May 31, 1960 J. W. MacKINLAY 2,938,525

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Filed June 7, 1957 3 Sheets-Sheet 1

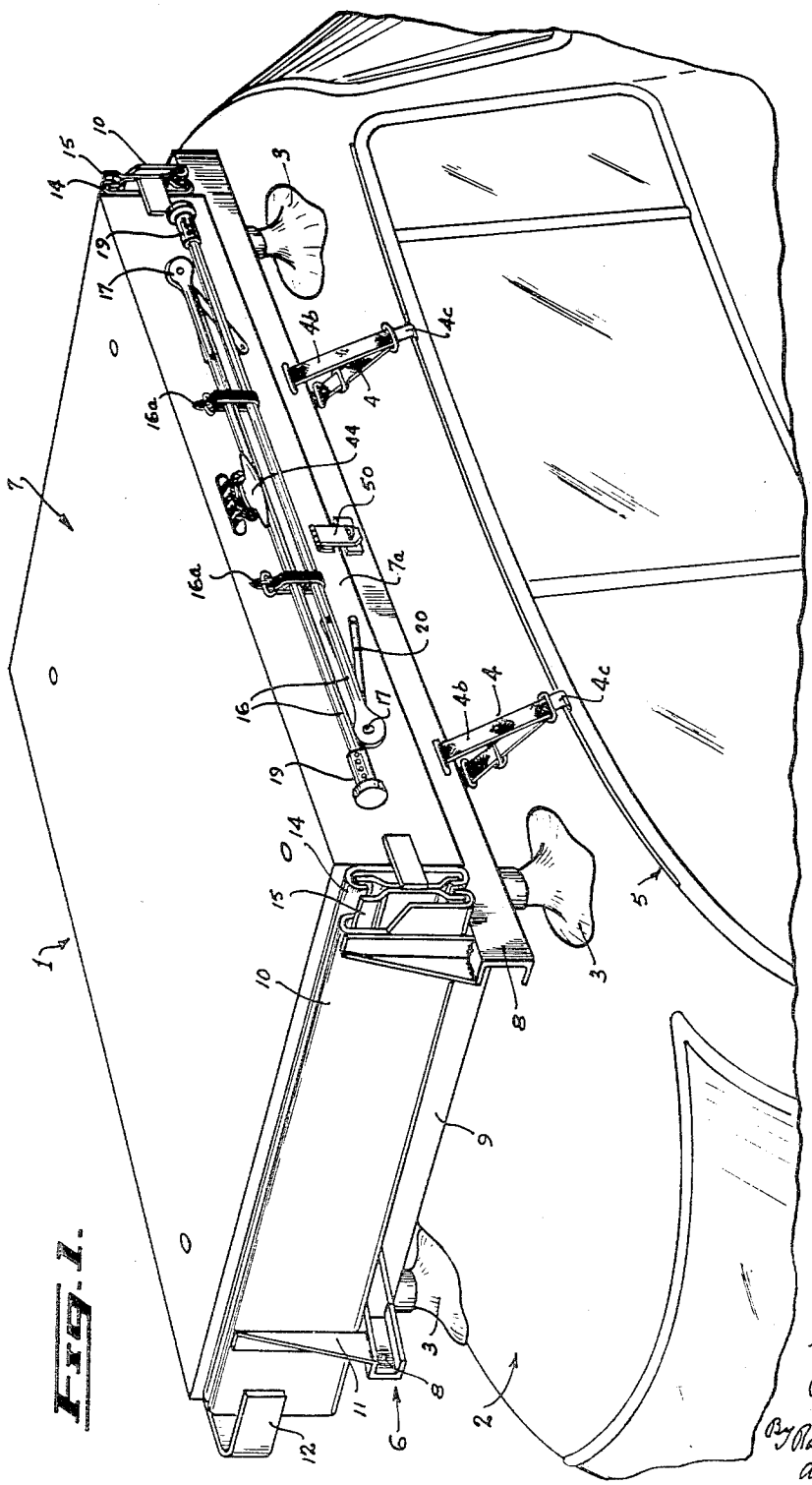


Fig. 1.

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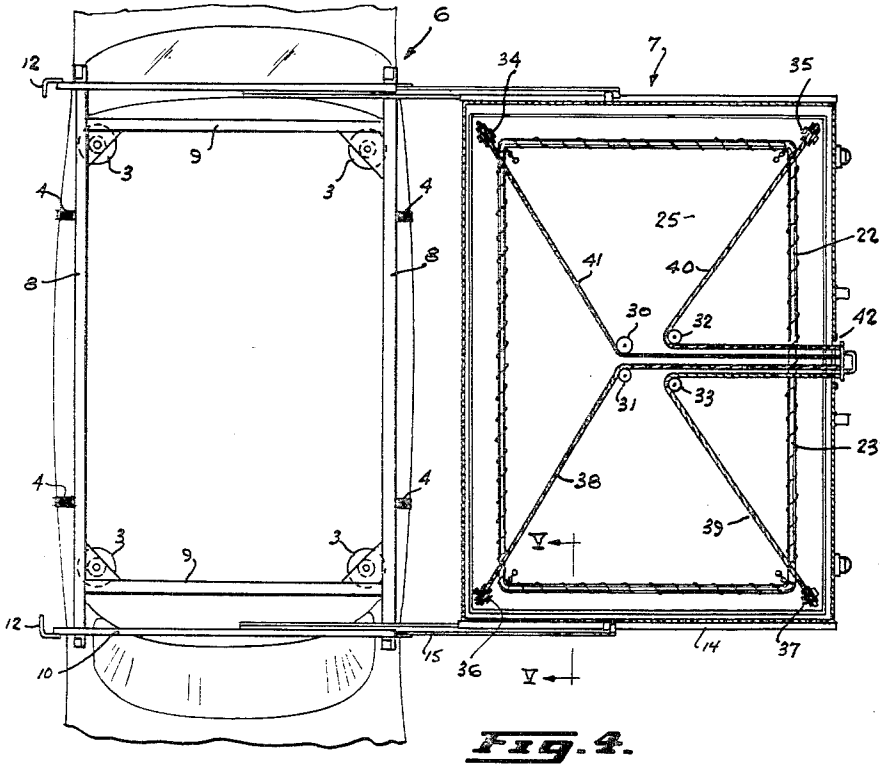


Fig. 4.

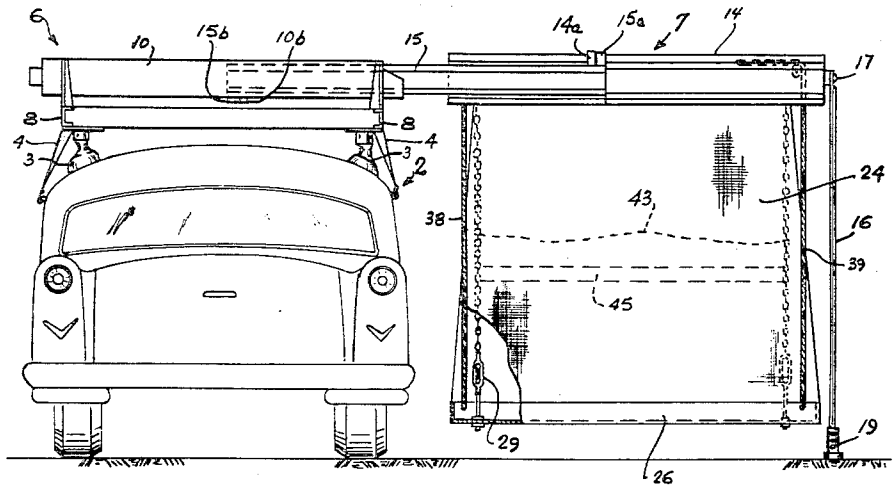


Fig. 2.

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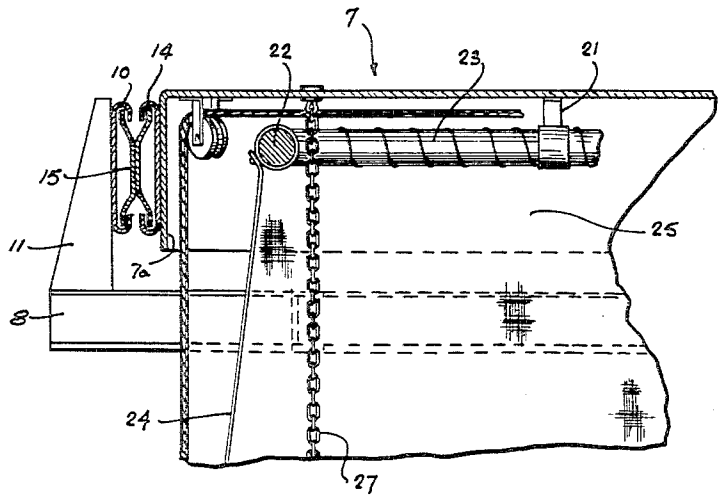


Fig. 5.

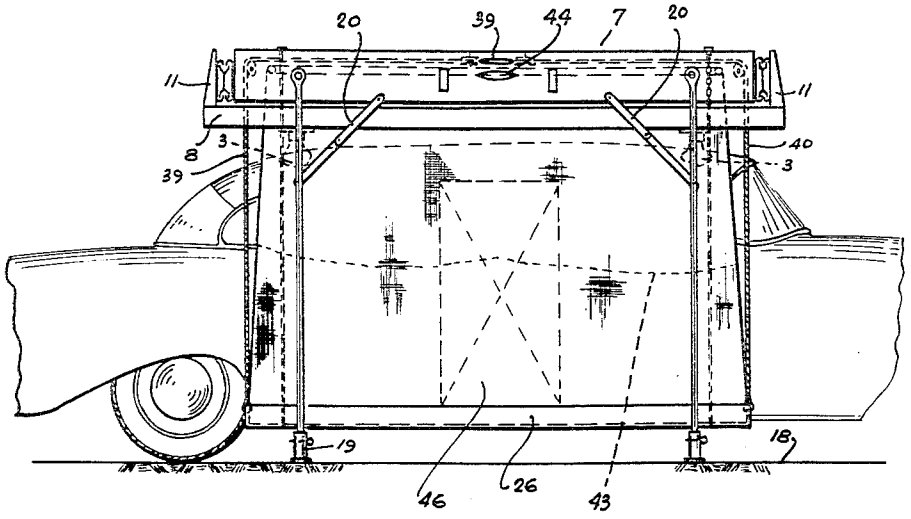


Fig. 3.

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2,938,525

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Claims priority, application Canada June 14, 1956

3 Claims. (Cl. 135—1)

This invention relates to a portable shelter for mounting on the top of an automobile.

Many portable car-top shelters have been proposed previously. Some of these suffer from the serious drawback that in order to get into the shelter it is necessary to climb onto the roof of the car, this being most undesirable first, because of the difficulty of such a manoeuver, and second due to the resultant heavy loading of the automobile roof. Others have proposed car-top mounted shelters which, when erected stand on the ground as a self-supporting structure and may be removed from the car completely. These, in order to be self-supporting must necessarily be rigid heavy and less portable, as well as expensive.

It is an aim of the present invention to provide an easily mounted car-top shelter which, when erected, forms a ground level shelter supported partially by the automobile itself, is especially easy to set up and stow away, and is simple in construction.

According to the present invention such a shelter consists of a horizontal rigid rectangular rack secured to the car top, and a roof portion mounted on said rack in such a manner as to be transversely slidable with respect to said rack, to a horizontal position adjacent the side of the car. This roof portion supports a floor which may be lowered to ground level, while flexible wall material, such as nylon or canvas, serves to form a vertically collapsible rectangular enclosure. Downwardly extending foldable legs on the outer side of the roof portion serve to support one side of the roof while the other side is supported by the car mounted rack. Pulley and rope means allow the floor to be lowered to automatically set up the flexible walls, and to retract the floor and walls for stowage.

A particular embodiment of the present invention will be described with reference to the accompanying drawings in which,

Figure 1 is a perspective view of a shelter in its stowed position on a car top,

Figure 2 is a rear view of the car showing the shelter in its erected position,

Figure 3 is a view from the right side of the car showing the shelter in its erected position,

Figure 4 is a top view of the car with the shelter erected, part of the roof portion having been removed to show details of construction, and

Figure 5 is a sectional view taken on the line V—V of Figure 4.

Referring now to Figure 1 the shelter consists of two portions, a rigid rectangular frame 6 mounted on the roof of car 2 by means of suction cups 3 and braces 4 secured to rain channel 5, and a transversely slidable roof portion 7 which may be moved horizontally transversely of the frame 6 to a position beyond the right side of the car 2.

As will be described in detail later, the frame 6 and the roof portion 7 are provided at both ends with transverse runners 10 and 14 respectively, which co-operate with an extension member 15 to allow the above mentioned sliding. A pair of legs 16 are pivotally mounted on the outer edge of roof portion 7 so as to be downwardly extendable to support the outer edge of portion 7. Roof portion 7 contains a floor member and attached foldable canvas walls which form a completely enclosed shelter when the floor member is downwardly extended to a position near ground level.

Frame 6 consists of two parallel spaced longitudinal angle members 8 held rigid by two transverse, spaced, parallel angle members 9, the four members 8 and 9 thereby forming a rigid rectangular frame. At the corners of the rectangle thus formed, suction cups 3 are mounted for securing the frame 6 to car top 2. Also, each longitudinal member 8 is provided with two spaced slots 4*a* through which is passed a brace 4 consisting of an adjustable strap 4*b* and a J-hook 4*c* which grasps a rain channel 5 at the side of car top 2, to ensure a secure attachment of the frame 6 to the car top 2. Mounted transversely on frame 6 are two channels 10 which are secured to longitudinal frame members 8 by means of triangle brackets 11. The left end of channels 10 each bear a bracket 12 having a projecting portion which engages the left end of slidable roof portion 7 to prevent its sliding out of frame 6 in that direction.

Engaging both of the channels 10 and 14 to slidably support roof 13 on frame 6, is runner 15 which has a "double-Y" shaped cross-section as best shown in Figure 5. Runner 15 being slidable both in channel 14 and in channel 10 affords a double extension of portion 7 which allows roof 13 to be positioned beyond the side of the automobile and supported at its inner side on the frame 6. As best seen in Figure 2, runner 15 has at its ends, projections 15*a* and 15*b* which co-operate with projection 14*a* and 10*b* on runners 14 and 10 respectively, to limit the extent of the transverse sliding motion of the roof 7 to the right side of the automobile. The outer edge of roof 7 is supported by downwardly depending legs 16 pivoted at 17 on the outer downwardly extending edge 7*a* of roof 7. Hinged braces 20 lock legs 16 in their extended position. To allow for irregular terrain, legs 16 are provided with an adjustable foot 19 which may be slid up and down leg 16 and secured at any required height by means of a pin passing through a hole in foot 19 and one of a series of holes in leg 16.

The structure thus far described may be of any suitable material but it is preferable to use aluminum throughout so that the structure will be light and easily handled.

The roof 7 contains a floor and a folded fabric member which may conveniently be lowered to form a completely enclosed sleeping space which will accommodate several people. Within the roof 7 are secured, by means of brackets 21, rods 22 and 23, such rods being formed into a rectangular loop to which is lashed the top edge of canvas 24, which forms an enclosure 25. This enclosure is of truncated pyramidal form by virtue of the inward taper of each wall of the canvas 24. The spacing of rods 22 and 23 from roof 7 is exaggerated slightly in Figure 5 for clarity. This space being small in practice is closed by suitable insect screening to provide ventilation. The canvas 24 extends downwardly from rods 22 and 23 and is lashed at its bottom to the edges of a floor 26, which may be of any suitable form but is shown in the drawings as being box shaped. Unless the ground is sufficiently

flat for the floor to rest satisfactorily on it, the weight of the floor **26** is supported by chains **27** secured each at its upper end to a bracket **28** in roof **7**, and at its lower end to floor **26**. This lower connection is by means of an adjustable swivel screw **29** which allows the floor to be levelled and adjusted to suit the terrain. The weight of the floor **26** and of the occupants of the shelter then, is borne by chains **27** fastened to the top **15**. Depending on the size of the structure and the weight to be supported, it may be necessary to reinforce roof **13** in the region of brackets **28**.

To facilitate raising, lowering and securing the floor **26**, a rope and pulley arrangement is provided. As best shown in Figure 4, horizontal pulleys **30**, **31**, **32** and **33** are mounted under roof **7** near its centre and vertical pulleys **34**, **35**, **36** and **37** are mounted at the corners of the roof **7**, with their planes directed towards corresponding pulleys **30**, **32**, **31** and **33** respectively. It should be noted that the vertical pulleys are situated between the downwardly extending edges **7***a* of roof **7** and the rod **22** (Figure 5). Cord **38** extends from a corner of floor **26**, vertically upward through pulley **36**, horizontally inwards under roof **7** to longitudinal pulley **31** and thence through hole **39** provided in the outer downwardly extending edge **7***a* of roof **7**. Similar ropes **39**, **40**, and **41** are provided for the remaining three corners of the floor **26**, all of these ropes extending through opening **42**. It will be obvious that by pulling ropes **40**, **41**, **38** and **39** together through hole **42**, floor **26** may be raised to a position completely within top **13**, the canvas **24** being folded inwardly to lie on top of floor **26**. To ensure proper folding of canvas **24** and to prevent its bulging outward, draw strings **43** are provided for gathering-in the canvas. In addition, by virtue of the size of the loop formed by rods **22** and **23** being smaller than the floor **26** so that the canvas **24** is tapered inwardly towards roof **7** to give the enclosure its truncated pyramidal shape, the canvas **24** tends to fold inwards naturally on raising floor **26**. After raising floor **26** to its position within roof **7**, ropes **40**, **41**, **38** and **39** are secured to cleat **44**. It will be seen then, that the floor **26** and canvas **24** are readily extended from the top **13** to form a substantial sleeping space **25**, the walls of which are automatically erected, the whole structure being easily stowed on the car top. Mattresses may be placed directly on floor **26** and left there together with blankets, when floor **26** is raised. As indicated by dotted lines in Figure 2 an additional deck may be fitted to accommodate two more people, the deck **45** being suspended by pin and bracket means on chains **27**, midway between floor **26** and roof **7**. In this manner, adequate sleeping space for four people is provided. Access to the enclosure **25** is had by means of zippered flap **46**.

In order to secure portion **7** when it is in its retracted position within frame **6**, a suitable hasp **50** is provided to accept a padlock.

While the shelter, described above in its preferred embodiment, is shown as being transversely slidable to a position adjacent the right side of the car, it is to be understood that the shelter could equally well be made to slide to a position on the other side of the car or to a position at the front or rear of the car. Positioning in front or to the rear of the car would, of course, necessitate a longer extension of the runners **10** and **14** and the extension member **15**, but these could be longer by virtue of being mounted on the long sides of the shelter instead of on the short sides as in the preferred embodiment.

I claim:

1. A shelter for mounting on the top of an automobile, comprising; a frame; means for securing said frame to said top; a roof portion; extendable connecting and supporting means mounting said roof portion on said frame for limited horizontal motion laterally of said frame to a position adjacent said automobile, at which position said connecting and supporting means supports at least the side of said roof portion adjacent said automobile; at least one foldable leg depending from the side of said roof portion remote from said automobile when said roof portion is in its position adjacent said automobile; a one-piece rectangular floor; means for suspending said floor from said roof portion, and parallel thereto at a level adjacent ground level; means for lowering said floor to said position adjacent ground level and for raising said floor to its stowed position adjacent the under side of said roof portion and parallel thereto; a foldable fabric wall joined at its lower edge to the periphery of said floor and at its upper edge to said roof portion, thereby defining a collapsible enclosure of truncated pyramidal form so that on movement of said floor from said position adjacent ground level to said stowed position all of said fabric wall folds inwardly of the perimeter of said floor.

2. A collapsible shelter for mounting on the top of an automobile, comprising, a frame, means securing said frame to said top, a roof portion, means mounting said roof portion on said frame for horizontal motion laterally of said frame to a position adjacent said automobile, means for supporting said roof portion in that position, a rectangular floor, adjustable means positioning said floor beneath said roof portion in substantially parallel relationship thereto so as to be movable in a vertically downward direction substantially transverse to its plane from a first position immediately adjacent said roof portion to a second position adjacent ground level, a foldable fabric member supported at its upper edge by said roof portion and secured at its bottom edge to said floor about the periphery thereof to thereby define a collapsible enclosure of truncated pyramidal form so that on movement of said floor from said second position to said first position all of said fabric member folds inwardly of the perimeter of said floor.

3. A shelter for mounting on the top of an automobile, comprising; a rigid rectangular frame; means securing said frame to said top; a rectangular roof portion; extendable connecting and supporting means mounting said roof portion on said frame for limited horizontal motion laterally of said frame to a position adjacent said automobile, at which position said connecting and supporting means supports at least the side of said roof portion adjacent said automobile; two foldable legs depending from the side of said roof portion remote from said automobile when said roof portion is in its position adjacent said automobile; a one-piece rectangular floor; means for suspending said floor from said roof portion in a horizontal position adjacent ground level; pulley means secured to said roof portion; cable means secured to said floor and passing through said pulley means, for lowering and raising said floor in a substantially horizontal position; and a resilient foldable wall joined at its lower edge to the periphery of said floor and at its upper edge to said roof portion, said wall defining an enclosure of truncated pyramidal form, wherein said roof portion has downwardly depending sides, one side having an aperture providing access to said cable means, wherein said connecting and supporting means comprises; first and second parallel, horizontal, channel bearing runners, said first runner being mounted at one end of said frame and said second runner being mounted at a mutually opposite end of said frame; third and fourth parallel, horizontal, channel bearing runners mounted on said roof portion parallel to said first and second runners, said third runner being adjacent said first runner, and said fourth runner being adjacent said second runner; an extension member positioned parallel to and intermediate said first and second runners and having projections co-operating with said channels in said first and second runners; a second extension member positioned parallel to and intermediate said first and second runners and having projections co-operating with said channels in said third and fourth runners, said runners and extension members thereby supporting said roof

portion on said frame and allowing motion of said roof portion relative to said frame in a direction parallel to said runners.

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