

Jan. 8, 1963

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3,071,782

COLLAPSIBLE BABY BED UNIT

Filed Sept. 9, 1960

3 Sheets-Sheet 1

Fig. 1.

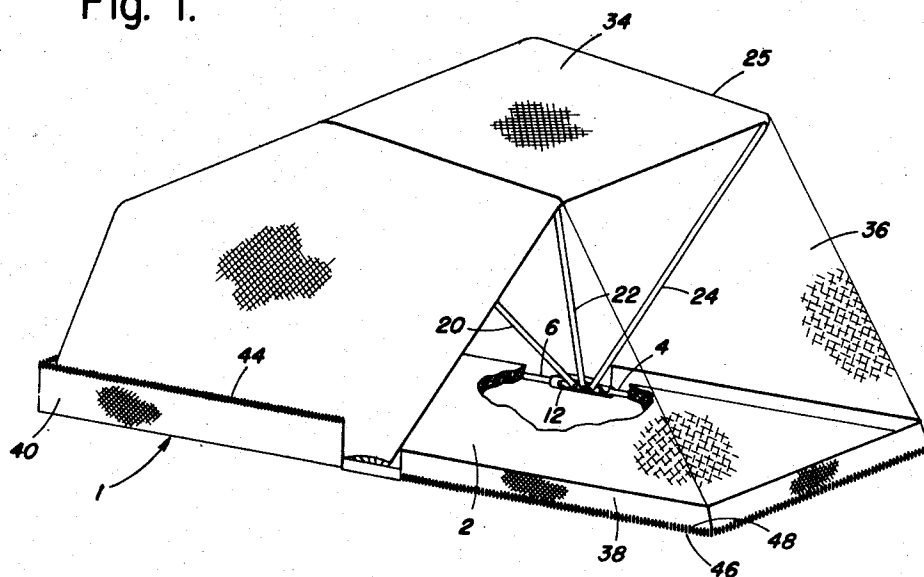
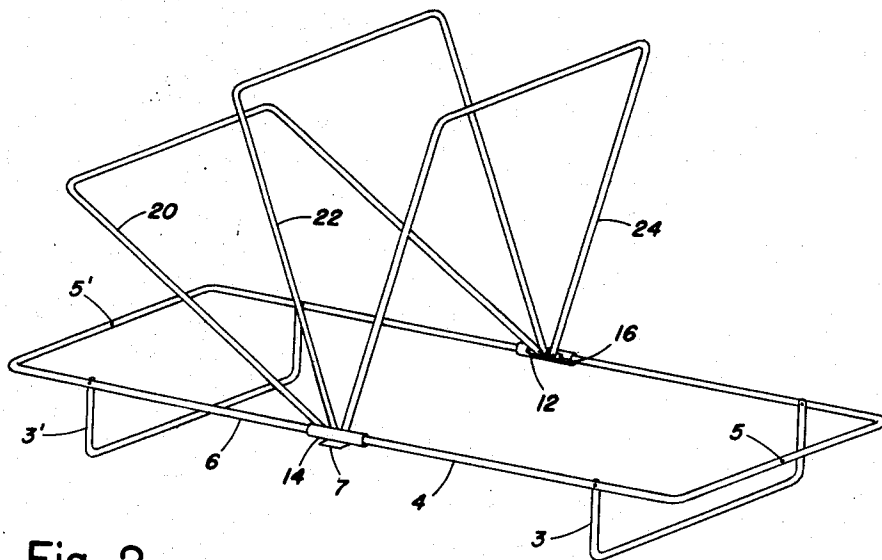


Fig. 2.

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Fig. 3.

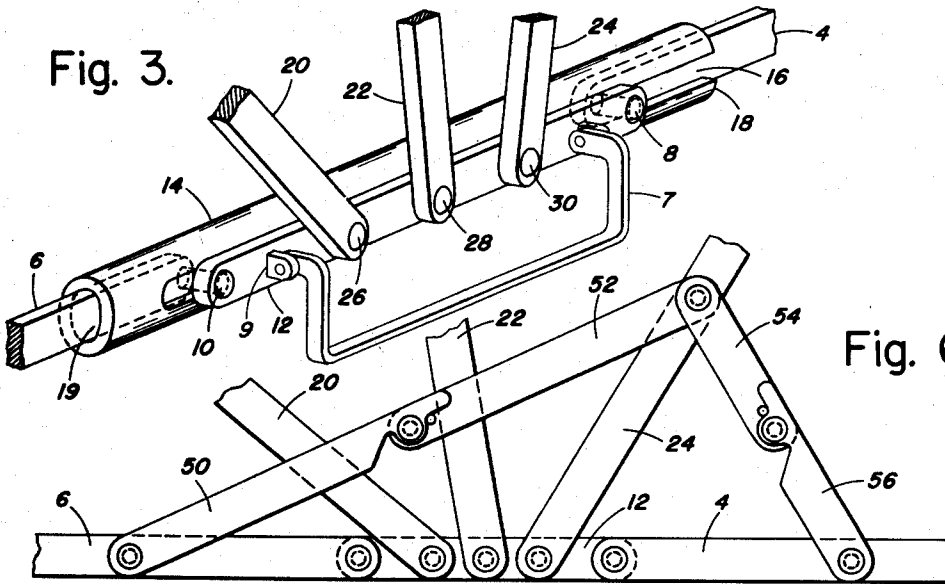


Fig. 6.

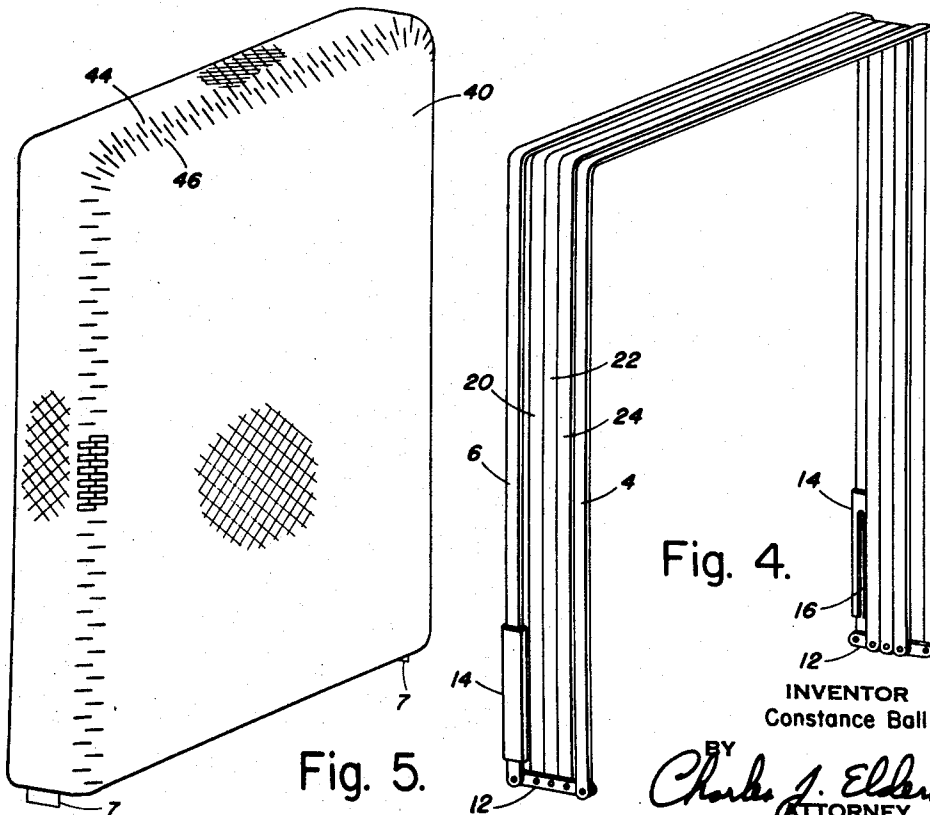


Fig. 4.

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Fig. 7.

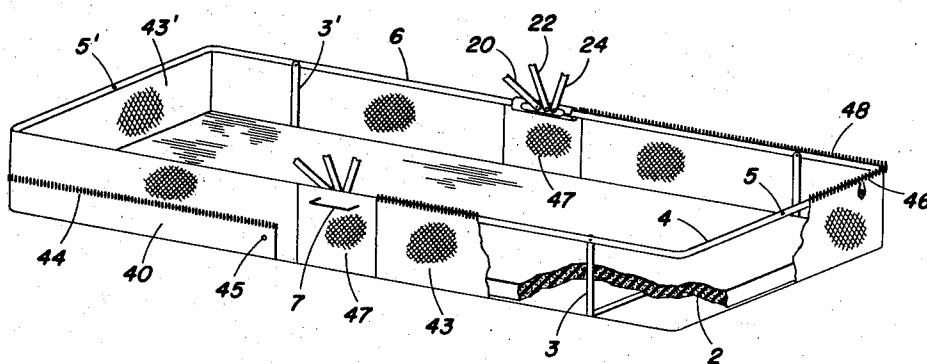
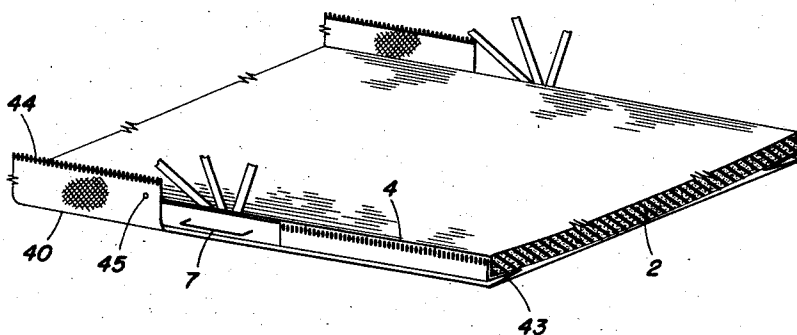


Fig. 8.

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COLLAPSIBLE BABY BED UNIT

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3 Claims. (Cl. 5-97)

The present invention relates to portable accommodations for infants. More particularly, the present invention relates to means adapted to receive infants in comfortable accommodation and which are readily collapsible into a compact light-weight package.

Conventional cribs, bassinets, baby beds, carriages, and the like are normally heavy and bulky and present particular problems as regards maneuverability and transportation, for example, at the beach, on picnics, or while the parent is engaged in urban visiting or the like.

In general, the present invention provides a strong, light, comfortable and protective infant's bed unit which is readily converted thereto from a compact portable package. In the open or unfolded state, the bed constitutes a unit from which an infant cannot readily escape, and into which insects, pets and the like cannot gain entrance.

Broadly, this and other objects, as hereinafter described, are attained by provision of an apparatus comprising a flexible, resilient mattress base adapted to fold inwardly upon itself and a fabric canopy therefore; said base and said canopy being supported by a plurality of U-shaped struts or arched supports each of which is hingedly attached to plate members positioned on opposite sides of the base between the ends of said base and which are, in addition, capable of being folded or collapsed into side-by-side relation; the base and the support members of the opposite ends thereof, defining the outer limits of the bed unit 1 in the folded state. With the addition of two separate U-shaped struts, as hereinafter described, the unit finds application as a lift-out baby carriage body, in addition to its function as a portable infant's bed. With this embodiment, for example, the unit may be retained in the carriage body when the infant is at home, and used separately on motor trips, at the beach or on other occasions when transporting a carriage is impractical.

The invention both as to its organization and mode of operation, may best be understood by reference to the following description taken in conjunction with the following drawings:

FIGURE 1 in the drawings is a perspective view showing the infant's bed in the unfolded state.

FIGURE 2 is a perspective view showing the support elements of the bed in the open unfolded state.

FIGURE 3 is an enlarged fragmentary perspective view of a detail of the support system shown in FIGURE 2.

FIGURE 4 is a perspective view of the support system of the infant's bed in the folded condition.

FIGURE 5 is a perspective view of the infant's bed in folded or closed position to form a carrycase unit.

FIGURE 6 is a fragmentary perspective view of a modification of the support system shown in detail in FIGURE 3.

FIGURE 7 is a perspective view, partially in section, of the bed adapted as a lift-out carriage body.

FIGURE 8 is a sectional perspective view of the bed, adapted as a lift-out carriage body, as it is used apart from the carriage.

Referring now more particularly to the drawings the invention comprises an infant's or baby bed indicated in its entirety by 1, a flexible base or mattress member 2, normally quadrangular, e.g. rectangular, in conformation and most desirably formed of a foam material, such as, for example, foam rubber or that produced from polyurethane resins and the like, the edges of which are attached to and supported by the arched frame members 4 and 6. These latter members are of substantially equal

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size in preferred embodiment and are, in addition, rotatably mounted in twin engagement on the two sides of the base 2, at a point substantially midway between the ends of the aforesaid base member 2 on rivets 8 and 10 respectively (as seen in FIGURE 3). These latter members 8 and 10 on either side of the base 2 are in turn riveted to the fulcrum plates 12 which are positioned between the sleeves 14 and the aforesaid base 2. The mattress or base 2 is attached to the frame members 4 and 6 by conventional means. In the open or unfolded position of the bed unit 1 the head portions of the aforesaid rivets 8 and 10 and the terminal portions of frame members 4 and 6 on either side of the base 2 are positioned within the sleeve or slide lock 14 and engage the plate member 12 through the slit portion 16 of the sleeve 14 by means of the extended neck portions of the rivets 8 and 10. The terminal ends of frame members 4 and 6 are in fixed, rigid frictional engagement, in this position, with the interior surfaces of the sleeve 14. The slit 16 is an elongated aperture extending lengthwise along a major portion but not the entire length of the inner side of each of the sleeves 14 situated in spaced relation to each of the two fulcrum plates 12. The slit 16 in each of the two sleeve members 14 is continuous with the end orifices 18 of the sleeves 14 which receives terminal portions of the frame member 4. It will be evident, however, that the end orifices 19, which receive the terminal ends of the frame member 6, are therefore not communicative directly with the slot 16.

The rivets 8 and 10 are attached at the opposite ends of the plates 12 and bow or frame members 20, 22, and 24 are rotatably or hingedly mounted for support of the protective canopy 25 in even spaced relation on the interior facing of the plates 12 adjacent the base or mattress 2, by means of rivets 26, 28 and 30 and between the extreme positioned rivets 8 and 10 and are thus removed from contact with the sleeve or slide lock 14; thus permitting free hinged movement and rotation of the aforesaid bowed or arched support members 20, 22 and 24 between the ends of the base 2 and supports 4 and 6. These U-shaped frame members are usually and most desirably formed of a light-weight non-corrosive metal or alloy such as aluminum. Elements 3, 5, 7, and 9 (see FIGURES 2 and 3) are required only to adapt the bed unit to a lift-out baby carriage body, which is described hereinafter.

The bed unit 1 is folded by sliding the sleeves or slide locks 14 out of engagement with the terminal ends of the arched support members 4 and 6 and into slidable engagement on the arched support member 6 at a point removed from the terminal portion thereof and from rivet 10, thus permitting free hinged connection or rotation of the frame members 4 and 6. In the folded condition of the bed unit 1 the frame members 6, 20, 22, 24 and 4 are positioned in compact side-by-side alignment, vertically disposed in relation to the fulcrum plate 12; frame members 4 and 6 being converted from a diametrically opposed relation in forming a flat surface of the base 2 in the unfolded position, to a parallel alignment separated by the bow supports 20, 22, and 24 similarly positioned, as seen in FIGURE 4.

It will be evident that the length of cloth or fabric between each of the frame or bow supports 6, 20, 22, 24 and 4 will determine the position of these members when the bed unit 1 is unfolded. Most desirable the support members diverge in an equidistant relation from each other, from the fulcrum plate 12 and substantially equal lengths of cloth or fabric are disposed between the aforesaid bows 6, 20, 22, 24 and 4 to effect this relationship. The fabric attached to the support means and forming the canopy 25 and particularly the hood portion thereof 34 is any suitable strong yet light-weight material such

as that prepared from a polyamide fiber such as nylon; polyethylene terephthalate (Dacron); or a combination of one or the other of these or other synthetic materials with cotton or the like.

The canopy 25 assumes a generally semi-circular conformation when completely unfolded as seen in FIGURE 1. The canopy fabric is attached to the cross-sections of the bows or support members 6, 20, 22 and 24 by standard means well-known to those skilled in the art and is normally provided as a single unit. In the unfolded state it is also attached to the support member 4 by suitable fastening means as described hereinafter. Desirably, the fabric may be detachably engaged with the frame support members by means of snap fasteners, Velcro (trademark) strips glued to the outer surface of each bow or arched member and cooperating with similar strips of Velcro (trademark) suitably attached to the inner surfaces of the canopy fabric, or the like, thus enabling a variety of canopy materials to be substituted as found necessary or desirable for a particular occasion, and providing, in addition, for convenient detachment thereof for laundering and the like. The segment of canopy 36 between bows 4 and 24 is, in any event, normally and almost entirely (except as described hereinafter), composed of a netting material such as cheese cloth to permit suitable circulation of air into and out of the bed unit 2, the remainder of the canopy constituting the hood 34 formed of a more effectively protective material as described hereinabove. A strip of hood fabric 38 borders the free edge of the netting segment 36 and is attached to the frame member 4 in the unfolded position of the bed unit 1 by suitable fastening means, as described hereinafter, to present a protective ridge providing protection against the sifting of sand and the like into the base or mattress 2 when the invention is employed, for example, for beach use. This ridge member or strip 38 is continuous with the hood fabric at the terminal ends of the bow support 24. The foam material forming the base 2 may be covered on its inner side with a soft flannel, or bunting-type of fabric. The outer shell 40 of the bed unit 1 is usually composed of and flexible, attractive, luggage-weight, waterproof fabric such as plastic, canvas or rubberized rayon, cotton, nylon or the like. An overhanging flexible panel of this outer shell material 40 is extended around the entire outside border of the bow support 6 and corresponds in width to that of the folded bed unit 1 as seen in FIGURE 5. A suitable strap or handle for carrying the folded unit 1 may be desirably positioned on the outer facing of this shell panel 40. It will be evident that in the closed position of bed unit 1, an interior space is provided between the folded sides of the base 2, which affords accommodation for the folded canopy 25, and a suitable receptacle for facilitating the transportation and storage of such necessary articles as baby blankets, diapers, bottles and the like from one place to another.

The bed unit 1 contains suitable fastening means along several of its borders to secure the canopy in the open unfolded position or to secure the bed unit 1 in closed package form, illustrative of which is the three-track open end zipper shown in the drawings. Along the free border of the shell panel 40 is positioned the fastening means, most desirably a single zipper track 44 adapted to engage a second fastening means or zipper track 46 positioned adjacent the outer border of the frame member 4, thus securing the bed unit 1 as a folded readily portable package (see FIGURE 5). A third fastening means, the zipper track 48, is attached at the base of the fabric ridge 38 to the free edge of the netting segment 36 of the canopy 32. This latter zipper track 48 cooperates with the second zipper track 46 affixed to the arched support 4 to secure the canopy in the open or unfolded position as shown in FIGURE 1. It will be evident that the second zipper track 46 is therefore a common track adapted to cooperate with zipper tracks 44 and 48 to secure the bed

unit 1 in the closed position or aid in securing said unit 1 in the open or unfolded position, respectively.

The structural modifications necessary to adapt the bed unit to a lift-out baby carriage body are shown by the elements 3, 5, 7, and 9 in FIGURES 2 and 3. U-shaped frame members 3 and 3' are hingeably mounted on members 4 and 6 and are constructed so as to fold into side-by-side relation with members 4 and 6 when the unit is not in use as a carriage body. The unit is held and supported in a baby carriage frame by means of spring-loaded pins which fit into holes 5 and 5', which attach to the frame, and foldable brackets 7 (only one shown), which rest directly on the frame. As can be seen in FIGURE 3, bracket 7 is attached onto the inside of fulcrum plate 12 with rivets at 9, so as to be rotatable from the position shown in FIGURE 3 to that shown in FIGURE 2. Brackets 7 find further utility in that when the entire unit is in the folded position, as shown in FIGURE 5, they form convenient holders for a carrying strap.

The bed unit with the foregoing structural changes is shown as it appears in a carriage frame in FIGURE 7, and as it appears with the changes but as used away from the carriage frame in FIGURE 8. With reference to FIGURE 7, it may be seen that frame members 3 and 3' and outer fabric sections 43 and 43' form a substantially deep support for mattress section 2. It will be noted that outer shell element 40 and zipper elements 44, 46, and 48 are substantially the same as in FIGURE 1. A separate fabric section 47 is applied between sections 43 and 43' so as to facilitate folding and prevent binding in the folded position. The outer shell 40 is conveniently attached to fabric section 43' with suitable snaps, buttons, or the like, 45.

To use the bed unit so altered as a portable folding bed as described heretofore, the U-shaped members 3 and 3' are first folded into side by side relation with frame members 4 and 6. The buttons or snaps 45 are released, and the unit is lifted from the carriage body and placed on a flat surface. There being no rigid support for fabric sections 43 and 43', these sections collapse and are folded under the mattress member 2, as shown in FIGURE 8. Outer shell 40 and all of the other elements of the portable bed unit are now exactly as described heretofore, and the unit may be folded and carried. This embodiment of the invention can be used as an infant's bed either with or without the side members 43 and 43' extended.

FIGURE 6 illustrates alternative means for maintaining the five U-shaped support members 6, 20, 22, 24 and 4 affixed to the fulcrum plate 12 in a fixed position. As shown the support members are in the open or unfolded position of the bed unit 1, and are sustained in this condition by the articulated, interconnecting frictionally engaged arms 50, 52, 54 and 56. In this embodiment it is noted that the terminal ends of the five bows or arches 6, 20, 22, 24, and 4 hingedly affixed to rivets are evenly spaced along the outer surfaces of the fulcrum plates 12.

This application constitutes a continuation-in-part replacement of my former copending application Serial No. 858,270 which was filed on December 8, 1959, and has since been abandoned.

What is claimed is:

1. A lift-out baby carriage body adapted to be folded inwardly upon itself that comprises a flexible base member, collapsible sidewalls attached to and supporting said base member and adapted to fold thereunder, a collapsible canopy adapted to extend over said base and above said sidewalls when the body is unfolded, and positioned between the ends of said base in the folded state, a plurality of arched frame members attached to and supporting each of said sidewalls and said canopy, said frame members being hingedly connected to plates positioned substantially mid-way between the ends of said sidewalls and along opposite sides thereof, slidable means for fixedly engaging the arched frame members support-

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ing said sidewalls in a substantially flattened, unfolded position, means for holding said sidewalls in an unfolded, upright position attached to said frame members supporting said sidewalls, and means for securing said body to a baby carriage frame attached to said frame members supporting said sidewalls and said plates.

2. A lift-out baby carriage body adapted to be folded inwardly upon itself that comprises a flexible base member, collapsible sidewalls attached to and supporting said base member and adapted to fold thereunder, a collapsible canopy adapted to extend over said base and above said sidewalls when the body is unfolded, and positioned between the ends of said base in the folded state, a plurality of arched frame members attached to and supporting each of said sidewalls and said canopy, said frame members being hingedly connected to plates positioned substantially mid-way between the ends of said sidewalls and along opposite sides thereof, slidable means for fixedly engaging the arched frame members supporting said sidewalls in a substantially flattened, unfolded position, supporting members hingedly attached to said frame members supporting said sidewalls, said supporting members acting to hold said sidewalls in an unfolded upright position and providing further support for said base member when in an operative position and disposed substantially adjacent to and parallel with said attached frame members when in an inoperative position, and means for securing said body to a baby carriage frame attached to said frame members supporting said sidewalls and said plates, said means attached to said plates also acting as carrying means when said body is in the folded state.

3. A lift-out baby carriage body adapted to be folded inwardly upon itself that comprises a flexible base member, collapsible sidewalls attached to and supporting said base member and adapted to fold thereunder, a collapsible canopy having a border and attached at one end of said border along the entire lateral and end por-

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tions thereof to the corresponding borders of one end of said sidewalls, said canopy being adapted for collapsible disposition between the inwardly folded ends of said base in the folded state of the carriage body, first fastener means for securing said canopy in its unfolded position over said base and above said sidewalls and second fastener means for securing said body in closed package form, a plurality of arched frame members attached to and supporting each of said sidewalls and said canopy, said frame members being hingedly connected to plates positioned substantially mid-way between the ends of said sidewalls and along opposite sides thereof, slidable means for fixedly engaging the arched frame members supporting said sidewalls in a substantially flattened, unfolded position, supporting members hingedly attached to said frame members supporting said sidewalls, said supporting members acting to hold said sidewalls in an unfolded position and providing further support for said base member when in an operative position and disposed substantially adjacent to and parallel with said attached frame members when in an inoperative position, and means for securing said body to a baby carriage frame attached to said frame members supporting said sidewalls and said plates, said means attached to said plates also acting as carrying means when said body is in the folded state.

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