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Cherubini

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[54] **FOLDABLE AND STORABLE ENCLOSURE**

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[52] **U.S. Cl.** ..... **312/284,** 5/113, 135/4 R, 135/5 E, 135/7.1 R, 150/49, 220/6, 206/45.32

[51] **Int. Cl.** **A47g 19/30**

[58] **Field of Search** ..... 5/113, 121; 135/3 E, 4 R, 135/5 E, 7.1 R; 312/284; 150/49; 220/6; 206/45.32

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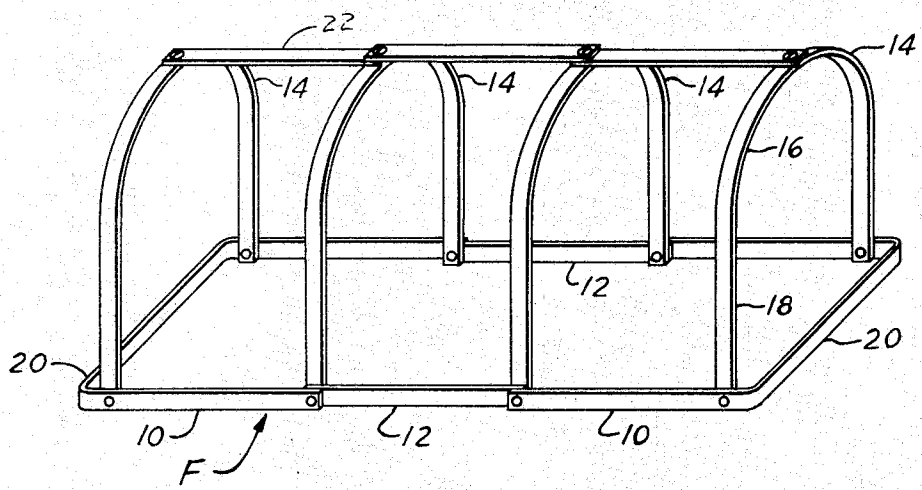
[57] **ABSTRACT**

A foldable and storable table cover having a foldable frame of a design which folds into a minimum size package and which when erected utilizes the fabric cover to stiffen the structure.

8 Claims, 7 Drawing Figures



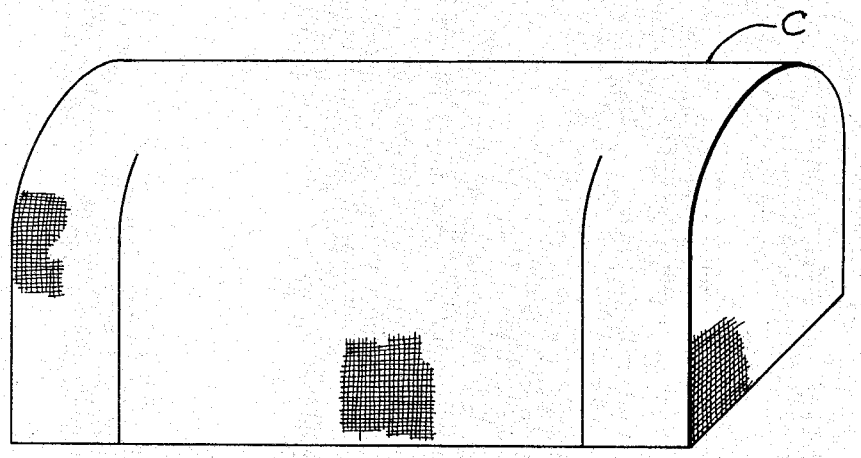


Fig. 1

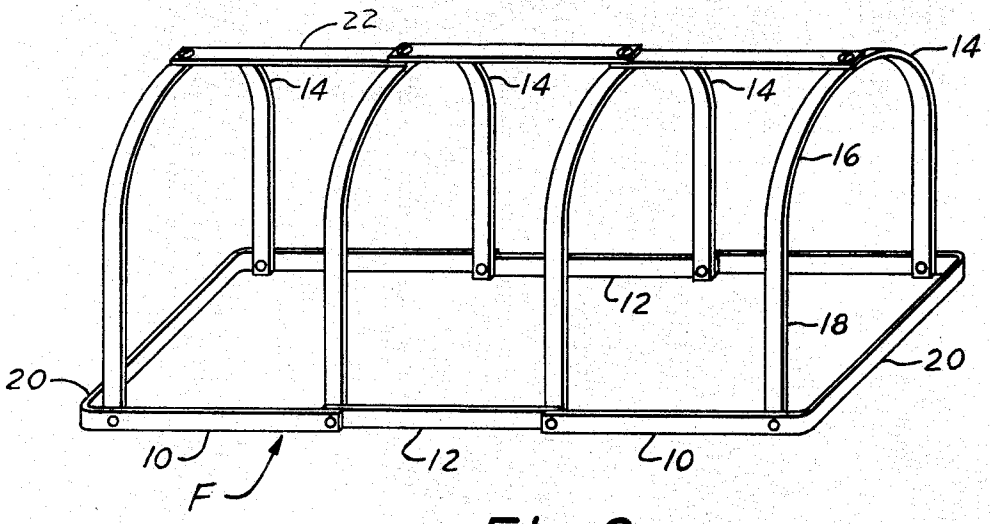


Fig. 2

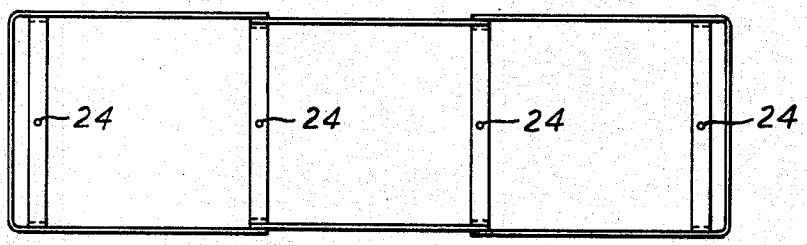


Fig. 3

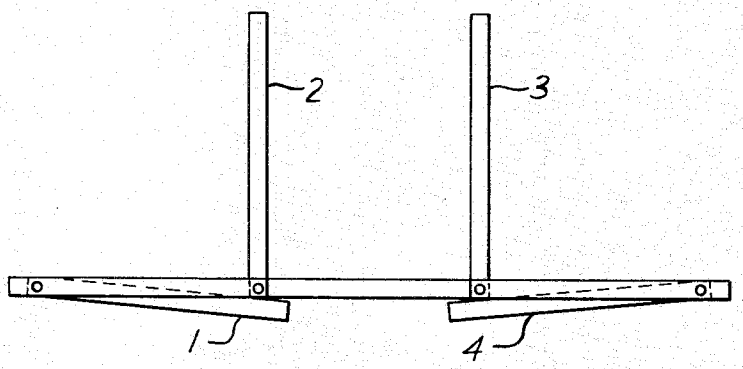


Fig. 4

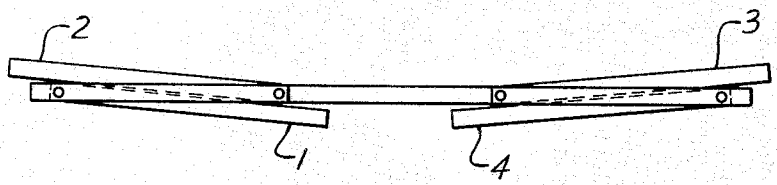


Fig. 5

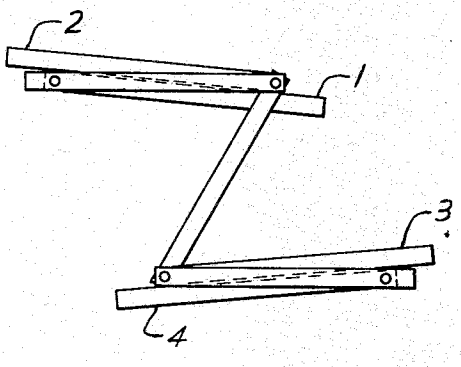


Fig. 6

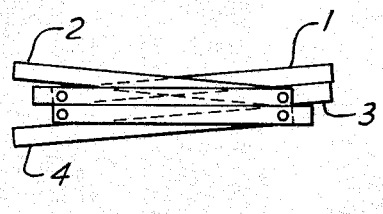


Fig. 7

FOLDABLE AND STORABLE ENCLOSURE

BACKGROUND OF THE INVENTION

The present invention relates to portable enclosures of the type comprising a metal frame having a cloth or plastic sheet covering thereon to protect its contents from the weather, etc., and more particularly to table top covers for protecting food, etc. thereon.

Travelers and outdoorsmen utilize portable structures of the type above described for temporary protection against the weather and insects. These structures must be light and portable; and the need has long existed for structures of this type which can quickly be erected and disassembled in a minimum of time, and which in the disassembled state has dimensions which are as small as possible.

Accordingly, an object of the present invention is the provision of a new and improved structure of the above-mentioned type having a folding frame which occupies a minimum of space in the folded condition.

A further object is the provision of a new and improved structure of the above-mentioned type for use on a table top for the protection of food, etc. thereon, and the cover of which can be quickly installed, and quickly opened and closed.

Further objects and advantages of the present invention will become apparent to those skilled in the art to which the invention relates from the following description of preferred embodiments described with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an oblique drawing of a cover top for a table embodying principles of the present invention;

FIG. **2** is an oblique drawing of the frame of the cover shown in FIG. **1**;

FIG. **3** is a plan view of the frame shown in FIG. **2**, but with the top longitudinal member removed;

FIG. **4** is a side view of the frame shown in FIG. **3** after the opposite end hoops have been folded down to complete the first stage of the folding operation for the frame;

FIG. **5** is a side view of the frame shown in FIGS. **2**, 3, and **4**, but with the center hoops folded outwardly to complete the second stage of the folding operation;

FIG. **6** is a side view of the frame moved into a Z-shape which takes place during a third stage of the folding operation; and

FIG. **7** is a side view of the frame shown in FIGS. **2** through **6**, but in their final folded condition.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The preferred embodiment of portable structures shown in the drawings generally comprises a frame F which is so designed that it is kept rigid by the flexible canvas cover C once the cover is slid over the frame and is secured to the base of the frame. The frame F generally comprises a pair of U-shaped base members **10** the legs of which extend towards each other. The base members **10** are spaced apart by a pair of front and rear base bars **12** that are made of the same bar stock as are the members **10.** The bars **12** are positioned adjacent the inside of the legs of the U-shaped base members **10** and are pivoted thereto by means of suitable fasteners not shown. The frame also comprises

four hoop-shaped members **14** that are made of the same type of bar as is the base formed by the members **10** and **12.** The upper portion **16** of each hoop-shaped member **14** is semicircular and the downwardly extending legs **18** therefrom are generally straight and have a length that is approximately two-thirds of the length of the front and rear base bars **12.** The bottoms of the left and right end hoop-shaped members are pivotally connected to the U-shaped base members **10** a short distance away from the transverse legs **20** of the U-shaped base members. The lower ends of the two centrally located hoops are pivoted about the same axes, and by the same fasteners which connect the base bars **12** to the U-shaped base members **10.** In the preferred embodiment, the legs **18** of the center hoop-shaped members **14** are positioned inwardly of the base bars **12,** in order that the frame can fold into its most compact position as will later be described. The frame F is completed by a top stringer **22** that is connected to the top of each of the hoop-shaped members **14** by means of suitable fasteners not shown, and which extend through a hole **24** at the top of each hoop-shaped member **14.** The top stringer **22** serves the function of holding the hoop-shaped members in their spaced apart condition but is so flexible that it cannot by itself brace the hoop-shaped members in their erected condition.

As will now be seen, the ends of the frame as formed by the transverse leg **20** of the base members **10** and by the adjacent end hoop-shaped members **14,** are generally planar. The cover C has a top which is semicylindrical to fit down tightly upon the upper portion of the hoops **14,** and has planar end portions which fit tightly against the ends of the hoop-shaped members **14.** The ends of the cover fasten about the transverse leg **20** of the U-shaped member **10.** The front and rear of the cover C is made by extensions which fit around the legs of the base members **10** and have snaps which are snapped into fasteners that are carried by the cover immediately above the base members **10.** In like fashion, the ends of the cover fold around the bottom of the transverse legs **20** and have snaps which are snapped into fasteners in the cover immediately above the transverse leg **20.** The cover, therefore, once snapped into place cannot be pulled vertically from the base members **10;** and when the cover is so snapped into postion, the hoops **14** cannot rotate out of their vertical position. It will be seen that the diagonal distance between the top of the legs **14** on one end hoop and the transverse leg **20** on the opposite end must increase when the hoops are rotated away from the transverse leg **20,** and that the cover member C prevents this from happening. Likewise the cover prevents rotation of the hoops in the opposite direction, since the diagonal distance between the left hand loop and the right hand transverse leg **20** must increase and this is prevented by the cover C. It will further be seen that since the cover extends underneath the base members **10** and **12,** it forms a type of gasket relative to the surface of the table which keeps out bugs, dirt, water, etc..

The cover is removed by unsnapping the edges of the cover, which are internally of the frame, from the fasteners in the wall of the cover to allow the bottom edges of the cover to be pulled out from under the frame. Thereafter the cover is pulled vertically and is folded for storage.

The frame is folded for storage using the sequence shown in FIGS. **4** through **7.** The first stage of the fold-

ing operation is accomplished as shown in FIG. 4 by folding the left and right end hoop members 14 inwardly to take a position beneath the plane of the base members 10 and 12. Thereafter the center hoops 14 are folded outwardly as shown in FIG. 5 to a position where they lay upon the transverse leg 20 of the U-shaped members 10. The next stage of the folding operation is accomplished by taking one of the U-shaped members and folding it upwardly into a Z-configuration as shown in FIG. 6. In the operation shown in FIG. 6, the left hand U-shaped member 10 with the inner and outer left hand hoops 14 folded above and below the base members 10 respectively, is shown being swung over the right hand U-shaped member 10. The operation shown in FIG. 6 is continued until the U-shaped members 10 are brought down into engagement with each other to bring the frame in its fully collapsed condition. In the embodiment shown in FIG. 7, the right hand hoop 14 extends downwardly, and the top thereof is abutted by the base members 12 which are inclined slightly as is necessary when the base members 10 are on top of each other. In the following description, the hoops will be designated as 1, 2, 3, and 4 can be thought of as occurring in sequence from either the left or right hand side of the frame. Assuming that hoop 4 is the right hand hoop as shown in FIG. 2, it will be in the bottom position as shown in FIG. 7. Hoops 2 and 3 are laying on top of each other and extend slightly upwardly and to the right. These hoops 1 and 3 are in the same plane with hoop 3 laying against the transverse leg 20 of the right hand U-shaped member 10. Because the bottom end of hoop 1 is in line with the base member 12, it must be bowed slightly so as to clear or pass around hoop 1. This can easily be done since the entire frame is made from flexible bar stock. Hoop 2 is inclined upwardly into the left and the top thereof rests against the transverse leg 20 of the left hand U-shaped member 10. In the folded condition the frame is approximately a square shape and the cover, likewise can be folded up into a generally square shape that fits inside of the folded frame. It can, therefore, be seen that the collapsed structure will fit into the smallest possible space since it does not have a folded length which is appreciably greater than its folded width. Because tables have a minimum width of approximately 26 inches, an ideal table cover is provided by a frame having a width of 24 inches, hoop spacings of approximately 20 inches, and straight leg portions on the hoops of approximately 12 inches. This gives an erected structure of approximately 2 feet by 5 feet and a folded structure that is approximately 2 feet square.

While the invention has been described in considerable detail, I do not wish to be limited to the particular embodiments shown and described, and it is my intention to cover hereby all novel adaptations, modifications, and arrangements thereof which come within the practice of those skilled in the art to which the invention relates, and which fall within the purview of the following claims.

I claim:

1. A foldable frame for a table cover and the like comprising: left and right generally U-shaped base sections positioned with their legs extending toward and spaced from each other; front and rear center base bars with respective ends of each center bar pivotally connected to the ends of respective front and rear legs of said left and right U-shaped base sections; first, second, third and fourth inverted bows with the lower ends of the first bow being pinned to respective legs of said left U-shaped base section, with the lower ends of said fourth bow being pinned to respective legs of said right U-shaped base section, and with the front and rear lower ends of said second and third bows being pivotally connected to said base members adjacent said pivotal connections at the left and right ends of respective front and rear center frame bars; and whereby said frame can be folded to occupy a minimum of space by folding said first and fourth hoops inwardly, said second and third hoops outwardly, and said base into a collapsed Z-shape with the left and right end frame sections closely adjacent each other.

2. The frame of claim 1 wherein said front and rear center base bars are located inside of said U-shaped base sections.

3. The frame of claim 2 wherein said second and third hoops are located inside of said center base bars.

4. The frame of claim 3 wherein said second and third hoops have a common pivotal axis with that between said base bars and U-shaped sections.

5. The frame of claim 4 wherein said hoops have generally straight legs that are generally perpendicular to said pivotal axes for a height that is approximately two-thirds of the length of said base bars..

6. The frame of claim 1 having a removable stringer for attachment to the top of each hoop when the hoops are in a vertical position relative to the base sections.

7. The frame of claim 6 having a cover fitting the erected frame and pulled down over said hoops and fastened to said base bars and sections.

8. The frame of claim 5 wherein said hoops have a height greater than the distance between the pivotal axis of said U-shaped base sections and the connecting portion between the legs of the U-shaped base sections.

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