

July 16, 1957

K. H. KAYE

2,799,423

FASTENER FOR COLLAPSIBLE WIRE CONTAINER

Filed May 27, 1955

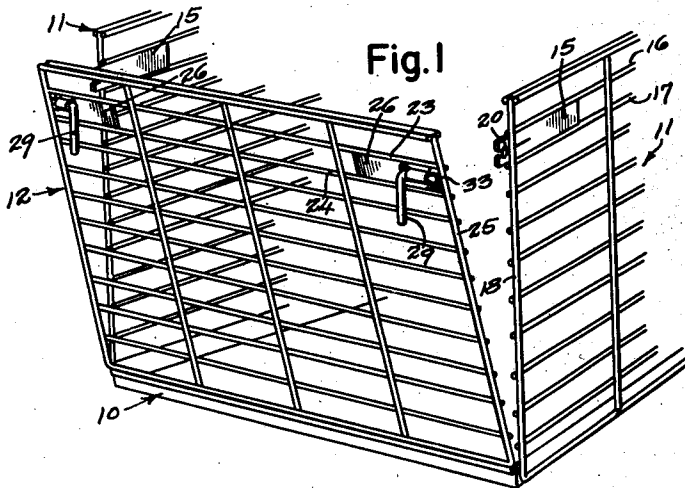


Fig. 1

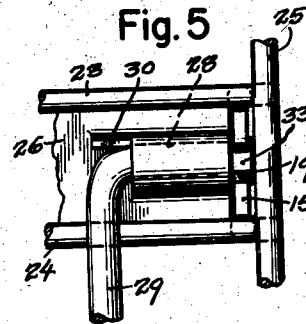


Fig. 5

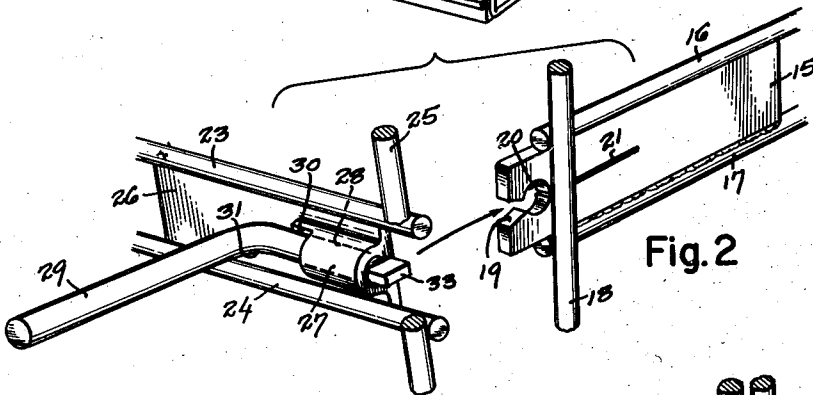


Fig. 2

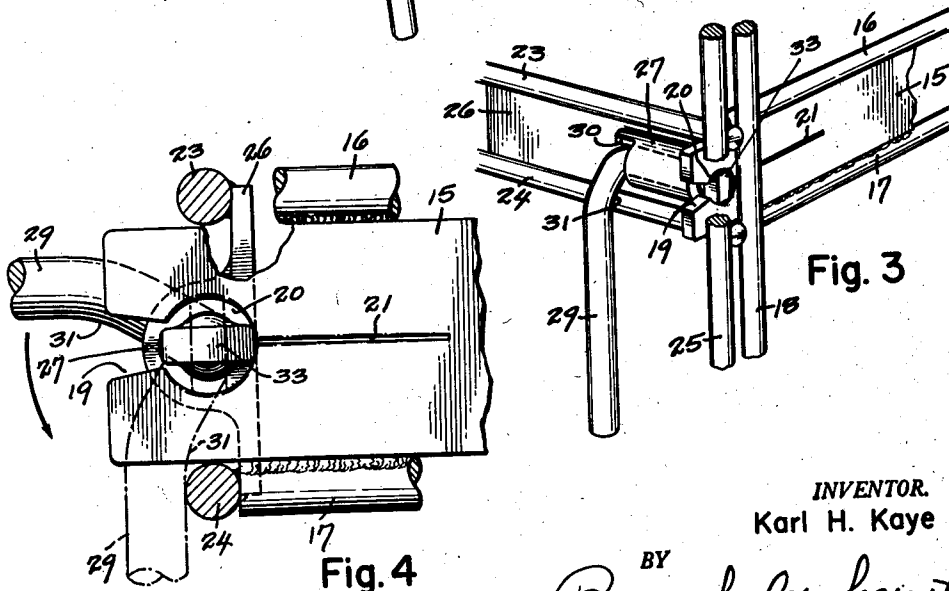


Fig. 3

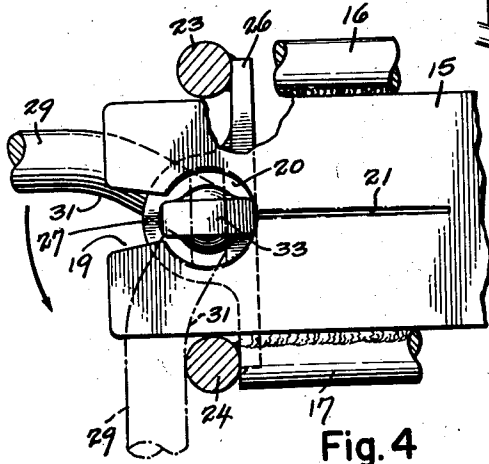


Fig. 4

INVENTOR.
Karl H. Kaye

BY
Barner, Seed & Sweet
attys.

1

2,799,423

FASTENER FOR COLLAPSIBLE WIRE CONTAINER

Karl H. Kaye, Seattle, Wash.

Application May 27, 1955, Serial No. 511,619

9 Claims. (Cl. 220—7)

This invention relates to knockdown containers whose side walls are hinged to permit the same to be collapsed one upon another and upon the bottom wall so that the container will occupy a compact space when not in use, and having means provided on the free side edges of the side walls for securely locking said hinged walls one to another when the walls are in an erected condition.

The invention pertains especially to a container having improved locking means, and for its objects aims to engineer into the container a locking means of simple and inexpensive construction, one which admits of being easily operated, which occupies an out-of-the-way position, which effectively resists accidental opening, and which is sturdy and long-lasting.

Other more particular objects and advantages will, with the foregoing, appear and be understood in the course of the following description and claims, the invention consisting in the novel construction and in the adaptation and combination of parts hereinafter described and claimed.

In the accompanying drawings:

Figure 1 is a fragmentary perspective view illustrating a collapsible container embodying locking means constructed to embody the preferred teachings of the present invention.

Fig. 2 is an enlarged-scale fragmentary view illustrating the locking means of the present invention as a revolvable latch component thereof is being moved into engagement with a complementing keeper.

Fig. 3 is a fragmentary perspective view showing said latch and keeper in their locked position.

Fig. 4 is a fragmentary end elevational view of said latch and keeper drawn to an enlarged scale and showing by full and dotted lines the positions occupied by the revolvable latch as it moves through a quarter turn from a non-locked to a locked condition; and

Fig. 5 is a fragmentary side elevational view of the latch and keeper when the latch is locked to the keeper, the scale employed being enlarged from that of Figs. 1 and 2 but reduced from the scale of Fig. 4.

No effort is here made to detail the construction of the container, and suffice it to here say that the same provides a bottom wall section 10 and four side wall sections. One opposed pair of these side wall sections are commonly hinged to opposite ends of the bottom wall section 10, and the other opposed pair of side wall sections are commonly hinged to diagonally opposite edges of the side wall sections. However, for ease of illustration and considering that the same is of no moment to the present invention, I have shown the side wall sections in Fig. 1 as if they were hinged in each instance to the bottom wall section. While not here shown, the bottom wall section also customarily has legs at each of the four corners elevating the container so as to accommodate the same to the fork arms of a lift truck, such legs being commonly so made as to interfit with the top edge of another con-

2

tainer in order that the erected containers will stack one upon another.

The walls of the container are each an openwork grid-like structure composed of spaced horizontal rods crossed by spaced vertical rods and with the vertical rods being welded to the horizontal rods at each of the points of crossing. Such rods are or may be composed of fairly heavy gauge wire stock.

The locking means for the side walls of the container are comprised, in each instance, of a bolt and a keeper, with the bolt being carried as a mortise fitting on the free side edge of one side wall section and with the keeper complement thereof being carried as a mortise fitting on the adjacent free side edge of another side wall section. Designated generally by 15, said keeper is produced from a piece of flat bar stock and at one end is formed with a fairly wide flaring throat 19 leading to an eye 20. Beyond said eye 20 the flat bar has a slit 21 extending on the longitudinal median line for a fairly substantial distance. The length of said eye 20 is slightly greater than the width. In applying the keeper, the same is welded between two adjacent horizontal rods 16 and 17 of a side wall section denoted by 11, being desirably so placed that the outer face of the keeper is flush with the inner face of the wall section, and with the nose of the keeper protruding in such a degree that the inner limit of the eye coincides with the face of the vertical rod 18 which defines the edge limit of the wall section. To receive said protruding nose of the keeper there is provided an opening 22 in the side edge of the associated side wall section denoted by 12, this opening being defined top and bottom by two adjacent horizontal rods 23 and 24 of the related wall section, along the outer side by the outermost vertical rod 25 of said wall section, and along the inner side by the outer edge of a mounting plate 26 welded between said two horizontal rods 23 and 24. As with the keeper 15, said mounting plate 26 is produced from flat stock and is so applied as to have its outer face lie flush or approximately flush with the inner face of the related wall section. Welded to the outer face of such mounting plate 26 is a saddling cap 27, and journaled for turning movement between said cap and plate is one leg 28 of an L-shaped bolt produced from round stock. The other leg 29 is located to the rear of the saddling cap and functions as a handle for turning the journaled leg 28. A notch 30 in the saddling cap serves as a stop limiting the turning movement of such handle to an approximate quarter-circle, and in compensation of the positioning of the bolt's journal axis in the approximate vertical plane of the horizontal rods 23 and 24 there is provided in the handle an offset 31. This is advantageous in that when the handle lies in the downturned locking position in which it is shown by dotted lines in Fig. 4, the free end thereof occupies substantially the same plane as that of the concerned wall's vertical rods and there is in consequence no protrusion of the handle beyond the face limit of the concerned wall section.

The front end of leg 28 projects beyond the bearing, and this projecting end is flattened, as at 33, to produce a terminal catch arranged to pass through the throat 19 into the eye 20. This catch has a thickness permitting the same to freely enter the throat 19, and its width is moderately greater than the diameter of the eye 20 across the latter's minor axis, thus acting, as the catch is given a quarter turn within the eye from a position aligned with the throat to a position at right angles thereto, to impose a slight spreading action upon the keeper so as to yieldingly lock the catch within the keeper.

It is thought that the invention and the manner of its usage will have been clearly understood from the foregoing detailed description of the illustrated preferred embodi-

3

ment. Minor changes will suggest themselves and may be resorted to without departing from the spirit of the invention, wherefore it is my intention that no limitations be implied and that the hereto annexed claims be given a scope fully commensurate with the broadest interpretation to which the employed language admits.

What I claim, is:

1. In a collapsible container, a bottom wall section, side wall sections of which at least two adjacent sections have normally disconnected side edges movable toward and from one another into approximate touching contact, one of said two sections providing a keeper projecting beyond the said side edge and arranged to be disposed through a registering opening formed in the related side edge of the other section, said keeper comprising a plate of flat bar stock disposed on edge and having in its projecting portion a horizontal throat open to the front and leading to an enlarged eye, and a revolubly mounted flat catch for said keeper carried by the other said wall section and arranged when the keeper is inserted in its said registering opening to pass through the throat into the eye whereupon a quarter turn of the catch causes the same to be locked to the keeper, said side wall sections being grid-like structures composed of spaced horizontally extending and spaced vertically extending rods connected by weld joints at the points of crossing, and wherein the keeper is received between and welded to two adjacent horizontally extending rods of the related side wall section.

2. A container according to claim 1 having a mounting plate in which the catch is revolubly journaled, and wherein said mounting plate is received between and welded to two adjacent horizontally extending rods of the related side wall section.

3. A container according to claim 1 in which said catch is formed by flattening the free end of one leg of an L-shaped length of round bar stock, the flattened end being wider than the diameter of the bar stock and acting in conjunction with the angular projection of said other leg to hold the catch against endwise motion in relation to the journal for the catch.

4. A container according to claim 3 in which the rotary mounting for said catch is comprised of a mounting plate received between and welded to two adjacent horizontally extending rods of the related side wall section and having a cap welded to the mounting plate in saddling relation to a portion of the terminally flattened leg of said L-shaped length of round bar stock.

5. In a collapsible container, a bottom wall section, side wall sections of which at least two adjacent sections have normally disconnected side edges movable toward and from one another into approximate touching contact, one of said two sections providing a keeper whose front end projects forwardly beyond the said side edge and is arranged to be disposed through a registering opening formed in the related side edge of the other section, said keeper comprising a plate of flat bar stock disposed on edge and formed with an eye disposed central to the width of the keeper and from which a horizontal access throat extends forwardly on the longitudinal median line of the keeper, and a revolubly mounted flat catch for said keeper carried by the other said wall section and arranged when the keeper is inserted in its said registering opening to pass through the throat into the eye whereupon a quarter turn of the catch causes the same to be locked to the keeper, said catch having a width slightly greater than the vertical dimension of the eye, and said keeper having a slot extending rearwardly from the eye

4

on the longitudinal median line of the keeper for a distance sufficient to permit the eye to spread in the degree necessary to compensate the same to the greater width of the catch as the catch is turned within the eye, thus tensioning the keeper upon the catch when the catch is lodged in the eye.

6. In a collapsible container, a bottom wall section, side wall sections of which at least two adjacent sections have normally disconnected side edges movable toward and from one another into approximate touching contact, one of said two sections providing a keeper whose front end projects forwardly beyond the said side edge and is arranged to be disposed through a registering opening formed in the adjacent side edge of the other section, said keeper comprising a plate of flat bar stock disposed on edge and formed with an eye disposed central to the width of the keeper and from which a horizontal access throat extends forwardly on the longitudinal median line of the keeper, the side wall sections being each a grid-like structure composed of spaced horizontally extending inner rods occupying a common plane and spaced vertically extending outer rods also occupying a common plane, and with the said inner and outer rods in touching contact and connected by weld joints at each of said points of contact, the keeper being received between and welded to two adjacent horizontally extending rods of the related wall section, a revolubly mounted catch for said keeper comprised of a length of round bar stock flattened upon one end to provide a terminal tongue so dimensioned that the same will pass sideways through the throat into said eye of the keeper and lock itself within the latter by the act of giving a quarter turn to the catch, the mounting for said catch comprising a plate received between and welded to two adjacent horizontally extending rods of the other of said two wall sections and having a cap welded to its outer face in saddling relation to a round portion of said catch located at the root end of the tongue, handle means being provided upon the catch for turning the catch in its mounting.

7. The collapsible container of claim 6 in which the mounting plate is so placed that the journal axis of the catch lies in the approximate vertical plane occupied by said inner rods of the related wall section.

8. A collapsible container according to claim 7 in which the length of round bar stock from which said catch is produced is L-shaped with the tongue and journaled portion formed upon one leg thereof and with the other leg serving as the handle means.

9. A collapsible container according to claim 7 in which the length of round bar stock from which said catch is produced is L-shaped with the tongue and journaled portion formed upon one leg thereof and with the other leg serving as the handle means, the handle-forming leg having a crook at its root end locating the free end of said leg in a plane moderately offset from and parallel to a plane traversing the journal axis of the other leg, said tongue occupying said last-mentioned plane.

References Cited in the file of this patent

UNITED STATES PATENTS

2,403,993	Nyhus	July 16, 1946
2,648,455	Bitney	Aug. 11, 1953
2,681,744	Averill	June 22, 1954

FOREIGN PATENTS

490,138	France	Nov. 29, 1918
---------	--------	---------------