ABSTRACT: A generally rectangular suitcase has flexible top, side and end walls and a rigid bottom wall. The top and end walls are lined with tubular air-inflatable pockets. When the pockets are inflated the suitcase is self-supporting and stands upright. When the pockets are deflated the suitcase collapses on the bottom wall to form a flat, compact package. A slide fastener closure is provided at one sidewall. The sidewalls may be lined with thermal insulative material.
AIR-INFLATED COLLAPSIBLE SUITCASE

This invention concerns an air-inflated collapsible suitcase. Collapsible suitcases heretofore have generally been made of cloth and plastic material which provides no real support to their contents when filled. When partially filled the prior suitcases collapse on their contents and are difficult to handle.

According to the present invention, there is provided a suitcase having inflatable air pockets at its top and end walls. These air pockets render the suitcase rigid and self-supporting even when empty. In addition the pockets serve as shock absorbers to protect the contents of the suitcase, and also serve as thermal insulators.

It is therefore a principal object of the invention to provide a collapsible air-inflated suitcase having top and end walls lined with heat sealed sheet plastic air pockets. A further object is to provide an air-inflated suitcase as described, which when deflated will collapse and fold into a compact package.

Another object is to provide an air-inflated collapsible suitcase as described with insulated sidewalls to protect contents of the suitcase of the sides and to provide thermal insulation therein.

FIG. 1 is a perspective view of a suitcase embodying the invention.

FIG. 2 is an enlarged vertical cross-sectional view taken on line 2-2 of FIG. 1.

FIG. 3 is a vertical sectional view taken on line 3-3 of FIG. 2.

FIG. 4 is a perspective view of a portion of the suitcase with flap closure shown in open position.

FIG. 5 is a perspective view of another suitcase embodying the invention.

FIG. 6 is a vertical sectional view taken on line 6-6 of FIG. 5.

FIG. 7 is a sectional view similar to FIG. 2, but with portions broken away, showing another suitcase embodying a modification of the invention.

Referring first to FIGS. 1-4, there is shown a suitcase 10 in expanded, upright condition. The suitcase is generally rectangular in form with flat, rectangular top and bottom walls 12, 14, end walls 16, and sidewalls 18, 20. Sidewall 18 is provided with a slide fastener 22 which joins the sidewall peripherally to the top and end walls 12, 16 and which forms part of bead 24. The slide fastener is arranged in a shaped configuration at the front of the suitcase. U-shaped handles 26 and 28 are secured by rivets 29 to the front and back walls 18, 20 respectively. Secured to the inner side of top wall 12 and end wall 16 is a nonporous lining 30 formed by pieces of plastic sheet material. Outer sheet 32 is generally flat and inner sheet 34 is draped to define a plurality of tubular pockets 36 which are substantially semicircular in cross section. The pockets communicate with each other through passages 38 at lower ends of the end walls as clearly shown in FIG. 3. The two sheets 32, 34 are joined to each other by heat-sealed seams 40. A short nipple 42 extends upwardly from upper sheet 32 through wall 12. The nipple opens into one of the pockets 36. This nipple is closed by a removable plug or stopper 44 attached to the nipple by an integral band 46; see FIG. 4. A flexible flap 48 is secured to bead 24 at the edge of top wall 12 adjacent sidewall 18. This flap extends over the top wall and between handles 26, 28. The free end of the flap is provided with a snap fastener member 50 which engages with mating snap fastener member 52 on sidewall 20. The flap serves as a protective cover for nipple 42. On the inner side of bottom wall 14 is a rigid plastic U-shaped structure 54 with 56 lateral extremities located on corners of the bottom wall serve as seats to support the suitcase and elevate beads 23 and 24 above a flat floor, ground or other supporting surface 56. Bead 23 extends around side 20 and secures this side to the top, bottom and end walls. The outer walls of the suitcase can be made of flexible cloth or plastic material or of cloth bonded to plastic sheet material. The plastic material is preferably vinyl, but polyethylene or other suitable plastic material can be used.

The suitcase is inflated by blowing air through nipple 42 into the pockets 36. This can be done by a hand or mechanical pump or by mouth if no pump is available. When the pockets are inflated with air and stopper 44 is in place, the suitcase assumes the rectangular, upright configuration shown in the drawing. If the stopper is removed from the nipple the suitcase can be collapsed. The top and end walls will act like collapsible gussets so that the entire structure collapses on the bottom and can be folded flat somewhat as shown in FIG. 7 by the collapsed condition of suitcase 10A.

Suitcase 10A is shown in expanded, inflated, upright condition in FIGS. 5 and 6. This suitcase is constructed like suitcase 10 and corresponding parts are identically numbered. In suitcase 10A, slide fastener 22A extends around upper and end edges of sidewall section 18A. Sidewall section 18A which surrounds section 18A is a U-shaped strip of sheet material joined to end walls 16A and top wall 12A by bead 24A which extends continuously all around the side of the suitcase. Handles 26A and 28A are of U-shape but are longer than handles 26, 28, with lower ends terminating at the bottom portion of bead 24A. Rivets 29A and 29B secure handle 26A to sidewall section 18A and rivets 30 secure handle 28A to sidewall 28A.

Nipple 42 is exposed inside just inside wall section 18B, so flap 48 is not required. Access to the nipple is gained by opening the slide fastener 22A. The nipple is integral with inner sheet 32 and is closed by stopper 44. Flap FIG. 7 shows the suitcase in collapsed condition as previously mentioned.

The outer walls of the suitcase are preferably made of cloth reinforced by impregnation with a suitable plastic material such as polyester.

FIG. 8 shows part of another suitcase 10B in which the structure is substantially identical to suitcase 10, except that the sidewalls 18, 20 and bottom wall 14 are lined by thermally insulating padding 60 which may be fiberglass or other suitable insulating material. The padding 60 is protected by an inner, moistureproof plastic sheet lining 62 joined to the sidewalls 18, 20 by heat-sealed seams 66. Suitcase 10A can be similarly treated to provide insulative padding at the bottom and sides. This padding serves as a shock absorbing medium in addition to providing thermal insulation. Suitcase 10B can be used as a fully insulated picnic bag. The air filled pockets 36 at the top and ends of the bag will also provide thermal insulation and mechanical shock absorption.

All the bags and suitcases described will collapse readily when deflated to flat, compact form as illustrated in FIG. 7. When inflated they are all self-supporting and stand upright, with expanded pockets and rigid flat-bottomed and top gussets.

The bags and suitcases described can be made by mass production machinery known in the art for working and bonding plastic sheet materials. They are relatively inexpensive to manufacture, are light in weight, easy to carry and strong, and will provide long useful service.

I claim:

1. A suitcase having a generally rectangular configuration with flexible rectangular top, bottom, side and end walls; handle means secured to certain of the walls; a slide fastener closing one sidewall; a rigid board on the inner side of the bottom wall; a nonporous liner inside the top and end walls defining tubular pockets communicating with each other; and a nipple extending out of the liner for receiving air to inflate the pocket and render said top and end walls rigid and self-supporting, whereby the top, side and end walls collapse on the bottom wall when the pockets are deflated.

2. A suitcase as defined in claim 1, wherein a bead joins said one sidewall peripherally to edges of the top and end walls, said slide fastener being attached to one part of said sidewall.

3. A suitcase as defined in claim 1, wherein a bead joins said one sidewall peripherally to edges of the top and end walls, said one wall having a rectangular inner section and a U-shaped section surrounding the rectangular inner section, said slide fastener being attached to adjacent edges of the two sections of said one sidewall.
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4. A suitcase as defined in claim 3, further comprising thermal insulative material lining inner sides of the sidewalls and bottom wall.

5. A suitcase as defined in claim 4, wherein said handle means are U-shaped secured to the opposite sidewalls respectively.

6. A suitcase as defined in claim 1, further comprising thermal insulative material lining inner sidewalls and bottom wall.

7. A suitcase as defined in claim 6, wherein a bead joins said one sidewall peripherally to edges of the top and end walls, said slide fastener forming part of said bead.

8. A suitcase as defined in claim 1, wherein said top, side and end walls are made of thermally fusible plastic sheet material, said walls being joined peripherally to each other by beads formed by heat fusion.

9. A suitcase as defined in claim 1, wherein said liner is formed by two pieces of thermally fusible plastic sheet material, one of said pieces being juxtaposed to the inner sides of the top and end walls, and the other piece being draped to define tubular pockets joined to said one piece by heat sealed seams.

10. A suitcase as defined in claim 9, wherein said nipple extends out of the top wall, a flap overlaying said nipple to conceal the same; and fastener means holding the flap in place over the nipple.