Aug. 29, 1961 R. Q. BEKINS 2,998,129

REUSABLE TRANSPORTATION CONTAINER

Filed March 20, 1959

FIG. 1.

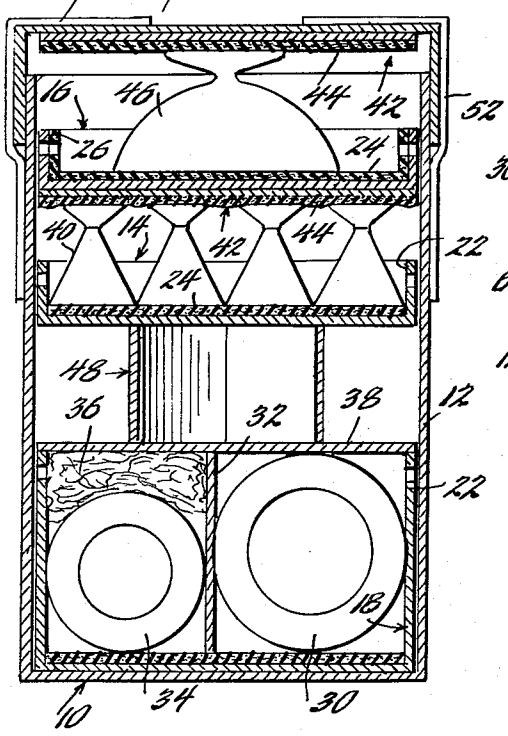


FIG. 2.

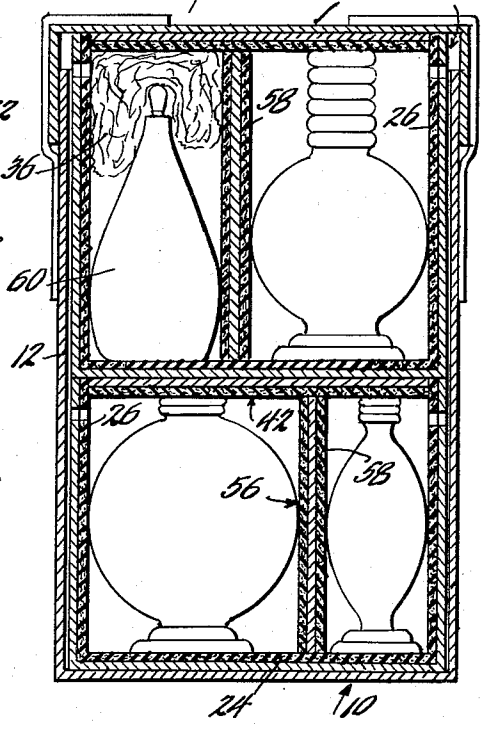


FIG. 5.

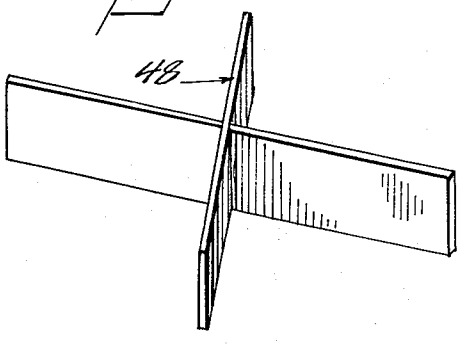


FIG. 3.

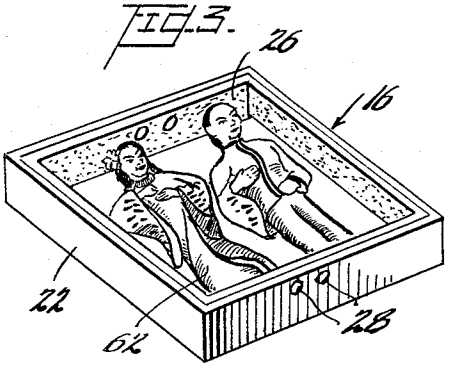
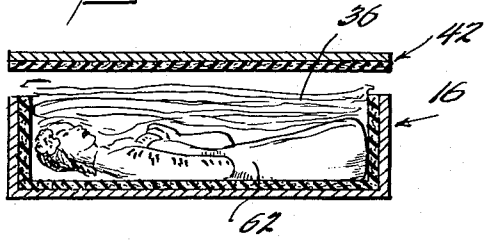


FIG. 4.



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REUSABLE TRANSPORTATION CONTAINER

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This invention relates to a shipping container for articles of mixed sizes and shapes.

More particularly, the shipping container of this invention is intended for packing fragile articles, such as dishes, glassware, bric-a-brac, small statuary and innumerable other articles of a similar nature, found about the average household.

During the past two decades there has been a large increase in the long distance movement of households and during that same time, there have been substantial increases in the cost of labor employed in the packing and handling of household goods. Because no two households present the same problems of packing and moving, a substantial amount of individual attention must be given to each job. Since the articles pass through several hands during packing, transportation and unpacking, it is sometimes difficult to fix the responsibility for damage resulting from a household move.

The apparatus of this invention is designed to provide a uniform and standardized method of packing, adaptable to substantially all types of fragile articles of household use. It is adapted to require a minimum amount of packing labor while providing adequate safeguards for the articles packed. Heretofore, it has been usually necessary to employ time-consuming wrapping methods and dust-creating packing materials. Such methods and materials frequently caused the loss of some articles in the packing material and made it necessary for the housewife to wash each article after unpacking.

The present invention provides clean, dust-free packing material and utilizes it in such manner that wrapping is eliminated, thus avoiding loss of small articles in the packing material as well as the labor of wrapping and unwrapping the articles packed.

Although the packing apparatus of this invention is somewhat more costly than some of the previously used materials, it is capable of repeated reuse so that the actual cost per move is materially less expensive.

This invention is to be distinguished from various shipping packages specifically designed to handle a plurality of articles of uniform size and shape. It is usually possible to design specific packages to handle odd shaped articles, even those presenting special problems, when many such articles are to be shipped, since the cost and effort are distributed over many packages. This invention proposes to deal with an unpredictably wide variety of articles, where no two shipments are the same.

For a fuller understanding of my invention, reference should be made to the accompanying drawing, wherein—

FIGURE 1 is a cross-section, in elevation, of a shipping container, packed with a variety of articles;

FIGURE 2 is a similar view, showing other articles of differing sizes and shapes, showing the adaptability of the packing arrangement;

FIGURE 3 is a perspective view of one of the packing elements, showing the first step in the packing operation;

FIGURE 4 is a cross-section view corresponding to FIGURE 3 and showing the next succeeding steps in the packing operation; and

FIGURE 5 is a perspective view of another packaging element.

In the drawings, it will be seen that the numeral 10 represents generally the outer casing of a shipping container. At the present time, the industry has largely standardized upon a rectangular box of heavy corrugated board, 18" square and 30" deep. The subject matter

of this invention is designed for use with this standard shipping container, although it will be apparent from a description as it proceeds, that the technique is equally applicable to other standardized sizes of shipping containers. Since it is important that the various like elements of the system shall be completely interchangeable, the advantages of standard sizes will be immediately apparent.

It will also be apparent that the sidewalls 12 of the container 10 shall be parallel to provide the container 10 with uniform cross-section from top to bottom. A series of trays, indicated by reference numerals 14 to 20 inclusive, are employed; for convenience, the reference numeral 14 will be employed to designate these trays as a class, except where the description is specifically applicable to the single type.

The trays 14 are constructed of heavy corrugated board of the same general type as that from which container 10 is formed. The walls 22 of the trays are formed preferably, by turning up the edges of the body of the sheet of board from which the tray is formed. Although not specifically shown in the drawings, it is desirable that the lapping tabs, where the sidewalls 22 are joined at the corners, shall be formed on the inward side of the tray 14. Similarly, if two adjacent sidewalls 12 of the container 10 be joined by a lapped seam, the lapped portion should be on the outside of the container 10. Thus, the facing portions of walls 12 and 22 are substantially unobstructed by any irregularity that might otherwise impede the movement of the trays, vertically within the container 10. In order to minimize any needless movement of the contents of the container, in sidewise manner, it is preferred to make the external dimensions of the trays 14 just sufficiently smaller than the internal dimensions of the container 10, so that they will freely slide up and down in the container 10, without unnecessary play. To facilitate lifting the trays up out of the container, one or more hand holes 28 may be provided, for lifting the tray out of the shipping container.

At least the floor of each tray 14 is lined with a layer 26 of resilient foamed padding. There is a considerable choice of such materials presently available, such as foam rubber, polyurethane and polyester foams. The foam material employed must be characterized by a high degree of recovery after prolonged indentation. An especially convenient source of material for this purpose is had in the commonly available materials for rug padding since these are intended to resist wear and, at the same time, are available in thin sheet form, well suited for the lining purpose intended.

For packing plates 30, a deep tray 18 may be used, stacking the plates on edge as shown in FIGURE 1, separated by resilient paperboard (not shown) of the type widely used for this purpose. Small amounts of remaining space may be filled in with one or more layers of corrugated board. Parallel stacks of plates may be separated one from the other by means of partitioning dividers 32, extending from one side 22 to the opposite side and extending substantially as high thereof. To fill out any space left by a row of smaller plates 34, a quantity of crumpled tissue 36 is added at the top of tray 18. The tray 18 is covered by horizontally extending partition cover 38 formed of one or more sheets of heavy corrugated board.

A quantity of glassware 40, of generally uniform height, may be arranged in a shallow tray 14, as shown in FIGURE 1. Minor irregularities in height will be taken up by the resilient lining 24. A single short piece of glassware may be given increased effective height by a small piece of crumpled tissue. The glassware 40 is held in place by partition member or follower 42 having a foam surface 44 in contact with the glassware.

A large article having substantially parallel top and bottom surfaces, such as punch bowl **46** may be placed in one of the shallow trays and held in place by the cushioned partition or follower **42**.

A group of trays, when placed in the container **10** should fill the container slightly above the edges of the sidewalls **12** so that when telescopic cover **50** is applied to the container with its deep depending rim **52**, the various horizontally extending layers of cushioning material and **44** will be compressed to firmly hold the packed articles in position. If necessary, a filler piece **48** of any suitable configuration may be used to distribute the pressure with substantial uniformity from one tray to the next. The telescopic cover is held in compressed condition on the shipping container by any suitable strapping material **54** such as adhesive tape, steel band strapping, or its equivalent.

As shown in FIGURE 2, the deep trays **20** not only have cushion material **24** on the floor thereof but additional cushion material **26** upon the sides and the vertical partition members **56** have cushion material **58** on one or both sides thereof. This affords additional protection to larger articles of more irregular shape. Article **60**, which does not extend upwardly sufficiently to be held directly by the horizontally extending member above it, is held against movement by a quantity of crumpled tissue **36**.

It will be seen that the primary force holding each of the various articles against both sidewise as well as vertical movement, is the compressive force applied to the articles since, when compressed, the foam does not permit sidewise movement of the article bearing against it. Where tissue is employed, it is not used for wrapping but merely to provide a snug fit. Thus, the packer does not need to handle and manipulate the article to be packed, as he would if he were wrapping it. A single movement of the hand and arm lifts the tissue, crumples it and pushes it down against the article to be held in position. Similarly, when unpacking, it is only necessary to lift the tissue out and discard it.

It will also be observed that the trays and partitions are essentially dust-free, thus preventing soiling of the articles packed. If desired, the padding material may be treated with an antiseptic germicide or a padding material may be selected that has inherent germicidal properties, as a result of its method of manufacture. The tissue **36** similarly is inherently free of tendency to soil the articles packed. If, after reuse, the padding of any of the trays **14**, appears to have accumulated soil, a single sheet of tissue may be laid, uncrumpled, upon the tray before placing articles upon it.

Some of the most difficult household articles to pack are small ceramic figurines **62** and other analogous articles of irregular configuration. These may be effectively handled in the present invention by placing them in shallow trays **16** provided with both floor cushioning **24** and wall cushioning **26**. The articles are placed usually with the flattest portion downwards in the tray. Generous quantities of crumpled tissue **36** are placed throughout the tray to prevent sidewise movement of the articles, with sufficient amounts of the tissue extending above the rim of the walls **22** of the tray. When a cushioning member **42** is placed upon the tray **16**, the downward pressure thereon will compress the tissue **36** to prevent any movement of the articles **62** during shipment. Here again, it is to be pointed out that the basic rule has again been followed that no wrapping has been taken place. The packing material has all been positioned by vertical movement and it can be removed in the same manner. Adherence to this principle is effective in saving labor, both in packing and unpacking; it minimizes the danger of loss of any of the articles in the packing material and it is effective in transporting the articles in a

clean and sanitary manner, free of soilage from the packaging material.

The various elements of packing material are freely interchangeable, for versatility; and of sturdy construction, for protection of the articles shipped and for economy of reuse. A comparatively small number of types of packing material are capable of being combined in a wide number of arrangements, enabling the handling of articles of almost any configuration.

The nature of the invention is such that this specification enumerates only a few of the many possible ways in which the elements of the invention can be combined according to the problems confronting the packer and accordingly, it is to be understood that the foregoing specification is presented for illustrative purposes and is in nowise limitative.

I claim:

1. Universal and reusable transport apparatus for fragile articles comprising: an open top shipping container having substantially smooth, parallel internal side walls; at least one open top packing container within said shipping container, said packing container having substantially smooth, parallel external sidewalls, the horizontal dimensions of said two containers being so related to each other that the packing container may be nested within the shipping container and moved vertically thereing easily but without significant sidewise movement, said packing container being lined on the floor thereof with a layer of foamed resilient material of good recuperative quality; a stiff, flat follower member substantially coextensive horizontally with the packing container; means for adding to the combined height of packing containers and followers to cause said combined height to exceed the internal height of the shipping container by a small but substantial amount; a telescoping cover on said shipping container, said cover having a closely fitting, deep, depending skirt and means for holding the cover on the shipping container with the contents thereof in vertically compressed condition.

2. The combination of claim 1 wherein at least one face of the follower member is lined with foamed resilient material.

3. The combination of claim 1 wherein the inner sides of the packing container are lined with foamed resilient material.

4. The combination of claim 1 wherein the packing container is provided upon two opposite sides thereof, adjacent the upper edges with holes passing therethrough, to permit lifting of the container by fingers.

5. The combination of claim 1 including divider members having a length to fit snugly across the width of the packing container and a height less than the depth of the packing container.

6. The combination of claim 1 including loosely placed resilient means which, with the article packed in the packing container, fills the packing container above its upper rim.

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