

Dec. 30, 1941.

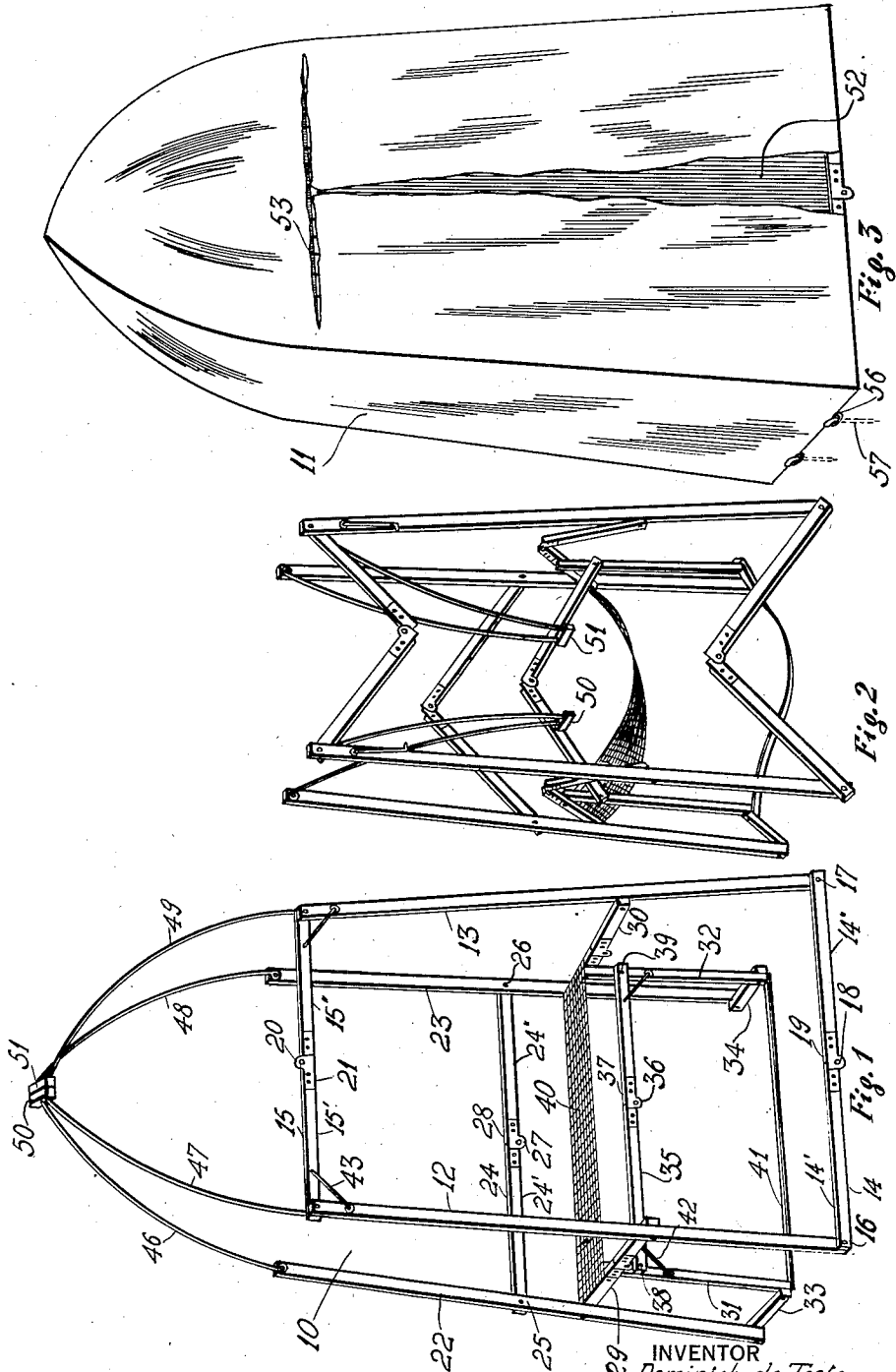
D. DE TOSTO

2,268,281

COLLAPSIBLE OUTDOOR EQUIPMENT

Filed Sept. 9, 1940

2 Sheets-Sheet 1



INVENTOR  
Domintek de Tosto  
BY *Guillermo de Tosto*  
ATTORNEY

Dec. 30, 1941.

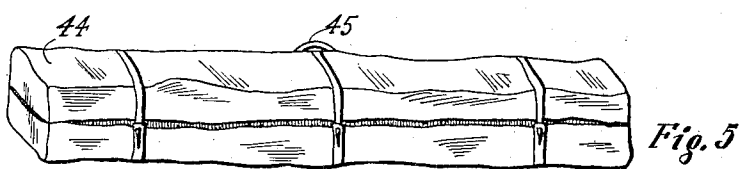
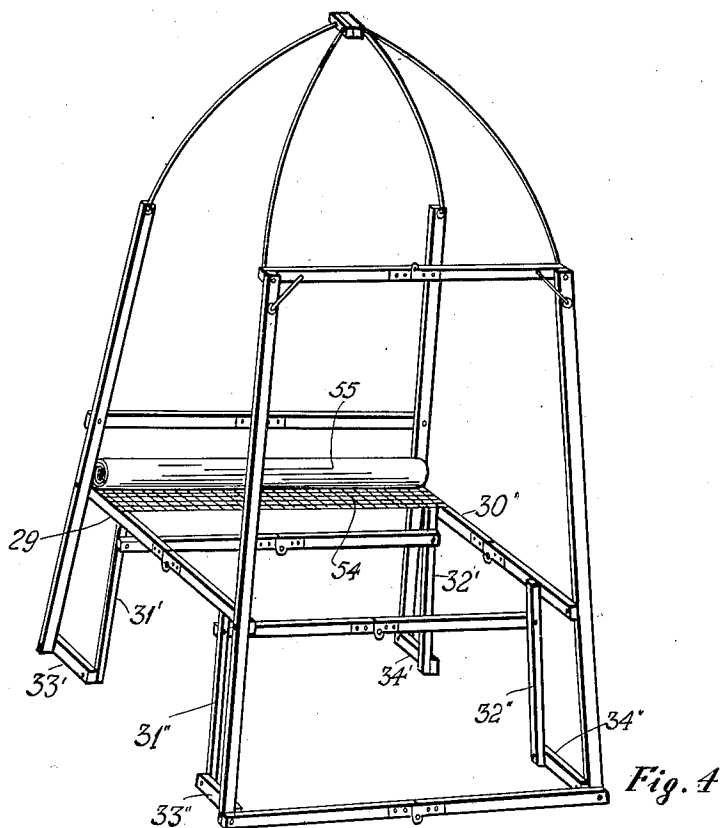
D. DE TOSTO

2,268,281

COLLAPSIBLE OUTDOOR EQUIPMENT

Filed Sept. 9, 1940

2 Sheets-Sheet 2



INVENTOR

*Dominick de Tosto*

BY

*Guido M. Lucido*

ATTORNEY

# UNITED STATES PATENT OFFICE

2,268,281

## COLLAPSIBLE OUTDOOR EQUIPMENT

Dominick De Tosto, Patchogue, N. Y.

Application September 9, 1940, Serial No. 356,028

12 Claims. (Cl. 135-4)

This invention relates to camping and sea-shore equipment, and more particularly refers to improvements in collapsible tents, chairs, and similar structures.

The primary object of this invention is to provide, in a tent or cabana, an articulated framework consisting of a number of inter-connected elements, adapted to be extended to form a substantially rigid structure, and adapted to be collapsed into a very compact, portable form.

Another object is to provide a novel and improved combination of elements, together forming a collapsible and extensible structure, adapted, when extended, to serve as a tent or cabana for undressing purposes at the seashore.

A further object is to provide a collapsible structure of the character specified, having means adapted, when extended, to provide seating or sleeping accommodation, or both, for one or more occupants.

A still further object is to provide a collapsible structure of a novel and improved construction, adapted to be packed in very compact form when collapsed, and adapted when extended to form a rigid frame usable as a chair frame, or as a tent frame, or other similar frame as the case may be.

Other objects and advantages of the present invention will more fully appear as the description proceeds and will be set forth and claimed in the appended claims.

My invention is illustrated by way of example in the accompanying drawings, in which:

Fig. 1 is a view in perspective of a skeleton frame suitable for a tent or cabana, embodying my invention, said frame being shown in its extended position;

Fig. 2 is a view in perspective of the same frame in the process of being collapsed;

Fig. 3 is a view in perspective of a completed tent or cabana formed by equipping the frame of Fig. 1 with a suitable fabric covering;

Fig. 4 is a view similar to Fig. 1, illustrating a frame adapted for a tent long enough to provide sleeping accommodation for one or two persons; and

Fig. 5 is a view in perspective of the tent shown in Fig. 3 collapsed and packed in portable form.

Referring to Figs. 1 to 3, it will be seen that a tent or cabana embodying my invention comprises a collapsible skeleton frame and a fabric covering permanently attached thereto. In the drawings, the skeleton frame is generally indicated at 10 and the fabric covering at 11.

The skeleton frame comprises a collapsible front frame, a collapsible rear frame, foldable and extensible longitudinal connecting members therebetween, and a collapsible dome structure.

In its preferred form, the frame also comprises additional members for providing seating facilities when the structure is in its extended position.

The front frame comprises two laterally spaced uprights 12, 13, a base transversal member 14 extending between the lower ends of said uprights, and a top transversal connecting member 15 extending between the upper ends of said uprights.

The base transversal member 14 is formed of two halves 14', 14'', having their outer ends pivotally connected at 16, 17 to the lower end of uprights 12, 13, respectively, and having their inner ends pivotally connected to each other at 18 by means of a hinge 19; said hinge being designed so that said member 14 can be folded by being deflected upwardly as shown in Fig. 2.

In a similar manner, upper transversal member 15 is composed of two halves 15', 15'', having their outer ends pivotally connected to the upper end of uprights 12, 13, respectively, and having their inner ends pivotally connected to each other at 20 by means of a hinge 21, making it possible to fold said member 15 by deflecting it downwardly as shown in Fig. 2.

The collapsible rear frame comprises two uprights 22, 23, laterally spaced a distance corresponding to that separating the uprights of the front frame. Said uprights 22, 23 are connected about midway of their length by a transversal connecting member 24, consisting of two halves 24', 24'', pivotally connected at 25, 26, respectively, to uprights 22, 23, and pivotally connected to each other at 27 by means of a hinge 28.

The front and rear frames are connected at each side by a longitudinal member 29, 30, said longitudinal members also being of foldable construction, being formed of two halves pivotally connected to each other and to the uprights.

In order to provide a seat, each longitudinal member is connected by a substantially vertical link 31, 32 to a horizontal arm 33, 34 forwardly extending from the lower end of uprights 22, 23, respectively, and forming therewith an articulated parallelogram at each side of the structure.

The links 31, 32 are in their turn connected by a foldable transversal member 35, which also is formed of two halves, pivotally connected to each other at 36 by means of a hinge 37, and pivotally connected to the links 31, 32 at 38, 39.

A strip of strong fabric 40 is secured to and extends between the longitudinal members 29, 30 and forms a seat within the structure when the structure is in its extended position, as shown.

In order to prevent undue spreading of links 31, 32, their lower ends are preferably connected by a flexible strip 41, and in order to further strengthen the structure, some or all of the foldable connecting members may be secured in their extended position by corner hooks or braces, such as shown at 42, 43.

By virtue of the construction described, it will be seen that the entire structure can be collapsed to bring the uprights of the front and rear collapsible frames to abut against one another while the front and rear frames themselves are also brought to abut against each other.

Fig. 2 shows the structure in the process of being collapsed to the form of a compact bundle, which may be enclosed in a covering, such as shown at 44 in Fig. 5, said covering being provided with a handle 45.

The collapsible frame is preferably completed by equipping it with a dome structure comprising two half frames, each consisting of two wires, such as 46—47, 48—49, pivotally connected to the upper ends of the uprights and converging towards a common apex to be joined in pairs by block members 50, 51.

The wires 46—47, 48—49 are preferably made of spring metal so as to have a certain "give." The two half frames formed thereby can be tilted downwardly, as shown in Fig. 2, when the structure is collapsed and when the structure is extended they will be forced upwardly to the position shown in Fig. 1 where the two blocks 50, 51 press against each other and impart rigidity to the structure.

As stated, the collapsible structure thus described is provided with a fabric covering, as shown at 41 in Fig. 3, said covering being secured to the corner uprights only, and being easily deformable to follow the movements of the elements comprising the structure from one of their extreme positions to the other.

The front wall of the fabric covering, that is the one extending in front of the front collapsible frame, is vertically split as shown at 52 to provide two side panels forming a door or opening giving access to the inside of the tent. Said two panels may be secured at the top by means of a slide fastener, as shown at 53, and can also be provided with any suitable means for fastening them to each other, if desired, to insure privacy for the occupant of the tent.

The collapsible structure shown in Figs. 1 to 3 is especially suitable for use at the seashore for dressing and undressing purposes. However, if the distance between the front and rear frames is sufficiently extended, a structure built substantially along the same lines as described can be made to provide sleeping accommodation for camping purposes. For instance, the structure in Fig. 4 is shown comprising a front and a rear collapsible frame, similar to those previously described, the only difference being that the longitudinal connecting members 29', 30' are about six feet long and are reinforced not only by the rear articulated parallelogram frames formed by links 31', 32' and by arms 33', 34', but are also reinforced by similar frames at the front, said front frames comprising links 31'', 32'', and arms 33'' and 34''.

The sleeping accommodation can thus be provided by fastening a removable fabric panel

54 to the two side members 29', 30', said panel being preferably in the form of a removable extensible web 55 wound upon a spring roller, after the fashion of a roller shade, as shown, the sides of the panel when extended being secured to the longitudinal members 29', 30', in any suitable manner.

Although for the sake of clarity Fig. 4 does not show the fabric covering, it is to be understood that the structure is, of course, provided with such a covering in order to complete the tent structure.

The lower edge of the fabric covering is preferably provided with eyes or rings, such as shown at 56 in Fig. 3, affording means for securing the structure to the ground by driving spikes or stakes 57 therethrough.

The constructional details of my invention may vary from those shown without departing from the inventive idea. The drawings should, therefore, be understood as being intended for illustrative purposes only and not in a limiting sense.

I, accordingly, reserve the right to carry my invention into practice in all those ways and manners which may enter, fairly, into the scope of the appended claims.

I claim:

1. In a structure of the character described, a front collapsible frame, a rear collapsible frame, each of said frames comprising two corner uprights and at least one transversal member, foldable midway of its length, pivotally connected at each end to one of said uprights, a longitudinal connecting member at each side, foldable midway of its length, pivotally connected to and extending between front and rear uprights at the same side of the structure, and a dome frame comprising four wire risers, pivotally connected to and extending from the upper end of each upright towards a central common apex, the upper ends of said risers being connected in pairs, to form two half frames tiltable from their upwardly extending position to a downward position between said front and rear collapsible frames.

2. In a structure of the character described, a front collapsible frame, a rear collapsible frame, each of said frames comprising two corner uprights and at least one transversal member, foldable midway of its length, pivotally connected at each end to one of said uprights, a longitudinal connecting member at each side, foldable midway of its length, pivotally connected to and extending between front and rear uprights at the same side of the structure, a base arm pivotally connected to and frontwardly extending from the lower end of each of the uprights of the rear frame, a link pivotally connected to and extending between each base arm and the longitudinal connecting member at the same side, to form therewith and the corresponding upright an articulated parallelogram, and a cross member, foldable midway of its length extending between and pivotally connected to said links.

3. In a structure of the character described, a front collapsible frame, a rear collapsible frame, each of said frames comprising two corner uprights and at least one transversal member, foldable midway of its length, pivotally connected at each end to one of said uprights, a longitudinal connecting member at each side, foldable midway of its length, pivotally connected to and extending between front and rear uprights at the same side of the structure, a base arm pivotally

connected to and inwardly extending from the lower end of each of said uprights, a link pivotally connected to and extending between each base arm and the longitudinal connecting member at the same side, to form therewith and the corresponding upright an articulated parallelogram, and a cross member, foldable midway of its length, extending between and pivotally connected to the links connected to the base arms extending from the uprights of each frame.

4. In a structure of the character described, a front collapsible frame, a rear collapsible frame, each of said frames comprising two corner uprights and at least one transversal member, foldable midway of its length, pivotally connected at each end to one of said uprights, a longitudinal connecting member at each side, foldable midway of its length, pivotally connected to and extending between front and rear uprights at the same side of the structure, a dome frame comprising four wire risers, pivotally connected to and extending from the upper end of each upright towards a central common apex, the upper ends of said risers being connected in pairs, to form two half frames tiltable from their upwardly extending position to a downward position between said front and rear collapsible frames, and a fabric covering for the resulting structure.

5. In a structure of the character described, a front collapsible frame, a rear collapsible frame, each of said frames comprising two corner uprights and at least one transversal member, foldable midway of its length, pivotally connected at each end to one of said uprights, a longitudinal connecting member at each side, foldable midway of its length, pivotally connected to and extending between front and rear uprights at the same side of the structure, a base arm pivotally connected to and frontwardly extending from the lower end of each of the uprights of the rear frame, a link pivotally connected to and extending between each base arm and the longitudinal connecting member at the same side, to form therewith and the corresponding upright an articulated parallelogram, a cross member, foldable midway of its length extending between and pivotally connected to said links, and a dome frame comprising four wire risers, pivotally connected to and extending from the upper end of each upright towards a central common apex, the upper ends of said risers being connected in pairs, to form two half frames tiltable from their upwardly extending position to a downward position between said front and rear collapsible frames.

6. In a structure of the character described, a front collapsible frame, a rear collapsible frame, each of said frames comprising two corner uprights and at least one transversal member, foldable midway of its length, pivotally connected at each end to one of said uprights, a longitudinal connecting member at each side, foldable midway of its length, pivotally connected to and extending between front and rear uprights at the same side of the structure, a base arm pivotally connected to and frontwardly extending from the lower end of each of the uprights of the rear frame, a link pivotally connected to and extending between each base arm and the longitudinal connecting member at the same side, to form therewith and the corresponding upright an articulated parallelogram, a cross member, foldable midway of its length extending between and pivotally connected to said links, a dome frame comprising four wire risers, pivotally con-

nected to and extending from the upper end of each upright towards a central common apex, the upper ends of said risers being connected in pairs, to form two half frames tiltable from their upwardly extending position to a downward position between said front and rear collapsible frames, and a fabric covering for the resulting structure.

7. In a structure of the character described, a front collapsible frame, a rear collapsible frame, each of said frames comprising two corner uprights and at least one transversal member, foldable midway of its length, pivotally connected at each end to one of said uprights, a longitudinal connecting member at each side, foldable midway of its length, pivotally connected to and extending between front and rear uprights at the same side of the structure, a base arm pivotally connected to and frontwardly extending from the lower end of each of the uprights of the rear frame, a link pivotally connected to and extending between each base arm and the longitudinal connecting member at the same side, to form therewith and the corresponding upright an articulated parallelogram, a cross member, foldable midway of its length extending between and pivotally connected to said links, a dome frame comprising four wire risers, pivotally connected to and extending from the upper end of each upright towards a central common apex, the upper ends of said risers being connected in pairs, to form two half frames tiltable from their upwardly extending position to a downward position between said front and rear collapsible frames, a panel of flexible material extending between said longitudinal connecting members, and a fabric covering for the resulting structure.

8. In a structure of the character described, a front collapsible frame, a rear collapsible frame, each of said frames comprising two corner uprights and at least one transversal member, foldable midway of its length, pivotally connected at each end to one of said uprights, a longitudinal connecting member at each side, foldable midway of its length, pivotally connected to and extending between front and rear uprights at the same side of the structure, a base arm pivotally connected to and inwardly extending from the lower end of each of said uprights, a link pivotally connected to and extending between each base arm and the longitudinal connecting member at the same side, to form therewith and the corresponding upright an articulated parallelogram, a cross member, foldable midway of its length, extending between and pivotally connected to the links connected to the base arms extending from the uprights of each frame, a dome frame comprising four wire risers, pivotally connected to and extending from the upper end of each upright towards a central common apex, the upper ends of said risers being connected in pairs, to form two half frames tiltable from their upwardly extending position to a downward position between said front and rear collapsible frames, and a fabric covering for the resulting structure.

9. In a structure of the character described, a front collapsible frame, a rear collapsible frame, each of said frames comprising two corner uprights and at least one transversal member, foldable midway of its length, pivotally connected at each end to one of said uprights, a longitudinal connecting member at each side, foldable midway of its length, pivotally connected to and extending between front and rear uprights at the

same side of the structure, a base arm pivotally connected to and inwardly extending from the lower end of each of said uprights, a link pivotally connected to and extending between each base arm and the longitudinal connecting member at the same side, to form therewith and the corresponding upright an articulated parallelogram, a cross member, foldable midway of its length, extending between and pivotally connected to the links connected to the base arms extending from the uprights of each frame, a dome frame comprising four wire risers, pivotally connected to and extending from the upper end of each upright towards a central common apex, the upper ends of said risers being connected in pairs, to form two half frames tiltable from their upwardly extending position to a downward position between said front and rear collapsible frame, a panel of flexible material extensible between said longitudinal connecting members, and a fabric covering for the resulting structure.

10. In a structure of the character described, a front collapsible frame, a rear collapsible frame, each of said frames comprising two corner uprights and at least one transversal member, foldable midway of its length, pivotally connected at each end to one of said uprights, a longitudinal connecting member at each side, foldable midway of its length, pivotally connected to and extending between front and rear uprights at the same side of the structure, a base arm pivotally connected to and frontwardly extending from the lower end of each of the uprights of the rear frame, a link pivotally connected to and extending between each base arm and the longitudinal connecting member at the same side, to form therewith and the corresponding upright an articulated parallelogram, a cross member, foldable midway of its length extending between and pivotally connected to said links, and means for reinforcing and holding said foldable members in their extended position.

11. In a structure of the character described, a front collapsible frame, a rear collapsible frame, each of said frames comprising two corner uprights and at least one transversal member, fold-

able midway of its length, pivotally connected at each end to one of said uprights, a longitudinal connecting member at each side, foldable midway of its length, pivotally connected to and extending between front and rear uprights at the same side of the structure, a dome frame comprising four wire risers, pivotally connected to and extending from the upper end of each upright towards a central common apex, the upper ends of said risers being connected in pairs, to form two half frames tiltable from their upwardly extending position to a downward position between said front and rear collapsible frames, and a fabric covering for the resulting structure, the front wall of said covering being vertically split to provide an entrance to said structure.

12. In a structure of the character described, a front collapsible frame, a rear collapsible frame, each of said frames comprising two corner uprights and at least one transversal member, foldable midway of its length, pivotally connected at each end to one of said uprights, a longitudinal connecting member at each side, foldable midway of its length, pivotally connected to and extending between front and rear uprights at the same side of the structure, a base arm pivotally connected to and frontwardly extending from the lower end of each of the uprights of the rear frame, a link pivotally connected to and extending between each base arm and the longitudinal connecting member at the same side, to form therewith and the corresponding upright an articulated parallelogram, a cross member, foldable midway of its length extending between and pivotally connected to said links, a dome frame comprising four wire risers, pivotally connected to and extending from the upper end of each upright towards a central common apex, the upper ends of said risers being connected in pairs, to form two half frames tiltable from their upwardly extending position to a downward position between said front and rear collapsible frames, and a fabric covering for the resulting structure, the front wall of said covering being vertically split to provide an entrance to said structure.

DOMINICK DE TOSTO.