end or bottom 31 in the usual manner as by a double seam 32. The can end 31 will also have a suitable protective lining on its inner surface such, for example, as a double coating consisting of a prime coat 33 and a final lining coat 34.

The resulting can is then filled with the contents in any suitable manner after which a top end 35 (Fig. 1) is secured to the open end of the can as by the usual double seam 36. This top end, like the bottom end, is also suitably lined and its inner surface is fully protected.

The can of the present invention, therefore, consists of a can body having a side seam which extends longitudinally of the body and which is lined on its interior with a single or double coating covering substantially the entire inner surface 40 and with an additional protective lining strip which covers the side seam area on the inside of the can. Such a can body is provided with a suitable bottom and top which may be hermetically secured to the can body in the usual manner as where a gasket 37 (Fig. 3) is introduced in the double seam to provide a tight can. Inasmuch as the can ends are also protected by an interior lining or suitable coating material the metal of the resulting container is fully and completely covered over on all inside surfaces which are exposed to the contents sealed in the can.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent 55 that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being 60 merely a preferred embodiment thereof.

I claim:

1. A can body for holding beer and other products, comprising a tubular sheet metal body united in an hermetically sealed side seam, said body having on its inner surface a hard baked prime coating of lining material with the exception of the opposite edges of the body blank which constitute the side seam, said edges being uncoated and constituting bare metal surfaces to permit said side seam to be hermetically sealed, said body having a longitudinal strip of lining material overlying said partially coated side seam to completely cover exposed portions of bare metal, said tubular body further having an oven

dried final coating of lining material of substantially uniform thickness superposed over said prime coating and over the entire interior surface of the can body including the united side seam area, whereby to insure against contact and reaction of the can contents with any uncoated and exposed bare metal on the can interior.

2. A can body for holding beer and other products, comprising a tubular sheet metal body united in a soldered side seam, said body having on its inner surface a hard baked prime coating of lining material with the exception of the opposite edges of the body blank which constitute the side seam, said edges being uncoated to permit adherence of solder to bare metal surfaces, said body having a longitudinal strip of lining material overlying said partially coated side seam to completely cover exposed portions of solder, said tubular body further having an oven dried final coating of lining material of substantially uniform thickness superposed over said prime coating and over the entire interior surface of the can body including the soldered side seam area, whereby to insure against contact and re-

action of the can contents with any uncoated metal and exposed solder on the can interior.

3. A can body for holding beer and other products, comprising a tubular sheet metal body united in a welded side seam, said body having on its inner surface a hard baked prime coating of lining material with the exception of the opposite edges of the body blank which constitute the side seam, said edges being uncoated and constituting bare metal surfaces to permit said side seam to be welded, said body having a longitudinal strip of lining material overlying said partially coated side seam to completely cover exposed portions of welded metal, said tubular body further having an oven dried final coating of lining material of substantially uniform thickness superposed over said prime coating and over the entire interior surface of the can body including the welded side seam area, whereby to insure against contact and reaction of the can contents with any uncoated and welded metal on the can interior.

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