

Sept. 23, 1952

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2,611,526

HEAVY-DUTY SHIPPING CONTAINER

Filed Oct. 20, 1950

2 SHEETS—SHEET 1

FIG. 1.

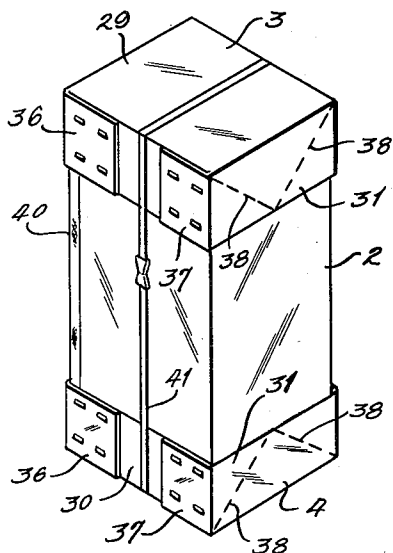


FIG. 2.

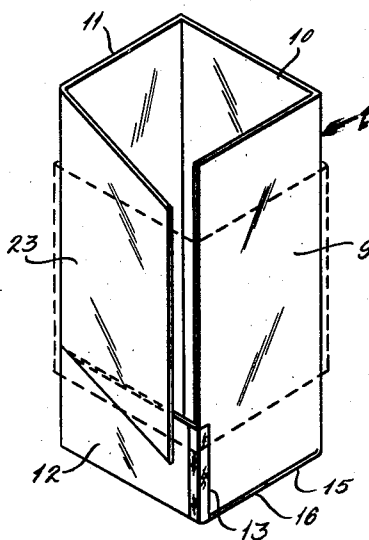


FIG. 3.

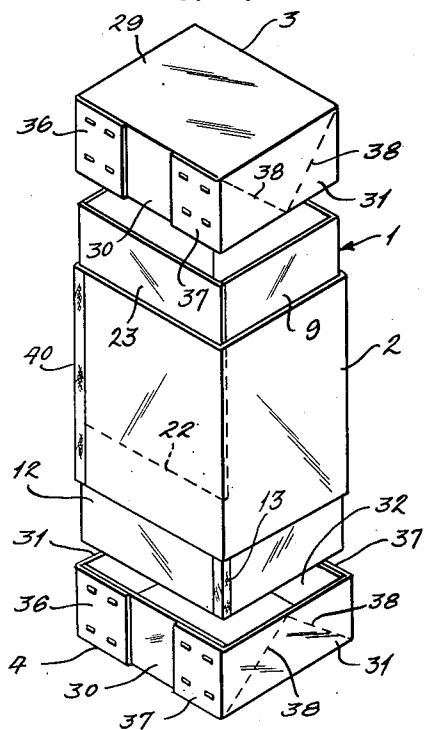
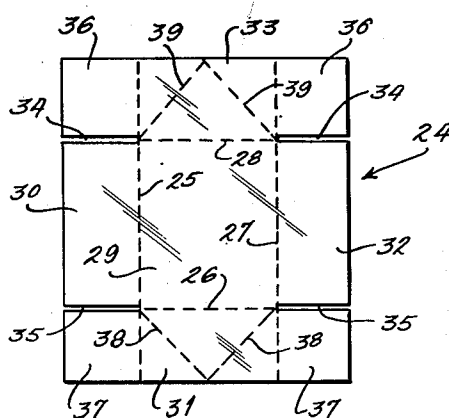


FIG. 5.



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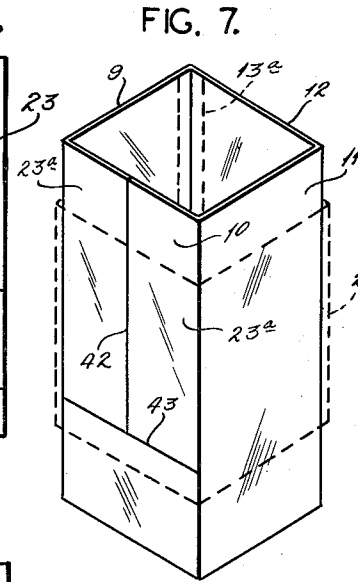
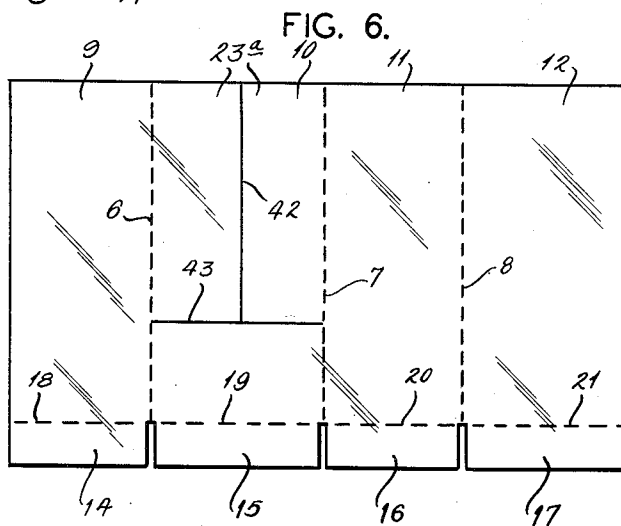
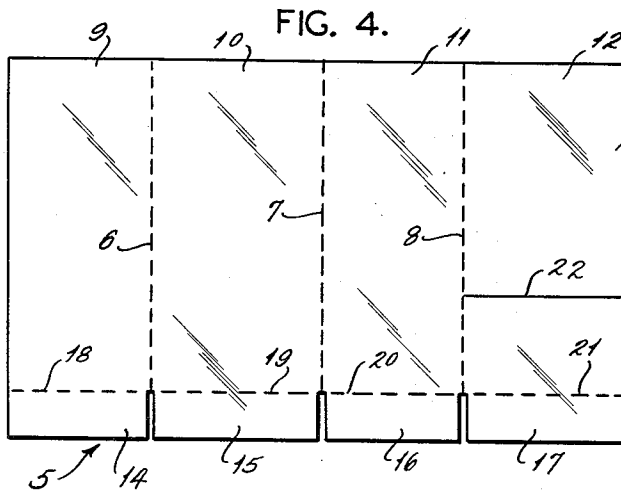
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2 SHEETS—SHEET 2



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UNITED STATES PATENT OFFICE

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HEAVY-DUTY SHIPPING CONTAINER

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2 Claims. (Cl. 229-14)

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The invention relates to relatively tall heavy-duty shipping containers especially adapted to meet the special problem of packing, transporting, and unpacking fragile articles such as rayon yarn wound on cones.

The packing and shipping of cone wound yarn such as viscose rayon, cellulose acetate filament and other artificial filament yarn presents a difficult practical problem due to the extremely fragile nature of the yarn. It is the practice of the yarn industry to wind the yarn in the form of cones on tapered cores, wrap the cones and then pack them in paperboard holders, stacking the holders in relatively tall master shipping containers. The cores of the cones have a relatively large base and a small apex or "button" projecting beyond the wound yarn for the purpose of anchoring the cones vertically in top and bottom openings in the holders. The base of the core has an opening to receive the button of the subjacent core so that in stacking the holders in the master container each cone is aligned with and anchored to a subjacent and an overlying cone. The cone holders are usually packed in layers eight high in a master container designed to hold from 96 to 128 wound cones weighing from 350 to 500 pounds or even more.

Since the stacks of holders are quite high, usually of the order of 50 inches, the master container of necessity is relatively tall compared with its other dimensions, making it difficult and time consuming to pack them in the lower portions and align and anchor the cones in proper position without damaging the yarn.

From the foregoing it will be apparent that the major problems are those of protecting the fragile yarn and providing a master container sufficiently strong to transport the relatively heavy contents without damage and at the same time to provide an easy and convenient means for loading the cone holders.

Prior art practices attempt to solve these problems by providing a full telescopic type container consisting of an inner liner and top and bottom telescoping covers abutting approximately midway the height of the container. The liner of the container is generally coextensive in length with the height and is usually provided with an access opening which may be a hinged door in one of the walls of the liner extending from the top of the liner to about one-half the length thereof. The container is loaded by inserting the liner into the lower half of the telescopic cover so that the lower edge of the access opening or the hinged door, as the case may be, is adjacent

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to and usually a few inches above the upper edge of the lower half of the telescopic cover. This construction makes it necessary for the operator to reach downwardly through at least one-half the height of the container to pack the lowermost layers of cone holders. The reach thus imposed is usually of the order of 25 inches. Due to the fragile nature of the cones, large number of holders, and the requirement that each cone must be anchored in a subjacent cone as the stacking progresses, this style of container imposes an inconvenient and time consuming problem in properly and safely packing the lower layers of holders.

One of the principal objects of the present invention is to provide in a master container of the type described, free and unobstructed access to the lower portion of the body, thereby permitting articles to be packed carefully, easily, and conveniently on and near the bottom of the container.

Another object is to provide a master shipping container of the class described which may be readily assembled and re-used for several successive trips from the point of origin to the consumer.

A further object is to provide a fully collapsible master shipping container especially for packing and transporting filament yarn wound on cones which may be shipped from the manufacturer to the user in knocked down form requiring no stitching operations on the part of the user and which may be assembled conveniently, quickly, and economically.

Another object of the invention is to provide a master container of the class described having two plies of paperboard and flush exterior faces throughout, the inner ply being provided with an access opening or door of a size that permits convenient packing of the entire container and which is completely enclosed by a sleeve which is snugly telescoped thereover after or near the completion of the packing operation.

Still another object of the invention is to provide a heavy duty multi-trip master container of the required strength, rigidity and durability for transporting the lading for which it is designed, wherein the component parts may be constructed of the most economical combinations of weight and strength of board materials.

Other objects and advantages of this invention will be apparent to those skilled in the art upon a full and complete understanding of the construction and operation of this device.

The invention provides a relatively tall ship-

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ping container with flush exterior faces throughout comprising a rectangular body section with an access opening in a wall thereof, the body section being closed at both ends with caps having flanges paralleling and enclosing the end portions of the walls of the body section, an outer reinforcing collapsible open ended sleeve snugly paralleling, contacting and completely enclosing the body section walls between said cap flanges, the free ends of said sleeve being in edgewise abutment with the free ends of the cap flanges.

The invention consists in a construction which dispenses with an inner liner and permits the access opening or hinged door in the body section to extend downwardly adjacent to the bottom of the container so that the operator is required to reach only a few inches over the lower edge of the access opening to properly and carefully position the lower rows of the holders and align and anchor the cones in each holder with those of the subjacent and overlying holders. This downward extension of the access opening cannot be made with the conventional container comprising an inner liner with telescoping half covers. Furthermore, the present design provides a completely collapsible container. The components thereof are completely prefabricated and shipped knocked down by the box manufacturer so that the assembly of the container by the user involves only the erection of the collapsible parts.

In addition, the container is well adapted for multiple trip use; upon unloading, the component parts may be readily collapsed, returned to the loading point knocked down, and re-assembled for the succeeding trips. This is an important practical feature which is not inherent in the conventional stitched, non-collapsible styles of containers of the class described.

The invention is shown embodied in a shipping container comprising a tubular open ended upright rectangular body section with an access door therein, flanged closure caps closing the adjacent ends of the body section and a reinforcing sleeve enclosing the portion of the body section between the flanges of the closure caps. Briefly, the body section of applicant's container is provided with a vertically hinged door cut in one of the body walls. The opening is bounded on the bottom edge by a horizontal slit extending across the face of a wall, and on one side by a vertical slit extending upwardly from the horizontal slit to the top edge of the body and on the other side by an adjacent wall corner. In a preferred form, the door is hinged at one corner of the wall and the vertical slit on the free edge of the door is at the adjacent corner.

In a modified form of the invention a vertical slit may be positioned substantially midway between the corners of a wall of the body section, connecting with a horizontal slit to form substantially counterpart, vertical, outwardly opening doors hinged at the vertical corners. This modification preserves the integral unbroken structure of the corner above the horizontal slit.

A telescoping sleeve fits snugly over the body member completely spanning and enclosing the access door therein including the remaining portions of the body member between the upper and lower cap flanges. The sleeve is of such length that the upper and lower free edges thereof abut the edges of the upper and lower closure cap flanges respectively, thus providing the container with uniform flush exterior faces throughout.

The invention also consists in the parts, arrangements and combinations of parts herein-

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after described and claimed. In the accompanying drawings which form part of this specification and wherein like numerals refer to like parts wherever they occur:

Fig. 1 is a perspective view of the assembled container with a binding strap attached,

Fig. 2 is a perspective view of the body section of the container showing the hinged door partially open with the position of the telescoping sleeve indicated in broken lines,

Fig. 3 is a perspective view of the container with the upper and lower flanged closure caps detached from the body section,

Fig. 4 is a plan view of the body section blank,

Fig. 5 is a plan view of one of the flanged closure caps,

Fig. 6 is a plan view of a modified body section blank,

Fig. 7 is a perspective view of the body section similar to Fig. 2 showing doors of the modified form closed with the position of the telescoping sleeve indicated in broken lines.

In Figs. 1 through 5 of the accompanying drawings, my invention is shown embodied in a relatively tall, heavy-duty shipping container comprising an open ended body section 1 with a sleeve 2 telescoped over the intermediate portion thereof, and flanged closure caps 3 and 4 for closing the ends of said body section 1.

The body section 1 comprises a four-sided tubular body made by folding a blank 5 along score lines 6, 7, and 8 disposed between and parallel with the two opposite ends thereof to form walls 9, 10, 11, and 12. The lower portions of the two opposite ends of said blank 5, or the lower portions of the free upstanding edges of the walls 9 and 12 are secured preferably by means of an adhesive strip 13. The walls 9, 10, 11, and 12 are provided, with closure flaps 14, 15, 16, and 17 which depend from the lower edges thereof and which are defined by score lines 18, 19, 20, and 21, respectively. This construction provides an inner reinforcement to the bottom flanged cap. Obviously, the closure flaps are optional features of convenience which can be omitted.

The upper portions of the upstanding free edges of the walls 9 and 12 are preferably not secured, and the wall 12 is provided with a slit 22 to define the lower edge of an access door 23 which hinges and is free to pivot along the vertical score line 8.

The closure caps 3 and 4 are formed from a blank 24 wherein scores 25, 26, 27, and 28 define a closure panel 29 and depending flanges 30, 31, 32, and 33. The closure cap 3 is assembled by folding the flanges upwardly along the scores hereinbefore mentioned to form a rectangular cap for the body section 1. The blank 24 is provided with slits 34 and 35 which define tabs 36 and 37 which are folded over and attached to the flanges 30 and 32 by staples or other suitable means. The flanges 31 and 33 are provided with diagonal scores 38 and 39 to permit collapsing the assembled caps in flatwise form for shipping to the user.

The telescoping sleeve 2 is formed from a rectangular blank (not shown) by folding along three appropriate score lines disposed between and parallel with the two opposite ends thereof and securing said ends together through the length of the corner formed thereby, preferably by means of an adhesive strip 40 thereby forming a rectangular tube similar in shape to the body section 1 and with inside dimensions such as to give it a snug fit when telescoped over said

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body section. The length of the sleeve 2 is shorter than the length of the body section 1. As shown in the drawings, the combined length of the sleeve 2 and the vertical flanges on the closure caps 3 and 4 is equal to the length of the body section 1, thereby insuring the free edges of the sleeve 2 and said flanges in edgewise abutting relation.

In assembling the container, the body section 1 is bent into its rectangular form and the lower portions of the walls 9 and 12 are secured by means of the tape 13. The body section 1, with its closure flaps 14, 15, 16, and 17 folded inwardly into closed position, is then inserted into one of the assembled closure caps 4, the upturned flanges of which form a snug friction fit around the walls of said body section adjacent the ends thereof. The access door 23 is swung outwardly and the articles are packed in the body section. Upon completion of the loading, the door 23 is swung into closed position and the sleeve 2 is telescoped over the body section 1 until the lower free edges of the sleeve 2 abut against the upturned free edges of the upstanding lower closure cap flanges 30, 31, 32, and 33. The upper closure cap 3 is then fitted over the upper portion of the body section 1 with the free edges of the corresponding downturned flanges in abutting relation to the free upper edges of sleeve 2 whereby the free edges of the upper end of the body section 1 abut against the inner face of the closure panel 29 of the closure cap 3. A binding strap 41 is attached vertically around the container which is then ready for handling and transporting.

One of the important features of the invention is the outer telescopic sleeve completely enclosing the body section including the access door between the free edges of top and bottom cap flanges. This sleeve in addition to reinforcing the access door in the wall of the body section serves to reinforce the loaded container against any tendency toward outward deflection of the walls as well as vertical stacking compression.

It will be observed that upon the complete assembly of the container, the outer faces of all of the walls present flush surfaces which insure flatwise contact of strap 41 with the walls throughout their length, thus contributing to the rigidity and firmness of the package.

A modified form of the invention is illustrated in Figures 6 and 7 in which two outwardly swinging vertically hinged access doors are provided in one of the walls of the body section. In this form a vertical slit 42 in the side wall 10 is positioned substantially midway between the vertical corners of the wall and extends downwardly from the upper edge thereof to connect with a substantially horizontal slit 43 extending across the wall 10 from corner to corner. The vertical slit 42 defines the free vertical edges of the doors 23a which abut in the closed position thereof and which hinge and are free to pivot along the vertical score lines 6 and 7 above the horizontal slit 43.

The container of this invention provides manifold advantages. It insures substantially unobstructed access to the lower portion of the body section for conveniently and safely aligning and anchoring each cone of wound yarn with its subjacent and overlying cone. It eliminates all stitching operations on the part of the user and reduces the assembly of the container to the simple operation of setting up the collapsed components. Another important practical advantage of the container is its adaptability to multiple trip use. The heavy-duty construction of master containers for shipping cone wound yarn is rela-

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tively expensive. Consequently, their re-use for one or more additional trips results in a very substantial saving to the user. The re-use of the stitched type containers typical of the conventional designs is impracticable. They cannot be returned to the loading point in knocked down form for additional trips. By providing collapsible snugly fitting closures for the body section, the container of the subject invention may be readily knocked down without impairing the strength, rigidity, and durability of its component parts, returned and quickly and easily re-assembled for reloading.

Furthermore, the design is especially adapted to the use of the most economical combinations of weight and strength of board materials to provide the required overall strength and rigidity for transporting the lading for which it is designed and the extreme economy of square footage of board required in its construction.

The flush exterior faces of the container provide unobstructed surfaces for printing on all portions of the container.

It is to be understood that the embodiments herein described are illustrative and not restrictive, and it is also to be understood that the invention may be susceptible of embodiment in other modified forms, and that all such modifications which are similar or equivalent hereto come equally within the scope of the claims next appearing.

What I claim is:

1. A relatively tall collapsible shipping carton comprising a one-piece tubular rectangularly shaped body section, a one-piece outer rectangularly shaped tubular sleeve complementary in shape with and of less length than the body section and having end edges in a single plane terminating substantially equidistant inwardly from opposite end portions of the body section, thus exposing outer face portions of the body section, a substantially similarly formed removable and collapsible closure cap slidably and snugly positioned on each of the exposed portions of the body section, each cap having a panel and integral flanges with end edges of the flanges in a single plane with opposed flanges having diagonal score lines to permit collapsing of the caps, the dimensions of the flanges being so calculated with respect to the exposed end face portions of the body section as to completely cover the same, the opposed end edges of the body section abutting an interior adjacent portion of the panel of the caps, and the end edges of the sleeve and the edges of the cap flanges being in direct abutting and aligned relationship and in the same plane.

2. A relatively tall collapsible shipping carton comprising a one-piece tubular rectangularly shaped body section, a one-piece outer rectangularly shaped tubular sleeve complementary in shape with and of less length than the body section and having end edges in a single plane terminating substantially equidistant inwardly from opposite end portions of the body section, thus exposing outer face portions of the body section, a substantially similarly formed removable and collapsible closure cap slidably and snugly positioned on the exposed portions of the body section, each cap having a base and an integral flange with end edges of the flanges in a single plane, the dimensions of the flanges being so calculated with respect to the exposed end face portions of the body section as to completely cover the same, the opposed end edges of the

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body section abutting an interior adjacent portion of the base of the caps, the end edges of the sleeve and the edges of the cap flanges being in direct abutting and aligned relationship and in the same plane, the integral cap flange consisting of associated opposed pairs of individual flanges of similar shape and width with unobstructed smooth inner surfaces for engagement with the exposed outer face portions of the body section, an integral flap extension from the corners of an opposed pair of flanges with the flaps in contacting relationship with and of substantially the width of adjacent exterior portions of the other opposed pair of flanges, the free end edges of the flaps being spaced from each other to provide a groove therebetween, in which groove a portion of a retaining band that surrounds the container may be disposed, and opposed exterior surfaces of the walls of the sleeve

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and exterior surfaces of the said flap carrying flanges being uniformly flush and smooth throughout.

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