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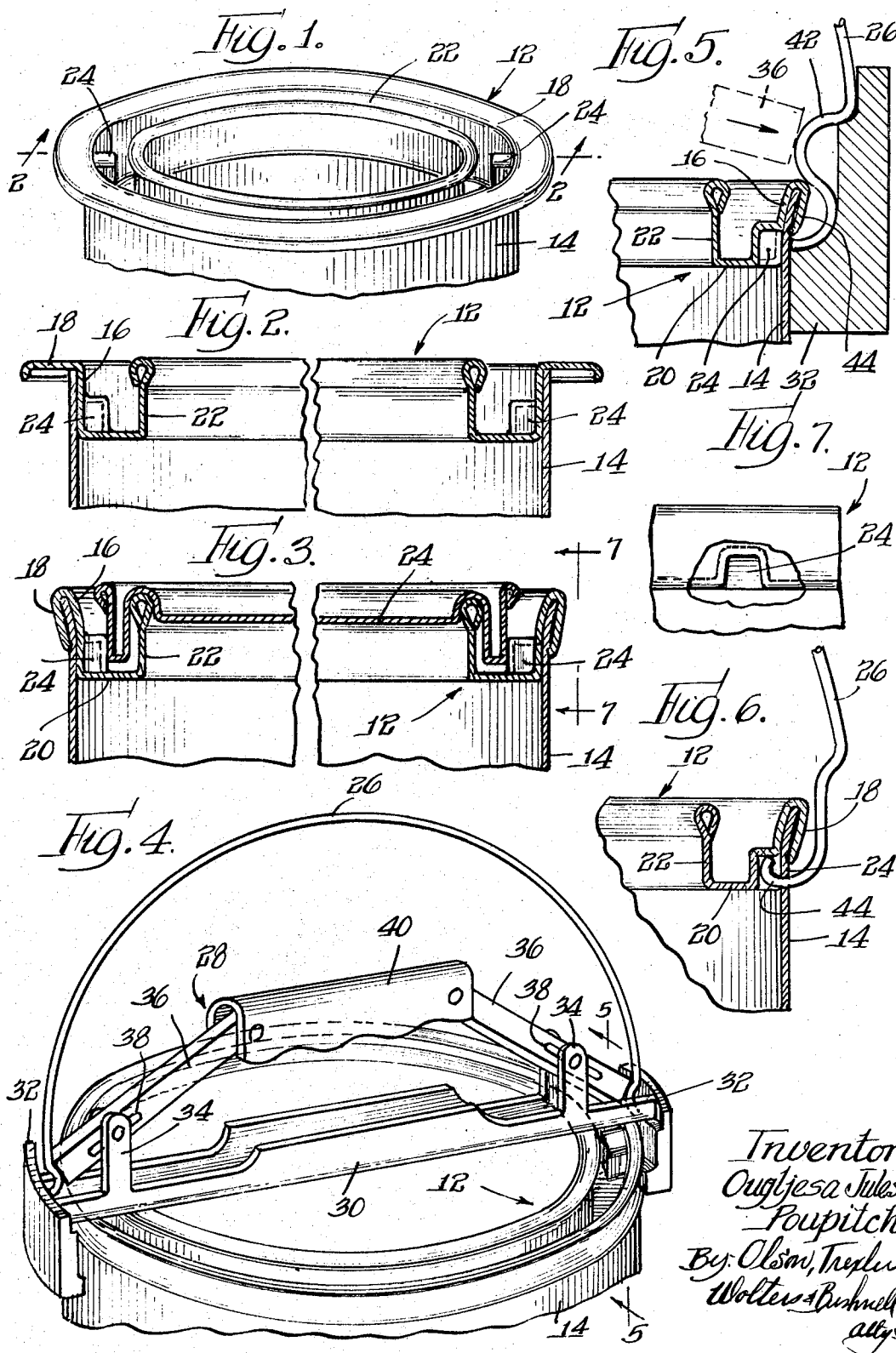
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3,341,107

RIM DEVICE FOR CONTAINERS

Filed Oct. 24, 1965

2 Sheets-Sheet 1



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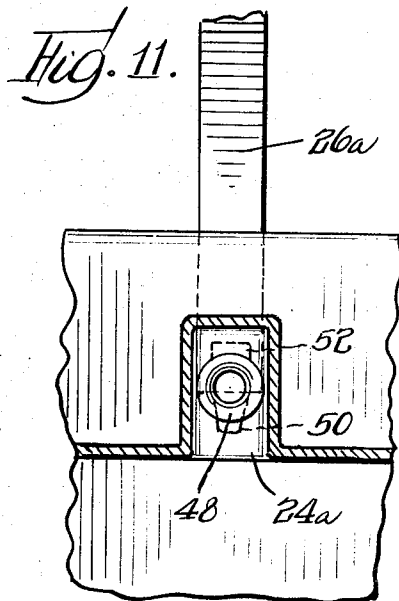
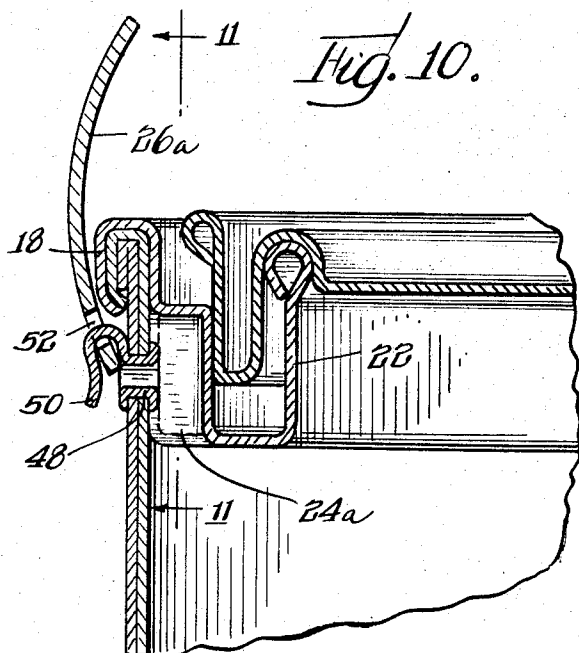
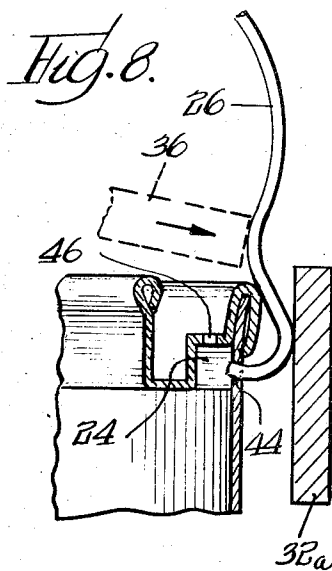
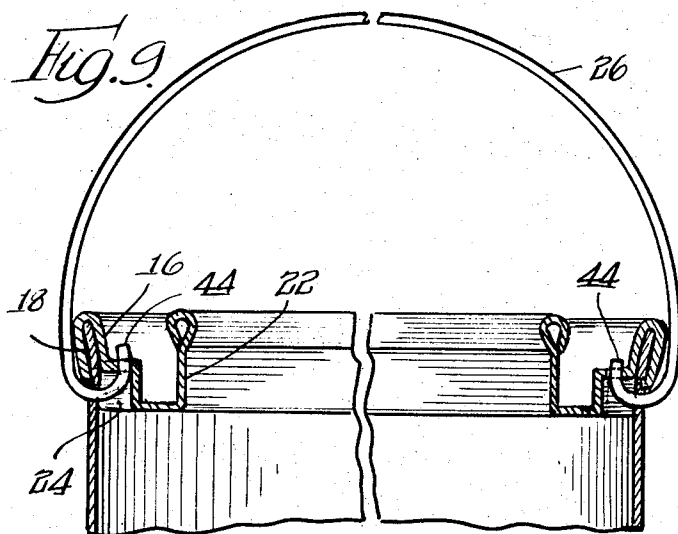
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RIM DEVICE FOR CONTAINERS

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ABSTRACT OF THE DISCLOSURE

The present application discloses an improvement in bail accommodating rings having a particular application for use with containers made of fiberboard and the like. It is contemplated to provide metallic rings with a substantially cylindrical wall which provides a surface for engaging the inner periphery of the fiberboard container at the open end thereof, and a continuation of said wall which is folded to form a second wall surface for overlying and impinging the outer peripheral surface of the container at the open end thereof. Also the first-mentioned inner wall of the ring is provided with diametrically disposed indentations for accommodating the free extremities of a bail member which extends through the container wall.

More specifically, the invention contemplates improvements in metallic rings of the type which are adapted to be secured or crimped to the upper margin of a non-metallic receptacle, said ring having a novel feature of construction which will materially facilitate the application of bail wire extremities thereto.

The invention also contemplates a receptacle metallic ring construction as set forth above which is not only adapted to accommodate the extremities of bail wire in a new and novel manner, but also is adapted to sealingly receive a closure member.

It is an important object of the present invention to provide a new and novel method whereby the extremities of a bail wire may be applied to the upper margin of a receptacle or can after the metallic ring has been secured to said margin.

It is a further object of the present invention to provide a metallic ring arrangement of the type referred to above which will permit the establishment of a very firm coupling of the opposed extremities of a bail wire with the metallic ring so that unusually heavy loads may be carried by the bail handle without any danger of weakening the connection between the bail wire extremities and the metallic ring.

The foregoing and other objects and advantages will be more apparent from the following detailed description, when considered in connection with the accompanying drawings, wherein:

FIG. 1 is a fragmentary perspective view of the upper portion of a container or can having in initial association therewith a metallic ring which is constructed in accordance with the teachings of the present invention;

FIG. 2 is a vertical transverse sectional view taken substantially along the line 2—2 of FIG. 1;

FIG. 3 is a sectional view similar to FIG. 2 after the laterally extending margins of the metallic ring as shown in FIG. 2 have been bent downwardly into tight gripping association with the upper margin of the nonmetallic

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receptacle or can; a cover being disclosed in association with the metallic ring;

FIG. 4 is a perspective view of a device which may be employed to practice the new and novel method of assembling opposite extremities of a bail wire to the metallic ring;

FIG. 5 is a fragmentary vertical sectional view taken substantially along the line 5—5 of FIG. 4, illustrating the position of the bail wire extremity prior to the application thereto of pressure which will cause said extremity to become coupled with the metallic ring;

FIG. 6 is a fragmentary sectional view similar to FIG. 5 showing the position occupied by the bail extremity after the pressure has been applied against it by the use of the mechanism illustrated in FIG. 4;

FIG. 7 is a fragmentary side elevational view taken substantially along the line 7—7 of FIG. 3, with a portion of the can or receptacle broken away, more clearly to illustrate the bail wire accommodating indentation provided in the metallic ring;

FIG. 8 is a fragmentary sectional view similar to FIG. 5 disclosing a slightly modified coupling between the bail wire extremity and the metallic ring;

FIG. 9 is a fragmentary vertical sectional view of the upper margin of a receptacle with the bail wire extremity illustrated in FIG. 8 finally coupled therewith;

FIG. 10 is a fragmentary sectional view of a further modified coupling between the bail wire extremity and the metallic ring, and illustrates the manner in which a rivet device may be used to establish this coupling; and

FIG. 11 is a vertical sectional view taken substantially along the line 11—11 of FIG. 10.

Referring now to the drawings more in detail, wherein like numerals have been applied to designate similar parts throughout the various figures, it will be seen that a metallic ring or rim device constructed in accordance with the teachings of the present invention is designated generally by the numeral 12. This rim device is shown in association with the upper portion or open end of a container 14 in FIGS. 1—7, inclusive. The container 14 is preferably formed from material such as fiberboard or the like which is softer than the sheet metal stock from which the container ring 12 is formed. In FIGS. 1 and 2 the ring 12 is shown as it is initially applied to the open end of the container 14 before being finally clamped thereto. It will be seen from FIG. 2 that the ring 12 includes a generally cylindrical section 16 which has formed integral therewith a lateral extension 18 in the form of a container impinging flange. Extending radially inwardly from the section 16 is an annular section 20, which is bent upwardly along its inner margin to provide a closure accommodating flange 22.

In initially assembling the ring or rim device 12 with the container 14, the generally cylindrical section 16 is lowered in place so as to occupy the position shown in FIG. 2. The lateral extension or flange 18 may then be bent downwardly so as to impinge the outer periphery of the container 14 along an area opposite the section 16. Particular attention is directed to the fact that the section 16 is indented at diametrically opposed positions so as to provide peripheral bail accommodating indentations or recesses 24. The assembly as shown in FIG. 3 is conditioned to receive the end portions of a bail 26.

To accomplish the operative association of the end portions of the bail member or wire 26 with a comple-

mentary recess 24, a mechanism designated generally by the numeral 28 (FIG. 4) may be employed. This mechanism 28 includes a transverse frame element 30 which may rest upon the top of the rim device 12 as shown in FIG. 4. This frame member 30, at each end thereof, supports an anvil 32. Extending upwardly from the frame member 30 are ears 34 which pivotally support toggle arms 36 having slots 38. The upper extremity of each of these toggle arms 36 is pivotally coupled with an end of a horizontally disposed handle member 40. It will be apparent that as the handle member 40 is forced downwardly, the outer extremities of the toggle arms 36 will simultaneously be forced radially outwardly. Therefore, if each of the free or end portions of the bail member 26 is formed with the S-shape, as shown in FIG. 5, and the extremities of the toggle arms 36 exert a pressure in an outwardly radial direction against bends 42 of the bail 26, the free tip ends 44 of the bail will follow the contour of the anvil 32 so as to pierce the container wall 14 and ultimately occupy the position shown in FIG. 6. In this position the tip ends 44 of the bail will occupy their load carrying position interlocked and trapped within its complementary indentation or recess 24.

In FIGS. 8 and 9 a slightly modified structure is shown wherein the S-shape of the end portions of the bail 26 is such that when the toggle arms 36 urge the end portions of the bail against an anvil 32a, the tip ends 44 of the bail will be forced radially inwardly and then upwardly through apertures 46, as clearly shown in FIG. 9. This provides a firm interlock between the bail ends and the metallic ring or rim device 12.

A still further modification contemplated by the present invention is disclosed in FIGS. 10 and 11. In this form, a rivet fastener 48 having a hook portion 50 formed integral therewith, is secured at diametrically opposed positions to the container body in the vicinity of complementary indentations 24. With this arrangement a bail strip 26a, as distinguished from a bail wire, may be employed. Each extremity of the bail strip or handle 26a is provided with an aperture 52 to receive and interlock with the hook 50 formed integral with the rivet member 48. The indentations or recesses 24a as shown in FIGS. 10 and 11 serve to accommodate the inner flange of the rivets 48. When rivets 48 with the hook portions 50 are employed, it is preferred to use a heavier and in some instances a double thickness container stock as shown in FIG. 10. However, if the container stock is of unusual strength, a single thickness of stock may suffice. By employing the rivet fastener, the use of the anvil structure previously described is obviated.

From the foregoing, it will be apparent that the present invention contemplates a very practical and economical form of sheet metal rim device for containers, particularly containers formed of impressionable material such as fiberboard and the like. It should also be clear that the invention not only contemplates a new and improved sheet metal rim device for accommodating bail members or wires, but also a very simple and expeditious mechanism and method of associating bail extremities with a sheet metal rim device. The device as described herein has particular application to instances where relatively large containers are used to support relatively heavy loads.

While for purposes of illustration certain specific structural features have been disclosed herein, the invention contemplates other modifications and changes without departing from the spirit and scope of the appended claims.

The invention is claimed as follows:

1. An annular sheet metal rim device for containers of impressionable material such as fiberboard and the like including a generally cylindrical wall section for insertion within the open upper end of a container, said wall section having a peripheral surface for engaging a complementary internal peripheral surface of a container, an extension of said wall section adapted to be folded over the

upper margin of the container for impinging the outer periphery of the container opposite said wall section, said wall section having diametrically disposed indentations positioned adjacent said peripheral wall surface providing peripheral bail-coupling accommodating recesses, and annular closure receiving means integral with and spaced radially inwardly from said wall section.

2. An annular sheet metal rim device for containers of impressionable material such as fiberboard and the like including a generally cylindrical wall section for insertion within the open upper end of a container, said wall section having a peripheral surface for engaging a complementary internal periphery of a container, an extension of said wall section adapted to be folded over the upper margin of the container for impinging the outer periphery of the container opposite said wall section and having an axial width less than the axial extent of said wall section, said wall section having diametrically disposed indentations positioned adjacent said peripheral wall surface providing peripheral bail-coupling accommodating recesses along the lower portion thereof, and annular closure receiving means integral with and spaced radially inwardly from said wall section.

3. An annular sheet metal rim device for containers of impressionable material such as fiberboard and the like including a generally cylindrical wall section for insertion within the open upper end of a container, an extension of said wall section adapted to be folded over the upper margin of the container for impinging the outer periphery of the container opposite said wall section, said wall section having diametrically disposed recesses for accommodating the free extremities of a bail member when said extremities traverse the container stock which superimposes said recesses, and annular closure receiving means integral with and spaced radially inwardly from said wall section.

4. An annular sheet metal rim device for containers of impressionable material such as fiberboard and the like including a generally cylindrical wall section for insertion within the open upper end of a container, an extension of said wall section adapted to be folded over the upper margin of the container for impinging the outer periphery of the container opposite said wall section and having an axial width less than the axial extent of said wall section, said wall section having diametrically disposed recesses along the lower portion thereof for accommodating the free extremities of a bail member when said extremities traverse the container stock which superimposes said recesses, and annular closure receiving means integral with and spaced radially inwardly from said wall section.

5. In combination with the upper margin of a container wall, an annular sheet metal rim device including a generally cylindrical wall section inserted within the open upper end of said container, an extension of said wall section folded over the upper edge of the container wall and impinging the outer periphery of the container wall opposite said wall section, said wall section having diametrically disposed recesses for accommodating the free extremities of a bail member, a bail member having its extremities traversing the container stock and trapped within said recesses, and annular closure receiving means integral with and spaced radially inwardly from said wall section.

6. In combination with the upper margin of a container wall, an annular sheet metal rim device including a generally cylindrical wall section inserted within the open upper end of a said container, an extension of said wall section folded over the upper edge of the container wall and impinging the outer periphery of the container wall opposite said wall section, said wall section having diametrically disposed peripheral recesses, rivet means traversing said container wall in the vicinity of said peripheral recesses, means associated with said rivet means for accommodating the free extremities of a bail member, and

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annular closure receiving means integral with and spaced radially inwardly from said wall section.

7. The combination, with the upper margin of a container wall, of an annular sheet metal rim device as set forth in claim 6, including means for accommodating the free extremities of a bail member comprising hook elements carried by said rivet means.

8. The combination with the upper margin of a container wall of an annular sheet metal rim device and rivet means as set forth in claim 7, including a bail strip having

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an aperture at each extremity adapted to interlock with said hook elements.

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