Nov. 21, 1961 L. A. MAKENS 3,009,212

COLLAPSIBLE SHELTER

Filed Aug. 4, 1958

2 Sheets-Sheet 1

Fig.1

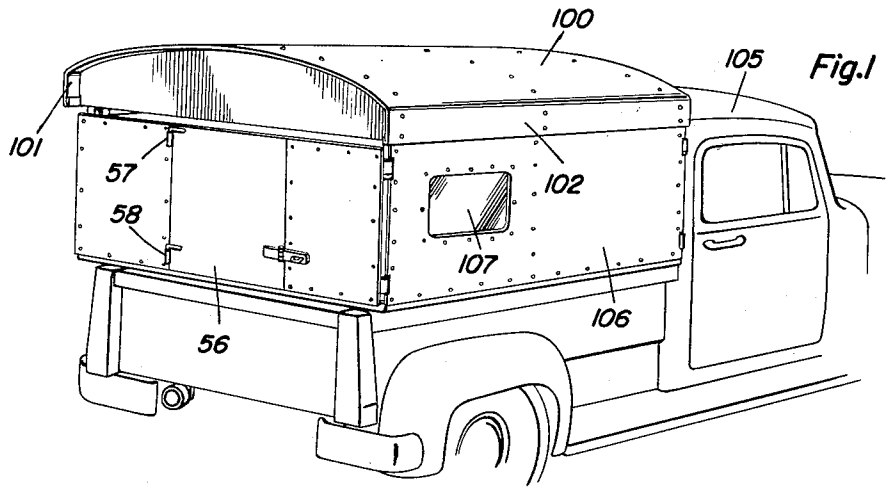


Fig.7

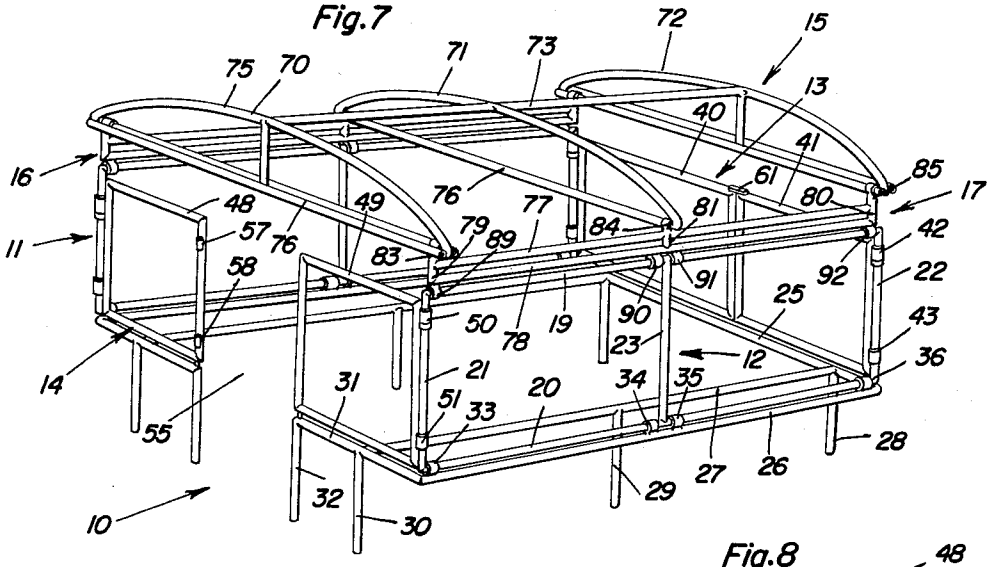


Fig.2

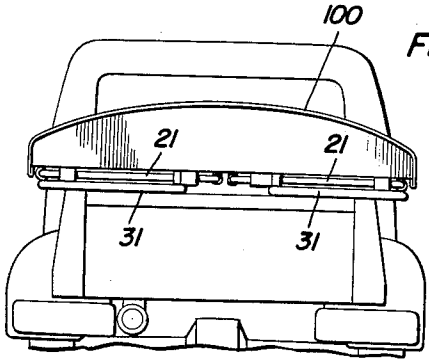
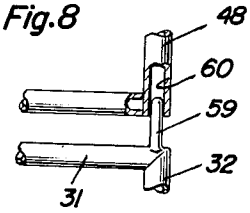


Fig.8



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Fig.3

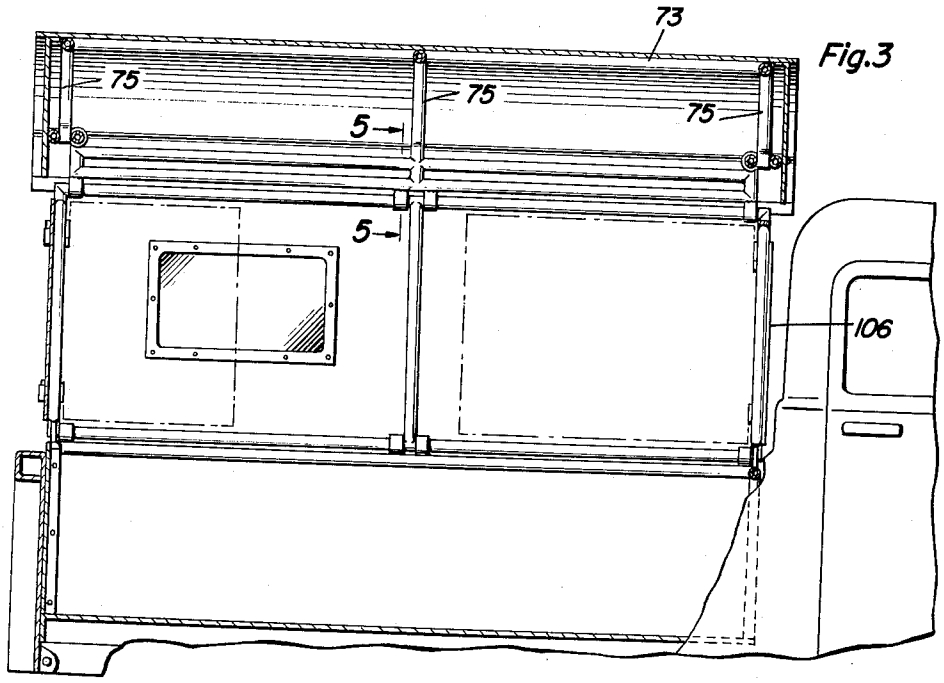


Fig.4

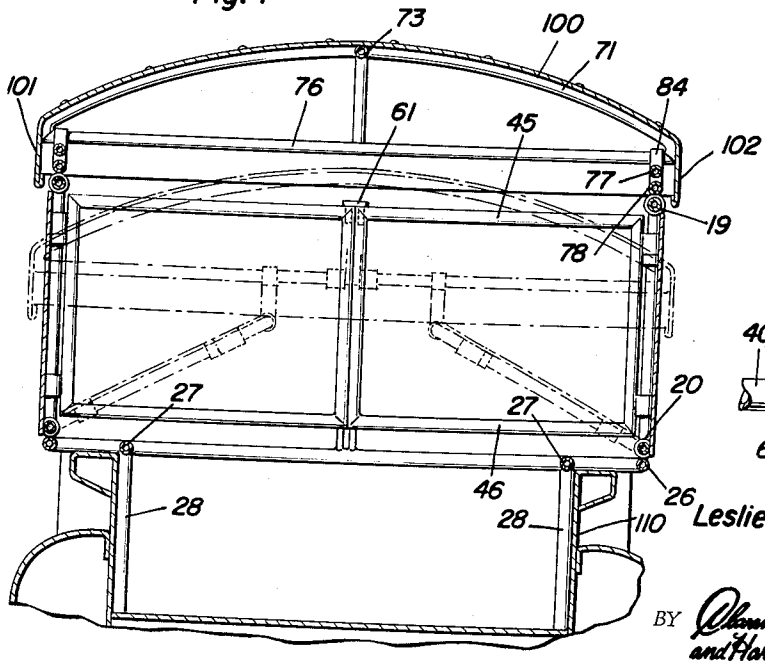


Fig.5

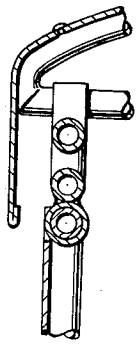
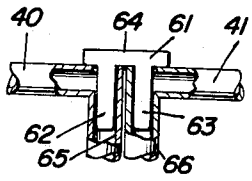


Fig.6



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3,009,212

COLLAPSIBLE SHELTER

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3 Claims. (Cl. 20—2)

This invention relates in general to collapsible shelter structures and pertains more particularly to such a structure in which the shelter may be collapsed into extremely compact form when not in use.

Of primary concern in connection with this invention is to provide improvements in collapsible shelters wherein the same may be easily, readily and quickly folded into a compact collapsed form for storage purposes.

Another object of this invention is to provide an improved form of collapsible shelter incorporating a base assembly upon which is hingedly mounted a pair of side wall members which are collapsible downwardly to a folded position on the base assembly and, in combination therewith, a roof structure supported by the side wall members through the medium of eave frame members which are hingedly connected to the upper edges of the side wall members and are hingedly and slidably connected to the roof structure to constrain the roof structure to move downwardly with the side walls as the same are inwardly folded so as to assume a neat and compact collapsed position.

Still another object of this invention is to provide an improved form of collapsible shelter particularly adapted for mounting within the bed of a pickup truck or the like and which includes a base assembly particularly adapting it for the mounting in such a truck, the structure including hinged side walls supporting a roof structure thereabove through the medium of eave frame members which are hingedly connected to the side walls and are hingedly and slidably connected to the roof structure so that the entire assemblage collapses neatly and compactly.

Still another object of this invention is to provide a collapsible structure in conformity with the preceding objects wherein end wall members, hingedly connected to the side wall members, are provided, the end wall members being sectional so as to swing into collapsed position with the side wall members and being so dimensioned as to fit within the confines of the side wall members which are of generally open rectangular configuration.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of the rear end of a truck assembly having the collapsible shelter mounted thereon in an erected position relative thereto;

FIGURE 2 is a rear elevational view of the assembly shown in FIGURE 1, but showing the same in collapsed position on the truck;

FIGURE 3 is an enlarged vertical section taken longitudinally through the truck body and the collapsible shelter associated therewith;

FIGURE 4 is an enlarged transverse sectional view taken through the truck body and the associated collapsible shelter showing the same in the erected position;

FIGURE 5 is an enlarged vertical sectional view taken substantially along the plane of section line 5—5 in FIGURE 3 and illustrating details of the framework assemblage;

FIGURE 6 is an enlarged view partly in section illustrating the manner of rigidly interconnecting the forward end wall members together;

FIGURE 7 is a perspective view of the framework constituting the collapsible shelter; and

FIGURE 8 is an enlarged view partly in section illustrating the locking means for the rear end wall panels.

Referring at this time more particularly to FIGURE 7, the collapsible shelter will be seen to consist essentially of a generally open framework assembly including the base assembly indicated generally by the reference character **10**, the opposite side wall assemblies indicated generally by the reference characters **11** and **12** and the forward and rear wall assemblies indicated generally by the reference characters **13** and **14** respectively. In addition, the framework includes the roof structure indicated generally by the reference character **15** and a pair of eave structures indicated generally by the reference characters **16** and **17** respectively.

The frame of the shelter is composed of lightweight rods which are preferably hollow. The term "rod" as used in this application means a rigid elongated structural member of relatively small cross-section. The cross-sectional shape of each rod is preferably round, but of course may be of other shapes without departing from the spirit of the invention.

Each side wall member includes upper and lower frame elements **19** and **20** respectively, opposite end uprights **21** and **22** rigidly interconnecting the opposite ends of the members **19** and **20** and an intermediate upright **23** all rigidly interconnected and fastened together by suitable means. In other words, the side wall members are of generally open rectangular configuration and are, while sufficiently rigid to accomplish the desired end results, of light weight construction.

The base assembly **10** comprises a pair of identical stand members rigidly interconnected at the forward ends thereof by the forward cross-piece **25** and each of such stands includes an outer side piece **26** and, spaced inwardly thereof and parallel thereto an inner side piece **27** from which a series of depending legs **28**, **29** and **30** extend. At the rear of each such stand is provided a transverse frame member **31** having a depending leg **32** extending downwardly from its inner free end and which transverse piece **31** rigidly interconnects the rearward ends of the side pieces **26** and **27**, substantially as is shown.

The outer side piece **26** carries a series of collars or sleeves **33**, **34**, **35** and **36** which embrace the lower member **20** of the associated side walls **11** and **12** and thus hingedly secure the same to the base assembly **10**. It is to be understood by virtue of the sleeves **33–36** inclusive, the side walls **11** and **12** are hingedly connected to the base so as to be swung from the vertical position illustrated in FIGURE 7 to a downwardly and inwardly swung collapsed position wherein they are substantially horizontally disposed and rest upon the base assembly, see particularly FIGURE 2.

The forward end panel assembly **13** includes a pair of open rectangular frame assemblies **40** and **41** carrying, at their outer ends, the sleeves **42** and **43** which embrace the forward vertical member **22** of the side wall assemblies for hinged securement thereto. It is to be noted, see particularly FIGURE 4, that the upper and lower horizontal members **45** and **46** of these two panels **40** and **41** are spaced apart a distance less than the distance between the upper and lower members **19** and **20** of the side walls so that, by virtue of the hinged connection afforded by the sleeves **42** and **43**, the panels **40** and **41** may be swung actually into and within the confines of the side wall members with which they are associated.

Likewise, the rear wall panel assembly 14 is similarly constructed and includes the two separate panels 48 and 49 of open rectangular configuration sleeved as indicated by reference characters 50 and 51 to be uprights 21 and are dimensions corresponding to the dimensions of the panels 40 and 41 in height so as to be swung completely within the confines of the associated side wall assemblies 11 and 12 to most readily effect a completely collapsed and compact position.

The base 10 as well as the panels 48 and 49 at the rear of the shelter assembly define an opening or space 55 therebetween which represents a doorway to gain access into the interior of the shelter. A removable door 56, see particularly FIGURE 1, is hung on the frame 48, the same being provided with pintle sleeves 57 and 58 for this purpose.

The rear end panels 48 and 49 are locked to the base by virtue of the pin and recess connection illustrated best in FIGURE 8. In this figure, it will be noted that the base portion is provided with an upstanding pin 59 received within a socket or recess 60 provided in the lower end of the inner vertical piece of the panel 48, the various hinge connections of the assembly permitting of this interengagement initially and before the double pin element 61, see particularly FIGURES 6 and 7 is engaged with the two forward end panels 40 and 41. This double pin element 61 includes the two spaced, parallel depending pin portions 62 and 63 and the interconnecting head portion 64 extending therebetween, substantially as is shown in FIGURE 6 and which is adapted to be received in the two sockets 65 and 66 in the inner side upstanding members of panels 40 and 41 so as to serve to lock the same together, such vertical portions of the panels being disposed in closely adjacent relationship as will be clear both from FIGURES 4, 6 and 7.

The roof structure comprises a series of arches 70, 71 and 72 rigidly interconnected by the ridge piece 73, each of said ridge pieces including an upper chord or top arch element 75 and a lower chord 76 connecting the outer ends of the upper chord.

Each of the eave assemblies 16 and 17 are similarly formed and includes the upper and lower longitudinal pieces 77 and 78 rigidly interconnected at their opposite ends by portions 79 and 80 and intermediately thereof by the vertical piece 81. Each of these pieces has an upwardly projecting extension as indicated by the reference characters 83, 84 and 85 respectively, terminating in sleeves embracing the respective lower chords 76 of the various roof arch members 70, 71 and 72. The lower longitudinal element 78 has depending sleeves 89, 90, 91 and 92 embracing the upper element 19 of the corresponding side walls so as to hingedly interconnect the eave members thereto. Thus the eave members serve to slidably and hingedly interconnect the upper edges of the side walls 11 and 12 with the roof assembly 15 and thus permit collapsing of the assemblage as is illustrated best in dotted lines in FIGURE 4 to a final position as is illustrated in FIGURE 2.

The entire skeletal framework is covered by a skin of fabric, light metal or the like, as is best illustrated in FIGURE 1 of the drawings, such skin being indicated by the reference character 100. Naturally, the roof structure is separately covered and has depending side skirt portions 101 and 102 covering the eaves, the eaves members being the only portions thereof which are not covered by a skin say with the possible exception of the forward wall members 40 and 41 which need not necessarily be covered if they are disposed closely adjacent the rear side of the vehicle cab 105. However, it is preferred that a skin or covering 106 be provided on the forward end of the framework structure. The side walls are covered by the skin portions 106 each of which may be provided with a window 107, as is desired. From FIGURE 4, it will be noted that the legs of the base are snugly received within the bed 110 of the truck within which the shelter is associated and serve to fixedly locate the same therewithin. It is to be understood, however, that the base need not necessarily be so formed particularly if the shelter is to be used independently of a truck body and merely as a portable, collapsible shelter which is to be positioned directly upon a supporting surface such as the ground.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. In a collapsible shelter having a frame of open construction composed of light weight rods covered with sheet material, the improvement comprising: a base assembly, a pair of opposed vertical side wall members secured by first hinge means to said base assembly for movement between a vertical position and a horizontal position when folded downwardly upon said base assembly, a roof structure including spaced trusses extending transversely between the side walls, means connecting the trusses rigidly together in spaced relation, each truss including an upper chord and a lower chord and at least two of said trusses having connecting means between said chords, an eave frame member secured by second hinge means to the upper edge of each of said side walls, other means connecting each of said eave frame members to said lower chord for transverse sliding movement thereon to move said roof structure downwardly upon said side wall members as the same are moved to their downwardly collapsed position, a substantial portion of each side of the lower chord being unobstructed to permit sliding movement of the eave frames and other means, an end wall assembly hingedly secured to one end of each of said side walls, said end wall assembly including a pair of vertical panels extending between said side walls when in an extended operative position, and securing means for locking said panels to each other.

2. A collapsible shelter as defined in claim 1 including a second end wall assembly hingedly secured to another end of each of said side walls remote from said first mentioned end wall assembly, said second end wall assembly including a second pair of vertical panels, all of the panels of both end wall assemblies being of less height than the height of said side wall panels, and means for locking each of said second pair of panels to said base and in a position whereby said second pair of panels are perpendicular to said side walls, said second pair of panels defining an opening therebetween when in said locked position, and a removable door supported on one of said second pair of panels in said opening.

3. A collapsible shelter as defined in claim 1 wherein the sheet material covering the roof structure depends over said eave frames, and said eave frames are of less height than said side walls.

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