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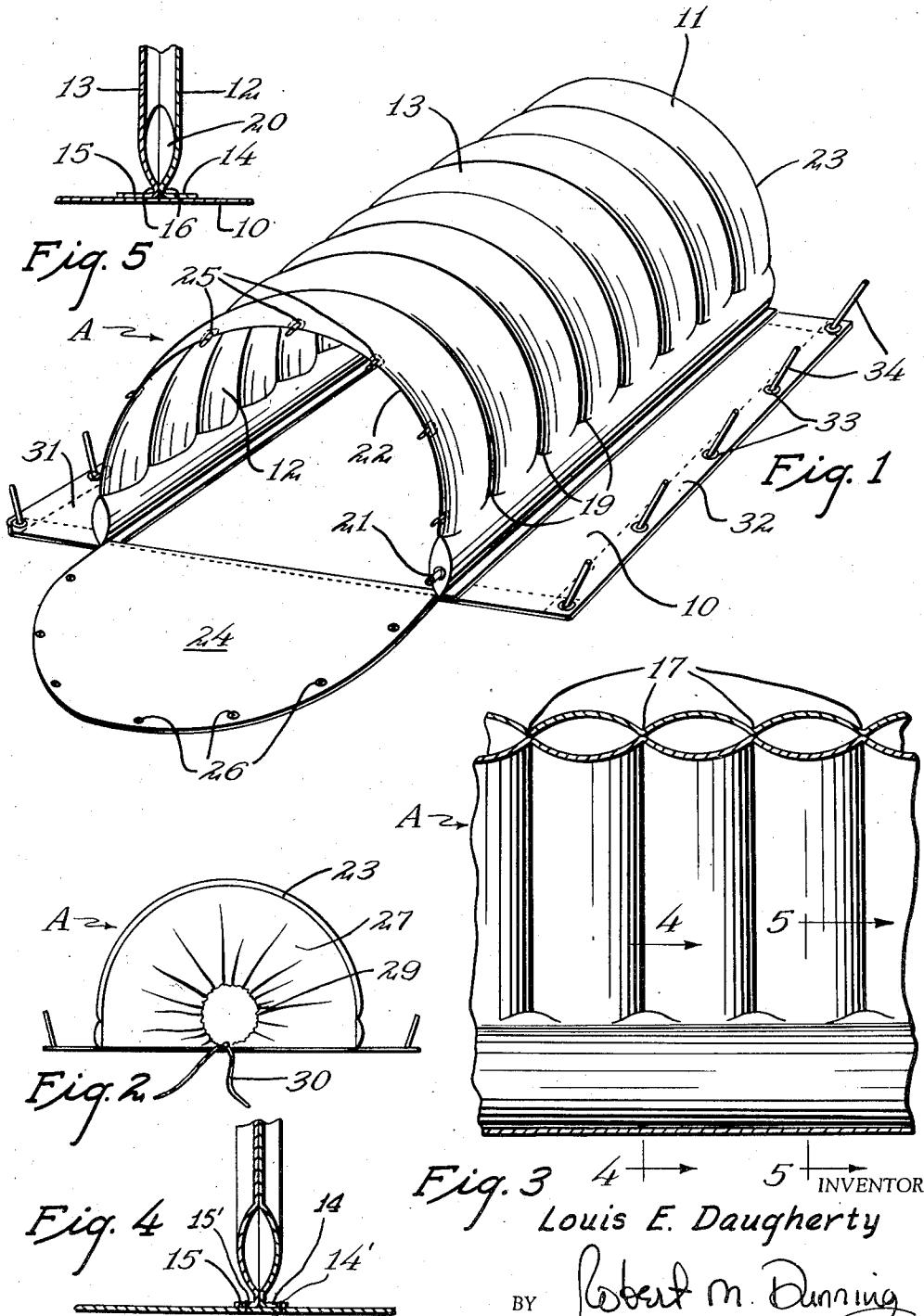
L. E. DAUGHERTY

2,830,606

INFLATED TENT

Filed Aug. 24, 1953

2 Sheets-Sheet 1



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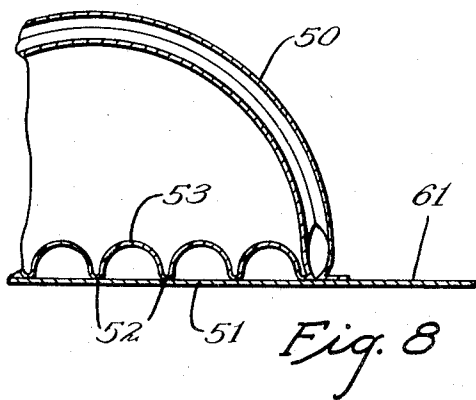
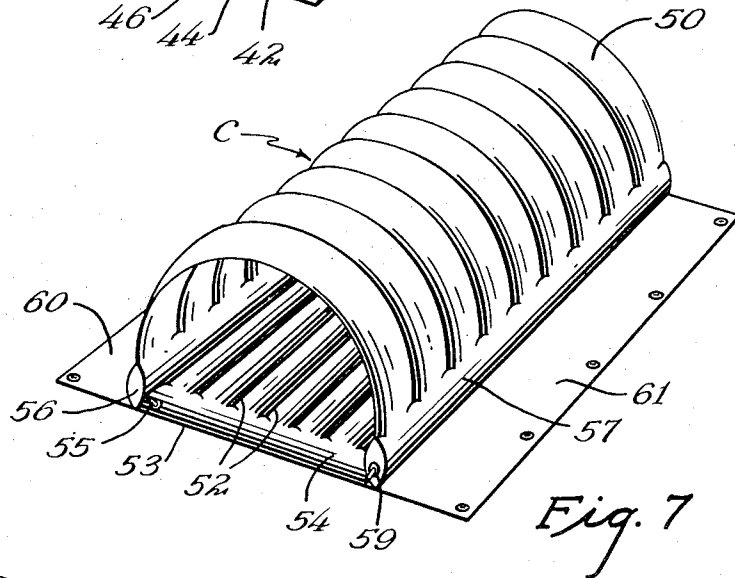
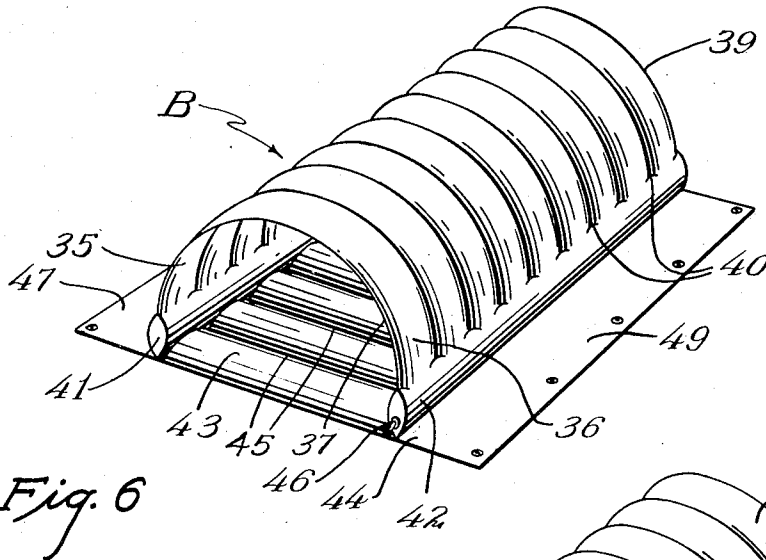
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INFLATED TENT

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1 Claim. (Cl. 135—1)

This invention relates to an improvement in inflatable tents and deals particularly with a tent construction which, when inflated, will form itself into a shelter which will protect an occupant from the elements.

Various types of shelters have been provided for use in emergencies and which are capable of providing protection in case of bad weather. One of the disadvantages of such structures lies in the fact that they require support either by means of supporting poles or ropes. The present device is designed for similar use but comprises a self supporting unit which, when inflated, forms an enclosure providing protection for an inhabitant.

A feature of the present invention resides in the provision of a tent which includes a transverse base portion designed to rest upon the ground and a cooperable structure designed to provide an arched enclosure above the base portion. This arched portion is so arranged that, when inflated, it forms a roof or covering which will shed water or snow and which will be self supporting without requiring additional ropes or rigid supports.

A feature of the present invention resides in the provision of a base portion which is of a predetermined width and which may be placed upon, or secured to, the surface of the earth. To this base portion is secured an inflatable portion which is of sufficient width to form an arch over the base portion when inflated. By inflating the arched portion of the device the arched portion tends to assume an inverted U-shaped arch over the base portion of sufficient size to accommodate a person between the arched portion and the base.

A feature of the present invention resides in the provision of a shelter having a base of one width and a portion connected thereto of greater width which is designed to be fastened to the base portion at spaced points. The covering portion is of greater width than the base portion so that when this covering portion is filled with air it tends to form an arch over the base of sufficient size to accommodate a person in an emergency.

An added feature of the present invention resides in the fact that the arched portion is formed of two pieces of material which are impervious to air and which are connected together at spaced points throughout their length. For example, two covering members of heat sealable plastic may be connected along spaced lines throughout their length and thus form expandable ribs which, when inflated, arch upwardly from the base if the base is anchored in some way to the ground. The arched portions have a tendency to spread the base portion across the ends of the arch and accordingly little, if any, anchoring is necessary to hold the base in place. This is particularly true when the enclosure accommodates a person resting upon the base as the weight of this person tends to hold the base against the surface of the ground.

An added feature of the present invention resides in the provision of an enclosure including a series of generally parallel ribs which, when inflated, are longitudinally spaced throughout the length of the enclosure. In pre-

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ferred form the space between the ribs is open at one or both ends of the ribs so that air or another gas introduced into the enclosure at one or two points will act to fill the ribs and to form the enclosure.

5 An added feature of the present invention resides in the provision of an enclosure of the type described in which the base is provided with a means through which the base may be anchored to the ground if desired. In preferred form the base extends laterally beyond the points of connection with the arched structure to provide laterally extending wings which may be secured to the ground by means of branches extending through openings in the wings or by means of heavy objects such as rocks or logs placed upon the wings.

10 A further feature of the present invention resides in the provision of an enclosure of the type described which may if desired embody a base portion which also may be inflated. The inflated bottom may provide an air cushion or air mattress for the person using the enclosure.

20 These and other objects and novel features of the present invention will be more fully and clearly set forth in the following specification and claim:

In the drawings forming a part of the specification:

25 Figure 1 is a perspective view of an enclosure made in accordance with the principles of this invention.

Figure 2 is an end elevation view showing an end of the enclosure illustrated in Figure 1.

Figure 3 is a sectional view longitudinally through the enclosure showing the construction thereof.

30 Figure 4 is a sectional view through a portion of one side of the enclosure, the position of the section being indicated by the line 4—4 of Figure 3.

Figure 5 is a sectional view through a portion of the enclosure, the position of the section being indicated by the line 5—5 of Figure 3.

35 Figure 6 is a perspective view of a modified form of construction.

Figure 7 is a perspective view of another modified form of construction.

40 Figure 8 is a transverse sectional view of the type of construction illustrated in Figure 7.

The simplest form of construction is illustrated in general in Figure 1 through Figure 5 of the drawings. This construction is illustrated in general by the letter A. The construction A includes a base panel 10 which is formed of any suitable material which may or may not be impervious to air. For example, a fabric may be used such as canvas for the base panel 10, it being understood that some means must be provided for securing the arched portion of the structure to this base panel. In preferred form the base is constructed of a heat sealable plastic sheet in order to simplify the construction.

45 The base sheet 10 is preferably somewhat wider than the arched portion 11 which is secured thereto. The arched portion includes an inner covering 12 and an outer covering 13, both of which are formed of material which is impervious to air or substantially so. In the form of construction shown in Figures 1 to 5, the inner covering 12 is provided with a marginal flange 14 which is secured by heat sealing or other suitable means to the base panel 10. The outer covering 13 is provided with a similar base flange 15. The flange 15 is also preferably secured to the base panel 10 as illustrated in Figures 4 and 5 of the drawings. Figure 4 shows the flanges 14 and 15 anchored to the base sheet by stitching, as illustrated by threads 14' and 15'. Figure 5 shows these same flanges secured by heat sealing or adhesive.

50 The inner and outer coverings 12 and 13 are adhered or sealed together at 16 adjoining the flanges 14 and 15. These coverings are also sealed or adhered together at spaced lines longitudinally of the enclosure, such lines

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being indicated at 17 in Figure 3 of the drawings. The lines of sealing preferably terminate at points 19 which are spaced above the lines of sealing 16 so as to provide longitudinally extending channels 20 or tubular portions extending the length of the coverings so that all of the spaces between the sealed lines 17 may be filled with air or other gas, preferably from a single point of connection. In Figure 1 for example a valve 21 is shown at one end of the enclosure by means of which the longitudinally extending tubular portions 20 as well as the areas between the lines of adhesion 17 may be filled with air or other gas. Needless to say the ends of the covering sheets 12 and 13 are sealed together so that the space between these sheets is sealed at each end and at each side so as to provide a confined area. In other words, the end 22 as well as the end 23 of the sheets 12 and 13 are sealed together as well as the edges of these sheets along the lines 16. Thus the interior of the area between the two sheets 12 and 13 is hermetically sealed and air or other gas may be inserted through a valve 21 or other such element which permits the air or gas to enter and which provides the escape of this air or gas unless the valve 21 is opened.

In order to close the ends of the shelter, a generally semi-circular panel 24 may be hingedly connected to one end of the base panel 10. Detachable fasteners 25 of any suitable type may be secured to the corresponding end 22 of the arched portion. Openings 26 for cooperating with fasteners 25 may be provided about the periphery of the panel 24 for securing the panel in closing position to close one end of the enclosure. A panel 27 may be marginally secured to the opposite end 23 of the enclosure, the panel 27 being marginally secured to the arcuate portion of the structure. This member 23 may be normally semi-cylindrical in shape but may be provided with a hem 29 at its extremity, this hem enclosing a draw string 30 by means of which the panel may be closed by the occupant after entering the enclosure.

In the construction shown in the drawings the base panel 10 is provided with wings 31 and 32 which extend beyond the points of connection with the arcuate part of the structure. Openings such as 33 may be provided in the wings 31 and 32 through which sticks or branches may be inserted to hold the base panel stretched along the ground. Such sticks are indicated at 34. Obviously heavy objects such as stones or the like may be placed upon the wings 31 and 32 if desired, although the inflation of the arcuate part of the structure tends to hold the base expanded to its normal width. In Figure 6 of the drawings I disclose a modified form of construction illustrated in general by the letter B. In this arrangement an inner panel 35 and an outer panel 36 are sealed together at their ends 37 and 39 and the spaced lines 40 parallel to the ends 37 and 39, these spaced lines 40 preferably terminating short of the connection with the base so as to provide longitudinally extending tubular portions 41 and 42 similar to the previously described construction. However, in the enclosure B the base is formed of an upper panel 43 and a lower panel 44 which are sealed together at longitudinally spaced lines 45. In the particular construction illustrated the ends of the areas between the lines of connection 45 are in communication with the elongated tubular portions 41 and 42 so that the entire base may be inflated through a common valve 46. Wings 47 and 49 which may be composed of either or both of the layers forming the interior fluted portions may extend beyond the sides of the structure for anchoring purposes. While the closures shown in Figures 1 and 2 of the drawings are not shown on the structure shown in Figure 6, this is for the purpose of simplification and similar closure or closures may be provided on the structure B.

In Figures 7 and 8 of the drawings I disclose another

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modified form of construction illustrated in general by the letter C. In this form of construction the arched portion 50 is similar to that described in connection with the structures A and B.

In Figures 7 and 8 the base sheet 51 is shown secured along spaced lines of connection 52 to an upper base sheet 53 which may be inflated somewhat in the manner illustrated to better support the occupant. In this particular form of construction the lines of sealing 52 terminate short of the end edges 53 of the base portion so as to provide a transverse manifold 54 which may be supplied with air through a separate valve 55 or which may be connected to the longitudinally extending tubular manifolds 56 and 57 (similar to the tubular portions 41 and 42) which are supplied with air or gas through a valve 59. Anchoring wings 60 and 61 may extend laterally from the base for anchoring the structure upon the ground.

As previously described with the construction shown in Figure 6 the enclosure may be provided with end panels for closing the ends of the structure. These end panels have been eliminated to simplify the illustration.

While the upper portions of the enclosure have been shown as semicylindrical, this may be varied with the proportions of the finished enclosure. Where the base is wide, the upper portion may be less than semicylindrical. On the other hand, when a larger enclosure is desired, the arcuation may be increased well beyond one hundred eighty degrees, the base forming a chord of the cross-sectional circle.

In accordance with the patent statutes, I have described the principles of construction and operation of my enclosure, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claim without departing from the spirit of my invention.

I claim:

An enclosure including a base and a continuous arcuate portion extending upwardly from the base and secured thereto, the arcuate portion including a pair of air impervious flexible sheets which are marginally sealed so that the space between the sheets may be inflated, said sheets being secured together at longitudinally spaced lines of attachment, said lines of attachment terminating at least one end in spaced relation to the marginal connection between the sheets to thereby provide a first manifold extending at right angles to the longitudinally spaced lines of connection between the sheets, said base comprising a pair of air impervious sheets marginally connected together to form a sealed area therebetween which may be inflated, said sheets forming the base being connected along spaced parallel lines of connection which terminate at at least one end in spaced relation to the marginal connection between the sheets forming the base to form a second manifold extending at right angles to the lines of connection between the sheets forming the base, and at right angles to the first manifold, the arcuate form of said continuous arcuate portion tending to hold said base taut.

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