Dec. 17, 1929. D. S. ANDREWS ET AL 1,740,000

SHIPPING CONTAINER

Filed Jan. 18, 1928 5 Sheets-Sheet 1

Fig. 1

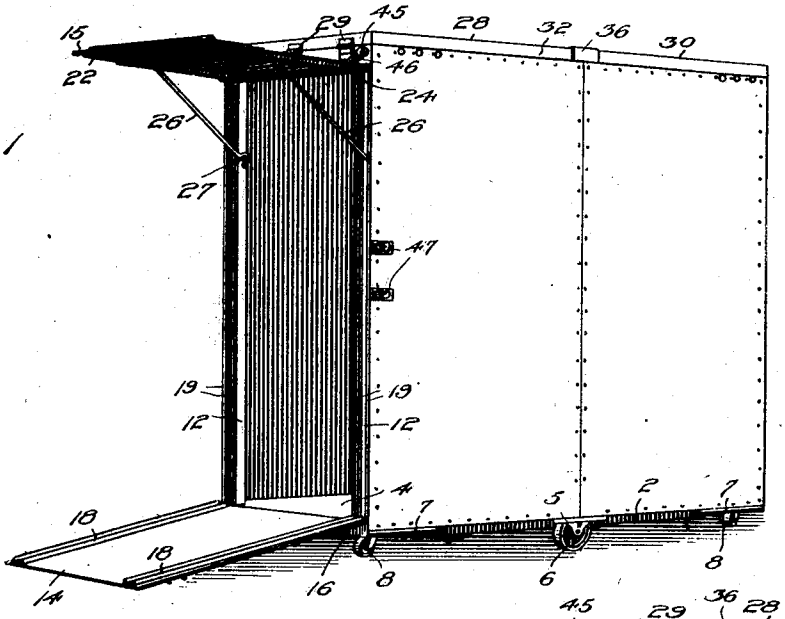


Fig. 10

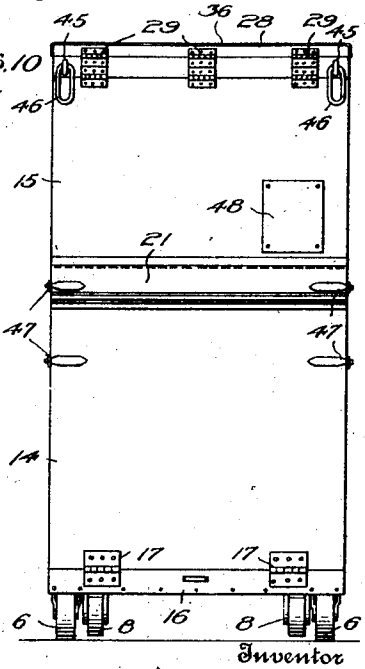


Fig. 9

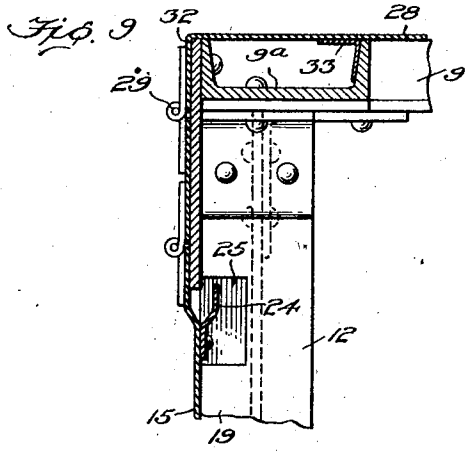
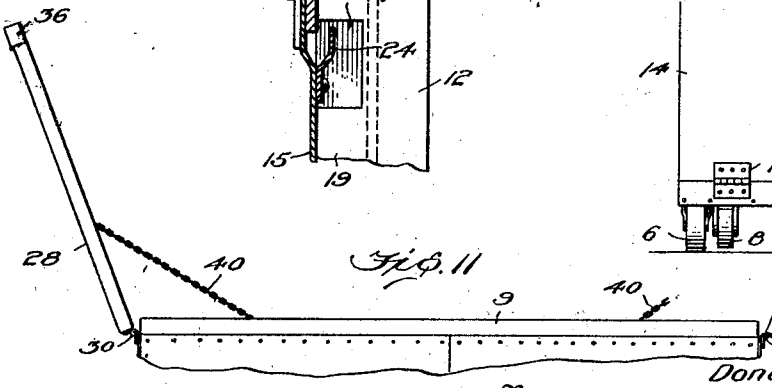


Fig. 11



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Dec. 17, 1929. D. S. ANDREWS ET AL 1,740,000

SHIPPING CONTAINER

Filed Jan. 18, 1928 5 Sheets-Sheet 2

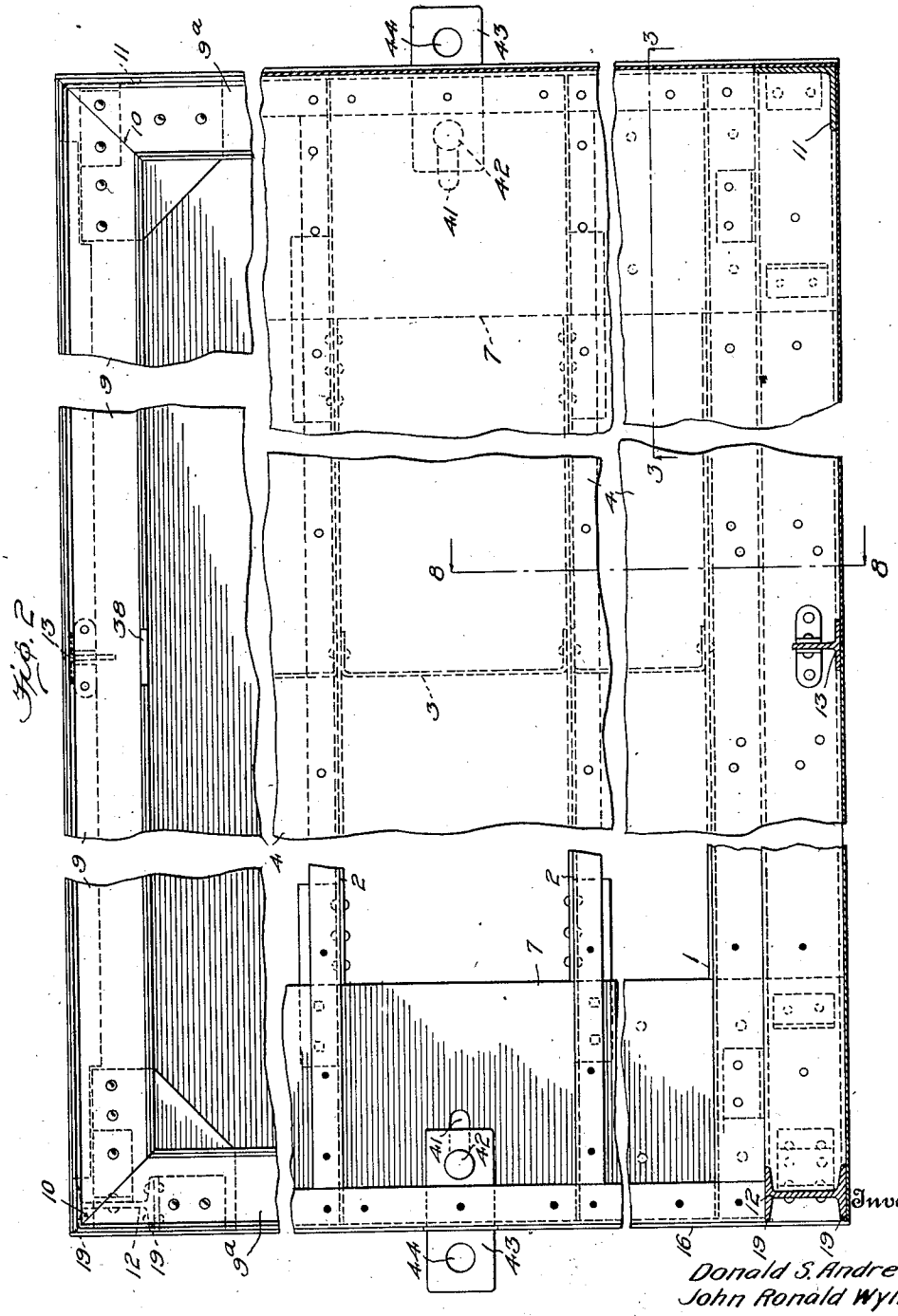


Fig. 2

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SHIPPING CONTAINER

Filed Jan. 18, 1928 5 Sheets-Sheet 3

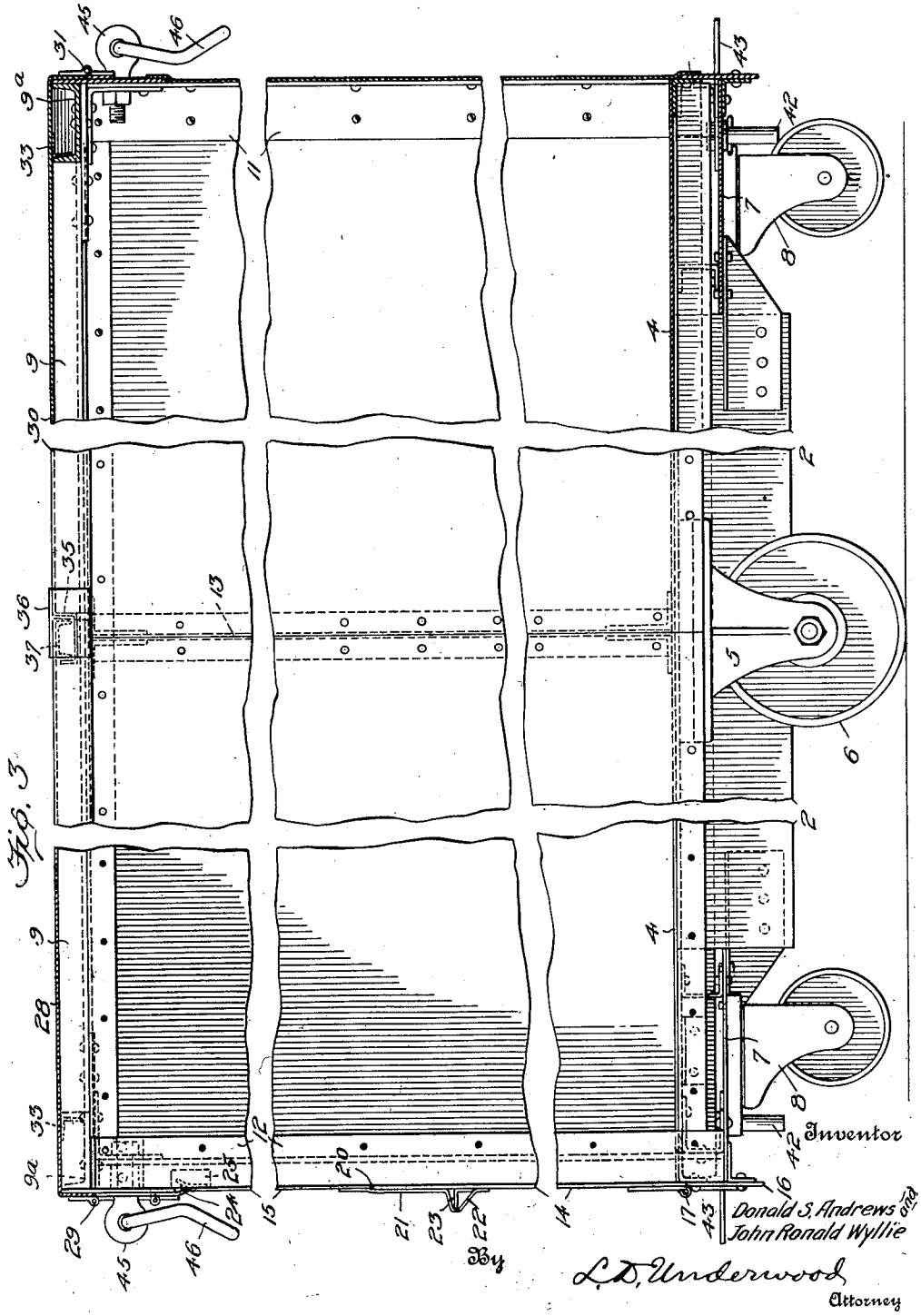


Fig. 3

Dec. 17, 1929. D. S. ANDREWS ET AL 1,740,000

SHIPPING CONTAINER

Filed Jan. 18, 1928 5 Sheets-Sheet 4

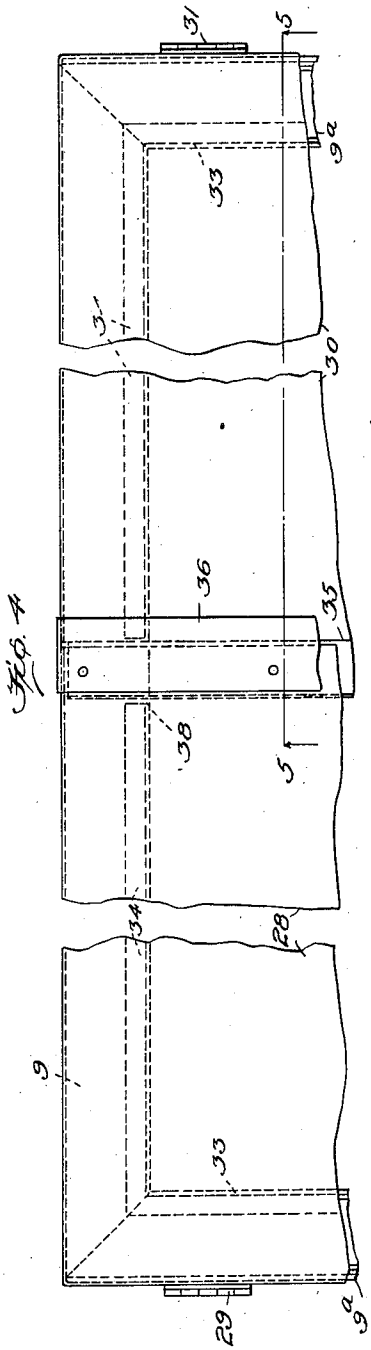


Fig. 4

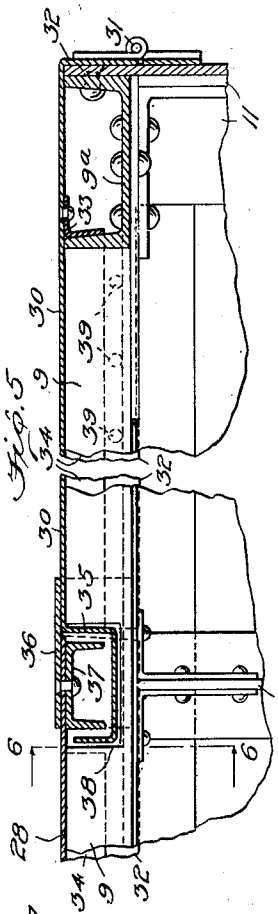


Fig. 5

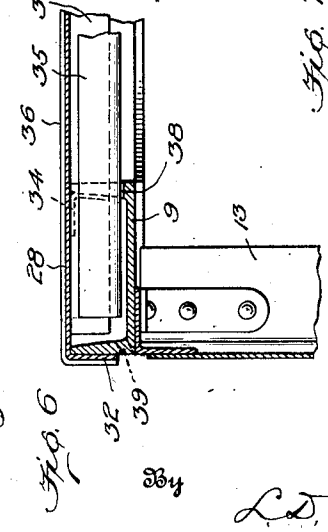


Fig. 6

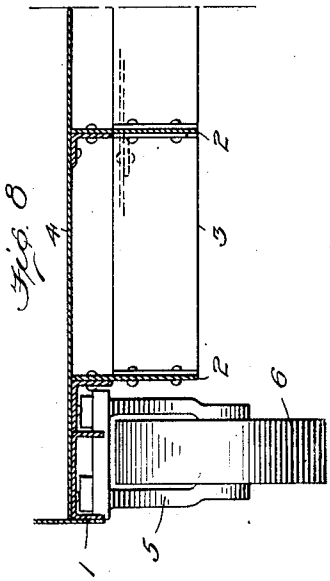


Fig. 8

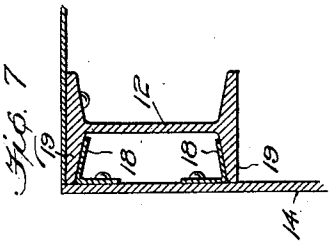


Fig. 7

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Dec. 17, 1929. D. S. ANDREWS ET AL 1,740,000

SHIPPING CONTAINER

Filed Jan. 18, 1928 5 Sheets-Sheet 5

Fig. 12

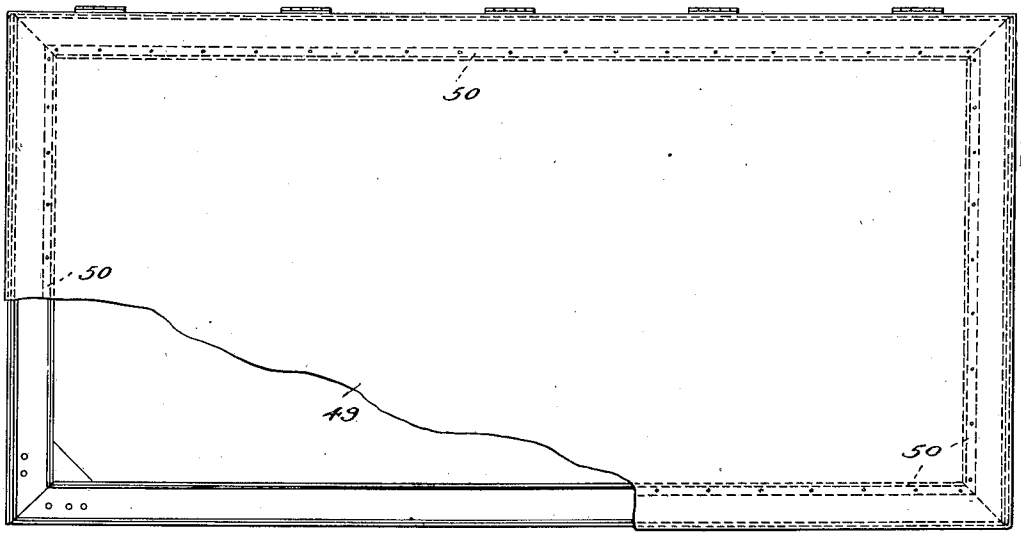


Fig. 13

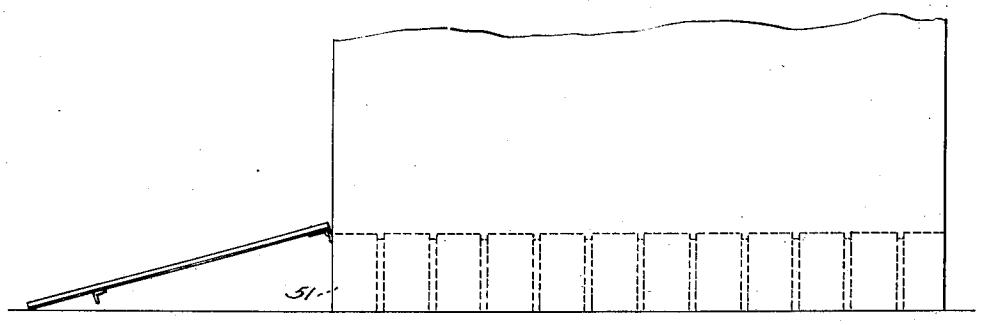
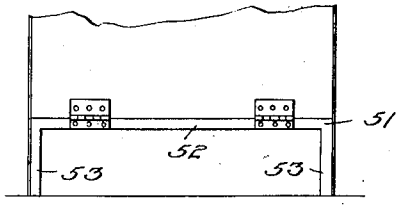


Fig. 14



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UNITED STATES PATENT OFFICE

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SHIPPING CONTAINER

Application filed January 18, 1928. Serial No. 247,595.

The invention relates to shipping containers, preferably constructed of metal, and of several tons capacity.

Among the objects of the invention are to secure a container that will exclude water under the most severe conditions of transportation; that is adapted to present constructions of carriers and present equipment for moving it to and from carriers; that may be handled manually or by power means; that may be mechanically engaged with power trucks and be moved thereby, and that may also be engaged by overhead lifting devices such as cranes; that is adapted to be easily and quickly loaded and unloaded; that is simple in construction and durable in use.

These and other objects are attained by our invention hereinafter described and illustrated in the annexed drawings, in which

Figure 1 is a perspective view of the container showing a two-part front door in open position;

Fig. 2 is a partial plan and partial sectional view looking from above with the top removed;

Fig. 3 is a side elevation of the container with the right end in vertical section on line 3—3 of Fig. 2;

Fig. 4 is a top plan view of one side of the container;

Fig. 5 is a vertical section on line 5—5 of Fig. 4;

Fig. 6 is a vertical section on line 6—6 of Fig. 5;

Fig. 7 is a horizontal section through a front corner of the container;

Fig. 8 is a cross section on line 8—8 of Fig. 2;

Fig. 9 is a vertical section through the front upper edge of the container;

Fig. 10 is a front elevation of the complete container;

Fig. 11 is a side elevation of the upper part of the container showing the upper doors in open position;

Fig. 12 is a partial plan view and horizontal section of a modification, according to which the top of the container is closed by a one-piece door;

Fig. 13 shows a modification of the supporting means for the container, consisting of a platform skid;

Fig. 14 is an end elevation of the lower part of the container as shown in Fig. 13, showing the front door closed.

Referring to the drawings in detail, and first to Figs. 1 to 11, inclusive, the container is preferably constructed of metal and is composed of a bottom frame 1, comprising longitudinal girders 2 connected by cross-braces 3, which support, and to which is secured, a bottom plate 4. The bottom plate 4 extends laterally at each side beyond the outermost girder 2, as clearly shown in Fig. 8, and rigidly connected with this lateral extension at each side of the container and about midway between the front and rear ends thereof is a bracket 5, in which is mounted a supporting roller 6. At the front and rear ends of the container cross plates 7 are suitably secured to the bottom frame in spaced relation to the bottom plate 4, and in these cross plates are mounted swivel casters 8, pivoted for complete rotation on vertical axes. These casters are so mounted with respect to the supporting rollers 6 as to permit the container to teeter on the supporting rollers. The cross plates also serve as mountings for coupling members hereinafter described, and as strengthening braces for the bottom frame.

The top frame is rectangular and is composed of side members 9 and end members 9^a welded together at their mitered joints 10 (see Fig. 2). These members may be of various forms in cross-section, but they are preferably trough-shaped, and specifically we prefer to use standard channel sections as shown. The rear corners of the top and bottom frames are connected by L-beams 11 and the front corners are connected by members trough-shaped in cross-section which preferably take the form of I-beams 12 with the webs set parallel to the front of the container so as to present outwardly opening channels which extend slightly below the bottom of the container to permit egress of water. Vertical standards 13 are connected between the top and bottom frames midway between the front and rear ends. The framework described is covered by side

plates and a rear end plate, forming a smooth exterior, the joints being made watertight. A front door and top door are also provided, so constructed and related to the other parts as to provide a thoroughly weatherproof container, as will now be described.

The front door may be a single door closing the entire front of the container, or any suitable opening therein, but we prefer to construct it in two sections. As shown, we provide a lower section 14 and an upper section 15. A plate 16 is fixed to the front end of the bottom frame to which the lower section 14 of the door is connected by strong hinges 17. The hinge joint is so located that when the door section 14 is lowered, as indicated in Fig. 1, the rear edge of the door will lie substantially in a horizontal plane with the bottom of the container, whereby the door may be used as a ramp for loading the container by trucks. On the inside face of the door section 14 near the lateral edges are fixed one or more weather strips, preferably in the form of angle plates 18 (see Fig. 7) which, when the door is closed, fit snugly against the flanges 19 of the I-beams 12 to form a weatherproof joint. The upper door-section 15 is hinged to the frame at the upper edge of the door opening and is provided with similar angle plates, coacting with the flanges of the I-beams in the same way. The joint formed by the meeting edges of the door-sections 14, 15, is indicated at 20, Fig. 3. A weatherproof joint at these meeting edges may be formed in various ways, but, as shown, a plate 21 is secured to the free edge of the upper door-section and is extended to overlap the upper edge of the lower door-section. This plate 21 is bent near its lower edge to form a horizontal groove 22, into which interfits, when the doors are closed, one leg 23 of an angle secured to the upper edge of the lower door-section.

The hinges of the upper door-section may permit the passage of water under some conditions of use, and to prevent its entrance into the container a plate (see Figs. 3 and 9) is secured to the inner face of the upper door-section immediately below the hinge joint, so bent as to form a trough 24. This trough extends laterally beyond the inner flanges 19 of the I-beams 12, which are provided with notches 25 to receive the trough when the door-section is closed. By this construction it will be perceived that any water passing the hinge joints will be caught in this trough, carried laterally and delivered into the channels of the I-beams 12, which are open at their lower ends.

In order to hold the upper door-section in position to permit freedom of entrance to the container, latch rods 26 are pivotally connected thereto, which are provided at their free ends with hooks adapted to engage pins 27 fixed to the inner faces of the I-beams 12.

The top of the container may be closed by a single door or by one made in two parts. As shown in Figs. 1 to 11, the top door is made in two parts, one part being hinged to the frame at the rear end and the other part hinged to the frame at the front end. As shown, the front section 28 is connected to the frame by hinges 29, and the rear section 30 is connected to the frame by hinges 31. The sides of each door-section are provided with flanges 32 which fit over the side plates of the container. Each door-section is provided with depending angles 33 extending in parallelism with the container ends and adapted to engage the inner flanges of the end channel members 9^a and with depending longitudinally extending angles 34 adapted to engage the inner flanges of the side channel members 9, to form weather proof joints. The free edges of the top door-sections meet approximately at a point midway between the front and rear ends of the container and are provided with means to exclude the entrance of water at this point. This means may be of varied construction, but as shown in the drawings the rear door-section 30 is provided at its free end with a terminal U-shaped bend 35 (Fig. 5) opening upwardly. The free edge of the door-section 28 is provided on its upper face with a plate 36 which overlaps the joint between the door-sections, and on its lower face with an inverted channel member 37, the depending flanges of which lie between the legs of the terminal U-bend 35. The U-bend extends laterally beyond the inner flanges of the side channel members 9, which are provided with notches 38 to receive its opposite ends. Should any water pass the joint between the top door-sections it will collect in the U-bend 35 and be drained into the side channels 9, whence it may pass outside the container through drain apertures 39 (Figs. 5 and 6) extending through the outer flanges of the channels near the ends of the container. The top-door-sections are sustained in open position by flexible means, such as chains 40 (Fig. 11) connected to the doors and to an inner part of the container frame, the chains passing into the container when the doors are closed.

As means to enable the container to be connected to a power truck and to be moved thereby, any suitable means may be employed, but we prefer to use a sliding coupling eye which may be moved within the confines of the container when not in use. As illustrated in the drawings (see Figs. 2 and 3), each of the cross plates 7, beneath the bottom plate of the container at each end thereof, is provided with a longitudinally extending slot 41, which receives a pin 42 secured to a coupling eye 43 having an aperture 44 in its end adapted to receive the hook or

pin of a tractor truck of well known construction.

The space between the cross plate 7 and the bottom plate 4 forms a recess in the frame for housing the coupling eye 43.

As a means to adapt the container to overhead lifting devices the upper corners of the container frame have connected thereto eyebolts 45 to which are connected links 46 adapted to receive the hooks of vertical cranes or the like of well known construction.

Any suitable means may be used to hold the front doors in closed position, such as latches 47 (Fig. 10), and if desired latches may be used to lock the top doors to the body of the container.

A label holder 48 (Fig. 10) is secured to the container, constructed of material suitable for the purpose.

As above indicated, the top of the container may be closed by a single door 49 (Fig. 12). When a single door is employed it is preferably hinged at the side of the container and its lower face is provided with continuous angles 50 arranged in rectangular formation, co-operating with the inner flanges of the channels of the top frame, as previously described.

Instead of the rolling supports for the container as above described, it may be desirable for some situations to substitute a platform skid 51 (Figs. 13 and 14), of inverted U-form in cross section, consisting of a central base member or platform 52 and depending side legs 53. This form of support is adapted to a lift-platform truck, the platform of which may be directed between the legs 53 and beneath the base, the container elevated thereby, and moved by the truck to any desired point and deposited by a reverse operation of the lift-platform.

The flanges of the channel and I-beam members are preferably slightly bevelled outwardly, as shown, and the corresponding angles are set accordingly, and these angles may be slightly resilient to effect a close contact with the flanges.

It will now be apparent that, in the construction described, we have provided a container that is weatherproof; that may be loaded and unloaded from the top or side; that may be moved about by manual power while conveniently arranged to be engaged by power trucks or overhead lifting devices, thus being universally adapted to present handling equipment or special handling equipment; that is universally adapted to present carrier constructions, such as trucks, box cars, flat cars, gondolas, etc.; and that is provided with a door which also serves as a ramp whereby goods may be moved into it directly on hand trucks and deposited without manual handling.

The construction above described may be modified in various ways, and it is to be understood that the purpose of the above description is only to disclose the best forms in which we now contemplate the embodiment of our invention in exemplification of the principles thereof, and that the invention is not limited thereto but includes all changes and modifications falling within the terms of the appended claims.

What we claim is:

1. A shipping container having a door opening and outwardly opening channel members bounding a plurality of edges of said door opening, overlapping door sections hinged respectively to the container at opposite sides of the door opening, aligning slots in the inner walls of opposed channel members, and a drain member secured to the inner face of one of the door sections near its free edge and parallel to the hinged joints and extending through said slots.

2. A shipping container having a two-part front door, the sections thereof being hinged respectively at the upper and lower edges of the door frame, co-operating means between the container frame and the edges of the door to provide a weather-proof joint, and co-operating means on the free edges of the doors to provide a weatherproof joint.

3. A shipping container having a two-part front door, the sections thereof being hinged respectively at the upper and lower edges of the door frame and the free edges of which overlap, co-operating means between the overlapping parts of the door sections to provide a weatherproof joint, and co-operating means between the side edges of the doors and door frame to provide weatherproof joints.

4. A shipping container having a two-part front door, the sections thereof being hinged respectively at the upper and lower edges of the door frame, co-operating means between the free edges of the sections to provide a weatherproof joint, co-operating means between the sides of each section and the container frame to provide weatherproof joints, and means on the inside of the upper door section immediately below the hinge joint to catch any water passing the hinge joint.

5. A shipping container having a front door opening bounded at opposite sides by vertical standards having outwardly opening channels, a two-part front door having its sections hinged respectively to the upper and lower edges of the door frame, ribs on the side edges of the door sections co-operating with the channeled standards to form weatherproof joints, means providing a weatherproof joint between the free edges of the door sections, and a water-catch and drain on the inside face of the upper door section immediately below the hinge joint extending laterally beyond the inner walls of the channeled standards.

6. A shipping container having a top frame

composed of outwardly-opening channel members, a two-part top door the sections whereof are hinged at opposite ends of the container, the free edges of the sections being arranged to overlap when the door is closed, each section being provided with depending ribs co-operating with said channels to form weatherproof joints, an outwardly-opening drain channel member secured near the free edge of the underlapping door section and extending laterally beyond the inner flanges of the top frame channel members, notches in said top frame channel members to receive the ends of said drain channel member, and a baffle member secured to the underside of the overlapping door section and extending into said drain channel member.

7. A shipping container provided approximately midway its ends with supporting rollers and at each corner with a caster, the casters being so arranged with respect to the rollers as to permit the container to teeter on the rollers, and means connected with the lower part of the container adapted to be engaged with a power truck.

8. A shipping container comprising a strong framework supporting the bottom, top, sides and ends, rolling supporting means therefor comprising intermediate load-supporting wheels and casters at opposite ends, a door hinged to the framework, and coupling means connected with said framework at one end near the bottom of the container independent of the door-hinge adapted for connection with power means by which said container may be moved laterally and longitudinally.

9. A shipping container comprising a strong framework supporting the bottom, top, sides and ends, rolling supporting means therefor comprising load-supporting wheels and casters, a front door at one end hinged at its lower edge to said frame to open downwardly, and a coupling means connected with said frame beneath said hinged joint of the front door and adapted for connection with power means by which the container may be moved laterally and longitudinally.

10. A shipping container comprising a strong rectangular frame, rolling supporting means carrying said frame consisting of load-supporting wheels and casters, a recess in said frame, and a coupling means movably connected with said frame within its outer bounding surface and adapted to be moved within said recess and to be extended outwardly for engagement with power means by which the container may be moved laterally and longitudinally.

11. A shipping container comprising a strong rectangular frame providing top and end openings substantially coinciding with the inside dimensions of the frame, and a top door and a front door each hingedly connected with said frame to close said top and end openings.

12. A shipping container comprising a rectangular frame with an end opening, a two-part door to close said opening, the upper part being hinged to the upper frame member and the lower part being hinged to the lower frame member, the free edges of said door members overlapping, and cooperating means on adjacent faces of the overlapping parts to form a weatherproof joint.

13. A shipping container comprising a rectangular frame with an end opening, a two-part door to close said opening, the upper part being hinged to the upper frame member, and the lower part being hinged to the lower frame member in substantially the plane of the bottom of the container and having a smooth inner face, the free edges of said door members overlapping, and cooperating means on adjacent faces of the overlapping parts to form a weatherproof joint.

14. A shipping container comprising a front door frame including two spaced vertical beams having outwardly opening channels extending below the bottom of the container, notches in the inner flanges of said channel members, a front door having a joint near the upper ends of the channel members, and a drain member secured to the inside of the door and extended laterally beyond the inner flanges of the channel members so that its ends lie in said notches when the door is closed.

15. A shipping container comprising oppositely disposed channeled frame members having provision for directing water outside the container walls, a door hinged to said frame and adapted to cover said channel members, weather strips secured to the door and adapted to engage the flanges of said channel members when the door is closed, and a drain connected to the inside of the door underneath a door joint adapted to receive any water passing the joint and to discharge it into said channel frame members.

16. A shipping container comprising a frame providing a door opening and including steel bars having outwardly opening channels, a door hinged to said frame adapted to cover said channels when it is in closed position, and metallic plates secured to the inner face of the door and extending substantially at right angles thereto and cooperating with the flanges of the steel bars when the door is closed to form a weatherproof joint.

17. A shipping container comprising a frame providing a door opening and including steel bars having outwardly opening channels with beveled flanges, a door hinged to said frame adapted to cover said channels when it is in closed position, and resilient metallic plates secured to the inner face of the door and extending substantially at right

angles thereto and cooperating with the beveled surfaces of the flanges of said channel members when the door is closed to form a weatherproof joint.

18. A shipping container having at one of its six faces a frame member defining a door-opening, a two-part door having its sections hinged respectively to the container at opposite sides of the door-opening and with their free edges overlapping, a channel member secured to the underlapping door-section and arranged parallel to and beneath the joint and having its opposite outer ends extended beyond the inner boundaries of said frame member, and means to drain any water that passes the joint and collects in the channel member so as to discharge it outside the walls of the container.

19. A shipping container having at one of its six faces a frame member defining a door-opening, a two-part door having its sections hinged respectively to the container at opposite sides of the door-opening and with their free edges overlapping, one of said overlapping edges being provided with a rib member and the other with a cooperating channel member adapted to receive any water that passes the joint, the channel member having its opposite outer ends extended beyond the inner boundaries of said frame member, and means to drain any water that passes the joint and collects in the channel member so as to discharge it outside the walls of the container.

In testimony whereof we affix our signatures.

DONALD S. ANDREWS.
JOHN R. WYLLIE.