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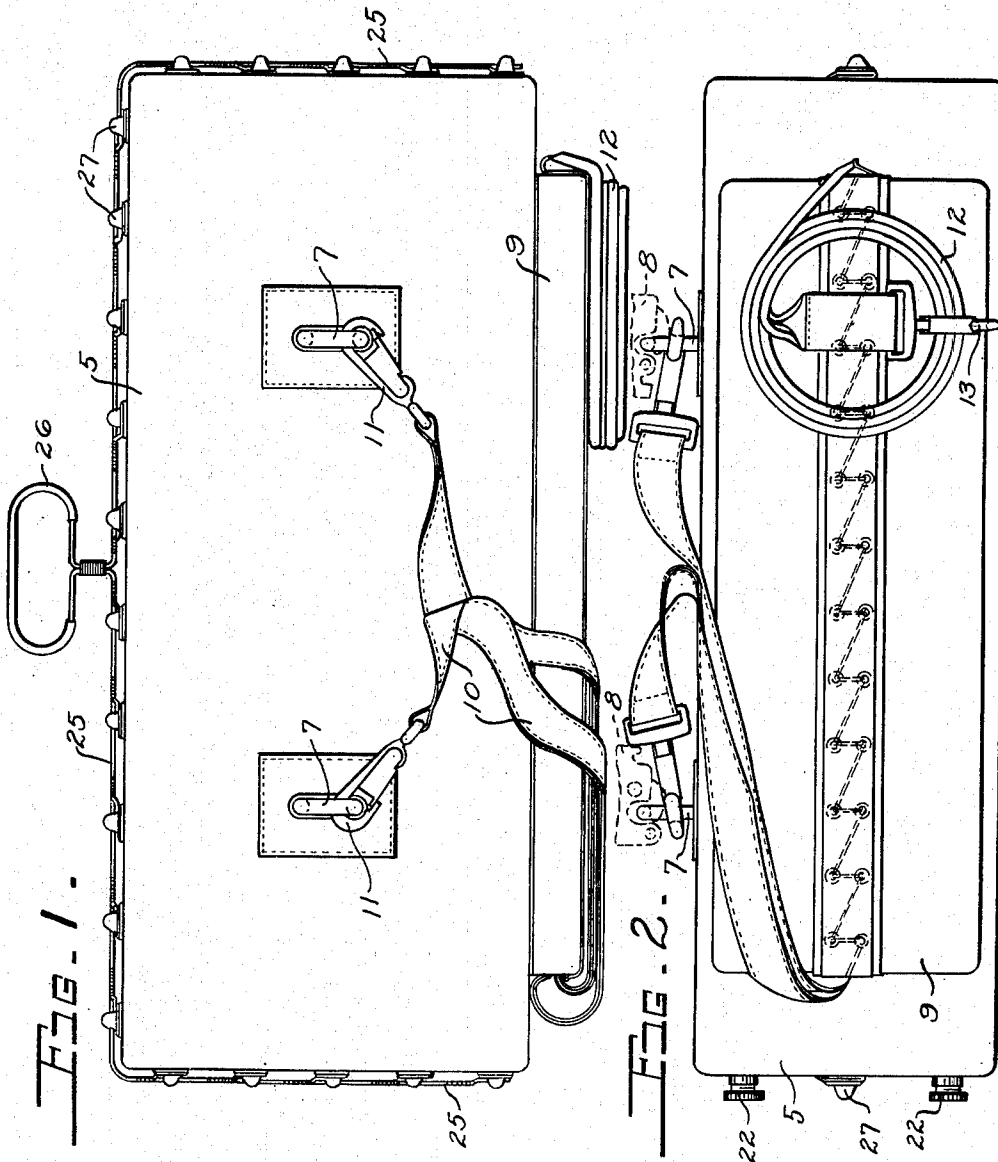
F. G. MANSON ET AL

2,366,741

AERIAL DELIVERY CONTAINER

Filed July 30, 1943

2 Sheets-Sheet 1



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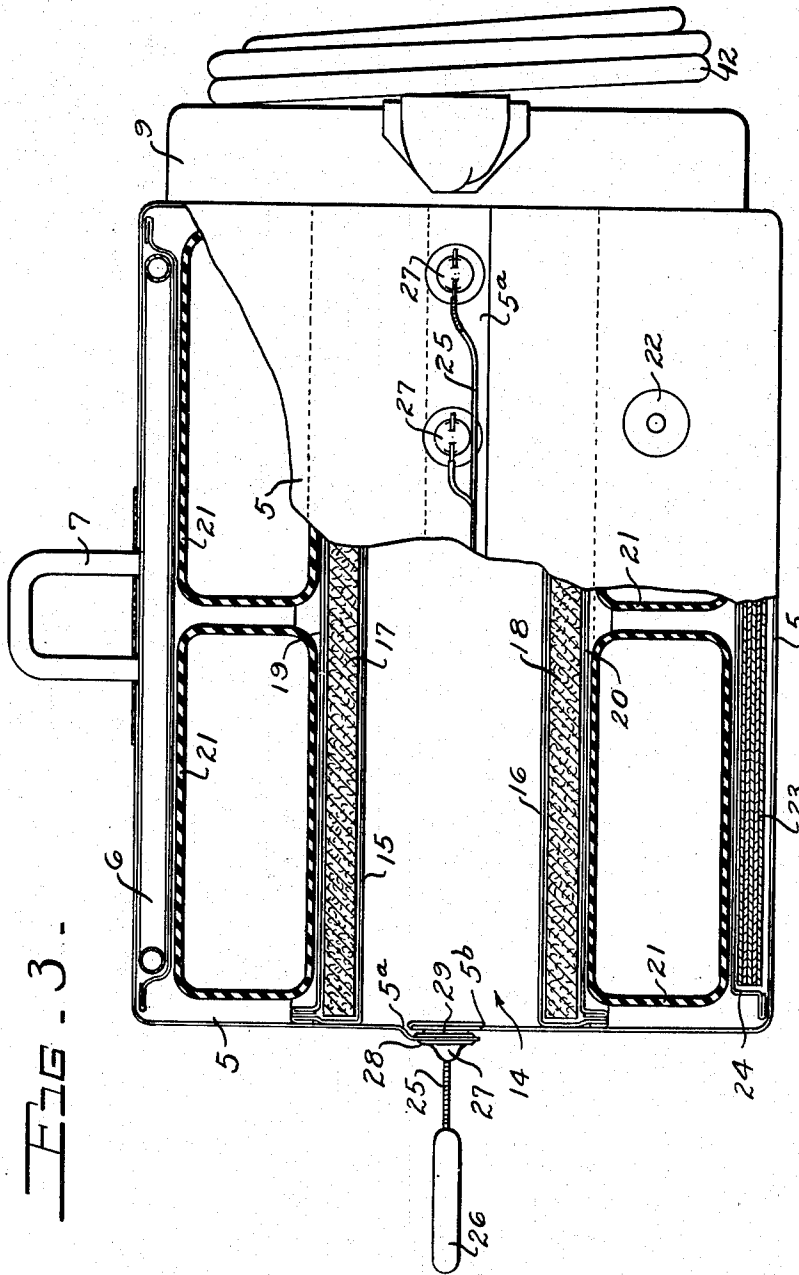
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UNITED STATES PATENT OFFICE

2,366,741

AERIAL DELIVERY CONTAINER

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2 Claims. (Cl. 244—138)

(Granted under the act of March 3, 1883, as
amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to use of any royalty thereon.

This invention relates to aerial delivery or supply containers of the type shown in our prior Patent No. 2,295,590, dated September 15, 1942.

The primary object of the invention is to provide a container so constructed that it may be dropped from an airplane to land supplies, food, ammunition or even live cargo, such as carrier pigeons, near troops on the ground, without damage or injury to the cargo. Other objects are to provide a container of the character indicated which is of light weight, relatively low cost, of adequate strength, and which may be opened quickly by one man to make its contents immediately accessible. The container of our invention may be made buoyant to permit dropping it on a body of water or near a shore line where it may float ashore. Further objects will be apparent from the following description of the preferred embodiment of the invention shown in the accompanying drawings wherein—

Fig. 1 is a top plan view;

Fig. 2 is a side elevation;

Fig. 3 is a sectional elevation from the left end of Fig. 2.

The broad idea of a container which is dropped from an airplane and suspended by a parachute is disclosed not only in our prior patent identified above, but also in such patents as Askam, No. 1,793,729, dated February 24, 1931, and Schwerin et al., No. 2,011,950, dated August 20, 1935. These prior art constructions are deficient in that they fail to provide adequate protection to fragile or live loads when the containers hit the ground or any objects, such as rocks, trees, etc., which may be in the paths of the descending containers. Our containers will protect almost any load against damage and in this respect is believed to be an improvement over all prior art constructions.

Referring particularly to the drawings, the preferred container has the form of a parallelepiped with a cotton duck cover 5 reinforced at the top by a rectangular steel tube frame 6 to which at least two steel tube D-rings 7 are welded, the D-rings projecting upwardly through the cover 5 and providing means by which the container may be suspended from conventional bomb shackle connectors 8 secured to the airplane wings or elsewhere (not shown). A parachute pack 9 may be secured to one side of the container and by a well known arrangement may be opened immediately after the container is re-

leased from the bomb shackle connectors. Lift webs 10 and snap hooks 11 connect the parachute pack with the D-rings 7 so that the container is suspended below the parachute when the latter opens. The usual anchor line 12 is also indicated, together with its snap hook 13.

Enclosed within the cover is an inner compartment 14 for holding the supplies or cargo. This compartment extends for the full length and width of the container, preferably midway between the top and bottom, and is formed by two cotton duck plies or sheets 15, 16, sewed along their edges. Cushions 17, 18, preferably of sponge rubber, are placed adjacent the plies 15, 16, being separated from the cargo compartment by said plies, and being enclosed on the opposite side by other plies 19, 20, respectively, likewise sewed to the cover. Thus the cushions are held immovably within the container, and afford protection at the top and bottom of the cargo compartment. Instead of sponge rubber, other soft, yielding materials or plural layers of a mattress-like nature may be used. Located between each cushion or cushion layer 17, 18, and the top or bottom of the container, are pneumatic tubes 21, at least four being preferred, each tube being similar to an inner tube of an automobile tire except that it is rectangular, and has a special type of inflation valve 22 extending through the cover at either end of the container. Thus there are four valves for inflating the tubes with compressed air. Obviously the tubes will expand with increased air pressure to contact each other and to fill the spaces between the cushions 17, 18, and the top and bottom of the container. Furthermore when under pressure each tube will assume a shape more nearly circular than the one illustrated in Fig. 3, so that the cushions 17, 18 will expand toward each other, thus resiliently clamping the articles or goods placed within the cargo compartment and tending to hold them against movement, even when the container hits the ground. This resilient clamping of the load, which is effective through the sponge rubber layers, minimizes shifting and breakage. A plywood stiffener 23 is located at the bottom of the container, being held against movement by a layer 24 of cotton duck sewed to the cover. Obviously the plywood may be replaced by a steel tube frame similar to the frame 6, or if desired the latter may be replaced by plywood and the D-rings 7 may be screwed to the plywood, as will be understood without illustration. The relatively unyielding plywood 23 and steel frame 6 are employed not only to maintain the desirable rec-

tangular shape of the container and to take the initial shock when striking the ground, etc., but also provide bases which do not yield in response to expansion of the pneumatic tubes and hence force the expansion to take place inwardly toward the cargo.

To facilitate quick opening of the container, it is provided on three sides with a rip cord 25 to which a handle 26 is made fast, and a series of conical plugs 27 are secured at regular intervals to the rip cord. Each conical plug 27 is inserted in a grommet 28 which registers with a washer 29, the grommets being clamped along an edge 5a of an open seam in cover 5, and the washers being secured along the other edge 5b of the same seam. The cover is opened on three sides by merely pulling on handle 26, which pulls all the plugs out of the grommets and washers. It will be noted that the open seam of the cover runs along three sides of the inner compartment, while the cover on the fourth side provides a hinge, so that the container may be unfastened and then spread wide open like a Gladstone bag. Obviously instead of the described fastening means, an ordinary "zipper" or slide fastening may be employed or a simple lacing, snap fasteners, or other fastening means may be used.

As stated above, the container may be designed so as to be buoyant. The construction shown in the drawings will float if the cargo is not too heavy. For amphibious operations a waterproof cover such as rubber, artificial rubber or plastics may be used instead of a cotton duck cover, and the seam 5a, 5b may be made watertight. Other changes and modifications will be obvious to those skilled in the art.

What is claimed is:

1. A container for aerial delivery comprising, in combination, a flexible fabric cover; two rigid reinforcing members secured to the cover on the inside respectively at the top and bottom of the container; means inside the container forming an inner compartment spaced from the top and

bottom of the container; pneumatic cushions interposed between the inner compartment and the reinforcing members; manually releasable means fastening the cover around the major part of the perimeter of the container, the remainder of the cover providing a hinge for the container; the upper reinforcing member having D-rings secured to it and extending outside of the cover to provide suspension means for attachment to standard bomb shackle connectors; a parachute pack with an anchor line and rip cord mounted on the hinge side of the container; and means connecting the parachute to the D-rings; the arrangement being such that the container after being released from the bomb shackle connectors, is supported by the parachute in its descent to the ground.

2. An aerial delivery container comprising, in combination, a flexible cover; a pair of rigid frames secured to the cover on the inside at the top and bottom of the container; both frames being substantially immovable and being of such dimensions that practically the entire top and bottom of the container are stiffened and braced thereby; flexible plies secured to the cover on the inside and extending parallel to each other to define an inner compartment which is spaced from the top and bottom of the container; said plies comprising two pairs, and a soft cushion held between each pair of plies, so that the inner compartment has soft cushions above and below the same; and pneumatic cushions interposed between the rigid frames and the cushions which lie above and below the inner compartment, said pneumatic cushions having valves projecting through the cover and being inflatable from the outside of the container; said cover and the rigid frames at its top and bottom providing substantially unyielding bases for the inflatable cushions, which therefore expand inwardly toward the inner compartment when considerably inflated.

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