

Feb. 12, 1963

R. BRAVERMAN
CONTAINERS

3,077,281

Filed Sept. 8, 1960

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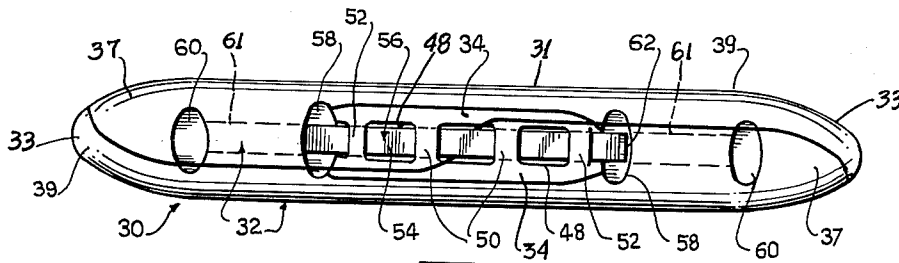


Fig. 1.

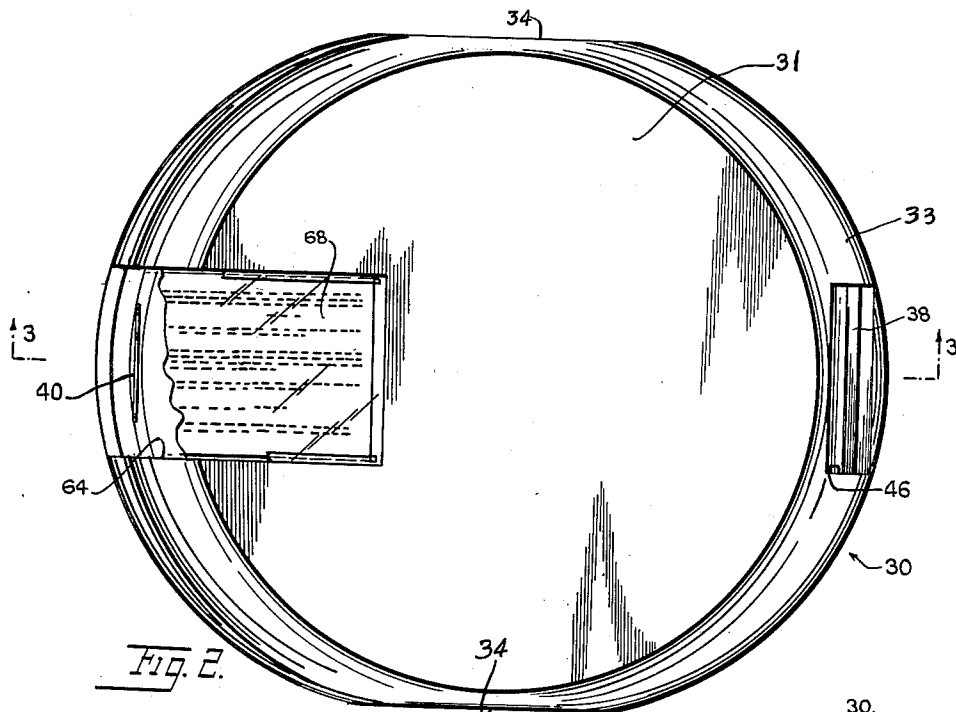


Fig. 2.

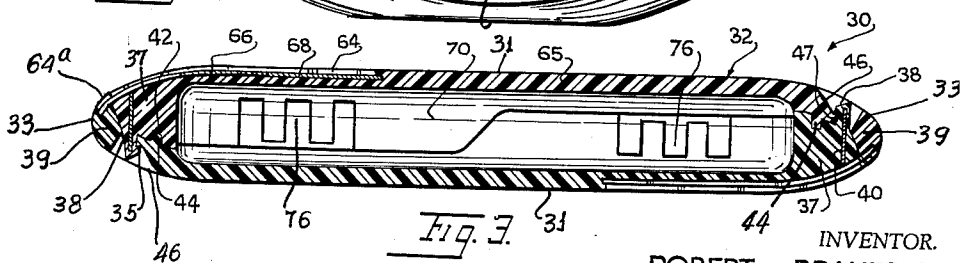


Fig. 3.

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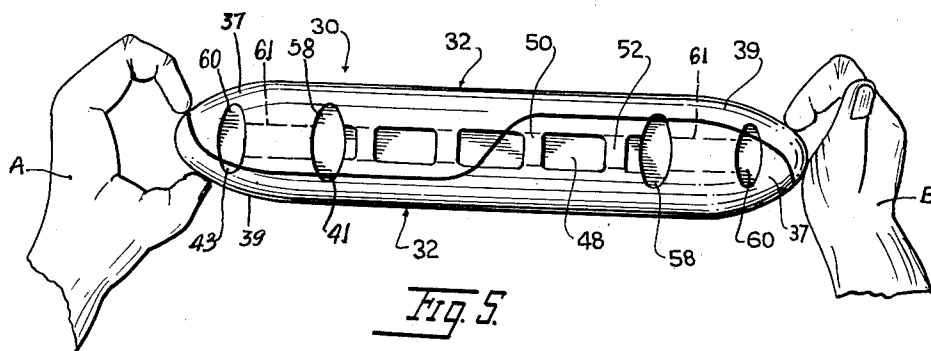
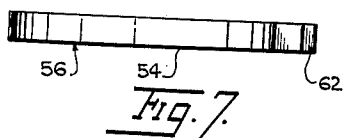
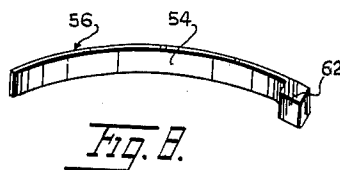
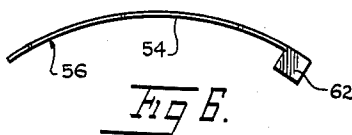
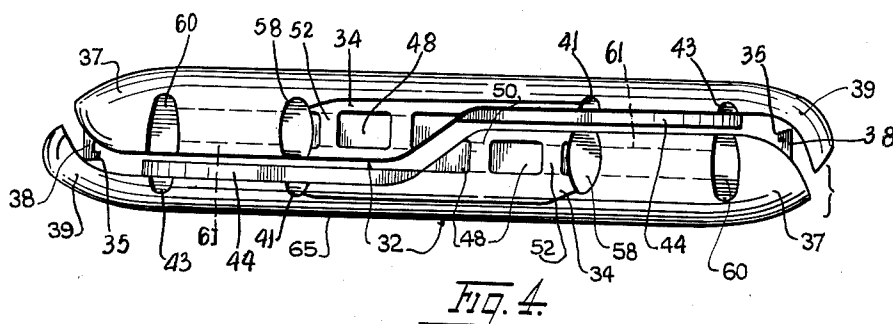
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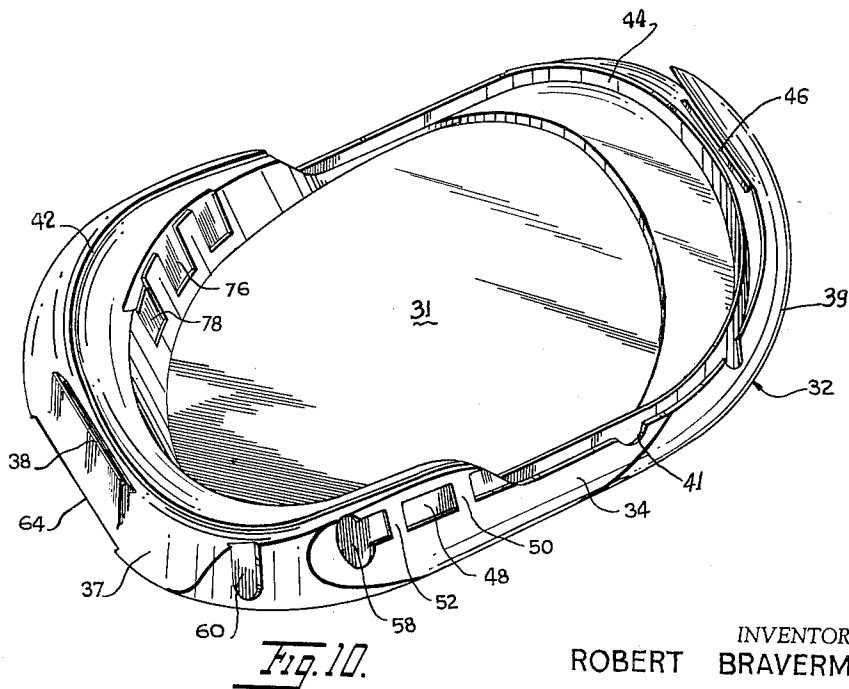
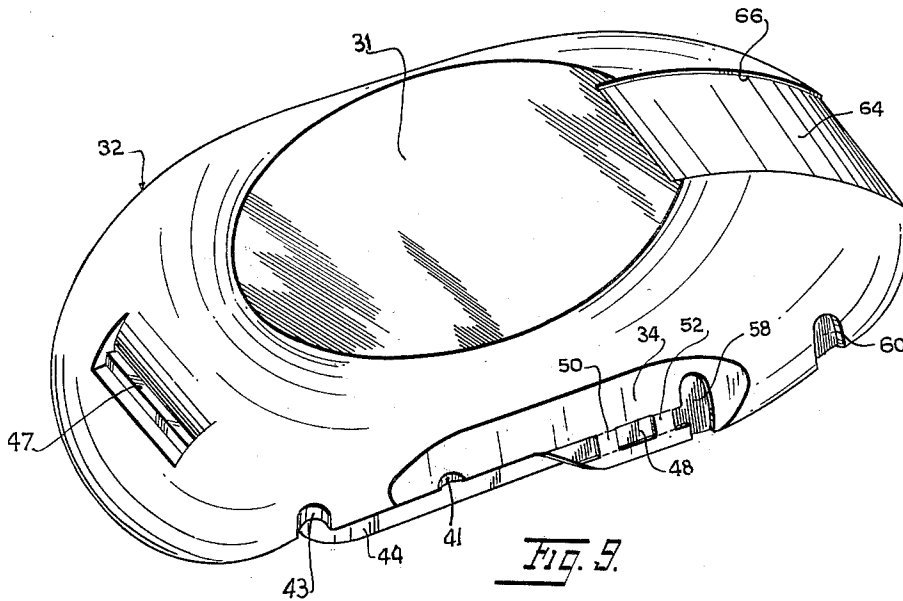
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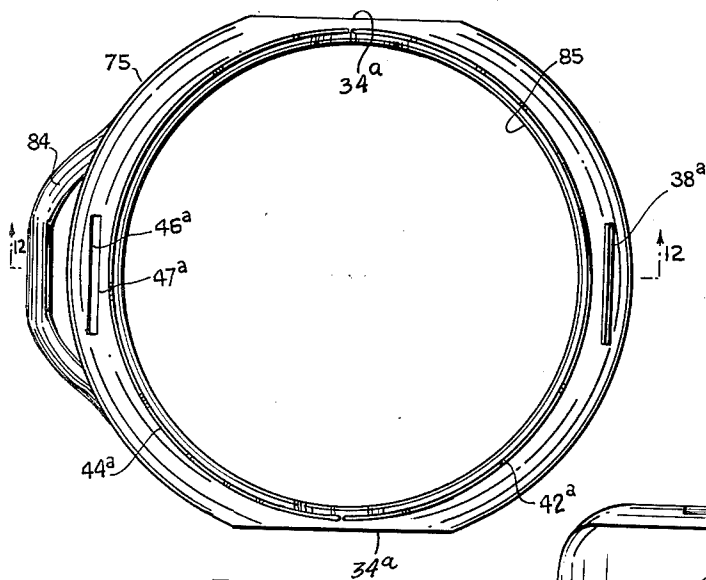


Fig. 11.

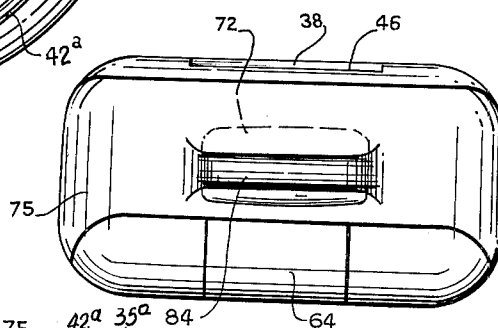


Fig. 13.

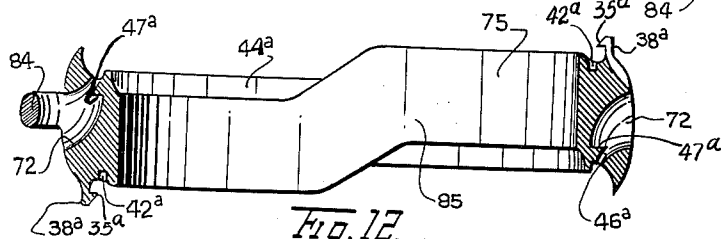


Fig. 12.

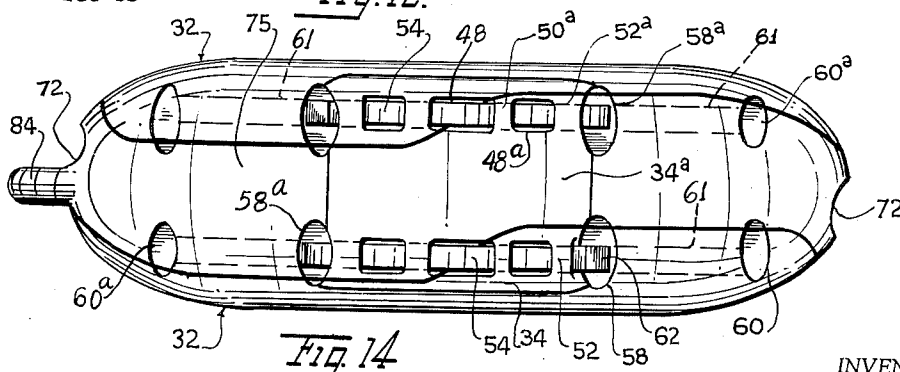


Fig. 14.

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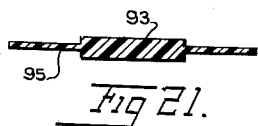
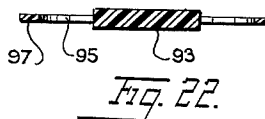
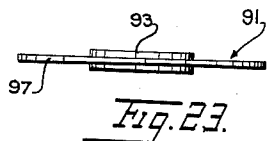
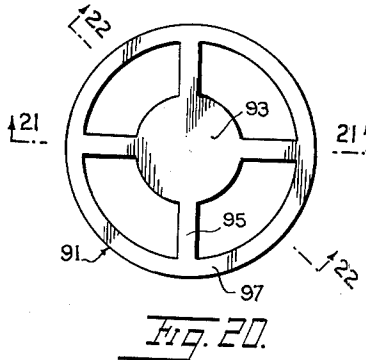
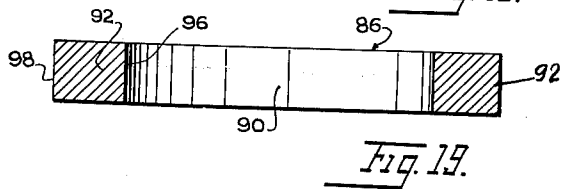
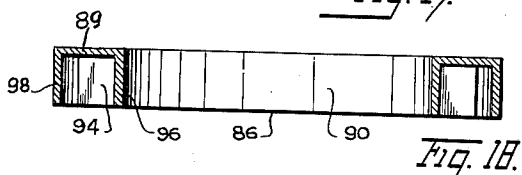
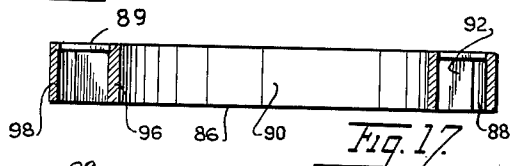
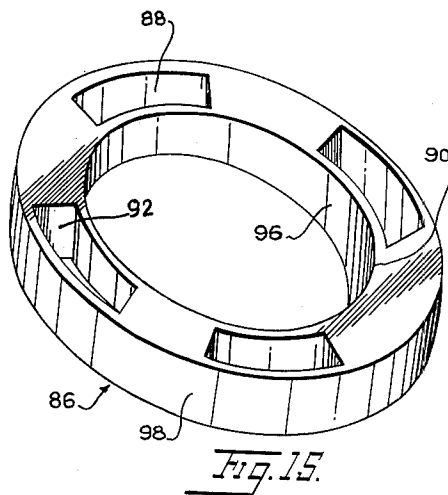
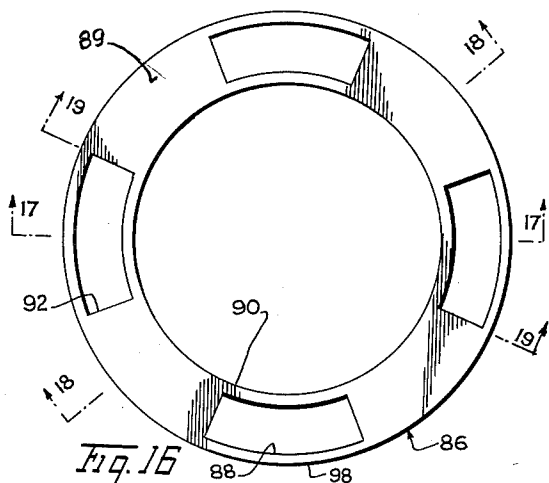
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This invention relates to the art of shipping and storage containers of general utility.

Various articles such as reels of motion picture film, recording tape, precision instruments, optical devices, and the like have heretofore been shipped and stored in containers which have had many disadvantages and caused many difficulties in handling and storage. Considering for example, shipping and storing of motion picture prints by conventional methods, the prints are usually mounted on metal reels which are each placed in a separate metal can which is inserted in a container constructed of fiber material. This container is secured by means of separately and externally attached protruding webbed cloth belts with outwardly projecting metal buckles.

During transportation, the fiber cases sometimes crack; the rivets holding the belts often are pulled from the container; the metal buckles often become damaged, making their opening and closing difficult; the belts often cover important information on parts of identification labels fastened to the container; on square containers or cases, the metal corners are often broken off of the fiber cases; where label-holding frames are used, they project from the container and are often damaged, making insertion and removal of labels difficult, sometimes even requiring use of tools to remove the labels; rivet sections inside the fiber cases scratch the surfaces of the metal cans. As the fiber body of the container is bendable, it yields to strong blows on the exterior so that mechanical shocks are transmitted to the interior to damage the metal cans and the contents thereof, often making the metal cans difficult to open. In stacking the containers or in storage on end on shelves, the belts or buckles of one container often hook onto or engage adjacent belts or buckles of adjacent containers, making removal of one particular container from a stack or shelf difficult. Where the containers are round, they often roll off a shelf, damaging the contents.

The present invention overcomes all the difficulties and disadvantages described, as well as others of conventional shipping and storage containers. According to the invention there is provided a container made of two dished sections having flat sides. It has no protruding parts. Its method of opening and closing is simple and secure. Expansion inserts may be provided, adapted to interlock with the container sections for expanding the carrying capacity of the sections. Other inserts may be provided for reducing or modifying the shape of the cavity defined by the several sections. One or more inserts can be provided especially formed to serve as spacer members and shock absorbers. The several sections and expansion inserts are provided with reinforced snap-locking clamps and may be provided with supplementary flexible band-like fasteners. These fasteners may be disposed selectively in open and closed positions in the container without materially protruding from the sides thereof.

The present invention has as one object to provide an improved container of general utility, for shipment and storage of articles and materials.

Further objects of the invention are: to provide a container having a closure which when closed is secure so that accidental blows, dropping, external pressures, etc., do not cause undesired opening of the container;

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to provide a container which may serve as a substantially air-tight, moisture-proof, insect-proof storage means; to provide a container having a body strong enough to avoid breakage and deformation under the weight of other packages and other stresses and strains normally encountered during shipment and storage; to provide a container having a closure means which is simply, easily and effectively operated during opening and closing of the container without requiring adhesives, cords, tools or other such closure aids; to provide means in a container for attaching identification and information labels without the use of adhesives, staples, etc., and in such manner that the labels are not normally removable without opening the container; to provide a container which lies flat without rolling or tipping; to provide a container without protruding parts which might scratch or catch other articles, containers or furniture and other surfaces with which it may come in contact, and which might injure persons handling the container; to provide a container which is light in weight; to provide a container which when closed prevents its contents from excessive vibration and movement; to provide means for inserting and removing humidifying or other agents for protecting and conditioning contents of the container during shipment and storage; to provide a container with means for increasing or decreasing its carrying capacity by use of suitable inserts; to provide means for attaching a carrying handle to a container when required.

Still further objects of the invention are: to provide means for preventing shock and damage between articles when more than one thereof is carried in the container; to provide a container which could be made of two interchangeable halves or sections which can be produced by mass production methods at low cost; to provide a re-usable container so that it can be used for repeated shipments and storage over many years.

According to the invention, the container is useful in shipping and storage of such things among others as photographic film, recording tape, phonograph records, precision instruments, etc.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIG. 1 is a side elevational view of a container in closed condition embodying the invention.

FIG. 2 is a plan view of the container.

FIG. 3 is a sectional view taken on line 3-3 of FIG. 2.

FIG. 4 is an exploded side elevational view of the container showing parts in an unassembled condition.

FIG. 5 is an elevational view similar to FIG. 4 illustrating one method of opening the container.

FIG. 6 is a side view of a fastener member employed with the container.

FIG. 7 is a bottom plan view of the fastener member.

FIG. 8 is a perspective view of the fastener member.

FIG. 9 is a top perspective view of one of the sections of the container, showing the exterior of the section.

FIG. 10 is a bottom perspective view of the section shown in FIG. 9.

FIG. 11 is a top plan view of an expansion insert for the container.

FIG. 12 is a sectional view taken on line 12-12 of FIG. 11.

FIGS. 13 and 14 are end and side elevational views, respectively, showing the container with the expansion insert in place therein.

FIG. 15 is a perspective view of a space reducing insert for the container.

FIG. 16 is a top plan view of the space reducing insert.

FIGS. 17, 18 and 19 are sectional views taken on lines 17—17, 18—18 and 19—19, respectively, of FIG. 16.

FIG. 20 is a top plan view of a shock-reducing insert for the container.

FIGS. 21 and 22 are sectional views taken on lines 21—21 and 22—22 of FIG. 20.

FIG. 23 is a side elevational view of the shock-reducing insert.

Referring to the drawings, there is shown in FIGS. 1-5 a sectional container 30 made in accordance with the present invention. The container comprises two sections 32 formed of plastic material. Each section is dish-shaped and comprises a flat body 31 substantially circular in plan, the flat body merging gracefully into a curved peripheral flange 33. The flange at one side of the body is enlarged and raised as indicated at 37 to provide a wall encircling substantially half said body and at the opposite side 39 is thinned or reduced. Between the enlarged side portion 37 and the thin side 39 the flange is cut away to form opposed flat sides 34. The flat sides 34 are on both sides of the body 31. The face of the enlarged portion 37 of the flange 33 is formed with an outwardly projecting elongated ridge 38 formed with a bevelled hook 35 on its outer end. The ridge 38 is reinforced by a metal strip 40. The ridges 38 with the hooks 35 serve as catches and will hereinafter be called "catches." An arcuate groove 42 is also formed in the face of the enlarged portion 37 inwardly of the ridge 38. The opposite thin portion 39 is formed with an outwardly projecting arcuate ridge 44 of the same shape as the groove 42 and adapted to fit into the groove 42 of the mating section. The thin portion 39 is formed with an opening 46, the inner wall of the opening having a flared wall terminating at its inner end in a bevelled ledge 47 shaped to receive and interlock with the hook 35 of the ridge 38 of the catch of the mating section.

The flat sides 34 are each formed with an elongated passage or tunnel 48 extending therealong, and disposed across the passage at spaced intervals are straps 50 and 52 adapted to slidably receive and retain the bowed spring body portion 54 of a fastener member 56 shown to best advantage in FIGS. 6, 7 and 8. Each elongated passage or tunnel 48 terminates in an oval-shaped recess 58, one end of the recess 58 intersecting the face of the flange of the section 32. Another oval-shaped recess 60 is also formed in the enlarged portion 37 of the flange of the section 32 outwardly of the flat side 34, one end of the recess 60 intersecting the face of the flange of the section. An inner passage 61 is formed in the enlarged portion 37 extending from the recess 60 to and intersecting the inner edge of the enlarged portion to slidably receive the fastener member 56. On the opposite thin side 39 of the section, inner and outer notches 41 and 43 are formed along the edge of the flange and adapted to register with the ends of the inner and outer recesses 58 and 60, respectively, of the mating section. The inner recess 58 is adapted to receive and retain the head 62 of the fastener member 56 when the fastener member is fully inserted through the guideway defined by the passage 48 and loops 50, 52 so that the sections 32 of the container are held closed as shown in FIG. 1. When the fastener member 56 is retracted from its fastening position for separating the sections and opening the container, it may be inserted through the recess 60 into and through the passage 48 formed in the enlarged portion 37 of the section for storage purpose, the recess 60 accommodating the head 62 of the fastener member.

Each section 32 is formed with a rectangular-shaped shallow recess 64 formed in the body portion 31 and intersecting the enlarged portion 37 of the flange 33, the recess being formed with an undercut groove 66. An

identification or information card 68 is adapted to be inserted in the recess 64 as shown in FIG. 2.

In order to assemble the container 30, the sections 32 are placed in superimposed position and then pressed together whereby the hooks 35 of the ridges 38 snap over and into interlocking relation with the ledges 47 and the ridges 44 snap into grooves 42. The sections are thus locked to each other providing a cavity or compartment 70 therebetween which is substantially air-tight and moisture-proof.

Referring to FIGS. 9 and 10, it will be noted that the sides of each section 32 are formed with the ridges or tongues 44 to engage in the grooves 42 of the mating section. The inner surface of the flange portion of the body of each section at the enlarged or thicker side 37 thereof is formed with recesses 76 with undercut side walls to receive inserts such as blotting paper strips 78 which may be moistened to provide a humid interior in the container. Inserts 78 may contain insecticides, perfume or other agents for conditioning the contents of the container as desired.

FIGS. 11-14 show an insert 75 which may be used as an expansion member to increase the carrying capacity of the container. This insert is a generally annular or ring-shaped member with one half of the member offset from the plane of the other half of the member. Elongated ridges 38^a with hooks 35^a are provided on opposite sides of the member 75 extending outwardly in opposite directions. These ridge members and hooks are similar to the catches of the sections 32. Slots 46^a provided with ledges 47^a are provided similar to the slots 46 and ledges 47 of sections 32. Ridges 44^a and grooves 42^a correspond to ridges 44 and grooves 42 of the sections 32. Recesses 72 may be provided on opposite sides of the insert to provide access to the ridges 38^a to open the container.

A loop handle 84 may be provided on one side of the member 75. The inner periphery 85 of member 75 registers with the inner peripheries of sections 32 to form an enlarged cavity in the container when the insert is assembled with the two sections 32 as shown in FIGS. 13 and 14. The insert 75 has opposed flattened sides 34^a registering with the opposed flattened sides 34 of sections 32 and further has an elongated passage or tunnel 48^a extending therealong and disposed across the tunnel are spaced loops 50^a and 52^a, all corresponding to similar passage and loop portions on the sections 32. Thus, two strap fasteners 54 may be employed to lock each of the sections 32 and the insert 75 together to form one unitary assembly as shown in FIGS. 13 and 14.

FIGS. 15-19 show an annular member or ring 86 which may be used as a capacity reduction and shock absorbing insert to be disposed in the hollow interior of the container 30 for adapting it to carry smaller articles without danger of vibration or excess movement. This ring has a hollow shell-like body with a top wall 89, being open at the bottom as viewed in FIG. 15, and is provided with spaced arcuate-shaped openings 88 defined by the inner peripheral wall 92, outer peripheral wall 98 and transverse walls 92.

FIGS. 20-23 illustrate another form of insert in the form of a plastic ring member 91 having a thick central disc-shaped body 93 and a thinner outer annular rim 97 joined by radial spokes 95. The insert may be placed between a pair of reels of photographic film or magnetic recording film in the cavity 70 of the container 30 to serve as a shock absorber and spacer member therefor.

In order to close the container 30, the two superimposed sections 32 are clamped together by the semirigid catches 38 which snap into place and engage on the ledges 47 in the slots 46 of the mating sections. Two strap fastener members 56 should be inserted in the passages 48 on both sides of the two sections 32. The heads 62 of the fastener members should be seated in the recesses 58. The normally arcuate fastener members will be

under tension due to their being held in substantially straight positions so that the heads of 62 cannot slip out of the recesses 58. The passages or tunnels 48 on both sides of the sections 32 supplement each other as the fastener members 56 extend across the joint from one section to the other.

To open the container, the strap or belt fastener members 56 should be grasped at their head ends 62 and completely withdrawn from the tunnels 48 and then reinserted into the recess 60 and tunnels 61 and 48. The body portion 54 of each fastener member 56 will now be clear of the other section 32. The fastener members will be held securely and safely until again needed to lock the sections together. The catches 38 may then be pressed outwardly to clear the ledges 47 somewhat in the manner shown in FIG. 5. This can be done by engaging a thumb on a catch 38 as illustrated by hand A in FIG. 5 while the fingers of that hand engage in the recess 64^a and press in opposite directions. By retracting the one catch and pushing it outwardly past the ledge 47 in the slot 46 the sections 32 are disengaged. Hand B illustrates another way of opening the clamp. The fingers of hand B engage the catch 38 and retract it while the heel of the hand presses on the narrow or thin side of the section. If desired, the actions described can be performed by both hands A and B simultaneously to release the sections.

It will be noted that the recess 64 is arranged so that when an information card is inserted and in place, it cannot be removed normally without opening the sections, since the adjoining sections together define a rectangular frame for the card. This construction also prevents accidental falling out or loss of the card during shipment or storage. Due to the recessed structure the card is located below the outer surface of the container and there is no protruding portion of the card or its frame to be damaged or broken off.

To expand the carrying capacity of the container and provide a carrying handle, one or more expansion inserts 75 can be inserted between two outer sections 32. The inserts all have mating catches 38^a, slots 46^a, ridges 42^a and grooves 44^a so that a unitary structure can be made. The locking fastener members 56 can be inserted between each pair of adjoining members to insure safe and secure locking of the several members together.

To reduce the capacity of a container, one or more of the annular reducing inserts 86 can be inserted in the hollow compartment or cavity 70 of the container, or in the expanded cavity obtained when one or more inserts 75 are used.

To provide a shock absorbing means between several articles such as tape reels, the inserts 91 can be used. If humidifiers or dehumidifiers are required, then suitable conditioning elements can be inserted in the grooves or recesses 76, such as wet or dry blotting paper 78.

It is preferred that the several parts of the container be constructed of durable, non-brittle, semi-flexible, almost rigid plastic material. Other materials may be used such as various plastics, metal, wood, a composition or combination of these materials. In shipping magnetic recording tapes, it is possible to metal-plate the interior of the container or to line it with magnetic material or metallic material to shield it from magnetic or electric fields.

Although the interior hollow compartment or cavity 70 of the container is here shown as having a generally circular form with flat top and bottom, and the shock-reducing insert 91 as well as the capacity reducer 86 are also shown round, these might be of any shape, conforming to the shape of whatever article was to be shipped or stored in the container. The shock-reducing insert should have its thickest portion between the strongest elements of the items being shipped or stored. For example, if the items contained are two reels of motion picture film in a circular cavity 70, the shock-reducing insert 91 would be round, and would have its thick body 93 in the center.

This would serve to keep the reels' flanges, which are the weaker and more flexible portions, from touching by supporting the reels at their centers which are the strongest points. Thus, the flanges of one reel would be prevented from touching the flanges of the other reel, and would even be prevented from touching the shock-reducing insert itself. Thus, the film carried on the reels could not be damaged during transportation.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. A container, comprising a pair of opposed dished sections, each of said sections having a generally flat body with a peripheral flange, said flange having an axially wide portion and an axially narrow portion, the wide and narrow flange portions of one section interfitting with the narrow and wide flange portions respectively of the other section, each of the wide portions being formed with two passages at its ends extending longitudinally therein, each passage terminating in an external recess, the two passages of one section being respectively disposed in continuous alignment with the two passages of the other section, and flexible straps removably disposed in the aligned passages locking the sections together, each of the straps having a head at one end adapted to seat removably in one of the recesses to retain the strap in a pair of aligned passages.

2. A container, comprising a pair of opposed dished sections, each of said sections having a generally flat body with a peripheral flange, said flange having an axially wide portion and an axially narrow portion, a generally annular member having two circumferential portions offset axially from each other, each of said circumferential portions and each of the wide flange portions being formed at its ends with two passages extending longitudinally therein and terminating in an external recess, the flanges of the opposing sections interfitting with opposite edges of said member, each of the passages in each of the flanges being disposed in continuous alignment with respective passages in the annular member, and flexible straps removably disposed in the aligned passages locking the sections to said member, each of the straps having a head at one end seated in one of the recesses in said sections and member to retain the strap in a pair of aligned passages.

3. As an article of manufacture, a container section comprising a dished structure having a generally flat body with a peripheral flange, said flange having an axially wide portion and an axially narrow portion for interfitting with narrow and wide portions respectively of an identical dished structure, each of the wide portions being formed with two passages at its ends extending longitudinally therein for receiving a locking strap, said passages terminating in external recesses for receiving heads of the straps.

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