

July 28, 1970

G. W. BOYER

3,521,810

VARIABLE SIZE CONTAINER

Filed June 21, 1968

2 Sheets-Sheet 1

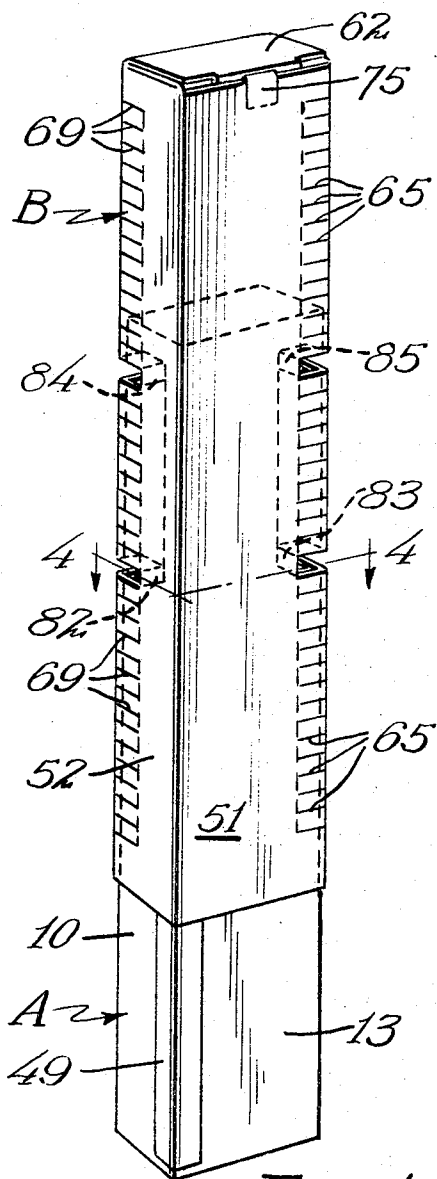


FIG. 1

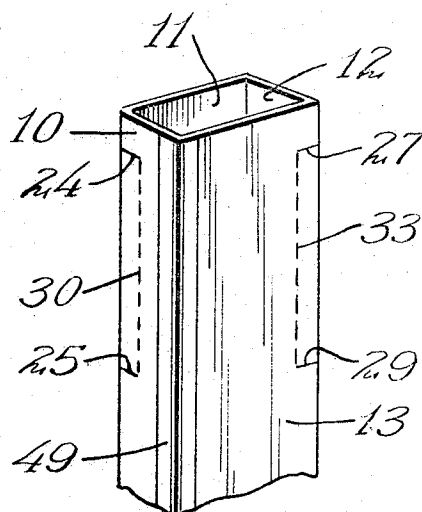


FIG. 2

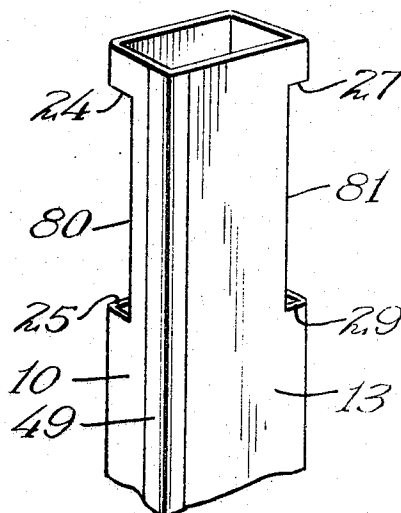


FIG. 3

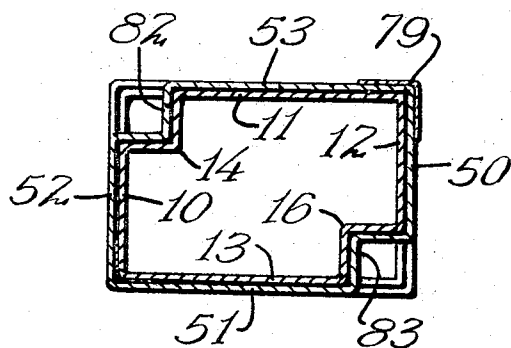


FIG. 4

INVENTOR
GARY W. BOYER
BY Robert M. Danning
ATTORNEY

July 28, 1970

G. W. BOYER

3,521,810

VARIABLE SIZE CONTAINER

Filed June 21, 1968

2 Sheets-Sheet 2

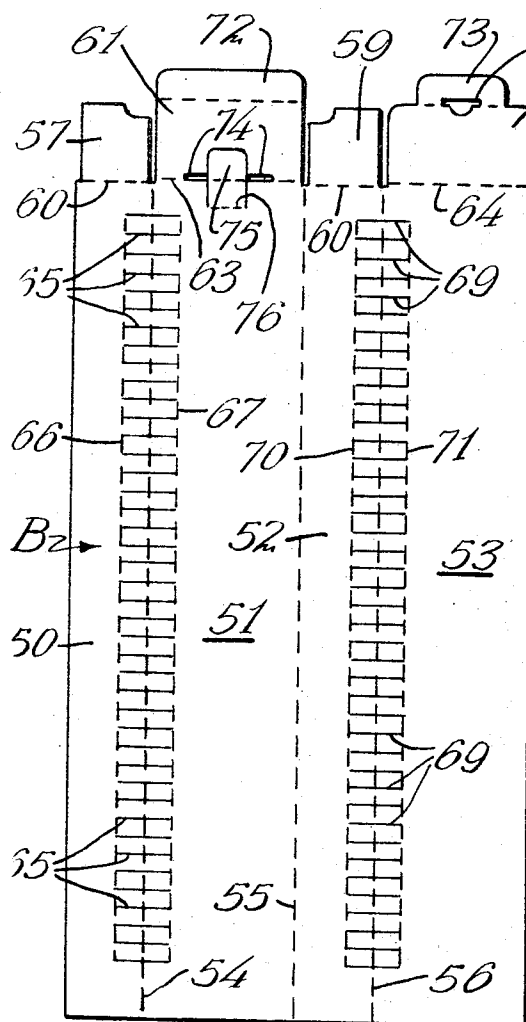


FIG. 6

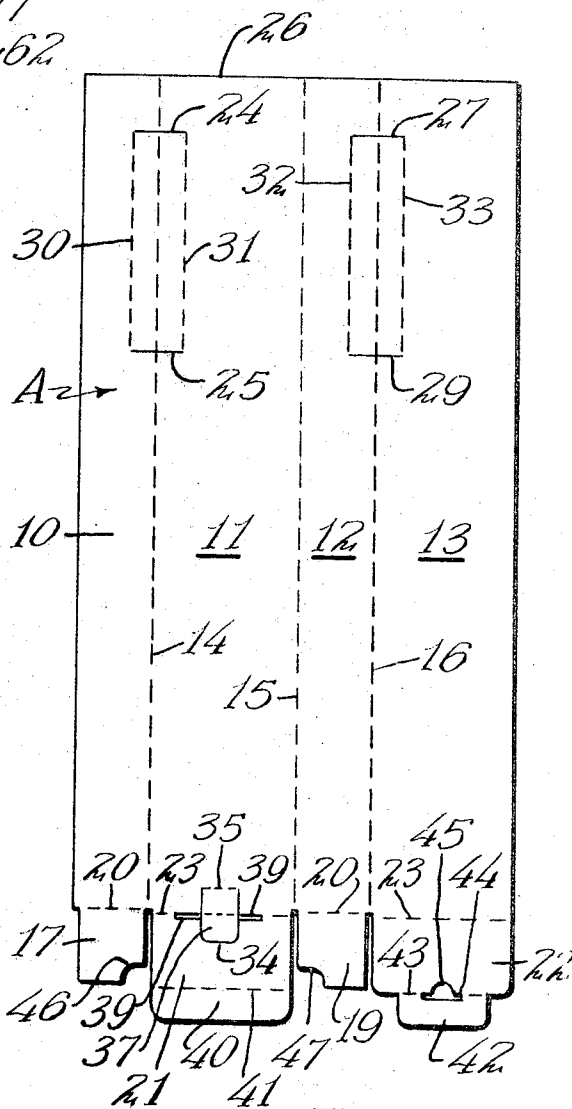


FIG. 5

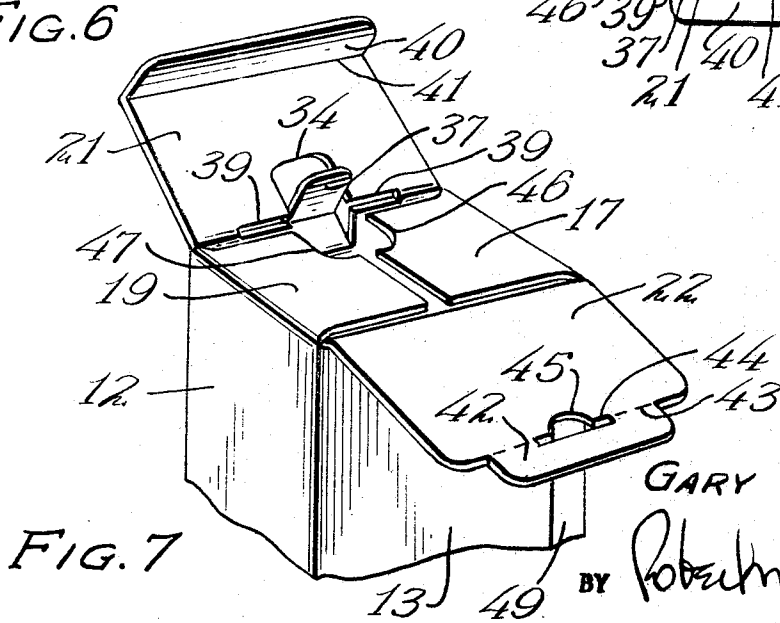


FIG. 7

INVENTOR

GARY W. BOYER

BY Robert M. Dunning

ATTORNEY

1

2

3,521,810

VARIABLE SIZE CONTAINER

Gary W. Boyer, Sand Springs, Okla., assignor to Hoerner
Waldorf Corporation, St. Paul, Minn., a corporation
of Delaware

Filed June 21, 1968, Ser. No. 739,077

Int. Cl. B65d 7/24, 13/00

U.S. Cl. 229—23

10 Claims

ABSTRACT OF THE DISCLOSURE

A container is provided for containing elongated articles of various lengths. Two elongated rectangular sections each having an open end and a closed end are telescoped together. The inner of the two sections includes a pair of slits intersecting the fold lines of diagonally opposed corners of the section, the ends of which are connected by fold lines parallel to the intersected fold lines and spaced on opposite sides thereof. The portions of the containers between the slits are forced inwardly to provide elongated rectangular notches. The corresponding corners of the outer container are provided with closely spaced slits intersecting the fold lines at these corners, the ends of the slits being connected by parallel fold lines. The areas between any of these slits may be forced inwardly into the elongated notches of the inner section to lock the sections from relative movement.

This invention relates to an improvement in a variable size container and deals particularly with a container useful in the packaging of items which are generally of the same cross-sectional size, but which may vary considerably in length.

Various types of items, such as skis for example, vary quite materially in length, although they are of a generally similar cross-section. As will be understood, it is quite costly to maintain an inventory of container of various lengths for the packing of skis of various lengths. As a result, it is common practice to purchase containers of suitable length to contain the longest skis, and then to provide some sort of interior packing to prevent the skis from moving lengthwise of the package during shipment. Such packages take up considerably more room than is necessary and also provide more labor than is necessary because of the interior packing in the containers containing all but the longest skis shipped.

The use of telescoping containers has been proposed. The main objection to such containers lies in the fact that the two parts of the container must be taped or similarly secured together; and if the taped joint should fail, the container may slide apart. Accordingly, it is an object of the present invention to provide a telescoping container including simple interlocking means which hold the two parts of the container in an adjusted relation and which will not permit relative sliding between the parts of the container once the container has been locked.

A feature of the present invention resides in the provision of a container of the type described including an interengaging locking means which may be produced at no additional cost to the manufacturer once the die for producing the containers has been formed. Thus, the shipper may have a better container at no increase in price.

A feature of the present invention resides in the provision of a telescoping container in which the inner of the two telescoping members is provided with two parallel slits intersecting a corner of the container at the juncture of two hingedly connected walls, and including a pair of fold lines on opposite sides of the fold lines connecting the two panels and parallel thereto. The area between the slits may be forced inwardly to provide a right angular

notch along the corner. Preferably similar notches are provided in two diagonally opposite corners of the inner container member. These notches are preferably provided near the open end of the inner container member.

In order to provide a lock, the outer container member is provided throughout the major portion of its length with parallel slits intersecting the fold lines connecting two adjacent panels of the outer container member, such slits being generally of the same length as the slits in the inner container member. The slits in the outer container member are relatively closely spaced. As a result, the area of the corner between any two pairs of adjacent slits may be forced inwardly to form a rectangular notch in the outer container. By forcing suitable areas of the outer container into the notches of the container, the two container parts may be securely locked from relative longitudinal movement.

A feature of the present invention resides in the provision of a container of the type described in which the rectangular notches in the inner container are substantially a multiple of the length of the notches or distance between the slits and the outer container. As a result, areas in the outer container may be pressed inwardly adjoining each end of the notch in the inner container to hold the two container parts from sliding movement in either direction.

A further feature of the present invention resides in the provision of a container of the type described in which the shipper may readily determine by feel which of the areas in the outer container from being pushed inwardly except in the notched areas of the inner container. As the length of the notches in the inner container is known, once the area at one end of the inner notch has been pressed inwardly, the area opposite the other end of the notch in the inner container may be determined by count.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specifications.

In the drawings forming part of the specification.

FIG. 1 is a perspective view of the completed and closed container.

FIG. 2 is a perspective view of the open end of the inner container member in its original form.

FIG. 3 is a view similar to FIG. 2 showing the areas of the inner container forced inwardly to form rectangular notches in diagonally opposite corners of the container.

FIG. 4 is a sectional view of the container, the position of the section being indicated by the line 4—4 of FIG. 1.

FIG. 5 is a diagrammatic view of the blank from which the inner container is formed.

FIG. 6 is a diagrammatic view of the blank from which the outer container member is formed.

FIG. 7 is a perspective view of the lock which forms a closure for the container, the figure showing the inner container member in inverted position.

The inner portion A of the container is illustrated in FIG. 5 of the drawings in its blank form. As illustrated, the container includes a side wall 10, a rear wall 11, a second side wall 12, and a front wall 13 which are hingedly connected along parallel fold lines 14, 15 and 16. Closure flaps 17 and 19 are hingedly connected to the side walls 10 and 12 at one end thereof along aligned fold lines 20. Closure flaps 21 and 22 are foldably connected to the corresponding ends of the rear and front walls 11 and 13 along aligned fold lines 23. The fold lines 23 are shown slightly offset from the fold lines 20 to allow for the thickness of the corrugated board or similar material from which the container is formed.

A pair of slits 24 and 25 intersect the fold line 14 and near the open end 26 of the lower container portion, and similar slits 27 and 29 intersect the fold line 16, the slits

3

27 and 29 being aligned with the slits 24 and 25 respectively. The slits 24 and 27 are spaced from the blank end 26 as is indicated. Fold lines 30 and 31 connect the ends of the slits 24 and 25 and are equally spaced on opposite sides of the fold lines 14 and are parallel thereto, the fold line 30 being in the side wall 10 and the fold line 31 in the rear panel 11. In a similar manner, fold lines 32 and 33 connect the ends of the slits 27 and 29 and are equally spaced on opposite sides of the fold line 16 and are parallel thereto. The fold line 32 is in the side wall 12 and the fold line 33 in the front wall 13. As will be understood, the terms "front wall" and "rear wall" are merely for the purpose of orientation.

A generally U-shaped cut line 34 intersects the fold line 23 connecting the closure flap 21 to the rear wall 11, the sides of the U-shaped cut line intersecting the fold line 23 at right angles, and these sides extending substantially equal distances on either side of the fold line 23. A fold line 35 in the rear wall 11 hingedly connects the locking tab 37 defined by the cut line 34 to the front wall 11. The juncture between the closure flap 21 and the rear panel 11 is slotted as indicated at 39 on opposite sides of the cut line 34.

A tuck flap 40 is provided hingedly connected to the end of the closure flap 21 along a fold line 41 which is parallel to the fold line 23 connecting the closure flap 21 to the rear panel 11. The closure flap 21 is substantially equal in length to the width of the side walls 10 and 12.

A tuck flap 42 is also hingedly connected to the closure flap 22 along a fold line 43 which is parallel to the line of fold 23 connecting the closure flap 22 to the front wall 13. The tuck flap 42 is centrally located relative to the closure flap 22 and is substantially narrower than the flap 22. The width of the tuck flap 42 is substantially equal to the distance between the outer ends of slots 39 at the juncture between the closure flap 21 and the rear wall 11. A slot 44 is provided adjoining the fold line 43 in the tuck flap 42, and a finger notch 45 communicating with the center of the slot 44 extending into the closure flap 22. To complete the inner container member, the outer edges of the panels 10 and 13 are taped as indicated at 49 to form a rectangular tubular body.

The closure construction is best illustrated in the FIG. 7 of the drawings. The closure flaps 17 and 19 are folded down into a common plane as shown in this figure and it will be noticed that the corners of the closure flap nearest the rear wall 21 are notched as indicated at 46 and 47 respectively. The closure flap 21 is folded down to overlie the closure flaps 17 and 19, and the tuck flap 40 is tucked into the container between the forward edges of the flaps 17 and 19 and the front wall 13. The locking tab 37 is folded outwardly of the rear wall 11. The closure flap 22 is then folded over the closure flap 21, and the tuck flap 42 is folded down through the slots 39 to extend inwardly of the rear wall 11. The locking tab 37 is then inserted through the slot 44 to lock the closure together.

The blank B which forms the outer telescoping member is quite similar to the inner section A but is slightly larger in diameter so as to be slideably supported on the lower section A. The blank B includes a side wall 50, a front wall 51, a second side wall 52, a rear wall 53. These panels are foldably connected along parallel fold lines 54, 55, and 56. Closure flaps 57 and 59 are foldably connected to the upper ends of the side walls 50 and 52 along aligned fold lines 60 and closure flaps 61 and 62 are foldably connected to the upper ends of the front and rear panels 51 and 53 along aligned fold lines 63 and 64 respectively.

A series of parallel slots 65 intersect the fold line 54 at right angles thereto throughout the major portion of the length of the fold lines 54. Fold lines 66 and 67 extend along opposite ends of the slits 65, the fold lines 66 and 67 being spaced equally on opposite sides of the fold

4

line 54 and extending parallel thereto. The fold line 66 is in the side wall 50 while the fold line 67 is in the front panel 51. In a similar manner a series of slits 69 intersect the fold line 56 and extend at right angles thereto. Fold lines 70 and 71 extend along opposite ends of the slits 69 in parallel spaced relation to the fold 56. The slits 69, similarly to the slits 65, extend equal distances on each side of the fold line 56.

The slits 65 and 69 are arranged in alignment, one slit 65 being aligned with each slit 69. The distance between the slits 24 and 25, and the slits 27 and 29 of the blank A are spaced apart a distance equal to a multiple of the distance between the slots 65 and 69. For example, in a typical example, the slits 24 and 25 and 27 and 29 are spaced apart a distance equal to twelve inches. The slits 65 and 69 are spaced apart a distance of one inch. Thus, when the two blanks are secured in tubular relation and are telescoped together, there are twelve spaces between the slots 65 and 69 overlying the areas between the slots 24, 25, and 27 and 29 of the inner portion of the container.

The top closure structure is similar to that previously described in conjunction with the closure of the inner container member A. The flaps 57 and 59 are designed to fold down into a common plane. The closure flap 61 is folded over the flaps 57 and 59, and a tuck flap 72 on the closure flap 61 is designed to tuck between the edges of the closure flaps 57 and 59 and the rear panel 53. A narrow tuck flap 73 on closure flap 62 is designed to tuck into slot 74 at the juncture between the closure flap 61 and the front wall 51 along a fold 76 spaced from the top fold line 63 is designed to tuck through a slot 77 at the juncture between the tuck flap 73 and the closure flap 62.

In operation, the side wall 50 is marginally taped to the rear wall 53 by tape indicated in FIG. 4 by the numeral 79. The end closures of the two container portions may then be closed if desired, holding the two sections in tubular relation. The areas of the inner container portion between the fold lines 30 and 31, and between the fold lines 32 and 33 are folded inwardly to form elongated notches 80 and 81 as indicated in FIG. 3 of the drawings. As indicated, the notches 80 and 81 are in diagonally opposite corners of the container A. The elongated articles being packed may then be inserted into the inner portion of the container, and the outer container portion B may be telescoped onto the inner container portion A in the manner indicated in FIG. 1 of the drawings.

The two container portions A and B are telescoped until the contents fill the length of the container. Inward force is applied to the area between the slits 65 and 69 which corresponds to the lower ends of the notches 80 and 81. This can be simply accomplished because all of the areas between the slits 65 and 69 of the outer container section B are supported by the corners of the inner section except those overlying the notches 80 and 81, and accordingly cannot be flexed inwardly forming locks 82 and 83. The areas between a pair of closely spaced slits 65 and 69 just above the slits 25 and 29 of the inner section A are forced inwardly thus locking the two parts from further telescoping movement. Another area is pressed inwardly just below the slits 24 and 27, forming right angular locks 84 and 85 which lock the two parts of the container from separation.

Obviously, the container may similarly be made by telescoping the two container sections together to form a container of the desired length, and locks such as 82, 83 and 84, 85 may be formed to prevent further relative movement in either direction. The container may then be filled through an end of the container before the container is locked closed.

From the foregoing description, it will be obvious that the container may be varied very materially in length from a point where the two portions of the container telescope substantially through their entire length to a

5

point where the outer portion of the container extends but slightly beyond the rectangular notches 80 and 81. As will be seen, the two parts of the container may be securely locked virtually in any position to form a container of the desired length.

In accordance with the patent statutes, I have described the principles of construction and operation of my variable size container; and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the following claims without departing from the spirit of my invention.

I claim:

1. A variable size container including:
 - a pair of elongated tubular container sections having open inner ends, one of said sections being slidable over the other to provide inner and outer sections, said sections including opposed parallel front and rear panels, and opposed parallel side panels connecting the edges of the front and rear panels to provide corners therebetween,
 - an elongated notch in the inner section near the open end thereof, the notch extending along one of said corners and extending into the panel portions connected at said corner, on opposite sides thereof,
 - a series of slits intersecting the fold line defining the corner of said outer section overlying said notched corner of said inner section,
 - said slits intersecting said fold line at substantially right angles and extending an equal distance on each side thereof, and said parallel slits extending along a length of the said corner of said outer section which is considerably longer than the length of said notch in said inner section,
 - fold lines extending along the ends of said slits parallel to said fold lines and spaced from said fold line a distance not exceeding the width of the notch in the underlying panels, whereby
 - the areas between any two adjacent slits overlying said notch in said inner section may be pressed into said notch to provide an angular lock extending into said notch.
2. The structure of claim 1 and in which said notch in said inner section is substantially longer than the distance between said slits in said outer container.

6

3. The structure of claim 1 and in which said notch in said inner section underlies a plurality of said slits.

4. The structure of claim 3 and in which said notch is of a length equal to a multiple of the distance between adjacent slits.

5. The structure of claim 1 and in which diagonally opposed corners of said inner section are provided with similar notches.

6. The structure of claim 5 and in which diagonally opposed corners of said outer section include similar slits.

7. The structure of claim 1 and in which said notches are formed by a pair of spaced parallel slits at right angles to and extending equal distances on opposite sides of the fold line forming said one corner, fold lines connecting the ends of said last named slits and extending parallel to said last named fold line, and the areas of the panels between said last named slits being folded inwardly along said last named fold lines connecting the ends of said slits.

8. The structure of claim 7 and in which said slits intersecting said one fold line of said inner section are spaced apart a distance substantially greater than the distance between said slits in said outer section.

9. The structure of claim 7 and in which said slits in said inner section are spaced apart a multiple of the distance between the slits of said outer section.

10. The structure of claim 7 and in which said inner section is provided with similar notches in diagonally opposed corners.

References Cited

UNITED STATES PATENTS

2,154,195	4/1939	Benoit	229—29
3,111,222	11/1963	Mueller	206—45.31 X
3,111,223	11/1963	Jacobi	229—23
3,379,362	4/1968	Nerenberg et al.	229—29
3,416,648	12/1968	Levi	229—10 X

FOREIGN PATENTS

1,248,556 11/1960 France.

JOSEPH R. LECLAIR, Primary Examiner

S. E. LIPMAN, Assistant Examiner

U.S. Cl. X.R.

220—8; 229—9