

June 22, 1937.

R. JOHN

2,084,973

RECEPTACLE FOR LIQUIDS

Filed Sept. 10, 1936

2 Sheets-Sheet 1

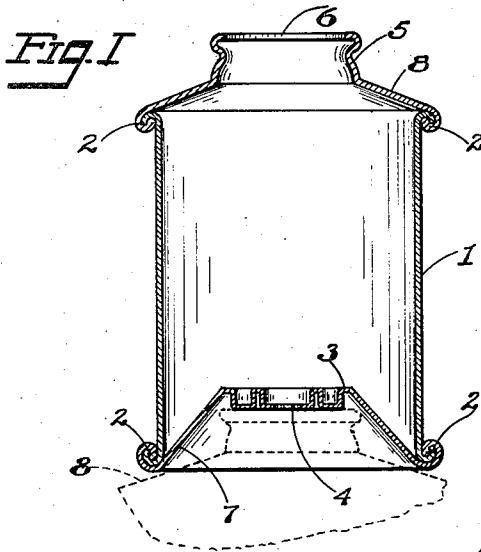
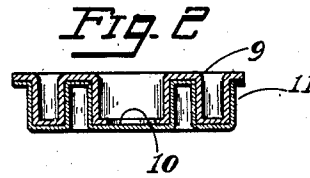
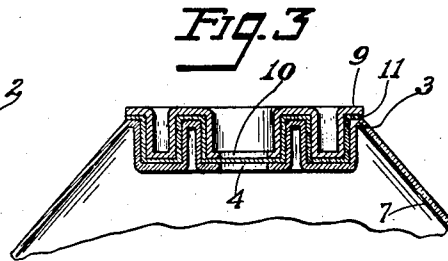


Fig. 6

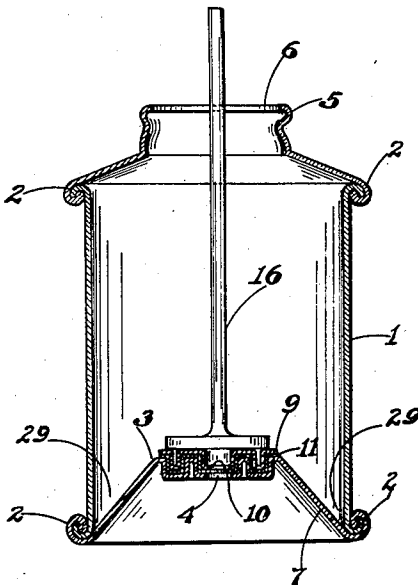
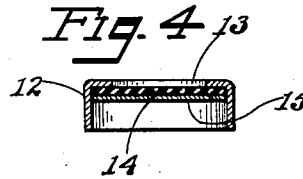
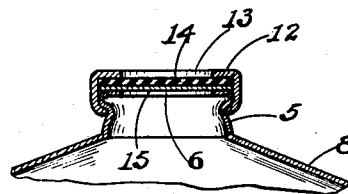


Fig. 5



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Fig. 7

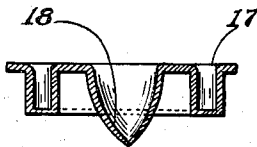


Fig. 8

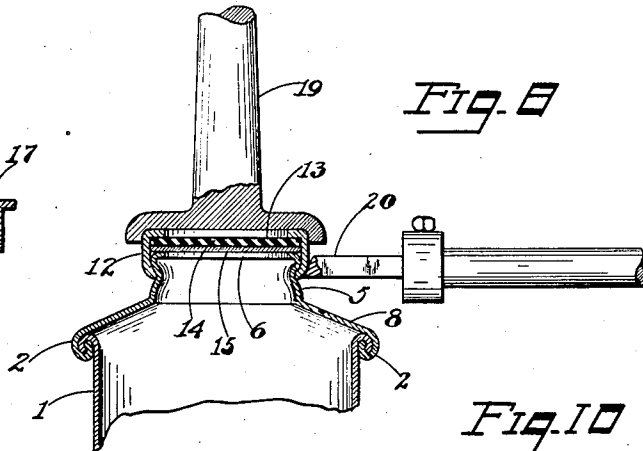


Fig. 9

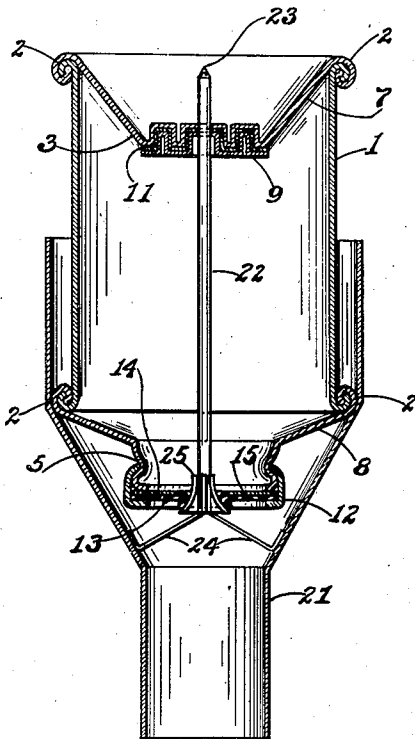
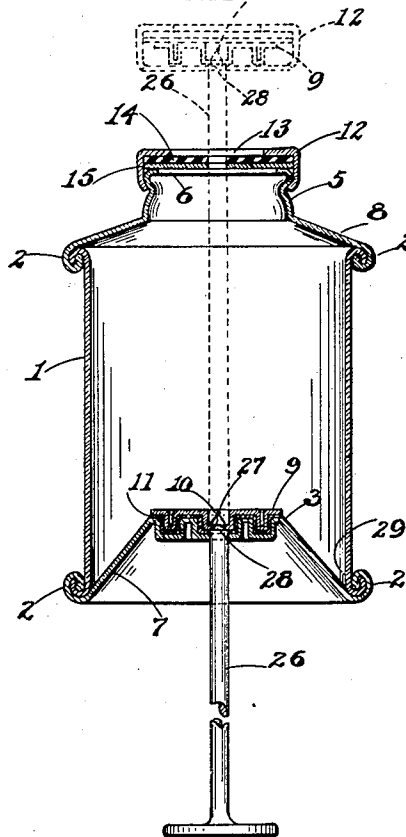


Fig. 10



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UNITED STATES PATENT OFFICE

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RECEPTACLE FOR LIQUIDS

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18 Claims. (Cl. 221—23)

This invention relates generally to receptacles for various kinds of liquids and, specifically to such receptacles as those commonly used in dispensing motor lubricating oils, and to novel means and processes for closing, opening and emptying receptacles for liquids.

By way of clarifying the objects of the invention, attention is called to the fact that motor oil receptacles of the current art, in quart sizes or larger, frequently comprise a tubular, seamed, body of tin plate, terne plate or lacquered steel, and usually have solid metallic ends permanently affixed to the top and the bottom of the body. Such cans are filled and sealed at the refinery and the retail dispenser of their contents is provided with means for puncturing the top of each can.

It is obviously a part of the system to destroy the can at the time of dispensing, so that the motorist who is served may be certain that the oil in the can is genuine and not a substitute, and that it was actually packed and sealed at the refinery.

This procedure, while possessing the advantage of deterring fraud, has several offsetting disadvantages, viz: (1) the cost is generally higher than that of bulk distribution; (2) the can which might otherwise be used again and again is destroyed after a single use; (3) two or three per cent., and upward, of the oil in the can clings to the side walls thereof after dispensing and is wasted; (4) disposal of empty cans entails expense upon the distributor who must pay for carting them to the dumps.

The objects of the present invention are: (1) to provide a novel type of motor oil receptacle which may be used again and again but which will as effectively prevent substitution as the present single-use can; (2) to bring the cost of anti-substitution dispensing below that now involved in bulk distribution; (3) to save and turn to profitable account the oil clinging to the side walls of dispensed cans; and (4) to shift the disposal problem from the distributor to the refiner and at the same time to reduce the disposal problem to a minimum.

These, and other objects and advantages of the invention which will be obvious to those familiar with the art, are attained by means illustrated in the accompanying drawings, in which similar numerals refer to similar parts throughout the several views, as follows:

Figure 1 is a vertical section of the body of my novel receptacle; sidewall 1 of the body may

be formed from any kind of sheet metal, soldered or seamed together to make a liquid-tight tube, or it may comprise a section of drawn, seamless tubing, the upper and lower extremities of which side wall are flanged outwardly as shown at 2 whereby to provide means for double seaming metallic tops and bottoms thereto in liquid-tight relationship, in accordance with conventional practice. 3 is an internal protuberance, perforated at 4, adapted to receive an internal sealing member, while 5 is an external protuberance, perforated at 6, adapted to receive an external sealing member. 7 is the general contour of the bottom of the receptacle, while 8 is the general contour of the top of a like receptacle, illustrating how one receptacle may be stacked on top of another in storage and shipment. It is to be observed, for reasons later to be explained, that perforation 6 is larger than perforation 4.

Figure 2 is a vertical section of my novel friction-fit internal sealing member before affixation, in which 9 is a malleable metallic shell of, say, one one-hundredth of one inch in thickness, provided with a perforation, 10, which perforation may be circular or polygonal, while 11 is an imperforate metallic foil of, say, five one-thousandths of one inch in thickness. In the drawings foil 11 is shown as unattached to metallic shell 9 being merely held in place by frictional relationship. I prefer to attach the foil to the metal which I accomplish by coating the foil with a thermoplastic liquidproof material and bringing the coated surface of the foil into contact with the metal under heat and gentle pressure. A suitable coating material for this purpose comprises a solution of polyvinyl acetate thirty per cent. in acetone; after the solvents have evaporated it is found that adhesion between the coated foil and the metal may be effected at a temperature of approximately 150° F.

Figure 3 is a vertical section of Figure 2 after having been forced into friction-tight relationship with perforated protuberance 3.

Figure 4 is a vertical section of my novel external sealing member in which 12 is a malleable metallic shell, provided with a perforation, 13, and comprising an imperforate sheet of rubber, 14, of, say, one thirty-second of an inch in thickness, and an imperforate sheet of metallic foil, 15, of, say, five one-thousandths of an inch in thickness. In the drawings rubber sheeting 14 is shown as being unadhered to metallic foil 15. I prefer to unite these members into a single element. I accomplish this result by spreading

on aluminum foil an extremely thin coating of thirty per cent. chlorinated rubber dispersed in benzol. After some of the benzol has evaporated and while the coating is in a tacky condition I
5 bring the coated side of the foil into pressure contact with the rubber sheeting whereby instantaneous and permanent adhesion is effected. I believe that the chlorine compounds present in the rubber react with the surface of the aluminum
10 whereby to provide an anchorage for the coating, while the residual benzol of the coating serves to enhance adherence to the rubber. The quantity of chlorinated rubber which I employ for this purpose is approximately three tenths of
15 one pound per thousand square feet of foil.

Figure 5 is vertical section of Figure 4 after having been crimped into oil-tight relationship with perforated protuberance 5.

Figure 6 is a general vertical sectional view of
20 the receptacle, showing means for affixing internal sealing member, Figure 2, to perforated protuberance 3; in which 16 is a chuck adapted to hold said sealing member in light frictional relationship whereafter it may be inserted through
25 external perforated protuberance 5 and forced downwardly into frictional oil-tight relationship with internal perforated protuberance 3; as explained at Figure 1, perforation 6 has been left sufficiently larger than internal sealing member,
30 Figure 2, to permit of passing said sealing member therethrough. After affixation, chuck 16 may be withdrawn upwardly from the receptacle.

Figure 7 is a vertical section of an alternate
35 sealing member which may be used in place of Figure 2 without changing the functions thereof. 17 is an imperforate metallic shell, being, say, one one-hundredth of an inch in thickness, and provided with an inverted cone, 18, said cone,
40 by reason of the conventional drawing operation by which it is formed, being thinner at its point than other portions of 17; whereby, and by reason of its contour, said cone presents an area more readily puncturable than other areas of
45 shell 17. Figure 7, thus eliminates the need for metallic foil 11, required in the structure shown at Figure 2.

Figure 8 illustrates means for affixing external
50 sealing member, Figure 4, to perforated external protuberance 5, both being shown in vertical section; 19 is a vertical section of a chuck head for exerting downward pressure on external sealing member, Figure 4, while the entire receptacle is being rotated. 20 is a horizontal section of a
55 crimping tool adapted by the exertion of lateral pressure to deform the side walls of external sealing member, Figure 4, into friction-tight relationship with 5.

Figure 9 is a vertical section of my novel metallic dispensing funnel comprising a narrowed
60 portion, 21, which serves as a pouring spout, a central spike, 22, provided with a sharp cutting end, 23, said spike being permanently mounted within the funnel by means of three point support 24, and possessing spreaders 25, which serve
65 to hold open resilient materials punctured by sharp cutting end 23. Figure 9 likewise illustrates the position of the receptacle within the funnel while its contents are being dispensed.

Figure 10 shows knockout pin 26 which is provided with sharp point 27 and shoulder 28. Figure
70 10 also illustrates the means by which sealing members, Figure 3 and Figure 5, may be removed
75 from the receptacle at a single operation as by

placing the receptacle on knockout pin 26 and exerting downward pressure. It is to be observed that perforation 10 of sealing member, Figure 2, permits the entry of point 27, but that shoulder 28 engages a solid metallic portion of shell 9 and
5 that the solid metal of 9, being larger than perforation 13, engages the solid metal of shell 12.

By way of explaining the process by which my novel receptacle and its novel associated articles of manufacture are utilized in packaging and
10 dispensing lubricating oils, I point out:

The oil refiner provides himself with bodies, Figure 1, internal bottom sealing members, Figure 2, and external top sealing members, Figure 4. As illustrated at Figure 6, he forces bottom sealing
15 member, Figure 2, into oil-tight relationship with internal protuberance 3. He next fills the receptacle with lubricating oil to a desired height through aperture 6, in perforated protuberance 5, as shown at Figure 1, after which he affixes external
20 sealing member, Figure 4, in oil-tight relationship with protuberance 5, as shown at Figure 8.

Such oil filled receptacles may then be sent
25 to a retail distributor who may dispense their contents by means illustrated at Figure 9; in order to do this it is necessary to push the inverted receptacle to its lowest point within my novel funnel, Figure 9, so as to puncture both sealing
30 members whereby to provide an air vent at 4 and to hold open resilient rubber membrane 14, thus permitting the oil to flow. When the proper time for drainage has been allowed the distributor may withdraw the receptacle upwardly out of
35 the funnel and replace the dispensed receptacle in the shipping container in which it was received.

The general contour of the receptacle insures that it will be placed in the container bottom
40 downward, in which position oil clinging to the side walls of the receptacle will collect in a pool in the V-shaped hollow 29, shown at Figure 10. As soon as the receptacle has been withdrawn from the funnel, the punctured rubber membrane
45 14 springs back into its original position, and, while no longer oil-tight, serves to protect the remaining contents of the receptacle from contamination by dust; the receptacle, being punctured at both top and bottom, is incapable of
50 being refilled with oil and is irreparable by ordinary means. When the distributor has accumulated a container full of dispensed receptacles, he returns them to the refiner who knocks out the punctured sealing members and refills and re-
55 seals as previously explained.

In the foregoing embodiment of my invention, chosen for the purpose of illustration, I have described a receptacle the body of which is fashioned of metal. For many purposes this represents the preferred structure in view of the relative
60 cheapness, light weight and long wearing qualities of metallic bodies. In some cases, however, it may be desired to use a transparent material; to accomplish this result, the body, shown at Figure 1, may be fashioned, by conventional
65 means, of glass, or of a cellulose ester or of a cellulose ether, or of other thermoplastic material; or to meet this or other requirements, the body, shown at Figure 1, may be formed, by conventional means, of a synthetic resin or of pot-
70 ter's clay, or of other thermosetting material; or, the body, shown at Figure 1, may be formed of any desired material capable of storing a liquid. Likewise I have, by way of illustration, shown
75 my perforable sealing members positioned on the

ends of my receptacle, whereas, for some purposes they may be advantageously located on the side walls thereof; and, whereas in the drawings I have pictured the side walls as being vertically parallel with each other at diametrical points, some purposes may be better served by employing a somewhat conical section, thus providing a receptacle whose bottom is broader than its top. Likewise, instead of rubber membrane 14 being associated with metallic foil member 15, as shown in the drawings, I prefer for certain special uses to employ a rubber membrane, as 14, sandwiched between two metallic membranes, as 15; or one or more metallic membranes associated with a membrane of compressible paper or cork; also in place of metallic membranes, cellulosic and like sheetings may sometimes be advantageously used; also in place of friction-fit closing members as illustrated at Figure 2 and Figure 4, the entire puncturable membrane structure may consist of cellulosic material cementitiously affixed to protuberances 3 and 5 without the need of metallic shells 9 and 12.

Many substitutions of materials and many variations in structural contour will be obvious to those skilled in the art and may be employed without exceeding the scope of my invention as described in the foregoing teachings and in the appended claims.

I claim:

1. A receptacle for liquids and other pourable materials comprising side and end walls affixed to each other in stationary relationship, one of said walls having an aperture closed by a frangible sealing means secured interiorly of said receptacle, said receptacle having a second aperture of sufficient size to admit said sealing means therethrough whereby said sealing means can be attached from the interior of the receptacle, said second aperture being closed by a sealing means attached exteriorly of the receptacle.

2. The structure defined in claim 1 in which the end is of conical formation and projects interiorly of the receptacle to provide a trough for accumulating drainings and in which the frangible sealing element closes the aperture provided by the smallest part of said conical element.

3. The receptacle structure defined in claim 1 in which the external sealing member comprises an imperforate metallic shell provided with a protuberance having an area more readily puncturable than surrounding areas of said shell and being adapted to guide a puncturing tool.

4. A receptacle for liquids and other pourable materials comprising side and end walls affixed to each other in stationary relationship, one of said walls having an aperture closed by a frangible sealing means secured interiorly of said receptacle, said receptacle having a second aperture of sufficient size to admit said sealing means therethrough whereby said sealing means can be attached from the interior of the receptacle, said second aperture being closed by a sealing means attached exteriorly of the receptacle, one of said end walls being of conical formation and extending into the receptacle whereby to form a trough.

5. A receptacle for liquids and other pourable materials comprising side and end walls affixed to each other in stationary relationship, one of said walls having an aperture closed by a frangible sealing means secured interiorly of said receptacle, said receptacle having a second aperture of sufficient size to admit said sealing means

therethrough whereby said sealing means can be attached from the interior of the receptacle, said second aperture being closed by a sealing means attached exteriorly of the receptacle, said frangible sealing means being provided with a resilient member.

6. A receptacle for liquids and other pourable materials comprising side and end walls affixed to each other in stationary relationship, one of said walls having an aperture closed by a frangible sealing means secured interiorly of said receptacle, said receptacle having a second aperture of sufficient size to admit said sealing means therethrough whereby said sealing means can be attached from the interior of the receptacle, said second aperture being closed by a frangible sealing means.

7. A receptacle for liquids and other pourable materials comprising side and end walls affixed to each other in stationary relationship, one of said walls having an aperture closed by a frangible sealing means secured interiorly of said receptacle, said receptacle having a second aperture of sufficient size to admit said sealing means therethrough whereby said sealing means can be attached from the interior of the receptacle, said second aperture being closed by a sealing means attached from the exterior of the receptacle, said frangible sealing means comprising flexible metallic foil adhered to rubber sheeting.

8. A receptacle for liquids and other pourable materials comprising side and end walls affixed to each other in stationary relationship, one of said walls having an aperture closed by a frangible sealing means secured interiorly of said receptacle, said receptacle having a second aperture of sufficient size to admit said sealing means therethrough whereby said sealing means can be attached from the interior of the receptacle, said second aperture being closed by a frangible sealing means, said last-named frangible sealing means comprising an imperforate metallic foil adhered to a perforated metallic support.

9. A receptacle for liquids and other pourable materials comprising side and end walls affixed to each other in stationary relationship, one of said walls having an aperture closed by a frangible sealing means secured interiorly of the receptacle and removable only from the interior thereof, said receptacle having a second aperture of sufficient size to admit and remove said sealing means therethrough whereby said sealing means can be attached and removed from the interior of said receptacle, said second aperture being closed by a sealing means attached from the exterior of the receptacle.

10. A receptacle for liquids and other pourable materials comprising enclosing walls secured in stationary relationship with respect to each other, said receptacle having an aperture therein, a frangible sealing means secured interiorly of the receptacle, said receptacle having a second aperture, in alignment with the first aperture, and sealing means for closing the same, said sealing means being attached exteriorly of the receptacle.

11. A receptacle for liquids and other pourable materials comprising side and end walls affixed to each other in stationary relationship, one of said walls having an aperture provided with a closure secured interiorly thereof and removable only from the interior thereof, the other end wall having a second aperture, in alignment with said first aperture, and provided with a separate closure secured only from the exterior of said receptacle, whereby said receptacle may be filled

after the attachment of the first of said closures and subsequently sealed by the said second closure, from the exterior of the receptacle.

12. A receptacle for liquids and other pourable materials comprising side and end walls affixed to each other in stationary relationship, one of said walls having an aperture provided with a closure secured interiorly only of said receptacle and another of said walls being provided with a second aperture of a size sufficient to admit said closure and in alignment with the first aperture, a separate closure secured only exteriorly of said receptacle, whereby said receptacle may be filled after the attachment of the first of said closures and subsequently sealed by the attachment of the second closure from the exterior of the receptacle.

13. A receptacle for liquids and other pourable materials comprising body and top and bottom end members affixed thereto in stationary relationship therewith, separate closures for the top and bottom of said receptacle, in alignment with each other, said closures being of readily puncturable material, one of said separate closures being affixed internally of the receptacle and removable only internally therefrom and the other of said separate closures being affixed externally of said receptacle and removable only externally therefrom.

14. A receptacle for liquids and other pourable materials comprising a body and top and bottom end members affixed thereto in stationary relationship therewith, one of said members being provided with an internal perforated protuberance sealed by an imperforate internal sealing member, said sealing member being affixable and removable only from within said receptacle, and an external perforated protuberance adapted to receive an external sealing member in liquid tight relationship therewith and being affixable and removable only externally of said receptacle.

15. The receptacle structure defined in claim 1 in which the internal sealing member comprises an imperforate metallic shell provided with a protuberance having an area more readily puncturable than surrounding areas of said shell and being adapted to guide a puncturing tool.

16. A receptacle for liquids and other pourable materials comprising enclosing walls secured in stationary relationship with respect to each other, said receptacle having an aperture therein, a frangible sealing means secured interiorly of the receptacle, said receptacle having a second aperture in alignment with the first aperture, and sealing means for closing the same, said sealing means being attached exteriorly of the receptacle, one of said sealing means being so mounted and attached as to comprise an elevated structure within said receptacle whereby to provide a trough for accumulating drainings within said receptacle.

17. A receptacle for liquids and other pourable materials comprising enclosing walls secured in stationary relationship with respect to each other, said receptacle having an aperture therein, a frangible sealing means secured interiorly of the receptacle, said receptacle having a second aperture, in alignment with the first aperture, and sealing means for closing the same, said sealing means being attached exteriorly of the receptacle, each of aforesaid sealing means comprising a weakened section.

18. A receptacle for liquids and other pourable materials comprising enclosing walls secured in stationary relationship with respect to each other, said receptacle having an aperture therein, a sealing means secured interiorly of the receptacle, said receptacle having a second aperture in alignment with the first aperture, and sealing means for closing the same, said sealing means being attached exteriorly of the receptacle.

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