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W. WALSH

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INTERNAL FITTING FOR HOLLOW CONTAINERS

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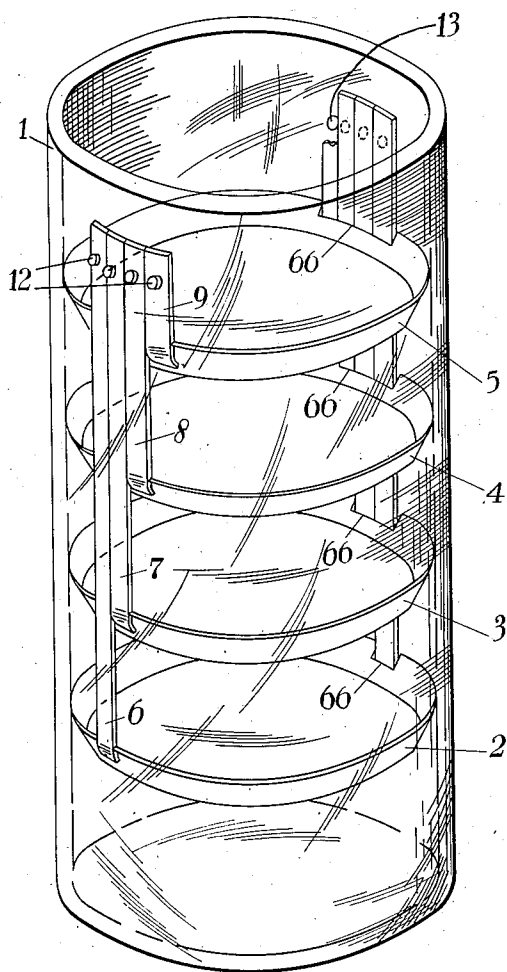


Fig. 1.

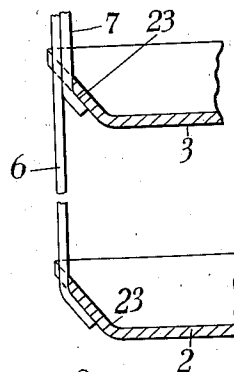


Fig. 2.

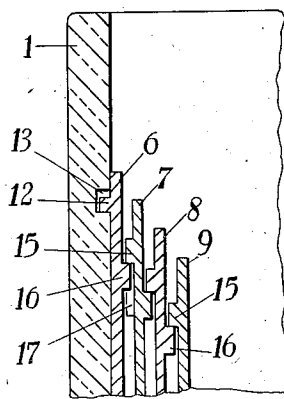


Fig. 3

W. Walsh
Inventor

By: Glascock Downing & Seabell
Attys.

UNITED STATES PATENT OFFICE

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INTERNAL FITTING FOR HOLLOW CONTAINERS

William Walsh, London, England

Original application April 11, 1938, Serial No. 201,396. Divided and this application January 5, 1939, Serial No. 249,501. In Great Britain May 7, 1937

4 Claims. (Cl. 220-22)

This invention is concerned with an internal fitting for hollow containers, which expression is intended to include, where used in this specification and in the appended claims, containers such as jars, bottles, cans, boxes, show-cases, and the like. The present application is a division of application Serial No. 201,396, filed April 11, 1938.

It is an object of my present invention to provide means whereby a container can be divided into compartments by means of shelves or partitions which are readily removable and which enable the contents of the container in the various compartments to be kept separate and prevented from intermingling.

Another object of the invention is an internal fitting for containers which is suitable for use where the container is to be used for the transport, storage or display of chemicals such as crystalline minerals, and where it is desired to prevent contact between various layers of chemicals, or the settling down or gravitation of heavier materials to the bottom of the container.

A still further object of the invention is the provision of a fitting readily adaptable to various sizes of containers and by means of which the volumes of the compartments formed can quickly be changed and fragile articles can be safely packed.

With this object in mind my invention comprises an internal fitting for hollow containers comprising a plurality of shelves of dished formation, each provided adjacent its periphery with a plurality of supporting strips, each adapted to extend upwardly from the shelf to which it is attached and means for supporting the free end of each strip member directly or indirectly on the wall of the container, the supporting strips for each dished shelf being each passed through a perforation or slot in the inclined sides of the latter.

The supporting strips for the different shelves are preferably disposed adjacent each other, the perforations or slots in the different shelves varying in size according to the position of the shelf and the corresponding number of supporting strips to be accommodated.

The invention will be more completely understood from the following detailed description which is given in conjunction with the accompanying drawing in which—

Figure 1 is a perspective view of the container having an internal fitting according to the invention,

Figure 2 illustrates a modified form of shelf

construction with the supports overlapping one another, while

Figure 3 is an enlarged fragmentary view of the upper part of a fitting such as is illustrated in Figure 2.

Referring to the drawing, the reference 1 indicates a container of circular cylindrical form fitted with partitional means comprising a series of spaced shelves of circular dished formation. Each of the shelves is provided with a pair of supporting arms 6, 7, 8 and 9 respectively, of flexible strip material and arranged at diametrically opposite sides of the shelves. The lower ends of these strips 6, 7, 8 and 9 are secured to the outer sides of the inclined portions of the shelves by any suitable means, for example, riveting, stapling or adhesion, each arm being arranged to pass through a slot or recess 66 formed in the rim of the shelf so as to extend upwardly and substantially parallel to the wall of the container 1, the supporting arms are formed of springy material, and due to the manner in which they are mounted they are splayed outwards in the uncompressed condition so that when in position in the container they press outwardly and are given lengths corresponding to the sizes of the compartments which the shelves are intended to define. At its upper end each of the arms 6, 7, 8 and 9 is provided with an integral projection or stud 12 adapted to engage with a recess such as 13 provided in the wall of the container so that each shelf is carried by its respective arms which are suspended on the container wall.

It will be seen that in Figure 1 the supporting strips 6, 7, 8 and 9 are disposed adjacent each other and in order to accommodate the strips as they pass through the slots 66 in the shelves, the slots in the successive shelves are made successively larger so as to accommodate the increasing number of uprights received therein. Thus in the case of shelf 2 since this is the lowermost shelf the slot 66 need only be of sufficient width to accommodate its own supporting strip but the next shelf 3 above must have a slot of sufficient width to take not only its own supporting strip 7 but also the strip 6 of the lowest shelf, while the slots in the shelves 4 and 5 are made successively wider, the slot in the uppermost shelf 5 being of sufficient width to accommodate all four strips in alignment. The inner wall of the jar is provided with a series of indentures 13 to engage the stud 12 in each succeeding strip; the arm strips are of spring material and in the case

of a circular jar the uprights and stud must necessarily be slightly curved.

Figure 2 illustrates another arrangement for securing the strips to the shelves. Here each flexible strip is passed through a recess 23 in the wall of the corresponding shelf from the inside of the dish or tray, is bent round underneath the latter, and is secured to the underside of this dish or tray. The arrangement is similar to that of Figure 1 to the extent that the rims of the shelves are cut away at the top to permit the passage of the flexible strips, but in Figure 2, the uprights of the successive shelves are arranged to overlap the uprights of the preceding shelf or shelves as shown and the slots in the successive shelves from the lowermost to the uppermost are accordingly made successively deeper in order to accommodate the increasing number of uprights. Figure 2 illustrates part of the two lowermost shelves 2 and 3, the shelf 3 being provided with a slot 23 which is of sufficient depth to accommodate not only its own supporting arm 7 but also the supporting arm 6 of the shelf 2, thus allowing the two arms 6 and 7 to overlap within the slot 23 as shown. In the case of shelf 2, however, since this is the lowermost shelf, the slot 23 need only be of sufficient depth to accommodate the supporting arm 6. Preferably the arms are of springy material and are arranged for connection to one another and to the wall of the container by the arrangement shown in Figure 3.

Referring to this figure, it will be seen that at its upper end each of the arms 7, 8, 9 is provided on its outer side with an integral projection or stud 15 which is adapted to rest on a co-operating stud or projection 16 on the next outer arm, so that all the arms 7, 8, 9 are suspended through one another on the outer arm 6. The latter are in turn suspended on the wall of the container, each arm 6 being provided with a stud or projection 12 which is pressed into a recess or indentation 13 on the container wall as shown.

To ensure positive location of the shelves and to prevent relative movement between the arms 6-9 when the container is upturned, the arms may be given an additional stud or projection such as 17, forming a stop for the corresponding part 18 on the lower side, whereby this part is positively located between the studs 15 and 17. This arrangement, combined with the fact that the strips are arranged to press outwardly and are flexible, prevents the shelves falling out when the container is tilted.

The fitting according to any of the constructions illustrated can be utilised directly, or can be readily adapted for utilisation as the case may be, with containers of any shape in horizontal or transverse section. The shapes of the shelves will, preferably, also be adapted to the form of the container and the shelves will preferably fit as closely as possible to the inner wall or walls of the containers.

An internal fitting constructed according to the present invention has a wide field of utility. Such a fitting can be used in practically any container where it is desired to store or pack articles, substances, materials, and so on in compartments. For example, the fitting could be used in bottles for containing minerals of crystalline structure which are unhomogeneous or vary in density or hardness. Where such crystalline bodies are massed together they tend to deteriorate, either by breaking up by impact with one another or by conglomeration into particles of larger size, or

by deliquescence. By employing a fitting according to the invention and dividing the container into a plurality of compartments, the load on the material in the lower compartment or compartments is relieved of the weight of the material in the upper compartment or compartments.

Where the materials to be stored, packed or exhibited easily deliquesce, the shelves or partitions can be made of absorbent material or be coated or covered with an absorbent layer of moisture-absorbent material.

The fitting or the various elements thereof can be of any suitable material. For example, the shelves or partitions could be of glass, light or heavy metal, iron, steel, wood, artificial resin, stout cardboard or millboard, depending on the use and strain to which the fitting is liable to be subjected and on the materials with which it is to come into contact.

The suspension strips or arms described above may also be of any convenient composition, and where springiness is required they might advantageously be made of strip metal, whalebone, cane or the like.

I claim:

1. An internal fitting for an upright cylindrical hollow container of substantially uniform internal diameter comprising, vertically spaced shelves arranged transversely of the container, each shelf having an overall diameter substantially equal to the internal diameter of the container, supporting strips at the periphery of each shelf extending upwardly therefrom beyond the top shelf and arranged in adjacent vertical alignment, each shelf having slots in the periphery increasing in size from a lowermost shelf upwardly for receiving said strips, and means securing the upper ends of said strips beyond the top shelf to the wall of the container above the topmost shelf.

2. An internal fitting for a hollow container of substantially uniform internal cross section throughout the length thereof comprising, a plurality of shelves spaced along and arranged transversely of the container, each shelf having an overall shape corresponding substantially to the cross section of said container, a plurality of strips at the periphery of each shelf, said strips extending substantially at right angles from the shelves along inner surfaces of the container in adjacent longitudinal alignment and the strips extending upwardly from their shelves beyond the top shelf, each shelf having slots in its periphery of increasing size from one end shelf towards the other end shelf for receiving said strips, and means for attaching free ends of said strips above the top shelf to the wall of the container.

3. An internal fitting for an upright cylindrical hollow container of substantially uniform internal diameter comprising, vertically spaced shelves arranged transversely of the container, each shelf having an overall diameter substantially equal to the internal diameter of the container, supporting strips attached to the periphery of each shelf and extending upwardly from each shelf beyond the top shelf and in adjacent vertical alignment, each shelf having slots in its periphery increasing in size from a lowermost shelf upwardly for receiving said strips, a stud carried by each strip adjacent an upper end thereof beyond the top shelf, said container having recesses therein for receiving said studs, and said strips being biased outwardly whereby said studs are maintained in said recesses.

4. An internal fitting for an upright cylindrical hollow container of substantially uniform internal diameter comprising, vertically spaced shelves arranged transversely of the container, each shelf having an overall diameter substantially equal to the internal diameter of the container, supporting strips at the periphery of each shelf extending upwardly from each shelf beyond the top shelf and in adjacent vertical overlap-

ping alignment, each shelf having slots in its periphery increasing in size from a lowermost shelf upwardly for receiving said strips, studs carried by the outer ends portions of said strips beyond the top shelf adapted to fit in recesses in the container wall, and said strips being biased outwardly to maintain the studs in the recesses.

WILLIAM WALSH.