July 29, 1958 J. H. SINGLETON 2,845,078

PORTABLE STRUCTURE

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Fig. 1

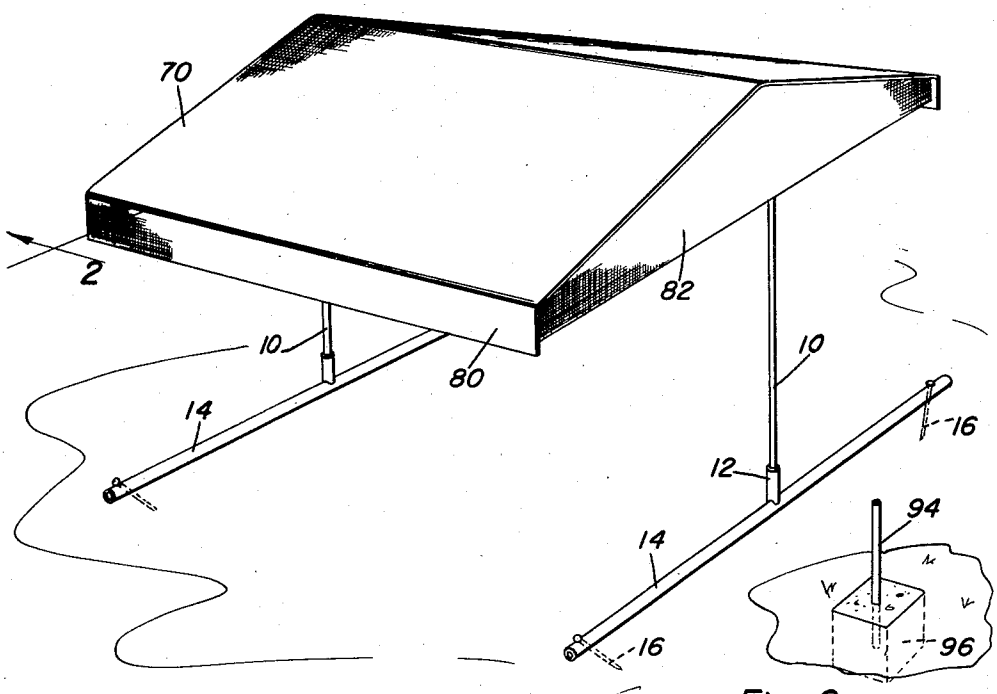
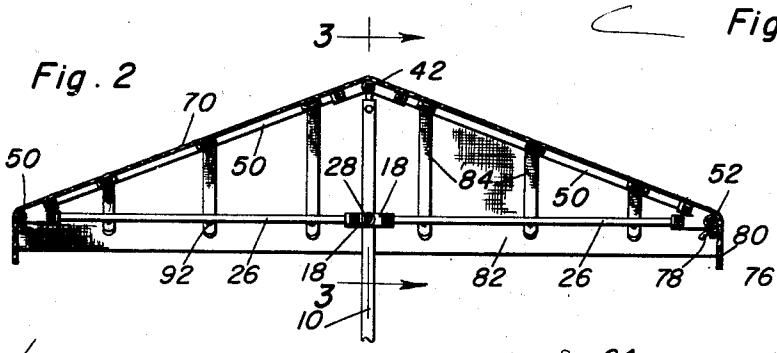


Fig. 9

Fig. 2



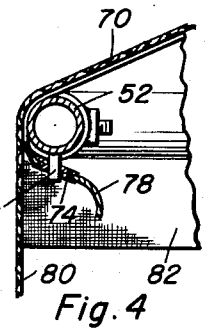


Fig. 4

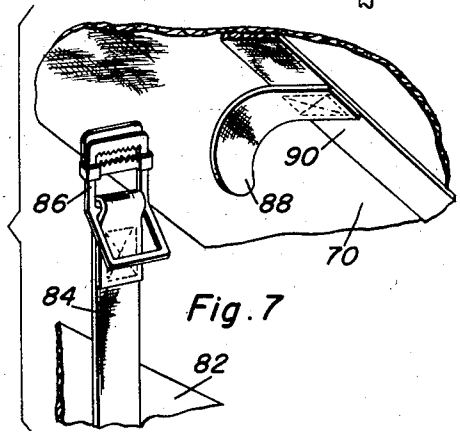


Fig. 7

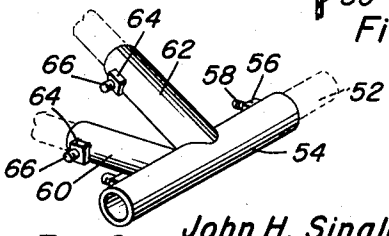


Fig. 8

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Fig. 3

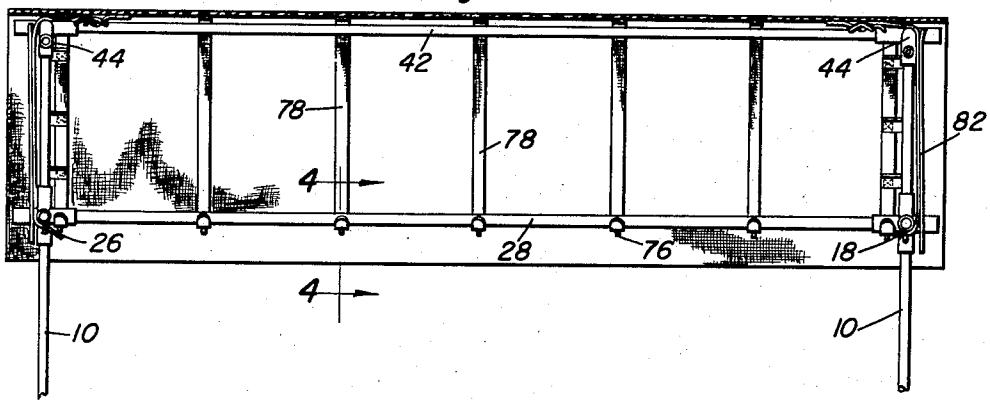


Fig. 10

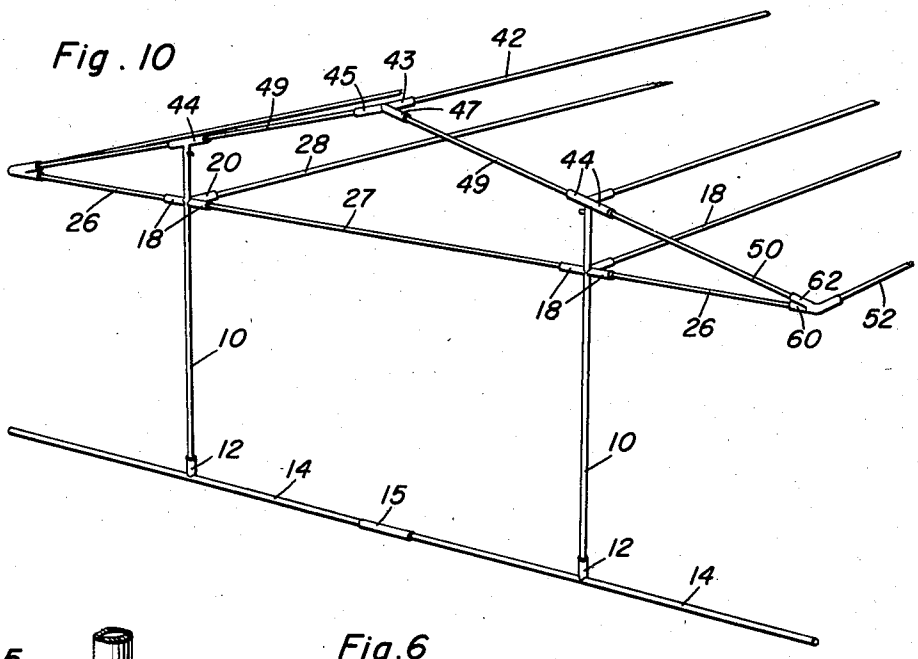


Fig. 5

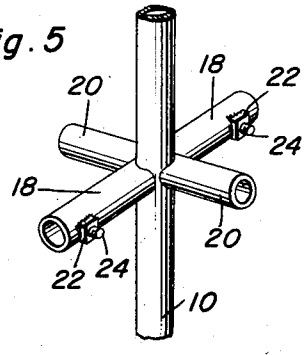
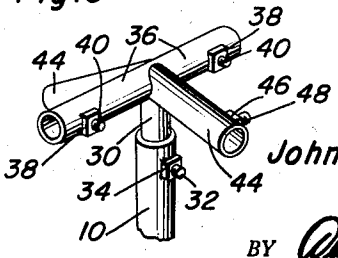


Fig. 6



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United States Patent Office 2,845,078 Patented July 29, 1958

2,845,078

PORTABLE STRUCTURE

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Application March 13, 1956, Serial No. 571,267

3 Claims. (Cl. 135—5)

This invention comprises novel and useful improvements in portable structures, and more particularly relates to a portable and collapsible canopy support.

The principal object of this invention is to provide a canopy support of a portable and collapsible nature which shall be especially adapted to constitute a sunshade or cover for sheltering automobiles as for individual car shelters, commercial "drive-ins," or similar purposes.

An important object of the invention is to provide a portable shelter wherein the supporting frame of the same may be constructed from standard structural metallic elements permitting quick assembly or disengagement of the same in the interest of portability and collapsibility; and wherein the elements may be assembled in various ways to provide portable shelter structures of different sizes and characteristics.

A further important object of the invention is to provide in conjunction with a portable and collapsible supporting framework, an improved means for securing roof panels and, if desired, roof gable ends thereto.

A still further object of the invention is to provide a structure in conformity with the foregoing objects wherein the same elements may be readily employed for producing a supporting framework capable of receiving thereunder and sheltering either one or a plurality of cars.

A further and specific object of the invention is to provide a connecting means whereby a plurality of rods may be simultaneously joined at a particular location in various desired angular arrangements, and wherein ease of assembly and disengagement of the rods is permitted.

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 showing one embodiment of a portable shelter constructed in accordance with this invention and which is specifically adapted for sheltering an individual automobile;

Figure 2 is a vertical transverse sectional detailed view taken substantially upon the plane indicated by the section line 2—2 of Figure 1 and showing the construction of the roof support of the shelters;

Figure 3 is a central vertical longitudinal sectional view taken substantially upon the plane indicated by the section line 3—3 of Figure 2 and showing further details of the roof supporting framework of the invention;

Figure 4 is a detailed view taken in vertical transverse section substantially upon the plane indicated by the section line 4—4 of Figure 3 and showing in particular the manner in which a roof canopy is secured to a longitudinal roof member of the structure;

Figure 5 is a perspective view of a frog or connection for securing together a number of rods in detachable angulated position;

Figure 6 is a perspective view of another type of frog for securing together other of the rods in different angular positions;

Figure 7 is a detailed view illustrating the manner in which a roof gable end is detachably secured to a roof panel;

Figure 8 is a perspective view of still another frog or connecting member for securing together the longitudinal roof eave members and the outer ends of the roof cross arms and rafters;

Figure 9 is a perspective detailed view of a modified construction for detachably supporting the vertical standards of the framework; and,

Figure 10 is a perspective view, parts being broken away and omitted, of a modified supporting framework adapted for receiving a plurality of automobiles thereunder.

Referring first to the embodiment of Figures 1–8, it will be seen that the carport or other shelter produced by this invention comprises a collapsible supporting framework which carries a roof covering thereon.

The supporting framework comprises a pair of end members or end supports, each of which consists of a vertical standard **10** having its lower end removably secured in upstanding sleeve **12** carried at the mid-portion of a horizontally extending rod **14** constituting a foot member for the end. Conveniently, the opposite ends of the foot member are provided with suitable inclined bores for receiving pins **16** or the like, whereby the foot member and consequently the end members and supporting frame may be rigidly secured upon the ground or other supporting surface in a readily detachable manner.

Although this is not essential for all uses of this invention, it is preferred to form the upstanding sleeve **12** at a considerable height, as for example, a foot or more, and to provide the same with a set-screw wherein the end of the vertical standard **10** may be vertically adjusted in order to vary the position of the canopy carried by the device.

Referring now especially to Figure 5, it will be seen that the vertical members **10** adjacent their upper ends have a frog or detachable coupling consisting of oppositely disposed pairs of rigidly or integrally attached horizontally extending sleeves **18** and **20**. The sleeves **18** are provided with internally threaded bosses **22** thereon for the reception of set-screws or the like **24**, while the sleeves **20** may be provided with set-screws if desired, but are preferably plain sleeves. The oppositely extending sleeves **18** serve to removably receive and secure the inward extremities of pairs of horizontal oppositely extending arms **26**, as will be best apparent from Figure 2. A longitudinal roof member **28**, see Figure 3, is adapted to extend through the sleeves **20** of a pair of the vertical standards **10**.

Referring now especially to Figure 6, it will be seen that the uppermost end of the standard **10** receives a further form of frog or connecting member. The same consists of a stem portion **30** which is detachably secured and socketed in the upper end of the member **10**, being retained therein as by a set-screw **32** threaded through a boss **34** on the standard. The upper end of the stem **30** has a pair of oppositely extending sleeves **36**, each provided with an internally threaded boss **38** and a set-screw **40**, whereby a longitudinally extending rod **42** comprising the ridge pole of the roof assembly may be removably secured to and rigidly connect the vertical standards of the pair of end support members. Perpendicular to the oppositely disposed sleeves **36**, and inclining downwardly from the upper end of the stem **30** are a pair of rafter receiving sleeves **44**, each likewise provided with an internally threaded boss **46** and a set-screw **48**. These last

mentioned sleeves are adapted to detachably receive and secure therein the upper ends of the roof rafter members **50**, see Figures 2 and 3.

The roof framework further includes a pair of longitudinal roof eave members **52**, see Figures 2 and 8, upon the ends of which are clamped the frogs or connecting members of Figure 8. These comprise a sleeve **54** slidably received upon the ends of the roof eave members **52**, and being locked thereon as by internally threaded bosses **56** having set-screws **58**. Angulated sleeves **60** and **62** extend integrally from the sleeve **54**, and are each provided with internally threaded bosses **64** with set-screws **66** whereby the outer ends of the arms **26** and of the rafter members **50** may be respectively secured.

As so far described, it will now be apparent that the supporting framework may be readily assembled or disassembled, and that the size of the same may be varied by suitably varying the lengths of the various rods which are connected together detachably to form the framework.

Referring next to Figure 1, it will be seen that the roof consists of a roof covering **70** of canvas or other suitable fabric which is stretched over the ridge pole **42**, over the top of the rafters **50** and as shown in Figure 4 extends about the sides and is secured underneath the longitudinal roof eave members **52**. In order to detachably secure the roof covering panel, the same is provided with suitable eyelets **74** which are received upon downwardly projecting pins **76** suitably located along the roof eave members **52**. These eyelets are formed in the ends of webs **78**, see Figures 3 and 4, secured to the underside of the roof panel whereby the panel may be drawn taut over the supporting framework as suggested in Figure 4. The ends of the roof panels hang down for any desired distance upon the side of the roof eave members to provide a skirt or valance **80**.

Reference is further made to Figures 1–3 and 7 wherein it will be seen that the awning is provided with gable ends **82**. These are composed of canvas or other suitable fabric appropriately shaped and which at their upper edges are provided with webs or straps **84** having buckles or other fasteners **86**. These latter cooperate with short webs **88** secured to longitudinally extending webs **90** attached to the underside of the roof covering. At their lower edge, the webs **84** of the gable ends are formed with eyelets in the same manner as that set forth in connection with the straps or webs **78** of Figure 4, which are adapted to be secured upon depending projections **92** underneath the cross arms **26** and which correspond to the depending pins **76** of the eave roof members. Thus, the gable ends may be detachably secured to the cross arms of the frame and to the roof panel of the covering.

Where a somewhat more permanent erection of the supporting framework is desired, the foot members **14** of Figure 1 may be replaced by the construction shown in Figure 9. In this instance, a sleeve **94** is embedded in a concrete block or the like **96** in the ground, and this sleeve, in the same manner as the sleeve **12**, detachably receives and supports the lower end of the standard **10**. Alternatively, the lower end of the standard **10** could itself be embedded permanently in the concrete **96**, as desired.

In the embodiment just described, the supporting framework consists of a single standard at each end of the structure. Where a larger structure is desired, however, a plurality of standards may be employed at each end, as shown in the modified arrangement of Figure 10. In this arrangement, the same vertical standards **10** are employed as previously described, the same being supported in the sleeves **12** carried by the mid-portions of the foot members **14**. However, a pair of the foot members are disposed in alignment with each other and are connected together by a connecting sleeve **15**, in order to afford the desired lateral extent of the end support.

As in the preceding embodiment, cross arms **26** project from the frog sleeves **18** of the standards **10**, with the cross arms projecting in opposite directions from these standards. However, in this form, a transverse connecting bar **27** is positioned in the sleeves **18** on the adjacent sides of the two standards for rigidly connecting the assembly together and thus providing in effect a lengthened cross arm having the desired span for the roof structure.

Similarly, the previously mentioned rafter members **50** are secured to the outwardly projecting sleeves **44** of the frog at the top of the standards, and the adjacent outer ends of the cross arms **26** and the rafters **50** are as before secured in the frog shown in Figure 8, being received in the sleeves **60** and **62** thereof, respectively. These frogs also receive the roof eave members **52**. There are also provided a pair of longitudinal roof members **28**, each received in aligned sleeves **20** of the frogs carried adjacent the upper end of the standards **10**. However, the ridge pole **42** is connected to the standards and rafters by connecting members or frogs consisting of three angularly related sleeves **43**, **45** and **47**. The opposite ends of the ridge pole **42** are secured in the sleeves **43** of a pair of section members, while rafter extension rods **49** have their adjacent ends received in the sleeves **45** and **47**, and their opposite ends received in the sleeves **44** carried by the upper ends of the two standards.

The manner of securing the fabric of the roof panel or canopy to the top of the supporting framework, and of securing the roof gable ends thereto is identical with that previously described.

From the foregoing, it will be seen that the structural elements of this invention may be combined in various ways to produce different sizes and shapes of shelters, and that the device is readily assembled or disassembled, and thus is extremely portable and versatile in its nature.

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. A portable and collapsible shelter comprising a pair of end supports, a roof support and a roof covering thereon, said end supports each comprising a single standard having upper and lower connecting frogs rigidly mounted at its upper end, a ridge pole lying in the same vertical plane with said standards and rigidly secured to the upper frog of each of said standards, horizontal cross arms and inclined rafters having the inner ends of each secured to the lower and upper frogs respectively, said cross arms and rafters extending from opposite sides of each standard, roof eave members, frogs connecting the outer ends of said rafters and cross arms to each other and to said eave members, said eave members having pins thereon projecting therebeneath, said roof covering comprising a sheet of a pliable material disposed over said ridge pole, said rafters and said eave members, means on said covering detachably engaging said pins.

2. The combination of claim 1 including roof gable ends of a pliable material means detachably securing said gable ends at the upper edge of each to said roof covering at an edge thereof adjacent to said rafters and further fastening means detachably securing said gable ends at the lower edge of each to said cross arms.

3. The combination of claim 2 wherein said further fastening means comprise additional pins longitudinally spaced on said cross arms projecting therebeneath and eyelets spaced longitudinally along the lower edges of said gable ends detachably engaging said additional pins.

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5

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