Nov. 9, 1965 W. H. FÜRRER 3,216,426

COLLAPSIBLE FILE CONTAINER

Filed July 6, 1961 3 Sheets-Sheet 1

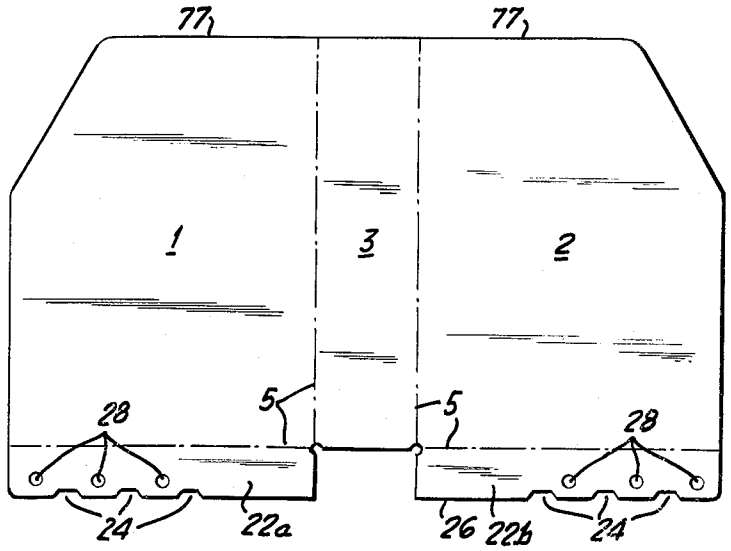

FIG. 1

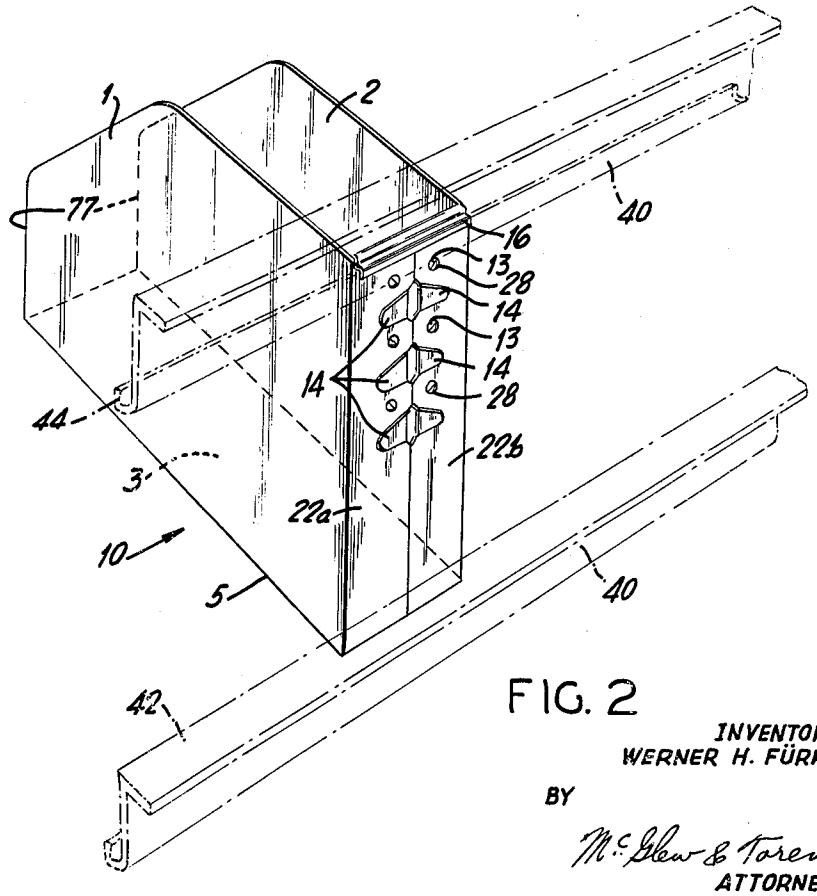

FIG. 2

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Filed July 6, 1961 3 Sheets-Sheet 2

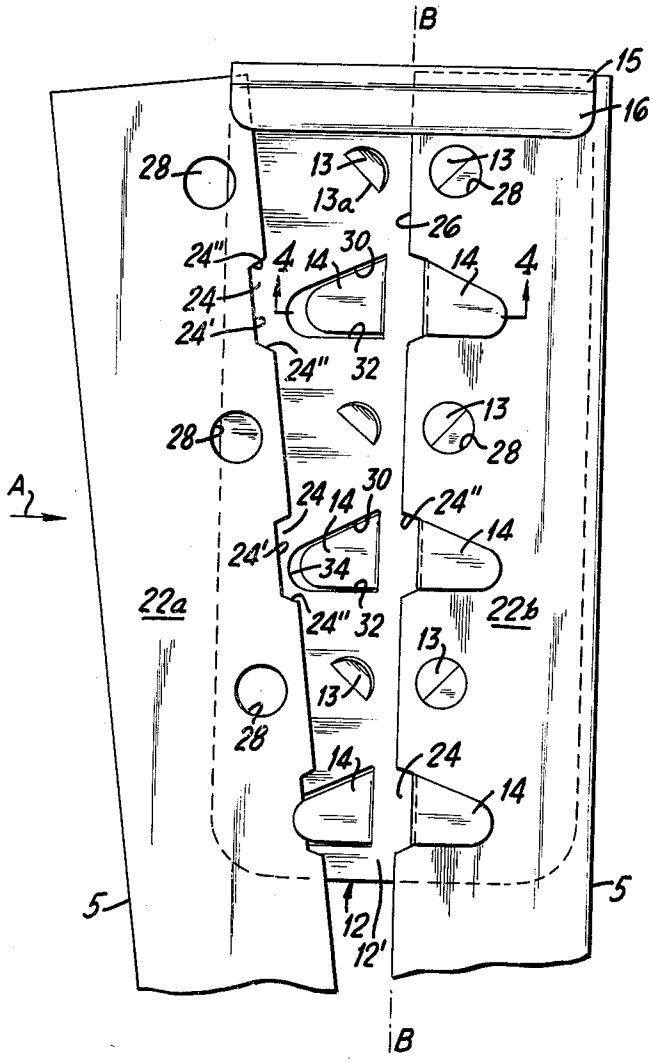

FIG. 3

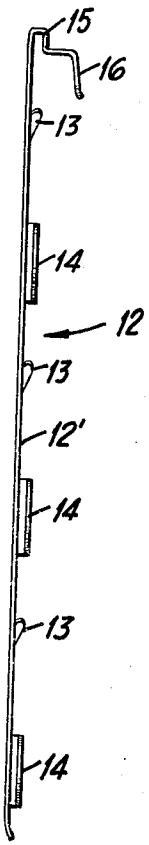

FIG. 5

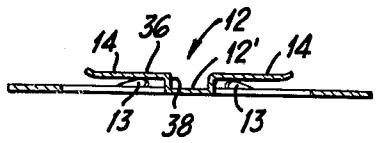

FIG. 4

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COLLAPSIBLE FILE CONTAINER

Filed July 6, 1961 3 Sheets-Sheet 3

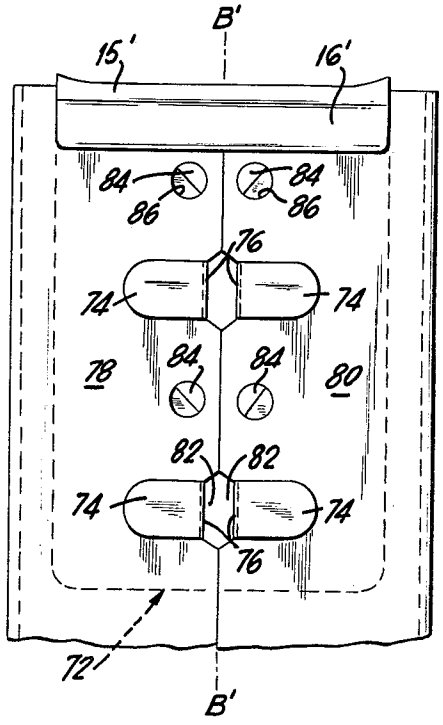

FIG. 6

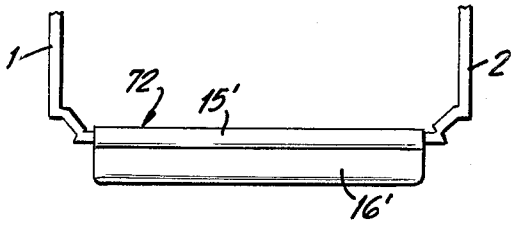

FIG. 7

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United States Patent Office 3,216,426 Patented Nov. 9, 1965

3,216,426

COLLAPSIBLE FILE CONTAINER

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Claims priority, application Switzerland, May 31, 1961, 6,370/61
2 Claims. (Cl. 129—16.7)

This application is a continuation-in-part of application Serial No. 703,691, filed by the present applicant on December 18, 1957, now abandoned.

This invention relates in general to containers and in particular to a new and useful collapsible container for files and similar material which may be folded to an erected position with the rear walls positioned in abutting relationship and which rear walls are held together in an assembled condition by a combination stiffening, supporting and fastening member which includes a portion overlying the rear face of the inner one of the rear walls and including a portion projecting outwardly from the exterior of the erected container for supporting the container from a suspension rack.

The present invention is particularly applicable for storing files or papers which may be advantageously placed in the erected container and the container suspended on a supporting rack. For this purpose, the container advantageously includes a supporting element at one or both ends for suspending the container with the files therein.

The present invention is an improvement over prior art devices, particularly in the arrangement of the container elements which may be stored or shipped in a collapsed or flat condition and easily erected into a sturdy container structure for the storage of the files.

In accordance with the invention, there is provided a container blank including a bottom wall, side walls hingedly connected at each side of said bottom wall, and a rear wall connected to at least one corresponding side of each of said side walls. The blank is erected into the container by folding the side walls upwardly from the bottom wall and forming the rear wall so that they are arranged in abutting relationship between opposite side walls. The invention includes a combination stiffening, supporting and fastening member which is easily positioned to overlie a face of one or both of the rear walls and includes a clamping portion to hold the rear walls in a substantially parallel erected position. The combination stiffening, supporting and fastening member is advantageously made of a rigid material, such as metal, and it functions to stiffen the erected container structure. It includes a hooked extending portion permitting the entire container to be supported by hooking the extension over a similarly hook-shaped supporting rack.

In accordance with one embodiment of the invention, the combination stiffening, supporting and fastening member advantageously includes a plate portion which overlies a rear face of the inner one of the rear walls and strengthens a major portion of the height of the rear wall and includes a tab portion which extends downwardly over the outer face of the outer one of the rear walls to hold the two rear walls in an erected position. The combination stiffening, supporting and fastening member advantageously includes projecting elements which extend into aligned openings on the rear walls in order to hold them in a parallel erected position. The combination stiffening, supporting and fastening member further includes a hook-shaped upper portion which extends outwardly at the upper end of the rear wall of the container for the purpose of hooking this rear wall onto a supporting rack for suspension purposes.

In accordance with another embodiment of the invention, there is provided a combination stiffening, supporting and fastening member which includes cut-out areas which are bent to form tabs which fit into cooperative engagement with recesses formed along the edge of abutting rear wall members. In addition, means such as cut-out tabs are provided to fit into openings which become aligned therewith when the rear walls are disposed in a parallel erected position. The invention includes a modification and arrangement of the combination stiffening, supporting and fastening member and rear wall construction to effect the stiffening of the rear walls when they are assembled in an erected position and the holding of the rear walls in an erected position, and provides means for suspending the container in a manner to distribute the forces in vertical, horizontal and oblique directions in respect to the rear walls.

It is an object of this invention to provide an improved container construction.

A further object of the invention is to provide a container construction made from a blank having a bottom wall, side walls hingedly connected to each side of said bottom wall, rear walls hingedly connected at at least one corresponding end of each of said side walls and foldable into abutting relationship, and including a combination stiffening, supporting and fastening member which is secured to a rear wall to hold the container in an erected position to permit the supporting of the container.

A further object of the invention is to provide an open ended, open top container for receiving files, books and the like comprising collapsible walls which are foldable into an erected position and including a combination supporting stiffening and fastening member holding the walls in an aligned, substantially parallel relationship, including means for suspending the container extending outwardly from the folded walls.

A further object of the invention is to provide an open ended, open top container held together in an erected position by a stiffening member and includes clamping means extending through the walls to hold the walls in an aligned erected position and a supporting hook extending outwardly from the upper end for supporting the container in an erected condition.

A further object of the invention is to provide a container which is simple in design, rugged in construction and economical to manufacture.

The various features of novely which characterize the invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, its operating advantages and specific objects attained by its use, reference should be had to the accompanying drawings and descriptive matter in which there are illustrated and described preferred embodiments of the invention.

In the drawings:

FIG. 1 is a plan view of a blank for forming the container in accordance with the invention;

FIG. 2 is a perspective view of the container in an erected condition indicated supported on a supporting rack;

FIG. 3 is a fragmentary rear elevation of the container indicated in FIG. 2 with the rear wall shown prior to complete erection;

FIG. 4 is a section taken on the line 4—4 of FIG. 3;

FIG. 5 is a side elevation of the combination supporting, stiffening and fastening member as viewed from the side indicated by the arrow A of FIG. 3;

FIG. 6 is a fragmentary rear elevation of another embodiment of the invention; and

FIG. 7 is a fragmentary top plan of the embodiment of container indicated in FIG. 6.

Referring to the drawings in particular, the embodiment of the invention indicated in FIGS. 1 to 5 includes an open ended, open top container generally designated **10** for files, books and similar material, and which is advantageously made of paper-board or similar material. The container **10** includes a pair of side walls **1** and **2** hingedly connected to each side of a central bottom wall **3**. Rear walls **22***a* and **22***b* are hingedly connected to one end of each of side walls **1** and **2**, respectively. All of the walls **1**, **2**, **3**, **22***a* and **22***b* are foldable about the score lines **5**.

The invention includes a combination supporting, stiffening and fastening member generally designated **12** having an elongated flat portion or tongue **12'** which is disposed to overlie the interior face of the rear wall which is folded on the inside of the container **10**.

The combination stiffening, supporting and fastening member further includes a depending hook portion **16** provided to permit the entire container assembly to be hooked over a similarly hook-shaped supporting rack element for the purpose of suspending the complete container at such location.

The combination stiffening, supporting and fastening member functions to connect the two wall portions **22***a* and **22***b* adjacent the top and bottom thereof and to prevent relative displacement of these two wall portions and supplementary to stiffen these wall portions in their erected positions.

Referring to FIG. 1 in particular, there is indicated a blank generally designated **20** having side walls **1**, **2** and bottom wall **3** which are foldable about score lines **5**. In this embodiment, rear walls **22***a* and **22***b* are provided which have a plurality of trapezoidal shaped notches **24** cut into an outer edge **26**. In addition, substantially circular openings **28** are cut at spaced locations along the length thereof. Respective notches **24** and openings **28** align when the container is assembled and the side walls **1** and **2** are folded upwardly and the rear walls **22***a* and **22***b* are abutted.

In this construction, a combination supporting, stiffening and fastening member generally designated **12** (FIGS. 3, 4 and 5) is provided which is advantageously made of a metal strip of material such as sheet metal, and is made substantially symmetrical with regard to a center line B—B. Six semi circular flaps **13** are formed in the member **12** by cutting along a semi circular outline and bending the metal within the outline outwardly. In the construction indicated, three of the flaps **13** are arranged symmetrically on each side of the center line B—B at vertically spaced locations.

In addition to the flaps **13**, tongues or flaps **14** are formed by cutting the member **12** along an oblique line **30** which extends downwardly from a spaced location from the center line B—B. Member **12** is also cut along a substantially horizontal straight line **32** and a curved line **34** which interconnects the straight portion **32** and the oblique portion **30**.

As best indicated in FIG. 3, when the container is assembled, first one rear wall, for example, wall **22***b*, is positioned substantially vertical with its edge **26** along the center line B—B and the flaps **14** are bent downwardly over the exterior face thereof. Flaps **13** may either be bent backwardly over the rear wall **22***b* or forwardly over the wall to anchor the wall in an erected position.

It should be appreciated that the flap **14** advantageously includes a substantially flat portion **36** (FIG. 4) and a short portion **38** which extends outwardly substantially perpendicular to the flat face of the member **12**.

The upper end of the combination supporting, stiffening and fastening member **12** is provided with a bent portion **15** forming a channel for securing each of the walls **22***b* and **22***a* in place against the member **12**. In addition, a hook-shaped portion **16** is formed to permit the entire container to be supported on a hook-shaped rack **40**, as indicated in FIG. 2. In the preferred arrangement, the rack **40** is disposed in parallel spaced relationship so that a flat upper portion **42** forms a resting support for the bottom wall **3** and a lower hook portion **44** supports the container **10** by means of the hook-shaped portion **16**.

The trapezoidally-shaped notched areas **24** are formed of a substantially vertical base portion **24'** which extends parallel to the center line B—B upon erection. The sides of the area **24** are formed by obliquely extending side portion **24''**. The obliquely extending portions **24''** act to guide and center the rear wall **38** of the flaps **14** to the base portion **24'** of the trapezoidal cut-out area **24**.

After the rear wall **22***b* is centered, as indicated in FIG. 3, the rear wall **22***a* is moved into position by erecting the bottom wall **3** and the base portions **24'** are centered against the wall portion **38** of the flap **14** as before. A fold line **13***a* of the flaps **13** advantageously extends at an angle of about 45° in respect to the center line B—B, as indicated in FIG. 3. In arranging the flaps **13** in this manner, they are capable of absorbing both vertically and horizontally acting forces. The flaps **13** are bent out from the plane of the member **12** to an extent so that they project to at least half of the material thickness of the cardboard into the opening **28**.

The metal strip combination supporting, reinforcing and securing member **12** is of a length to extend at least over half the height of the entire container. However, if a very light load is to be supported in the container this member **12** may be made considerably shorter.

In the embodiment indicated in FIGS. 6 and 7, there is provided a combination supporting, fastening and reinforcing member generally designated **72** which includes the usual channel-shaped portion **15'** and the hook-shaped portion **16'** at the upper end. In this embodiment, flaps **74**, of substantially rectangular outline with curved outer ends, are cut out from the member **72** and they include back wall portions **76** which are substantially perpendicular to the face of the member **72** and form vertical abutments against which notched areas of the rear walls **78** and **80** are abutted. In this embodiment, the rear walls **78** and **80** include substantially trapezoidally-shaped notches **82** adapted to receive the flap **74**, as in the embodiment indicated in FIG. 3. Semi circular flaps **84** also are provided which fit into circular openings **86** formed by the associated rear walls **78** and **80**. In this prefered embodiment, rear walls **78** and **80** abut along ther common edges along the central line B'—B'. It is also possible that the edges of the rear walls **78**, **80** can be spaced from each other.

During erection of the container the combination securing, fastening and reinforcing member **72** is placed against the inner faces of the rear walls **78** and **70**. The flaps are raised to engage in the openings **86** of one of the rear walls and the other rear wall is moved into engagement and centered by the trapezoidal-shaped recess **82** so that the rear walls lie in a single plane. The edges of the rear walls **78** and **80** tightly abut against each other in the assembled position.

The reinforcing, supporting and fastening members are normally made from a non-resilient metal sheet and during assembly resilience or springiness is obtained from the blank portions of the container which are bent to conform the flaps into their aligned position. Normally, once the container is assembled, it is not necessary to disassemble the container and, generally speaking, the collapsible feature is desirable only prior to the initial erection when it is necessary to ship the materials flat and to store the materials for ready assembly to accommodate new bundles of files as they are accumulated. In some instances, however, it is preferable to make the combination securing, fastening and supporting members of a resilient material to permit them to bend in order to manipulate the various flaps out of the associated openings of the rear walls with the help of a special tool.

While in the embodiments indicated in the drawings the container is shown with one end open in all instances,

it should be appreciated that an additional set of walls may be formed on the opposite edges 77 of the container and secured in a similar manner by a combination supporting, fastening and reinforcing member. Further it is possible that the container is completely closed.

According to a further embodiment, the container could also be so constructed, that the rear side and the bottom are exchanged, e.g. the walls 22*a*, 22*b*, 78, 80 could form the bottom and the wall 3, could form the rear side.

While specific embodiments of the invention have been shown and described in detail to illustrate the application of the inventive principles, it will be understood that the invention may be embodied otherwise without departing from such principles.

What is claimed is:

1. A collapsible file container for use in connection with a suspension filing rack, comprising a single piece of material forming a plurality of substantially rigid wall elements constituting a bottom wall having opposite side edges, two side walls each hingedly connected to a respective opposite side edge of said bottom wall so that said side walls are located at either side of said bottom wall, said side walls being spaced from each other and extending in substantially parallel and upright relation with each other, and two rear wall sections each hingedly secured to a corresponding end of a respective side wall disposed in a common plane with edges thereof adjacent and in opposition; connecting means engaging said rear wall sections and comprising an elongated plate portion on the inside of said container and abutting against the rear wall sections with which it is to be associated, said plate portion having angle-like flaps each with a substantially vertical back, bent out from the material of the plate portion; said rear wall sections having notches at the adjacent edges having substantially vertical side edges each abutting a respective one of said vertical backs of said flap with the associated flap engaging said rear wall section adjacent the vertical side of said notch, said notches also having obliquely extending side edges for guiding and centering the rear wall sections relative to the flaps of the plate portion; and locking means acting between the rear wall sections and the plate portion for securing said wall elements in the upright position, comprising recess means defined in the rear wall sections and detent means extending from the plate portion and fitting into said recess means, said plate portion further including a supporting flange portion extending outwardly adjacent the upper edge of said plate member and including a downwardly extending portion for supporting said plate member, with the container, on a rack.

2. A collapsible file container for use in connection with a suspension filing rack, comprising a single piece of material forming a plurality of substantially rigid wall elements constituting a bottom wall having opposite side edges, two side walls each hingedly connected to a respective opposite side edge of said bottom wall so that said side walls are located at either side of said bottom wall, said side walls being spaced from each other and extending in substantially parallel and upright relation with each other, and two rear wall sections each hingedly secured to a corresponding end of a respective side wall disposed in a common plane with the edges thereof adjacent and in opposition; connecting means engaging said rear wall sections and comprising an elongated plate portion on the inside of said container and abutting against the rear wall sections with which it is to be associated, said plate portion having angle-like flaps each with a substantially vertical back, bent out from the material of the plate portion; said rear wall sections having notches at the adjacent edges having substantially vertical side edges each abutting a respective one of said vertical backs of said flap with the associated flap engaging said rear wall section adjacent the vertical side of said notch, said notches also having obliquely extending side edges for guiding and centering the rear wall sections relative to the flaps of the plate portion; and locking means acting between the rear wall sections and the plate portion for securing said wall elements in the upright position, comprising recess means defined in the rear wall sections and detent means extending from the plate portion and fitting into said recess means, said plate portion further including a supporting flange portion extending outwardly adjacent the upper edge of said plate member and including a downwardly extending portion for supporting said plate member, with the container, on a rack, said recess means comprising a plurality of openings in said rear wall sections, said detent means including a plurality of semi-circular flaps extending from said plate portion and fitting into corresponding ones of the openings in said rear wall sections.

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