United States Patent [19]

Barker

[11] **3,865,429**

[45] **Feb. 11, 1975**

[54] PORTABLE COLLAPSIBLE SHELTER

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[22] Filed: **May 18, 1973**

[21] Appl. No.: **361,540**

[52] **U.S. Cl.** ..... **297/184,** 52/71, 135/5 R

[51] **Int. Cl.** **A47c 7/66**

[58] **Field of Search** ..... 52/70, 71, 27, 36, 64, 52/65; 297/184; 135/5 R, 5 B, 5 C, 5 E, 5 A, DIG. 7, 4 R, 3 R, 7.1 R

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Primary Examiner—John E. Murtagh

[57] **ABSTRACT**

The body of the shelter is formed of a plurality of identical panels two of which form the end walls and the other two of which form the back wall. The panels of the back wall are hinged to each other by flexible strips and are similarly hinged to the back edges of the side walls. Flexible sheets form the top and bottom of the shelter and allow for the hinging of the two back wall panels relative to each other and the hinging of the end wall panels relative to the back wall so that the body of the structure can be folded flat. A visor shields the top of the open front, and a novel apron covers the lower part of the front and extends over the knees of an occupant or occupants of the shelter, the height of the upper edge of the apron being adjustable.

10 Claims, 7 Drawing Figures

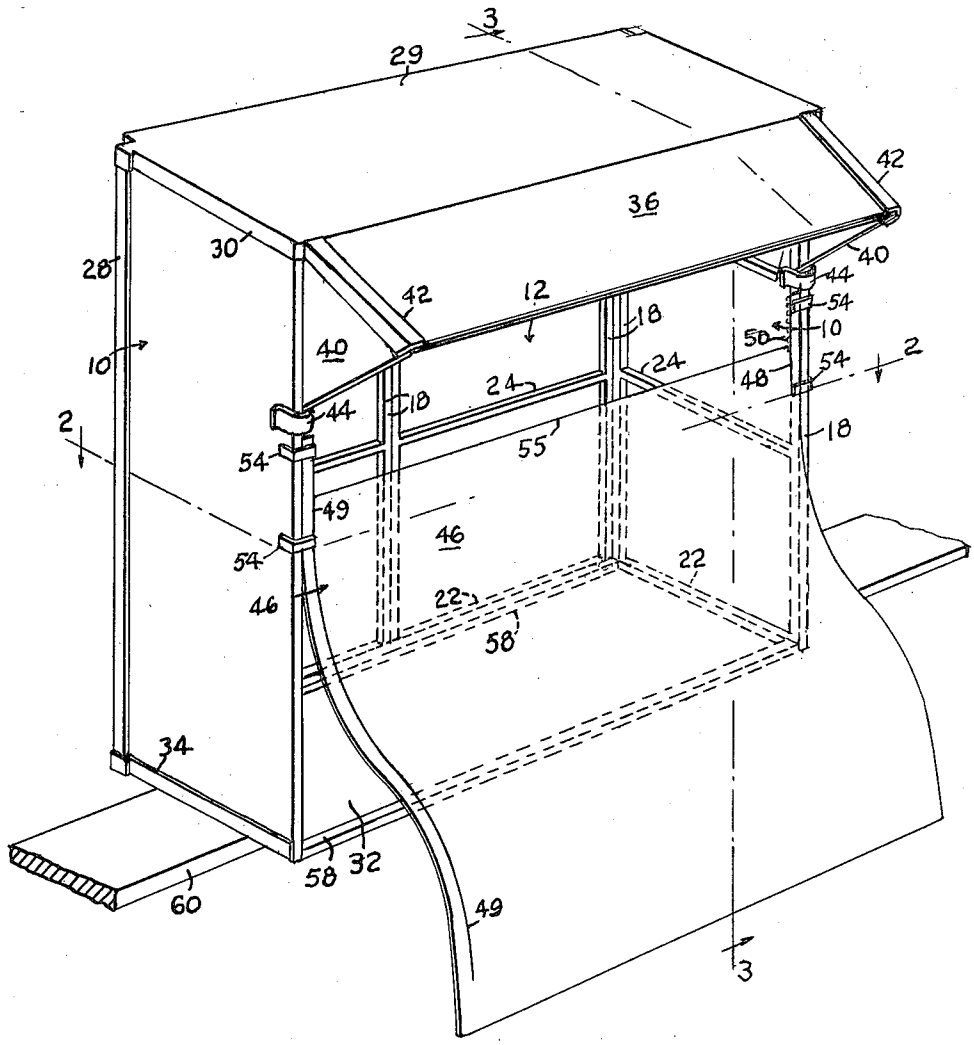


FIG. 1.

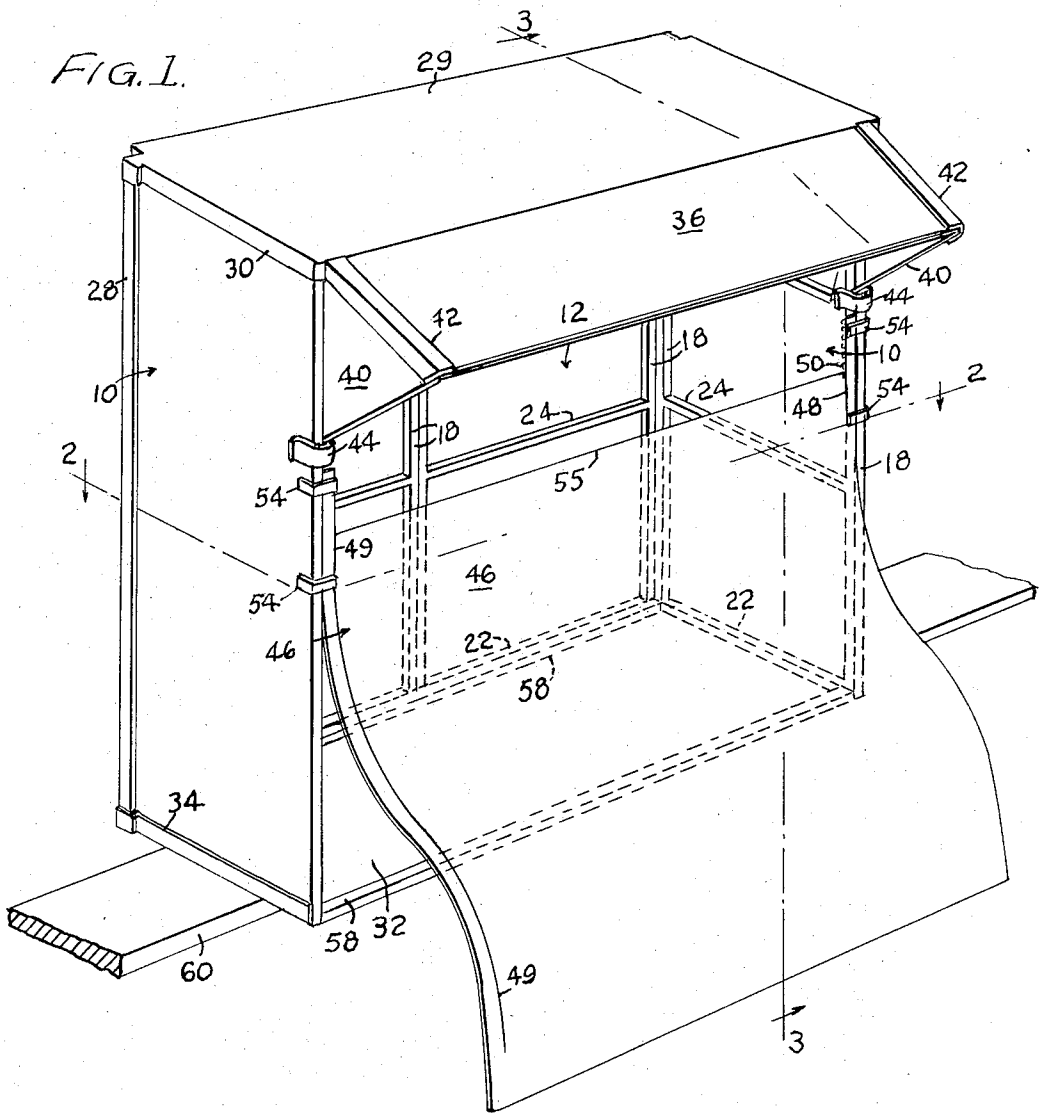

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FIG. 2.

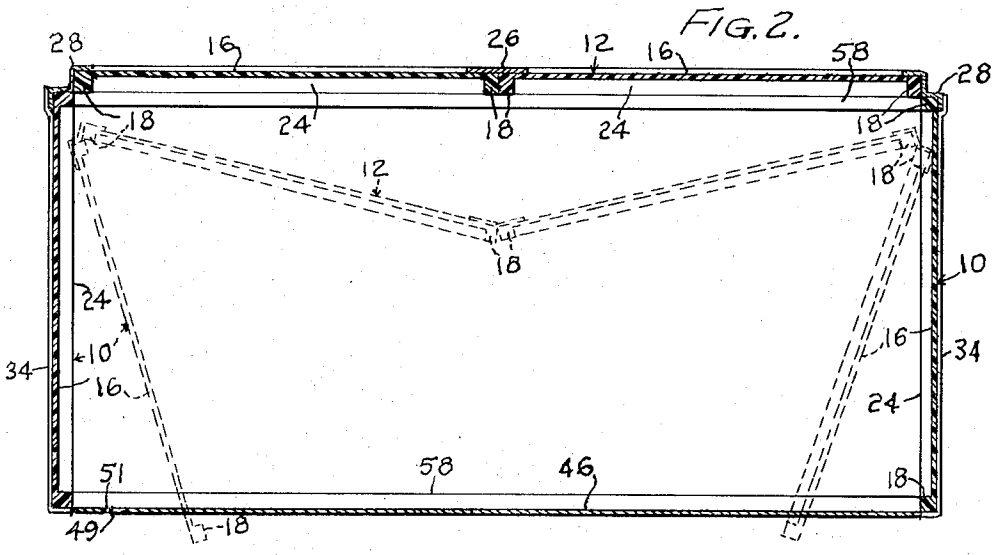

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FIG. 3.

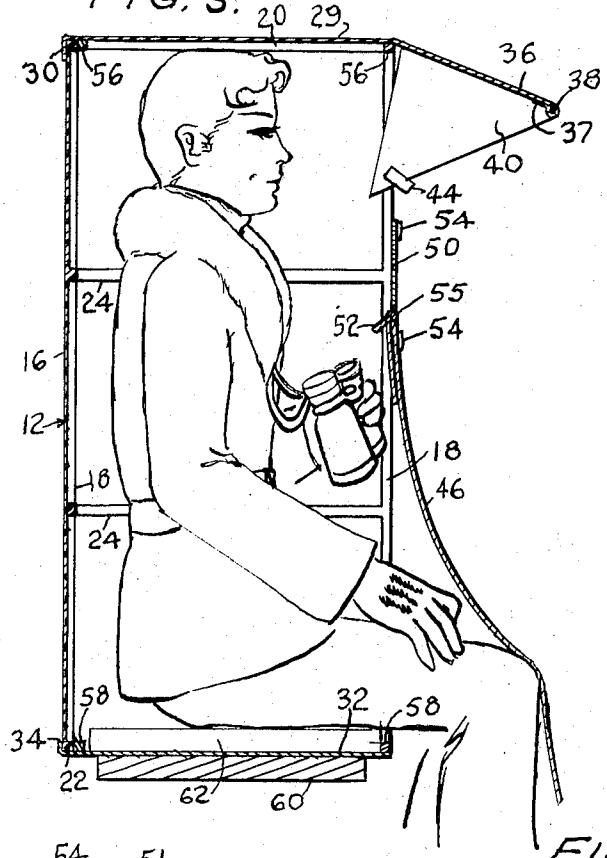


FIG. 4.

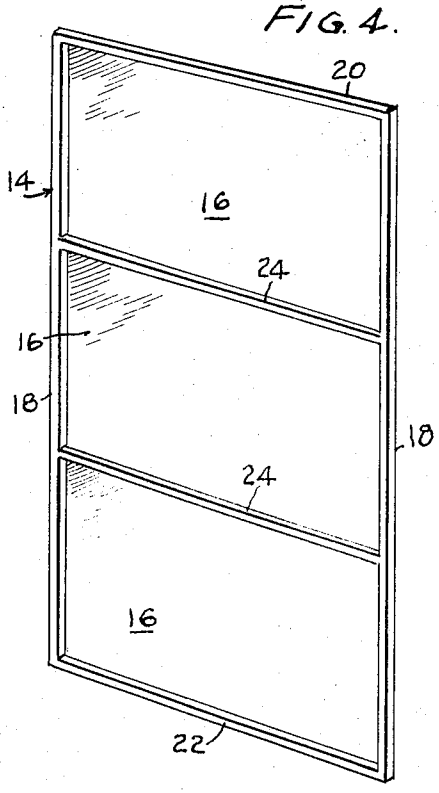


FIG. 5.

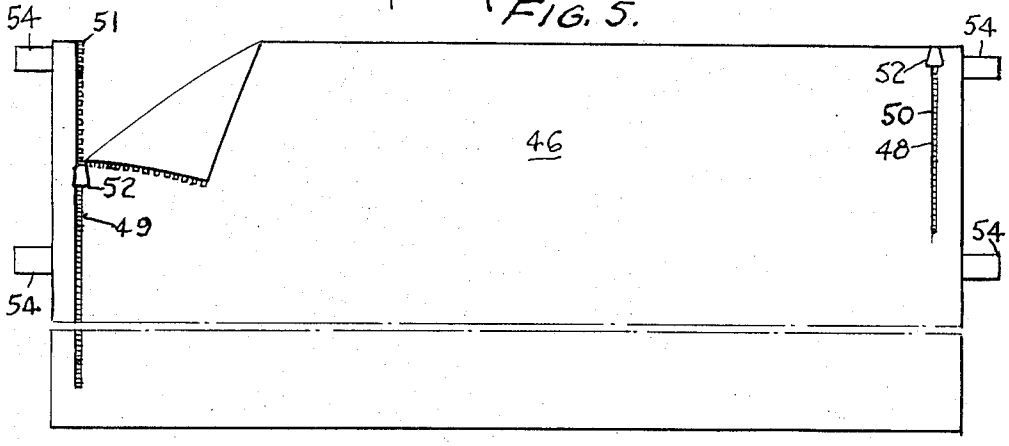


FIG. 6.

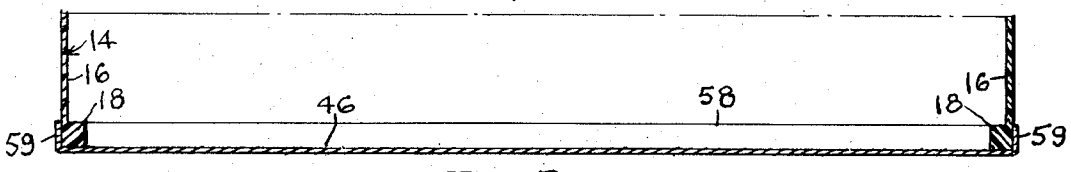
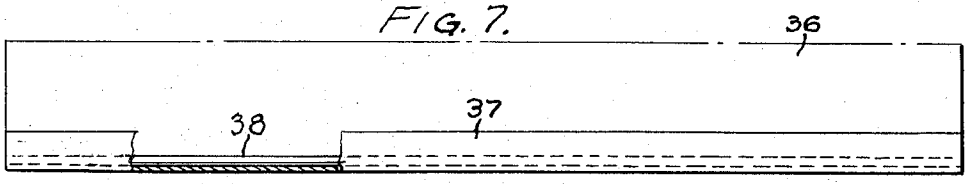


FIG. 7.



PORTABLE COLLAPSIBLE SHELTER

CO-PENDING APPLICATIONS

In my co-pending application Ser. No. 202,884, filed Nov. 29, 1971, now U.S. Pat. No. 3,768,860, I have disclosed a portable shelter for use at uncovered athletic fields wherein rigid top and bottom plates were connected to each other by flexible end and back walls, and a plurality of posts resting on the bottom plate would engage snugly against the bottom of the top plate to support it in position. Removal of the post would allow the collapsing of the flexible walls to flatten the structure for easy portability.

In my co-pending application Ser. No. 357,833, filed May 7, 1973, I have disclosed a shelter for the same purpose, also having rigid top and bottom plates and flexible end and back walls, the top plate being supported and the side and back walls being stretched into planiform shape by a single central post engaged in sockets in the facing surfaces of the top and bottom plates. This shelter could be similarly collapsed by removal of such single post.

BRIEF SUMMARY OF THE INVENTION

As distinguished from the structures of my copending applications referred to, the present construction is provided with rigid end and back walls and flexible top and bottom sheets. The device is intended for use as a shelter at athletic games, particularly at high schools and colleges where athletic stands are uncovered and board-type seats are used. The body of the device is formed of four relatively rigid units, two of which respectively form the end walls and two of which combine to form the rear wall. The units of the rear wall are arranged in edge to edge relation and are hinged to each other by a tough vertical strip of material cemented to the adjacent portions of the units. The remote edges of the units of the back wall are similarly hinged to the vertical back edges of the end wall units. The walls being relatively rigid, they are self sustaining and adapted to support a flexible top sheet and a similar bottom sheet is connected to the bottom edge portions of all the panels.

As in my prior constructions, I provide a visor connected to the forward edge of the top sheet, the visor being adjustable at any desired downward and forward angle. The visor in this case is flexible, and may form a continuation of the flexible top sheet.

An apron is connected to the end wall panels below the visor and extends downwardly and outwardly over the knees of an occupant of the shelter. The apron may be supported relative to the end walls by reusable adhesive strips, one end of each of which is connected to the apron and the other end of which extends around the adjacent end wall unit. Any number of these strips may be employed in spaced relation. Alternatively, the vertical edges of the apron may extend around the sides of the end walls and be cemented thereto. The top portion of the apron is vertically slit adjacent the edges thereto for the connection thereto of slide fastener elements so that the top limit of the apron with respect to the user's line of vision may be vertically adjusted as desired. One of the slits may be extended downwardly to form an entrance opening through which a user may enter the shelter.

The body of the device may be readily folded by swinging the hinged adjacent ends of the back wall units forwardly and swinging forward ends of the end wall units inwardly toward each other. The highly flexible top and bottom sheets permit this action to take place.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of the shelter;

FIG. **2** is a horizontal section on line 2—2 of FIG. **1**;

FIG. **3** is a vertical section on line 3—3 of FIG. **1**;

FIG. **4** is a detail perspective of one of the wall panels;

FIG. **5** is an inside face view of the apron, a portion of the apron being broken away;

FIG. **6** is a fragmentary section similar to the bottom of FIG. **2** showing a modification of the invention; and

FIG. **7** is a fragmentary face view of the bottom of the forward edge of the visor, a portion thereof being broken away.

DETAILED DESCRIPTION

Referring to FIGS. **1, 2** and **3,** the shelter body comprises end walls **10,** and a rear wall **12.** These walls are made up of a plurality of identical units, one of which is shown in detail in FIG. **4.** Each of these units is formed of relatively rigid molded plastic. In FIG. **4** the unit is indicated as a whole by numeral **14** and comprises relatively thin sheet material **16** having a substantial degree of rigidity, and vertical preferably square integral corner posts **18.** These posts are joined by top and bottom similar elements **20** and **22** and intermediate horizontal members **24.** The members **18,** 20, 22 and **24** serve to provide each panel with a substantial degree of strength.

One of the panels described constitutes each of the end walls **10** of the shelter, and two of such units form the rear wall. In forming such wall, two of the panel units are arranged as shown in FIG. **2** with adjacent vertical members **18** in abutting relationship. Bridging across such two back wall members **18** is an elongated vertical strip **26,** preferably formed of plastic covered nylon cloth to provide it with substantial tensile strength while retaining its high flexibility. This strip is cemented to the outside faces of the back panels and serves to hinge them to each other. Adjacent corner elements **18** of the end and back wall units are arranged as shown in FIG. **2** and are hingedly connected together by strips **28** similar to the strip **26.**

The shelter is provided with a top sheet **29** possessing a high degree of flexibility and preferably formed of plastic coated nylon cloth. This sheet has its edges **30** turned downwardly over and cemented to the adjacent surfaces of the wall panel units. A similar bottom sheet **32** has its edge portions **34** cemented to adjacent surfaces of the wall panels. Accordingly it will be apparent the flexibility of the top and bottom sheets permits the folding of the body of the shelter as suggested in dotted lines in FIG. **2.**

As in the co-pending applications referred to, the structure is provided with a visor **36** in this case formed of flexible sheeting which may be integral with the top sheet **29** as shown in FIGS. **1** and **3.**

Since the visor in this case is flexible, it is necessary to support the forward edge thereof. To this end, the forward edge of the material of the visor is turned back on itself as at **37** (FIGS. **3** and **7**) and stitched or cemented, as preferred, to the body of the visor to form a tunnel in which is inserted a rod **38** to maintain the

forward extremity of the visor straight. The remote ends of the visor, of course, will be held straight by side wings **40**, provided for the visor and hinged thereto as at **42** by strips similar to the strips **26** and **28** previously described. The angularity of the visor is adjustable and it may be held in any adjusted position by suitable clips **44** engaging the side wings **40** and the adjacent edges of the end walls **10**.

The open front of the shelter is provided with a novel type of apron indicated by the numeral **46**. This apron is formed of any suitable flexible waterproof material and prevents rain from beating into the front of the shelter beneath the visor. Parallel to opposite vertical edges thereof, the apron is slit as at **48** and **49** to respectively receive the elements of slide fasteners **50** and **51** each provided with a pull tab **52**. The apron may be supported in position as shown in FIG. **1** by commercially available flexible strips **54** which have adhesive applied to one face thereof, the adhesive being non-hardening and the strips being reusable. From within the shelter, the user easily may reach out and attach the strips to the end walls **10**. This accessability is readily provided by pulling downwardly on both tabs **52**. In fact more than two of the strips may be employed, others being added, if desired, beneath the lower strips **54** shown in FIGS. **1** and **5**. By adjusting the position of the tabs **52**, the effective upper limit of the apron may be adjusted as close as desired to the visor without interferring with the user's vision of the athletic field, for example as indicated by the numeral **55** in FIGS. **1** and **3**.

It is advisable to fix the relative positions of the parts of the body of the device. To this end, two upper spacer sticks **56** and two lower spacer sticks **58** are employed, (FIG. **3**). These sticks engage at their ends with portions of the post elements **18** of the panels of the end walls to maintain these walls the proper distance apart and to stretch the top and bottom sheets **28** and **32** into planiform shape. It also will be noted that the rear spacer sticks **56** and **58** extend directly across and in contact with the tops and bottoms of the post elements of the rear wall at the center thereof. Frictional engagement of the spacer sticks holds them firmly in position, and the sticks engaging in the center of the rear wall prevent the panels of the back wall from swinging about their hinge **26**.

It will be noted that the slit **49** extends downwardly to a point in close proximity to the lower edge of the apron **46**. This is not necessary if the strips **54** are employed for securing the side edges of the apron to the side walls. It is preferred, however, since the user may pull the tab of the slide fastener **51** down the full length of the slit **49**, then fix the strips **54** in position, and step into the shelter through the opening provided by the slit **49**.

In FIG. **6** there is shown a modification of the means for attaching the apron **46** in position. The apron is made wider to provide edge portions **59** extending throughout the lengths of the side edges of the apron and turned over and secured by cementing to the outer surfaces of the side walls **10** adjacent the forward edges thereof.

OPERATION

The operation and use of the structure will be apparent from the foregoing description. In FIGS. **1** and **3**, the structure is shown as resting on a board-type seat **60** of a stand at an athletic field. The device, which is relatively light, is carried to the field in flat form with each end wall **10** folded in against the adjacent rear wall panel, and the latter panels being folded flat against each other. It is merely necessary to swing the end panels outwardly as suggested in dotted lines in FIG. **2** and to move the center of the rear wall rearwardly until the body of the structure has its parts arranged in normal position. The spacer sticks **56** and **58** are then inserted snugly in position. The visor will be adjusted in the desired position to shed water and also shade the eyes of a person or persons occupying the shelter.

In place of the attaching strips **54**, the apron **46** may be made sufficiently wide to extend around the post portions **18** at the front of the end walls, as indicated at **59** in FIG. **6**. These ends will be cemented in position. This would make it difficult to enter the shelter, but with the elongated slit **49** and slide fastener **51**, the apron may be opened to allow the user to step into the shelter and close the slide fastener **51**. This arrangement, of course, may be used with either the attaching strips **54** or the form of the invention of FIG. **6**. In the former case, the attaching strips **54** may be attached before the user enters the shelter and accordingly the use of the elongated slit **49** and slide fastener **51** is preferred in either form of the invention.

It is advisable, of course, to provide a cushion for the bottom of the shelter, and such cushion is indicated by the numeral **62** in FIG. **3**. This cushion conveniently may be made of a fairly thick piece of foam rubber. The cushion forms no part of the present invention.

The structure provides adequate protection on all sides and gives the observer an unobstructed view of the sports event. Since a user's head will be in close proximity to the top sheet **28**, the structure will not obstruct the view of people seated rearwardly of the shelter. While the structure is particularly useful as a shelter for sporting events, such as football games, it is also highly practicable as a shelter for deer hunters taking a stand near a deer trail, to be sheltered from the weather. The device is also highly practicable as a shelter in duck blinds, and may be utilized as a shelter for fisherman fishing from piers or boats.

I claim:

1. A temporary portable shelter comprising relatively rigid self-sustaining end walls and a back wall extending therebetween, means movably connecting each end wall to the adjacent end of said back wall, a flexible sheet extending over the tops of and sealed to said end and back walls, a flexible sheet similarly connected to the lower extremities of said end and back walls, and means engaging the top and bottom portions of said end walls and forcing them away from each other to stretch said flexible sheets.

2. A structure according to claim **1** wherein said back wall is formed of two vertical panels having abutting edges centrally of the length of said back wall and a hinge secured against said panels adjacent said abutting edges rearwardly of said back wall whereby the central portions of said back wall are movable forwardly for folding said panels, and hinges connecting the rear edges of said end walls to said back wall and positioned for the inward swinging of said end walls.

3. The structure according to claim **2** wherein said end walls are in the form of panels identical with the

panels of said back wall, said panels being formed of molded plastic.

4. The structure according to claim **2** wherein said means for stretching said flexible sheets comprises spacer sticks frictionally engaging at their ends against the inner faces of said end wall panels and arranged against said back wall panels adjacent to the top and bottom thereof.

5. A structure according to claim **4** provided with a second pair of spacer sticks frictionally engaging at their ends with the inner faces of said end walls at the forward ends and adjacent the tops and bottoms thereof.

6. A structure according to claim **3** wherein each of said panels comprises a relatively thin substantially rigid sheet and thickened integral reinforcing elements at the sides, top and bottom of the panel to increase its structural strength.

7. A structure according to claim **1** provided with an apron of flexible waterproof material extending across the front of the shelter, means for connecting said apron adjacent the vertical edges thereof to said side walls, said apron, slightly spaced from said vertical edges thereof, being provided with slide fasteners each having a pull tab adapted to be moved upwardly and downwardly to adjust the height of the portion of the apron between said slide fasteners.

8. A structure according to claim **7** wherein said means for connecting said apron to said side walls comprises flexible reusable adhesive strips, each having one end adherring to said apron, the other end of each strip being attachable to the outside surface of each end wall.

9. A structure according to claim **8** provided with a visor of flexible material sloping forwardly and downwardly from said flexible covering, means for stiffening the forward edge of said visor to maintain it straight from end to end, and means for supporting said visor at the ends thereof.

10. A structure according to claim **9** wherein said visor forms a continuation of said first named flexible sheet.

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