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CONTAINER FOR SUPPLIES FOR DROPPING FROM AIRCRAFT

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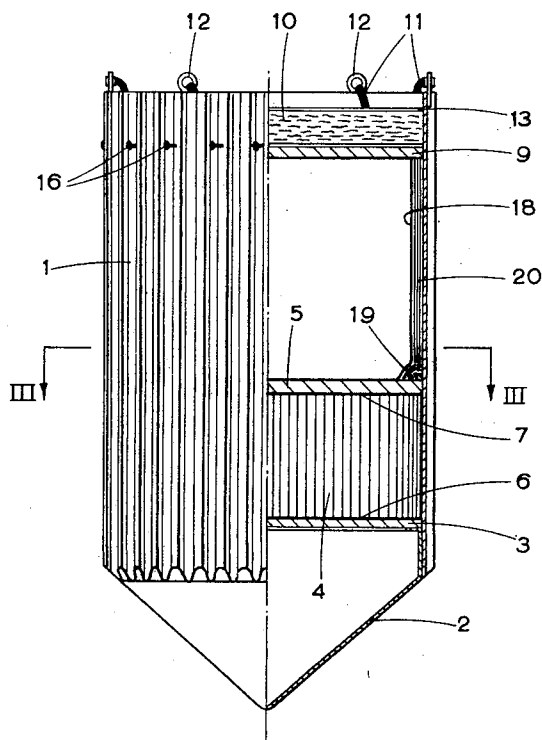


FIG. 1

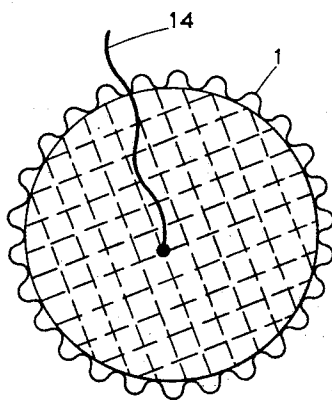


FIG. 2

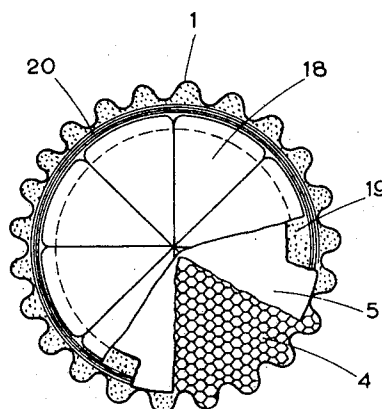


FIG. 3

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1

3,032,302

CONTAINER FOR SUPPLIES FOR DROPPING FROM AIRCRAFT

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This invention relates to containers for supplies for dropping from aircraft, and is particularly concerned with such containers for food, ammunition and liquid (such as petrol).

The object of the invention is to provide a container which can be dropped from relatively low heights at a rapid rate of descent.

The container according to the present invention comprises a cylindrical shell with a nose portion at one end, a mass of shock absorbing material at the nose end, an inner container movable axially in the shell due to landing shocks, and a parachute normally housed in the open end of the shell.

The container is dropped by being thrown from, released or otherwise discharged from an aircraft in flight conveniently with the use of a static line which will pull out the parachute from the container. The parachute is provided not so much to retard the descent of the container as rather to give it directional stability so that its nose will first strike the ground, when on impact the inner container will move in the shell to crush the shock absorbing material which will fail in compression and so absorb residual landing shock with little or no damage to the inner container.

Further according to the present invention a plurality—say three or four—of layers of wax paper are provided between the inner container and the shell. Such layers of wax paper reduce the friction on movement of the inner container during shock absorption.

Still further according to the present invention the shell is made from corrugated sheet metal and is closed at its one end by the nose which is conical in shape and constructed to form or support a transverse partition.

The inner container may be a cylinder to hold dry goods or a bag to hold liquid such as drinking water or petrol, and in the latter case preferably is compartmented or subdivided into a number of cells which juxtapose like the section of an orange.

The shock absorbing material is preferably resin bonded paper honeycomb material and it is further preferred to compress a rectangular block of such material into a cylinder with crushing of the outermost cells and hold the block in cylindrical shape by binding with adhesive tape or other convenient material. This shaping gives the block a higher initial compressive strength. The thickness of such block is chosen to give sufficient stroke to the inner container to absorb the landing shock according to its loaded weight and intended rate of descent. The block of shock absorbing material may be of single thickness but two or more layers may be used to make up the required thickness.

The inner container or bag may rest on a transverse partition arranged loose above the block of shock absorbing material when, according to a further feature of the invention, an annular packing is provided to prevent the wall of the inner container or bag being forced past the edge of the partition due to landing shock loads which might damage the inner container or burst the bag or bags.

In order that the invention may be clearly understood an embodiment thereof is by way of example hereinafter more fully described with reference to the accompanying drawings, in which:

FIGURE 1 is a half-section side elevation,

2

FIGURE 2 is a plan view looking down on FIGURE 1, and

FIGURE 3 is a section on the line III—III of FIGURE 1 with some bag cell omitted to show the bottom transverse partition, annular packing and the shock absorbing material below such partition.

The dropping container comprises an outer shell 1 of cylindrical shape, made from sheet metal and preferably from corrugated sheet metal as illustrated, which shell is at one end closed by a conical shape nose 2 which is formed with or adapted to support an end transverse, conveniently metallic, partition 3. On the partition 3 is a block of shock absorbing material 4 comprising for example resin bonded paper honeycomb material as illustrated or other light weight material which will fail under compression and thereby absorb a shock imposed thereon.

On the block 4 is a further transverse partition 5 which may be of wood, metal or other rigid material. Between the block 4 and the partitions 3, 5 it is further preferred to provide layers 6, 7 of felt, rubber or like material which will tend to seal the ends of the cells of the honeycomb material and so hold the air therein during shock absorption.

An inner container 18, conveniently of plastic material or of sheet metal with smooth walls, rests on the partition 5 and is surmounted by a partition 9 which is held in place as by means cross lacing with nylon or like cords 16 extending through holes in the shell 1. It is preferred to dispose around such inner container 18, between it and the inner surface of the shell 1, some three or four layers of wax paper 20 to reduce the friction between the inner container 18 and the shell 1 on movement of the former in bringing about failure of the shock absorbing material 14 to absorb residual shock on impact. Heat generated at this time will melt the wax and give a lubricated surface which will also facilitate removal of the inner container after descent.

Above the partition 9, a parachute 10 is stowed with its sling lines 11 connected to ears 12 on the shell 1, the parachute being held in place as by packing disc 13 through which extends a static line 14 for drawing out the parachute.

The container may be longer than its diameter when it is suitable for a single bag inner container 18 for holding some ten gallons of liquid, but in the embodiment illustrated in the drawings, its length does not greatly exceed its diameter and it is dimensioned and suitable for holding some fifty gallons of liquid, when the inner container 18 is compartmented or subdivided into some eight, ten or other convenient number of cells disposed axially of the shell and nesting together like the sections of an orange.

An annular packing pad 19 is provided above the edge of the partition 5 to prevent the peripheral edge of the bag or the cells forming the inner container 18 being forced past the edge of such partition due to impact loads.

I claim:

1. A container for supplies dropping from aircraft, comprising a cylindrical corrugated metal shell with a hollow nose cone at one end and open at its other end, said nose cone providing shock absorption by facilitating penetration of the container nose end into the earth on impact, a mass of shock absorbing material at said nose end, an inner container in said shell, means for preventing said inner container escaping from said open end of said shell, and a parachute normally housed in said open end of said shell, the corrugation of said shell defining a series of longitudinally extending ribs for greatly increasing the compressive strength of said shell against longitudinal folding of the walls thereof from ground impact while permitting slight circumferential shock absorbing expansion thereof.

3

2. A container for supplies dropping from aircraft, comprising a cylindrical metal shell with a nose cone at one end and open at its other end, a transverse partition dividing said cone from the remainder of said cylindrical shell, a mass of shock absorbing material on said transverse partition, a second transverse partition resting on said shock absorbing material, an inner container in said shell resting on said second transverse partition, a plurality of layers of waxed paper around said inner container, for providing lubricating surfaces interposed between said metal shell and said inner container for reducing the friction therebetween on movement of said inner container during compression of said shock absorbing mass and means for preventing said inner container escaping from said open end of said shell.

3. A container for supplies dropping from aircraft, comprising a cylindrical corrugated metal shell with a metal nose portion at one end and open at its other end, a mass of shock absorbing material at said nose end, an inner container in said shell, a plurality of layers of waxed paper around said inner container for providing lubricating surfaces interposed between said metal shell and said inner container for reducing the friction therebetween on movement of said inner container during compression of said shock absorbing means, means for preventing said inner container escaping from said open end of said shell, and a parachute normally housed in said open end of said shell with its lines connected to said open end of said shell, the corrugation of said shell defining a series of longitudinally extending ribs for greatly increasing the compressive strength of said shell against longitudinal folding of the walls thereof from ground impact while permitting slight circumferential shock absorbing expansion thereof.

4. A container for supplies dropping from aircraft, comprising a cylindrical metal shell with a metal nose portion at one end and open at its other end, a transverse partition dividing said nose portion from the remainder of said shell, a mass of shock absorbing material resting on said transverse partition, a second transverse partition resting on said shock absorber material, a cylindrical inner container resting on said second transverse partition, a plurality of layers of waxed paper around said inner container for providing lubricating surfaces interposed between said metal shell and said inner container

4

for reducing the friction therebetween on movement of said inner container during compression of said shock absorbing means, a third transverse partition on said inner container, means for holding said third partition in position in said shell, and a parachute normally housed in said open end of said shell with its lines connected to said open end of said shell.

5. A container for supplies dropping from aircraft, comprising a cylindrical corrugated metal shell with a conical metal nose portion at one end and open at its other end, a transverse partition dividing said nose portion from the remainder of said shell, a mass of shock absorbing material on said transverse partition a second transverse partition resting on said shock absorber material, a compartmented inner container resting on said second transverse partition, a plurality of layers of waxed paper around said inner container for providing lubricating surfaces interposed between said metal shell and said inner container for reducing the friction therebetween on movement of said inner container during compression of said shock absorbing means, an annular packing at the periphery of said inner container between it and the adjacent portions of said second transverse partition and of said shell, a third transverse partition on said inner container, and means for holding said third partition in position near said open end of said shell, the corrugation of said shell defining a series of longitudinally extending ribs for greatly increasing the compressive strength of said shell against longitudinal folding of the walls thereof from ground impact while permitting slight circumferential shock absorbing expansion thereof.

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