

CONTAINER

BACKGROUND OF THE INVENTION

The present invention relates to a stackable storage container.

5 Stackable archive containers are known and typical of the prior art is Australian Patent No. 738661. This patent discloses an archive container which is cut from a cardboard sheet and when assembled has a back wall, top and bottom walls, side walls and a pivoting flap hinged to the bottom wall. In order to strengthen the containers, reinforcing bars link respective adjacent containers along
10 their front side edges. This will reinforce and join the containers together to allow the containers to be stacked.

 The problems with such containers are that they can leak, for example, if a fire protection sprinkler is activated or any other water leak, as water can enter from
15 the top of container because the bottom hinge. The overhanging lip does not offer any protection from water entering the container. Once water has entered the container the contents can be easily spoilt. The construction of the containers from cardboard under a water attack will also soften the cardboard and cause the containers to leak and absorb water and ultimately be destroyed. The contents can
20 also be destroyed. The containers also have a stacking limit as the reinforcing bars dissipate the weight of the containers over the thickness of the reinforcing bars which can cut into the cardboard if stacked too high.

 It is an object of the invention to provide a stackable storage container which
25 is stronger than the prior art containers.

SUMMARY OF THE INVENTION

 With this object in view the present invention provides a stackable storage
30 container having a pair of side walls, top wall, bottom wall and rear wall, a pair of upper and lower front walls hinged to the top wall and bottom wall respectively of said container, whereby said upper front wall at least partially overlaps said lower

front wall along its length.

In a further aspect of the invention there is provided a stackable storage container having a pair of side walls, top wall, bottom wall and rear wall, a pair of upper and lower front walls hinged to the top wall and bottom wall respectively of said container, wherein at least one joiner is fitted to the side walls and/or rear walls of adjacent containers to link adjacent containers together, each joiner having a pair of parallel separated leg members depending from a base member, whereby said leg members abut the inside of respective adjacent side walls and/or rear walls through respective apertures in adjacent top walls and said base member lies across both said adjacent top walls to link said adjacent containers together and provide support for a container stacked thereon.

Preferably said container is formed from a water resistant sheet material. In a preferred embodiment said water resistant sheet material is formed as two flat sheets connected by ribs. Preferably said water resistant sheet material is a polypropylene.

In a practical embodiment said joiner has said leg members formed as longitudinal planar members of a rigid material preferably plastics, metallic or other suitable rigid material. It is preferred that the leg members extend along the height of the side walls. In one embodiment said apertures for said joiners are located centrally, or off centre, along said side walls.

BRIEF DESCRIPTION OF THE DRAWINGS

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The structure and functional features of preferred embodiments of the present invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings, in which:-

Fig. 1 is a plan view of an unfolded stackable storage container made in accordance with a preferred embodiment of the invention;

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Fig. 2 is a perspective view of the stackable storage container shown in Fig. 1 partly assembled;

Fig. 3 shows a perspective view of the stackable storage container of Fig. 1 showing its use in storing archive material;

Fig. 4 is a perspective view of a preferred embodiment of a joiner for linking respective stackable storage containers together;

5 Fig. 5 is a perspective view locking members to assist in maintaining stability of stacked storage containers;

Fig. 6 is a perspective view of the stackable storage containers being linked together;

Fig. 7 is a perspective view of the stackable storage containers being stacked;

10 Fig. 8 is an enlarged view of the area indicated in the circle shown on Fig. 6; and

Fig. 9 is a cross-sectional view along and in the direction of arrows 9-9 of Fig. 7.

15 DESCRIPTION OF THE EMBODIMENTS

In order to avoid duplication of description, identical reference numerals will be shown, where applicable, throughout the illustrated embodiments to indicate similar integers.

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In the drawings there is shown a storage container 10 having a pair of side walls 12, 14, top wall 16, bottom wall 18 and rear wall 20. The embodiment depicts an archive storage container but the invention is not limited to that purpose. A pair of upper and lower front walls 22, 24 are hinged at fold lines 26, 28 to the top wall 16 and bottom wall 18 with upper front wall 22 overlapping the free end of lower front wall 24, as best seen in Figs. 6 and 7. Container 10 is formed from a blank of flat sheet material as shown in Fig. 1. The sheet material is typically water resistant and can be formed from a corrugated sheet material or hollow material. The corrugated sheet material sold under the Registered Trade Mark of CORFLUTE has
25 been found to be suitable. This material is made of polypropylene which is stiff and water resistant. Other types of material can be readily substituted. For additional
30 protection a pair of side doors 30, 32 are hingedly attached to the respective side

walls 12, 14. Side doors 30, 32 are optional but their use will strengthen the container. Central dividers 34, 36 are attached to rear panels 38, 40 which are hingedly attached to the other end of respective side walls 12, 14. The central dividers 34, 36 will, in the assembled position shown in Fig. 3, abut one another
5 along their length.

Central dividers 34, 36 have tabs 42, 44 which, in use, project through slots 46 of top wall 16. This action will secure top wall 16 and prevent movement of the container 10. Tabs 42, 44 will pass through slots in bottom wall 18 to allow
10 containers to be stacked on top of each other and be accurately aligned with respect to each other. Cut outs 50, 52 in the sides of central dividers 34, 36 will allow the tabs 42, 44 to pass through bottom wall 18 without interfering with central dividers 34, 36. A pair of lips 54, 56 are hingedly attached to top of side walls 12, 14 and provide an edge support for top wall 16. In order to ensure that upper front wall 22
15 locks into position a pair of side flaps 58, 60 are hingedly connected to the sides of upper front wall 22. Side flaps 58, 60 engage within slots 62, 64 along the fold lines between side walls 12, 14 and side doors 30, 32 respectively. Small tabs 66, 68 on rear panels 38, 40 project through slot 70 on the hinge line between top wall 16 and rear wall 20.

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The top wall 16 has on its sides a pair of tabs 72, 74 for engagement in slots 76, 78 of lips 54, 56. Further slots 80, 82 are found in tabs 72, 74 to provide an interference fit with punched out tabs 84, 86 across side walls 12, 14 and lips 54, 56 respectively. This will allow top wall 16 to be secured to side walls 12, 14 to prevent
25 accidental opening. Punched out tabs 84, 86 can also be removed totally, if required.

The containers 10 are useful by themselves but their main function is to be part of an archiving system where a plurality of containers 10 are linked together in a horizontal formation and stacked upon one another to form an archive wall that can
30 be 5m high or higher. Each container 10 is attached to an adjacent container by a joiner 90. Each joiner 90 consists of a main base 92 and a pair of depending leg members 94, 96 secured thereto. Although the main base 92 is depicted having a

rectangular shape it is not limited to that shape as a circular, triangular or other shape would be acceptable. The leg members 94, 96 can have chamfered ends 98 to assist in linking the containers 10 together. The leg members 94, 98 are mounted parallel with one another and are separated by a gap 100 which is basically the width of two
5 thicknesses of sheet material from which the containers are made. For additional rigidity and/or security, locking buttons 102 may be used. The buttons 102 comprise a base 104 with a pair of projecting locking legs 106 which have a ratchets 108 which lock together in an interference fit. The buttons 102 can be pushed together with the ratchets locking at a predetermined position. As shown in Fig. 3 the buttons
10 102 can have their legs pushed through apertures 110, 112 in lip 56 and top wall 16 to ensure the container is lockingly sealed shut. If required, additional apertures 114 can be provided on any surface of container 10 for use with buttons 102.

The operation of the containers 10 will now be described. The containers are
15 folded from the sheet shown in Fig. 1 into the container shown in Figs. 2 and 3. Fig. 3 shows a pair of slide out file boxes 116 which contain papers (not shown) to be archived or stored inserted therein. It is not necessary to use file boxes 116 but they provide additional protection and better contain loose papers. As can be readily seen from Figs. 6, 7 and 9 the tabs 42, 44 will project through slots 46 to provide an
20 alignment for tabs 42, 44 to co-operate with slots 48 for a container stacked thereon. Side doors 30, 32 will be closed and lower front wall 24 be lifted upwardly to partially overlap side doors 30, 32. The side doors 30, 32 will provide additional stability for the container and act as an additional barrier for waterproofing. Upper front wall 22 will then partially overlap lower front wall 24. Side flaps 58, 60 will be
25 inserted into slots 62, 64 to fully close container 10. For containers that have no container stacked thereon, tabs 72, 74 can be inserted into slots 76, 78 and locked into position by the interaction of punched out tabs 84, 86 with further slots 80, 82. Punched out tabs 84, 86 can be removed as shown in Figs. 6 and 8 or could include a slot for leg members 94, 96 to pass therethrough.

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In order to link side by side containers 10 together the joiner 90 is used. Leg members 98 will be pushed through slots 76, 78 on adjacent containers and slide

along the inside faces of side walls 12, 14 respectively. The thickness of the side walls 12, 14 will be located in gap 100. The joiner 90 will be centrally located or off-centre to provide better support for the stacked containers. The main base 92 will be pushed down onto the surface of top wall 16 and provide a pad for supporting
5 stacked containers. The main base 92 will provide a larger supporting surface area than the reinforcing bars of Australian Patent No. 738661 and will not be restricted to the front of the container. The load from the stacked containers will be spread across a larger area. Joiners 90 will allow a larger number of containers to be stacked than the container of Australian Patent No. 738661. The overlap of upper front wall 22
10 over lower front wall 24 will ensure that moisture does not enter the container from above in case of a sprinkler mishap. The construction of the container from a waterproof sheet material further protects the container from being weakened from contact with water. The optional use of locking buttons 102 and associated apertures 110-114 can provide additional locking security and rigidity of the stacked
15 containers.

Although the preferred embodiment provides a useful solution the invention is not limited to the embodiment disclosed. The sheet material could be changed to a suitable single layer material or other type of stiff water resistant material. If
20 waterproofing is not a factor for usage of the invention the sheet material may be formed from cardboard. A waxed cardboard would also be suitable. In the preferred embodiment a single joiner 90 links adjacent containers together but a plurality of joiners is contemplated. Joiner 90 is shown linking adjacent containers together side by side but co-operating slots could be inserted so that the containers could be linked
25 using rear walls 20. Side doors 30, 32 could be replaced by a single door or could be optionally omitted.

The invention will be understood to embrace many further modifications as will be readily apparent to persons skilled in the art and which will be deemed to
30 reside within the broad scope and ambit of the invention, there having been set forth herein only the broad nature of the invention and certain specific embodiments by way of example.

Claims

- 5 1. A stackable storage container having a pair of side walls, top wall, bottom wall and rear wall, a pair of upper and lower front walls hinged to the top wall and bottom wall respectively of said container, wherein at least one joiner is fitted to the side walls and/or rear walls of adjacent containers to link adjacent containers together, each joiner having a pair of parallel separated
10 leg members depending from a base member, whereby said leg members abut the inside of respective adjacent side walls and/or end walls through respective apertures in adjacent top walls and said base member lies across both said adjacent top walls to link said adjacent containers together and provide support for a container stacked thereon.
- 15 2. A stackable storage container as claimed in claim 1, wherein said container is formed from a water resistant sheet material.
- 20 3. A stackable storage container as claimed in claim 2, wherein said water resistant sheet material is formed as two flat sheets connected by ribs.
- 25 4. A stackable storage container as claimed in claim 2 or 3, wherein said water resistant sheet material is a polypropylene.
- 30 5. A stackable storage container as claimed in claim 2, wherein said joiner has said leg members formed as longitudinal planar members of a rigid material.
6. A stackable storage container as claimed in any one of claims 1 to 5, wherein said joiner is formed from plastics, metallic or other suitable rigid material.
7. A stackable storage container as claimed in any one of the preceding claims, wherein the leg members extend along the height of the side walls.
8. A stackable storage container as claimed in any one of the preceding claims,

wherein said apertures for said joiners are located centrally, or off centre,
along said side walls.

- 5 9. A stackable storage container as claimed in any one of claims 1 to 8, wherein
said upper front wall at least partially overlaps said lower front wall along its
length.
- 10 10. A stackable storage container as claimed in any one of claims 1 to 9, wherein
said apertures are formed by punched out tabs.
- 10 11. A stackable storage container having a pair of side walls, top wall, bottom
wall and rear wall, a pair of upper and lower front walls hinged to the top
wall and bottom wall respectively of said container, whereby said upper front
wall at least partially overlaps said lower front wall along its length.

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