

April 5, 1966

F. W. LAWSON

3,244,311

CONTAINER

Original Filed Jan. 18, 1960

2 Sheets-Sheet 1

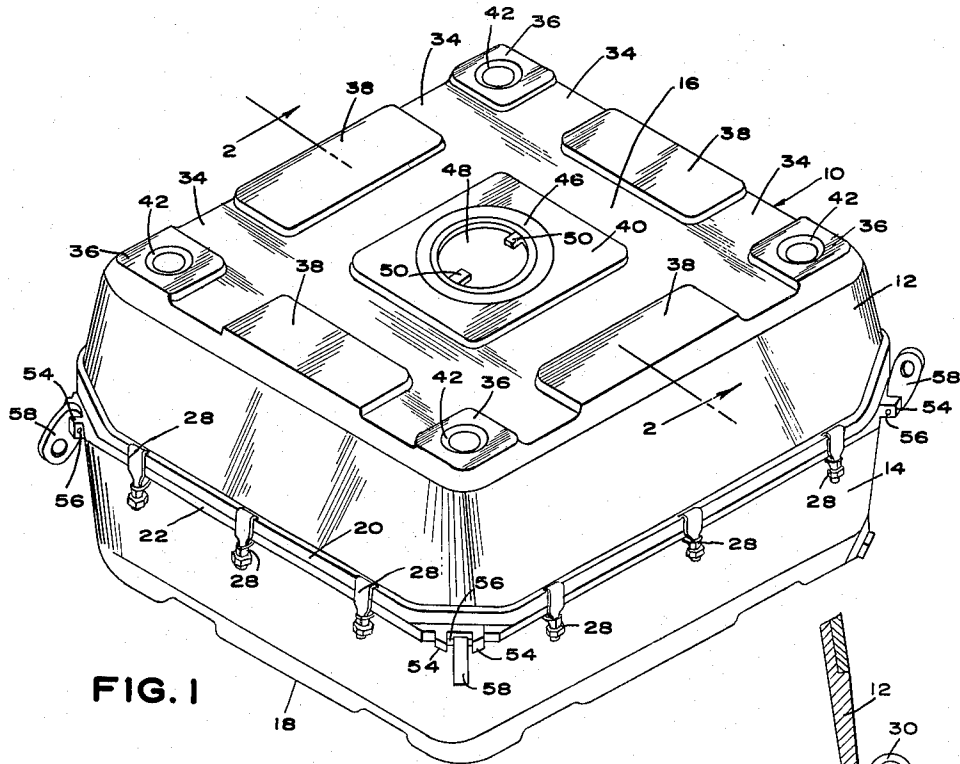


FIG. 1

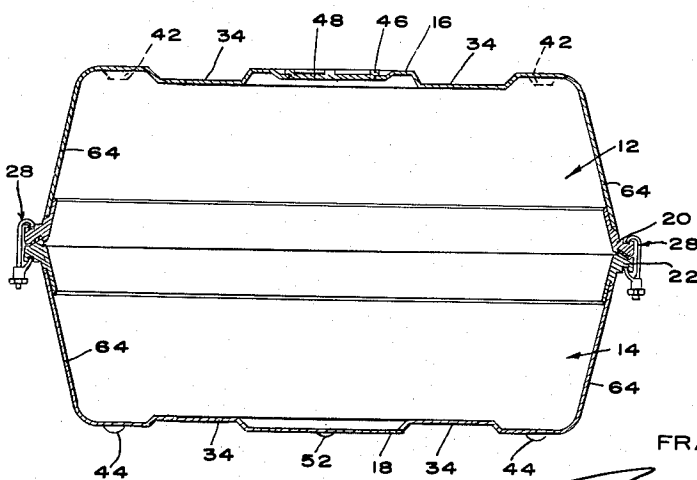


FIG. 2

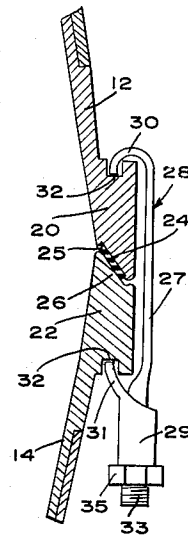


FIG. 3

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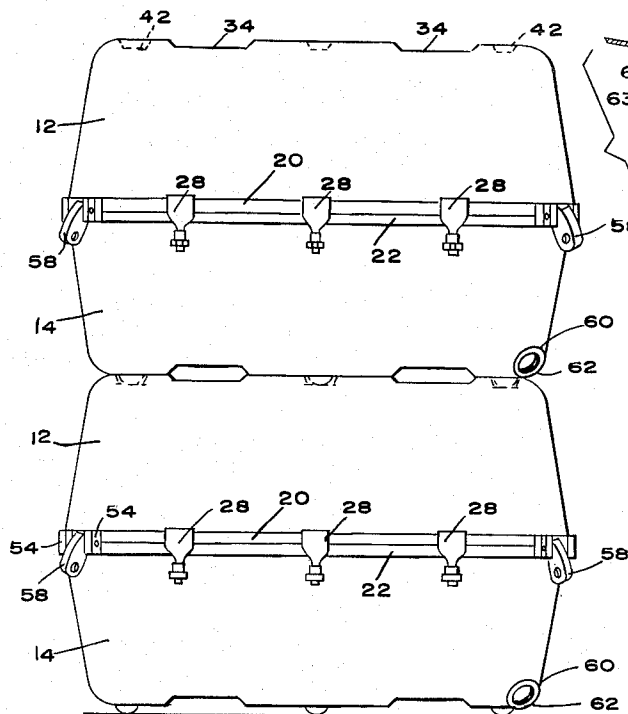


FIG. 4

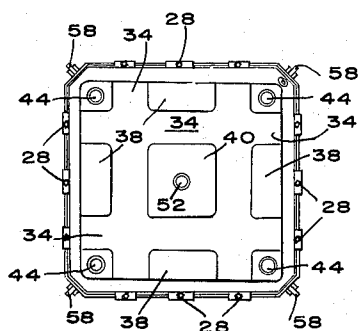


FIG. 6

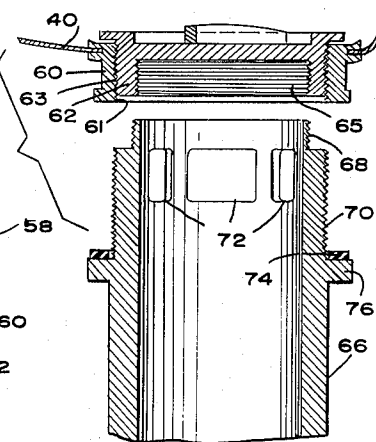


FIG. 7

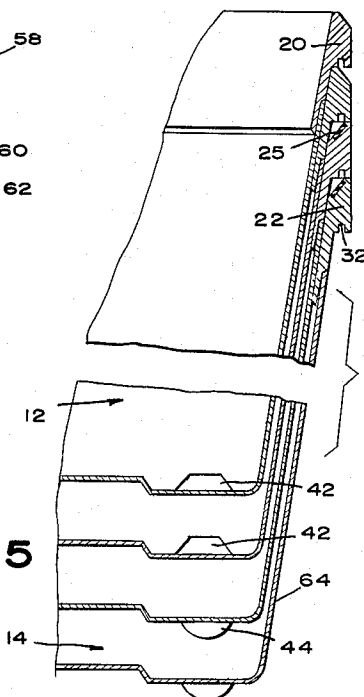


FIG. 5

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3,244,311
CONTAINER

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Continuation of application Ser. No. 3,117, Jan. 18, 1960.

This application Mar. 31, 1965, Ser. No. 444,235

8 Claims. (Cl. 220-4)

This application is a continuation of application Serial No. 3,117, filed on January 18, 1960, now abandoned.

This invention relates to a container comprising two nestable members capable of interconnection to form a closed chamber, suitable for storing and transporting a large variety of commodities.

One of the uses contemplated is the storage and shipment of asphalt which has posed quite a problem over the years. The shipment of asphalt in cylindrical drums involves discarding the drums after they have been emptied, or at relatively high expense shipping them back to the source to be refilled. Moreover, the handling of such drums and stacking them for storage and shipment has been costly and time consuming.

Similar problems are encountered in the storage and shipment of many other products, and in the case of fluid materials, inadequate provision have been made in the past for their introduction and removal with respect to conventional containers.

It is among the objects of the present invention to provide a container comprising two nestable members each of substantially polygonal cross section and each having side walls diverging from a closed base to a relatively larger open base, the open bases providing complementary surfaces for effecting a joint, and one of the members providing a surface for cooperation with a handling implement. The two members are of substantially equal size and each open base is preferably provided with a peripheral flange on which the complementary surfaces are formed. Clamping means for engaging the flanges will assure retention of the members in assembled relationship until such time as their disassembly is desired. The closed base of one of the members preferably contains a filling opening to which a removable closure is applied so as to lie below the limiting plane of the outer surface of the base, and the other of the members is preferably provided with a discharge opening remote from the center thereof and contains a removable closure lying within planes circumscribing such member.

The two members are preferably formed primarily from sheet metal, for which purpose sheet aluminum has been found to be eminently satisfactory, and the closed bases are indented by pressing or otherwise so as to be substantially complementary. The closed bases preferably provide external grooves for cooperation with handling means such as the forks of a lift truck, cables, bands, or the like, and preferably a plurality of such external grooves are provided in each of the closed bases. The closed base of each member preferably has an area exceeding that of any of its side walls to provide, among other advantages, stability in handling, shipping and storage, and a proper heat balance where the containers are composed of metal, to facilitate the heating of the contents of such containers when used for the storage and shipment of thermoplastic materials such as asphalt. Each of the members preferably has a substantially rectangular cross section which may be square. Each member of the container is substantially a frustum of a pyramid whose elements are only slightly inclined to the vertical so as to provide a high degree of spatial efficiency, approaching that defined by a prism. One of the members is provided with lifting eyes which lie within the circumscribing planes so as not to preclude nesting. The lifting eyes are preferably pivotally

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mounted adjacent corners of the larger base of such member. One of the closed bases is preferably provided with external skids projecting beyond the other portions of the base and the other member preferably has indentations formed externally thereof to receive the skids when the containers are stacked, thus providing interfitting elements tending to retain the stacked containers in their relative positions during storage and shipment. The skids are preferably externally convex to some degree to facilitate sliding.

A more complete understanding of the invention will follow from a description of the accompanying drawings wherein:

FIG. 1 is a perspective view of an assembled container conforming to the present invention;

FIG. 2 is a sectional elevation taken along line 2—2 of FIG. 1;

FIG. 3 is a fragmentary sectional elevation on an enlarged scale depicting a joint between the two members defining the container;

FIG. 4 is a side elevation depicting two of the assembled containers in stacked relationship;

FIG. 5 is a fragmentary sectional elevation depicting several of the members in nested relationship;

FIG. 6 is a bottom plan view on a reduced scale of one of the containers; and

FIG. 7 is a fragmentary sectional elevation of a discharge fitting and a cooperating tap.

The container 10 is composed of an upper member 12 and a lower member 14 having closed bases 16 and 18 respectively, and open bases provided with peripheral flanges 20 and 22 respectively. These flanges are integral with the respective members and may be attached by welding or formed by upsetting. The flange 20 diverges outwardly to define a bell 24 which receives a cooperating outwardly convergent spigot 26 provided by the flange 22. By virtue of the interfitting bell and spigot, the joint between the upper and lower members can be rendered as fluid tight as the contents require. As a matter of fact, as illustrated in FIG. 3, a deformable packing 25 is interposed between the members to produce a seal which will be completely fluidtight.

The two members constituting the container are maintained in assembled relationship by means of a plurality of clips 28 bridging the two flanges at desired intervals. Each clip comprises a threaded bolt member 27 and a sleeve member 29. These members are provided with ends 30 and 31 respectively bent to hooked form so as to extend into channels 32 formed in the surfaces of the flanges remote from their interfitting ends. The threaded ends 33 of the bolt members 27 receive nuts 35 to adjust the clips during assembly and disassembly operations.

The closed base of each of the members 12 and 14 is formed with intersecting external grooves 34 arranged to receive a pair of forks of a conventional lift truck introduced from any of the four sides of the container. The grooves 34 constituting one pair are parallel to one another and perpendicular to the parallel grooves constituting the other pair. Each of the closed bases 16 and 18 is provided with external corner pads 36, edge pads 38, and a central pad 40 lying in a limiting plane corresponding with the outermost portion of the major surface. In the case of the upper member 12, each corner pad 36 contains an indentation or depression 42 intended to receive a skid or foot 44 projecting beyond the plane of the major surface of the closed base of the lower member 14. The central pad 40 of the closed base 16 of the upper member receives a fitting 46 having internal threads for cooperation with the external threads of a closure plug 48 providing lugs 50 for engagement by a suitable wrench for application and removal of the closure.

The central pad 40 of the closed base 18 of the lower member is also provided with a skid or foot 52 similar to those provided on its corner pads, for reception, under stacked conditions in the depressed portion of the closure 48 of the container below it.

It will be noted that the peripheral flanges 20 and 22 provide beveled corners, the flange 22 of the lower member 14 being formed with a pair of lugs 54 at each such corner supporting a pin 56 on which a lifting eye 58 is pivoted. These lifting eyes are adapted to receive cables or cable fittings of conventional types for raising and lowering the containers during the moving operations customarily encountered in the storing and shipping of materials. Reference to FIG. 6 will show clearly that these lugs and lifting eyes lie within the planes which circumscribe the peripheral flanges in such a way as to permit nesting of the members as effectively as though such lifting eyes were not present.

The manner of nesting the numbers is clearly shown in FIG. 5 from which it will be observed that the principal support of one member relative to the next is through the peripheral flanges, thereby relieving the thinner portions of the containers from such stresses as would be apt to deform them and providing sufficient lateral and vertical spacing between the nested members to assure their ready separation when desired.

Each of the lower members 14 has one of its lower corners provided with a fitting 60, having internal threads 61 to receive the external threads 63 of a plug 62 also provided with internal threads 65. With this arrangement, when the container arrives at its destination, where its contents is fluid, by displacement of the plug 62, such fluid material can be drained into the area or receptacle intended to receive it. As shown in FIG. 7 a threaded tap 66 is provided with a reduced threaded end 68 complementing the threads 65 of the plug 62 and a larger threaded portion 70 complementing the threads 61 of the fitting 60. Insertion of the tap followed by rotation will cause the plug 62 to advance into the container until the ports 72 of the tap communicate with the container, continued rotation establishing a fluid-tight joint between the fitting 60 and a gasket 74 carried by a flange 76 on the tap 66. The location of the discharge fitting 60 at the corner is particularly advantageous where a thermoplastic material is to be discharged from the container since heat can be applied directly to the bottom of the container without danger of the flame reaching the material discharging or damaging the outlet fitting. This is particularly important in connection with flammable materials such as asphalt. Moreover, this corner location of the discharge fitting permits maximum drainage of the contents by tilting the container.

The area of the closed base 18 is shown as appreciably greater than any one of the side walls 64 of the lower member 14 so as to provide good stability to the container for handling, shipping and storage and to provide a relatively large heat transfer surface to permit rapid heating from an external source.

Whereas only one specific form of the invention has been illustrated and described, such variations are contemplated as fall within the scope of the appended claims.

I claim:

1. A container comprising two nestable members each having a closed base with a plurality of supporting areas lying in a plane, a relatively larger open end, and side walls diverging from said closed base to said open end, and each having a substantially rectangular cross section in all planes parallel to said closed base; nestable peripheral flanges reinforcing the side walls of said members at their open ends, said flanges providing interengaging transverse surfaces relatively supporting said members with their proximate side walls in spaced relationship when said flanges are nested; said flanges having interengageable end portions for effecting a joint between

them, and one of said members providing an opening for reception of a portion of a handling implement.

2. A container comprising two nestable members each having a closed base with a plurality of supporting areas lying in a plane, a relatively larger open end, and side walls diverging from said closed base to said open end, and each having a substantially square cross section in all planes parallel to said closed base; nestable peripheral flanges reinforcing the side walls of said members at their open ends, said flanges providing interengaging transverse surfaces relatively supporting said members with their proximate side walls in spaced relationship when said flanges are nested; said flanges having interengageable end portions for effecting a joint between them, and one of said members providing an opening for reception of a portion of a handling implement.

3. A container comprising two nestable members each having a closed base having a plurality of supporting areas lying in a plane, a relatively larger open end, and side walls diverging from said closed base to said open end, said base and side walls being formed from a unitary meal sheet, and each having a substantially rectangular cross section in all planes parallel to said closed base; nestable peripheral flanges reinforcing the side walls of said members at their open ends, said flanges providing interengaging transverse surfaces relatively supporting said members with their proximate side walls in spaced relationship when said flanges are nested; said flanges having interengageable end portions for effecting a joint between them, and one of said members providing an opening for reception of a portion of a handling implement.

4. A container comprising two nestable members each having a closed base with a plurality of supporting areas lying in a plane, a relatively larger open end, and side walls diverging from said closed base to said open end, and each having a substantially rectangular cross section in all planes parallel to said closed base; nestable peripheral flanges reinforcing the side walls of said members at their open ends, said flanges providing interengaging transverse surfaces relatively supporting said members with their proximate side walls in spaced relationship when said flanges are nested; said flanges having interengageable end portions for effecting a joint between them, and the closed base of one of said members is deformed to define external grooves for reinforcement of said base and reception of the forks of lift trucks.

5. A container comprising two nestable members each having a closed base with a plurality of supporting areas lying in a plane, a relatively larger open end, and side walls diverging from said closed base to said open end, and each having a substantially rectangular cross section in all planes parallel to said closed base; nestable peripheral flanges reinforcing the side walls of said members at their open ends, said flanges providing interengaging transverse surfaces relatively supporting said members with their proximate side walls in spaced relationship when said flanges are nested; said flanges having interengageable end portions for effecting a joint between them, and a plurality of lifting elements attached to one of said flanges for engagement with a handling implement.

6. A container comprising two nestable members each having a closed base with a plurality of supporting areas lying in a plane, a relatively larger open end, and side walls diverging from said closed base to said open end, and each having a substantially rectangular cross section in all planes parallel to said closed base; nestable peripheral flanges reinforcing the side walls of said members at their open ends, said flanges providing interengaging transverse surfaces relatively supporting said members with their proximate side walls in spaced relationship when said flanges are nested; said flanges having interengageable end portions for effecting a joint between them, and one of said members contains a discharge port penetrating said closed base and adjacent side walls.

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7. A container comprising two nestable members each having a closed base with a plurality of supporting areas lying in a plane, a relatively larger open end, and side walls diverging from said closed base to said open end, and each having a substantially rectangular cross section in all planes parallel to said closed base; nestable peripheral flanges reinforcing the side walls of said members at their open ends, said flanges providing interengaging transverse surfaces relatively supporting said members with their proximate side walls in spaced relationship when said flanges are nested; said flanges having interengageable end portions for effecting a joint between them, and the closed bases of said members containing pairs of external grooves disposed at right angles for reinforcement thereof and reception of the forks of lift trucks.

8. A container comprising two readily separable nestable sheet metal members each having side walls extending axially from a closed base to a relatively larger open base and each having substantially rectangular cross sections parallel to said bases, means carried by said open bases providing interengaging radial surfaces relatively supporting said members with their proximate side walls

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in spaced relationship when said members are nested, said larger open bases terminating in complementary sealing surfaces and carrying cooperating clamping elements, and said closed bases being deformed to define external grooves adapted to receive the forks of a lift truck.

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