UMBRELLA CRIB COVER

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Publication Classification

(51) Int. CL 135/135; 135/135; 5/97
(52) U.S. Cl. 

ABSTRACT

A cover for the protection of an infant comprises a central hub member which is pivotally connected at one end to an extendable and collapsible support frame made up of link arms and pivotally, flexible connected frame ribs. The ribs reside in channels in an exterior surface covering of mesh cloth or transparent or opaque material. The hub member is connected, at its other end, to a string-like line which extends through an opening on the top of the cover. The line is attached to a handle. With the cover in a collapsed position, the handle is pulled upwards, which causes the attached line and the hub to move upward. This results in the link arms pivoting the frame ribs outward and upward. Upon continued pulling on the handle, the hub is pulled into and secured within the opening, causing the frame and surface covering to become fully extended. The cover forming the resulting enclosed space is lightweight and can readily be secured to a crib or simply placed on a bed, the ground, or other unprotected area. The surface covering is provided with a zipper opening to allow for internal access to the cover. By simply pushing down on the hub when the cover is extended, the cover will be caused to collapse.
BACKGROUND OF THE INVENTION

[0001] A defenseless infant who is placed in a crib, playpen, or a bed or even on a blanket on the floor or ground is susceptible to hazards from the environment. For instance, an infant so positioned may be bothered by a pet, such as a dog or cat. There is also the risk of falling objects on the child. When in the outdoors, a baby is vulnerable to insects and exposure from the sun.

[0002] To account for these hazards, various crib and playpen covers or canopies have been developed. Examples of these are shown in U.S. Pat. Nos. 2,820,468; 3,546,721; 4,945,584; and 6,123,091. However, while these covers provide a measure of protection for infants, they, like most prior covers, require extensive efforts during set-up and take-down. For instance, the '468 and '584 patents require that a number of components laboriously be assembled and then connected to a crib or playpen; and the '468 patent can only be used on an infant enclosure. The covering shown in the '721 patent also must be tightly secured to a crib structure, by the weaving of line around its perimeter. The '091 patent shows a canopy which is foldable and appears to have components which make it heavy and difficult to install and transport.

[0003] It is thus an object of the present invention to overcome the disadvantages and limitations of existing infant protection covers.

[0004] It is an object of the present invention to provide an infant cover which provides an enclosed space for the safety and protection of infants from pets, insects, the outside elements, and other hazards.

[0005] It is another object of the present invention to provide an infant cover which can be automatically and quickly assembled and disassembled.

[0006] It is further object of the present invention to provide an infant cover which is a self-contained unit with inter-connected components, for ease of assembly and disassembly.

[0007] It is another object of the present invention to provide an infant cover which is lightweight and readily transportable.

[0008] It is still another object of the present invention to provide an infant cover which is collapsible for easy storage.

[0009] These and other objects of the invention are accomplished by the present infant protection cover which opens and closes in umbrella-like fashion. It comprises a central hub member which is pivotally connected at one end to an extendable and collapsible support frame made up of link arms and pivotally, flexible connected frame ribs. The ribs reside in channels in an exterior surface covering of mesh cloth or transparent or opaque material. The hub member is connected, at its other end, to a string-like line which extends through an opening on the top of the cover. The line is attached to a handle. With the cover in a collapsed position, the handle is pulled upwards, which causes the attached line and the hub to move upward. This results in the link arms pivoting the frame ribs outward and upward. Upon continued pulling on the handle, the hub is pulled into and secured within the opening, causing the frame and surface covering to become fully extended. The cover forming the resulting enclosed space is lightweight and can readily be secured to a crib or simply placed on a bed, the ground, or other unprotected area. The surface covering is provided with a zipped opening to allow for internal access to the cover. By simply pushing down on the hub when the cover is extended, the cover will be caused to collapse.

[0010] The novel features which are considered as characteristic of the invention are set forth in particular in the appended claims. The crib cover itself, however, both as to its design, construction, and use, together with additional features and advantages thereof, are best understood upon review of the following detailed description with reference to the accompanying drawings.

DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 shows the cover of the present invention in its extended position for placement over a crib.

[0012] FIG. 2 shows the support frame of the cover of the present invention in its fully collapsed position.

[0013] FIG. 3 shows the support frame of the cover of the present invention in its fully extended position, viewed from the bottom of the cover.

[0014] FIG. 4 shows the support frame of the cover of the present invention in its fully extended position, viewed from the side of the cover and as it would be placed over a crib or other unprotected area.

[0015] FIG. 5 shows the cover in the collapsed position for insertion into its storage bag.

[0016] FIG. 6 shows an exploded view of the components comprising the support frame of the present invention.

[0017] FIG. 7 shows the support frame of the cover of the present invention prior to it assuming its fully extended position.

[0018] FIG. 8 is a detailed, close-up view of the hub member and link arms, when the support frame of the present invention is in its fully collapsed position.

[0019] FIG. 9 is a detailed, close-up view of the end of one of the ribs of the support frame of the present invention.

[0020] FIG. 10 shows an exploded view of the components comprising the connection between a link arm and rib of the support frame of the present invention.

[0021] FIG. 11 shows the connection between a link arm and rib of the support frame of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0022] Protective cover 2 of the present invention comprises central hub member 4. Hub 4 is pivotally connected at one end to four link arms 7, which are in turn each pivotally connected to one of four lightweight, flexibly resilient ribs 8. The lower ends of ribs 8, as shown in FIG. 9, comprise rounded end caps 23. The four link arms 7 and four ribs 8 form the support frame of the invention. The upper ends of each of the ribs 8 are pivotally connected to lower cover sleeve 10. Intermediate cover sleeve 12 is configured to be positioned over lower sleeve 10. Upper cover sleeve 14 is configured to be positioned over inter-
mediate cover sleeve 12. Each of the sleeves 10, 12, and 14, has an opening therethrough, indicated at 11, 13, and 15 respectively, to accept hub 4, when cover 2 is in its fully open, extended position.

0023] Wire connector 16 extends around exterior channel 9 of sleeve 10 and through holes 38 at the upper ends of each of ribs 8, to secure the ribs to the sleeve. Wire connector 18 extends around exterior channel 5 of hub 4 and through holes 39 at the lower ends of each of link arm 7, to secure the link arms to the hub. As shown in FIGS. 10 and 11, link arms 7 are secured to ribs 8 by rivets 29 or similar connectors, extending through holes 26 through tabs 25 on ribs 8 and corresponding holes 28 through tabs 27 at the upper ends of link arms 7. In this manner, link arms 7 are fully pivotable in relation to hub 4 and ribs 8, and ribs 8 are fully pivotable in relation to sleeve 10 and link arms 7.

0024] The end of hub 4 which is not connected to link arm 7 is connected to line 20, which may be string, cord, twine, thin wire, or other similar flexible elongated components. When cover 2 is collapsed, as shown in FIG. 2, line 20 extends from hub 4 through openings 11, 13, and 15 of sleeves 10, 12, and 14, and out to the exterior of the cover, where it is connected to handle 22.

0025] As seen in FIG. 1, cover 2 has exterior surface covering 24 with four channels 40 into which the four ribs 8 are positioned. Surface covering 24 can be of mesh material construction or of transparent or opaque material, depending on the use contemplated. A transparent material, of course, would provide a more enclosed space, but would still permit observation of the infant. An opaque material would prevent exposure from the sun.

0026] A zipper is provided on surface covering 24, at location 92, which permits internal access to cover 2 through zipper opening 28. As shown in FIG. 5, storage bag 31 with zipper attachment 35 and handle 33, is provided for storage and carriage of cover 2 when in its collapsed position.

0027] In use, cover 2, in collapsed position, as shown in FIG. 5, is removed from storage bag 31. Once cover 2 is removed, handle 22 of the cover is simply pulled upward, which causes line 20 and hub 4 to also move upward. This results in link arms 7 pivoting frame ribs 8 outward and upward. Upon continuing pulling of handle 22, frame ribs 8 become extended, as shown in FIG. 7, until hub 4 is pulled completely into openings 11, 13, and 15 and is wedged in place within sleeves 10, 12 and 14. This causes link arms 7 to fully extend which bends resilient frame ribs 8 into the downwardly extending, bowed configuration of fully extended cover 2, as shown in FIGS. 3 and 4.

0028] Thus, the cover forming the resulting enclosed space is automatically opened to form a complete and lightweight enclosure. Cover 2 can then readily be secured, for instance, to crib 50 by means of retention straps 32 and end flap 34, which can be tied onto the crib. Cover 2 is also lightweight enough to allow it to be picked up and placed on a playpen, bed, the ground or other unprotected area.

0029] By simply pushing down on hub 4 when cover 2 is extended, the hub will retreat through openings 11, 13, and 15 and automatically collapse the entire cover. It can then be returned to bag 31 where it can easily, once again, be stored.

[0030] Certain novel features and components of this invention are disclosed in detail in order to make the invention clear in at least one form thereof. However, it is to be clearly understood that the invention as disclosed is not necessarily limited to the exact form and details as disclosed, since it is apparent that various modifications and changes may be made without departing from the spirit of the invention.

1. A cover for the protection of infants, said cover comprising;
   (a) exterior surface means configured to form an enclosed space, said surface means being collapsible;
   (b) extendible and collapsible frame means for maintaining the surface means as an enclosed space when the frame means is extended and for supporting the surface means when it is collapsed;
   (c) hub means connected to the frame means for moving the surface means from its collapsed position to an enclosed space;
   (d) actuating means secured to the hub means for pulling the hub means towards the surface means, whereby when the actuating means is pulled, the hub means compels extension of the frame means and the surface means, forming the enclosed space.

2. The cover as in claim 1 wherein the actuating means extends through and out of the cover when the surface means is collapsed.

3. The cover as in claim 1 wherein the actuating means comprises a line and attached handle.

4. The cover as in claim 2 wherein the actuating means comprises a line and attached handle.

5. The cover as in claim 1 wherein the frame means is pivotally connected to the hub means.

6. The cover as in claim 5 wherein as the hub means is pulled towards the surface means, the frame means extends by pivoting outward and upward.

7. The cover as in claim 1 wherein the hub means is connected at one of its ends to the actuator means and at its other end to the frame means.

8. The cover as in claim 1 wherein when the frame means is collapsed, the hub is supported by the cover solely at one end by the actuating means and at its other end by the frame means.

9. The cover as in claim 1 wherein when the frame means is extended, the hub means is secured to the top of the cover.

10. The cover as in claim 1 further comprising an opening means for insertion of the hub means when the frame means is extended.

11. The cover as in claim 10 wherein the opening means is positioned at the top of the cover and, when the frame means is extended, the hub means is secured within the opening means.

12. The cover as in claim 1 wherein the surface means comprises a surface covering material.

13. The cover as in claim 12 further comprising means to access the enclosed space through the surface covering material.

14. The cover as in claim 1 wherein the frame means comprises link arms and frame ribs, the link arms being pivotally connected to frame ribs and to the hub means.
15. The cover as in claim 14 wherein the frame ribs are flexibly resilient and are positioned in channels in the surface means.

16. A cover for the protection of infants, said cover comprising:

(a) hub means for controlling the opening and closing of the cover;

(b) extendible and collapsible frame means supporting an exterior surface means, said surface means configured to form an enclosed space when the frame means is extended and to collapse when the frame means is collapsed;

(c) actuating means for pulling the hub means towards the surface means, the hub means being supported within the cover solely by connection to the actuating means and the frame means when the frame means is collapsed, the hub means being further secured to the top of the cover when the frame means is extended.

17. The cover as in claim 16 wherein the actuating means extends through and out of the cover when the surface means is collapsed.

18. The cover as in claim 16 wherein the actuating means comprises a line and attached handle.

19. The cover as in claim 17 wherein the actuating means comprises a line and attached handle.

20. The cover as in claim 16 wherein the frame means is pivotally connected to the hub means.

21. The cover as in claim 20 wherein as the hub means is pulled towards the surface means, the frame means extends by pivoting outward and upward.

22. The cover as in claim 16 wherein the hub means is connected at one of its ends to the actuator means and at its other end to the frame means.

23. The cover as in claim 16 further comprising an opening means for insertion of the hub means when the frame means is extended.

24. The cover as in claim 23 wherein the opening means is positioned at the top of the cover and, when the frame means is extended, the hub means is secured within the opening means.

25. The cover as in claim 16 wherein the surface means comprises a surface covering material.

26. The cover as in claim 25 further comprising means to access the enclosed space through the surface covering material.

27. The cover as in claim 16 wherein the frame means comprises link arms and frame ribs, the link arms being pivotally connected to the frame ribs and to the hub means.

28. The cover as in claim 27 wherein the frame ribs are flexibly resilient and are positioned in channels in the surface means.

29. A cover for the protection of infants, said cover comprising:

(a) a hub connected at one end to an extendible and collapsible frame and at its other end to actuating means for pulling the hub to extend the frame;

(b) an exterior covering surface secured to the frame;

(c) an opening means into which the hub is inserted when the frame is fully extended, whereby upon insertion of the hub into the opening means, the covering surface forms an enclosed space.

30. The cover as in claim 29 wherein the actuating means extends through and out of the cover when the surface means is collapsed.

31. The cover as in claim 29 wherein the actuating means comprises a line and attached handle.

32. The cover as in claim 30 wherein the actuating means comprises a line and attached handle.

33. The cover as in claim 29 wherein the frame is pivotally connected to the hub.

34. The cover as in claim 33 wherein as the hub is pulled, the frame extends by pivoting outward and upward.

35. The cover as in claim 29 wherein when the frame is collapsed, the hub is supported by the cover solely at one end by the actuating means and at its other end by the frame.

36. The cover as in claim 29 wherein when the frame is extended, the hub is secured to the top of the cover.

37. The cover as in claim 29 wherein the covering surface comprises a covering material.

38. The cover as in claim 29 further comprising means to access the enclosed space through the covering surface.

39. The cover as in claim 29 wherein the frame comprises link arms and frame ribs, the link arms being pivotally connected to the frame ribs and to the hub.

40. The cover as in claim 39 wherein the frame ribs are flexibly resilient and are positioned in channels in the covering surface.