June 16, 1936. J. Q. ADAMS 2,044,659

COLLAPSIBLE FRAME STRUCTURE FOR TENTS

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Fig. 1.

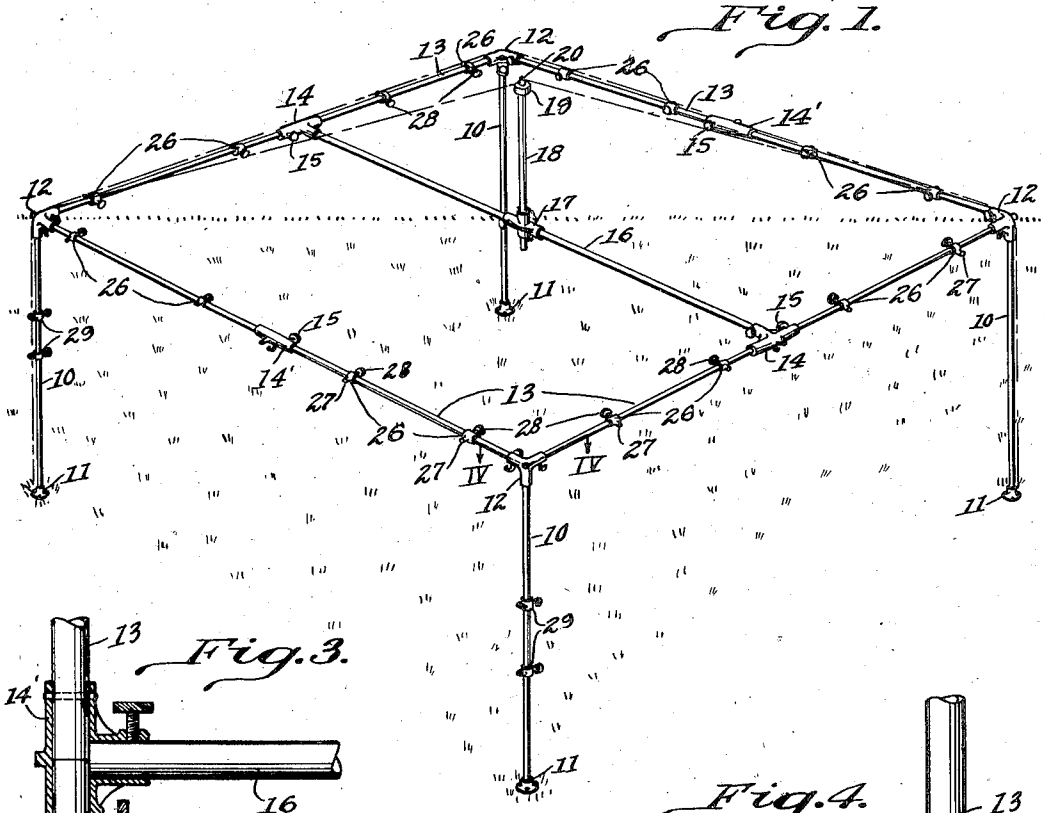


Fig. 3.

Fig. 4.

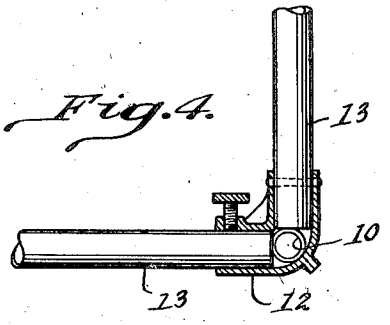


Fig. 2.

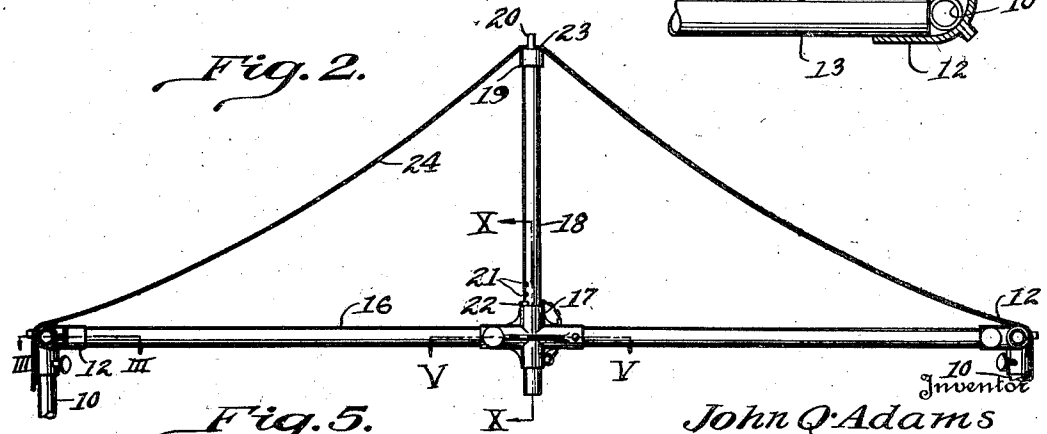
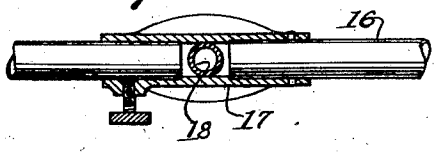


Fig. 5.



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Fig. 6.

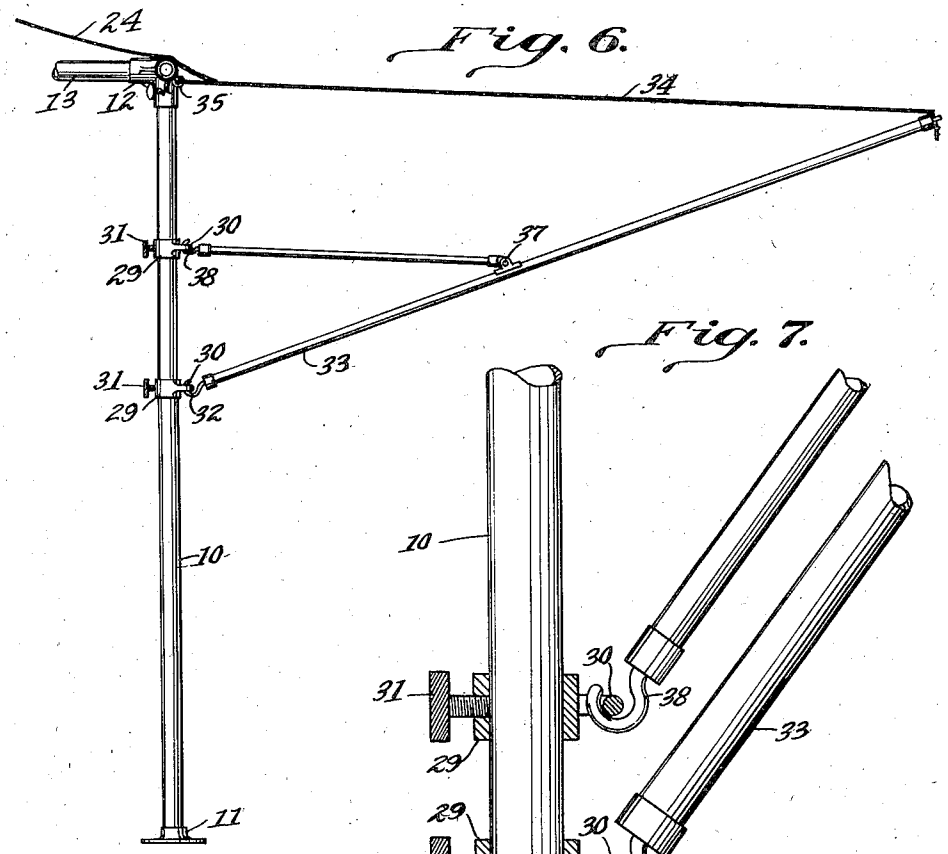


Fig. 7.

Fig. 8.

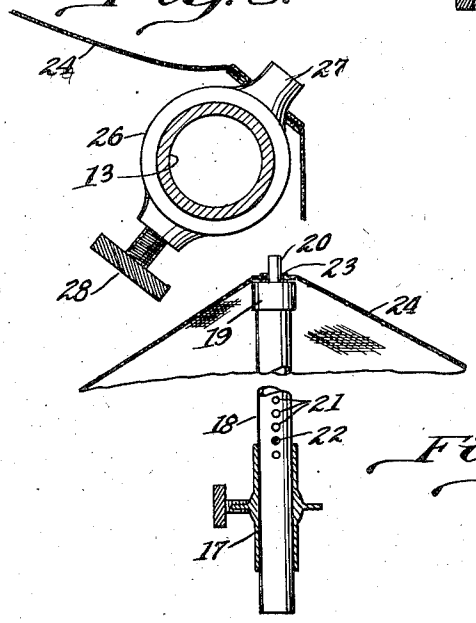


Fig. 9.

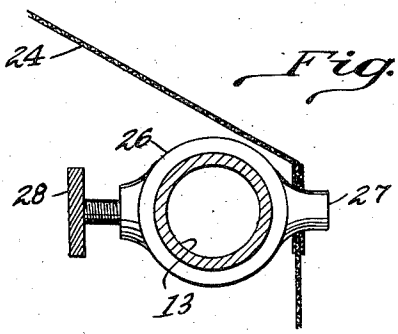


Fig. 10.

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Patented June 16, 1936 2,044,659

UNITED STATES PATENT OFFICE

2,044,659

COLLAPSIBLE FRAME STRUCTURE FOR TENTS

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Application May 18, 1934, Serial No. 726,257

4 Claims. (Cl. 135—3)

This invention relates to improvements in collapsible frame structures for tents, awnings or coverings, or other similar devices employed for providing temporary shelter from the elements. In certain of its more specific aspects, the invention provides an improved frame structure for effecting the support of so-called chapel tents, which are used for providing protection during interment proceedings, and it is an object of the present invention to provide a strong and substantial frame structure for devices of this character which embodies a plurality of detachably connected frame-forming members, to the end of providing convenience in the erection of the frame structure at or over a given site which may be quickly erected or taken down and to produce a frame structure which, when erected in its set up or operative position, will be strong and durable and which will conform in every way to the necessary requirements of a temporary shelter means of the character indicated.

For a further understanding of the invention, reference is to be had to the following description and the accompanying drawings, wherein:

Fig. 1 is a perspective view of the frame structure comprising the present invention in its erected or set up position;

Fig. 2 is a vertical transverse sectional view taken through the frame structure with the fabric tent or covering, comprising the top of the shelter, arranged thereon;

Fig. 3 is a detail sectional view on the plane indicated by the line III—III of Fig. 2;

Fig. 4 is a similar view on the line IV—IV of Fig. 1;

Fig. 5 is a sectional view on the line V—V of Fig. 2;

Fig. 6 is a vertical sectional view disclosing the extension frame of the apparatus in its operative or extended position;

Fig. 7 is a detail sectional view disclosing the extension frame in the position which it occupies when initially connected with or when being removed from the vertical leg post of the frame structure;

Fig. 8 is a transverse vertical sectional view disclosing one of the adjustable fastening collars for connecting the fabric covering of the apparatus with the side rails;

Fig. 9 is a similar view disclosing the adjusting collar when in position to stretch the fabric covering;

Fig. 10 is a detail vertical sectional view on the plane indicated by the line X—X of Fig. 2.

Referring more particularly to the drawings, my improved collapsible frame structure comprises four vertically disposed tubular corner rails preferably formed from suitable lengths of a light weight metallic alloy. These rails are indicated by the numeral 10, and the lower ends thereof, as indicated at 11, are provided with ground engaging flanges. The upper ends of the corner rails are detachably connected with tri-socketed fittings 12. The vertical sockets of the fittings 12 receive the upper end of the corner rail 10, while the horizontal sockets thereof, which are spaced relatively 90° apart, receives the outer end of a plurality of side rails 13. These side rails are formed from the same material as the corner rail 10 and are likewise tubular in form, the said side rails being horizontally disposed to define the marginal portion of the frame structure. Each side rail consists of a pair of longitudinally aligned tubular sections, one section of each pair being rigidly secured in one of the horizontal sockets of each of the fittings 12 while each of the remaining sections are rigidly secured to the horizontally disposed coupling sleeves 14 and 14'. Thus each section carries either a fitting 12 or a sleeve 14 or 14'. The free ends of the sections are detachably secured in the empty sockets of the fittings 12 and sleeves 14 and 14' to complete the horizontal framework. By reason of this construction, horizontal alignment is maintained and at the same time use of frame members of relatively short lengths which can be readily handled is permitted.

The couplings are preferably provided with tightening screws 15, as are the fittings 12, for the purpose of detachably securing the related frame members in connection with said couplings and fittings. Detachably connected with the couplings 14 are the outer ends of an intermediate rail member 16, which is also preferably formed in two sections. The inner adjoining and aligned ends of the rail member sections are connected, one rigidly and the other detachably, with a vertical cross-shaped sleeve 17, from which arises a detachable vertical center pole 18, the latter being provided at its upper end with a boss 19 and a stud 20. The lower end of the center pole is provided with perforations 21 which receives a cross pin 22 by means of which the height of the center pole may be adjusted relative to the sleeve 17.

The stud 20 of the center pole is adapted to be inserted in an eyelet 23 provided in a fabric canopy or cover 24, preferably of rectangular formation. The outer edges of the canopy are also formed with eyelets for the reception of stud-

like projections 25 provided in connection with the fittings 12. In addition, the outer edges of the canopy are secured to the frame rails 13 in a firm and taut manner by the provision of rotatable fastening collars 26, which are carried by the rails 13. These collars are each provided with studs 27 arranged to be received within eyelets provided in the marginal portions of the canopy 24. By reference to Figs. 8 and 9, it will be observed that by rotating the collars 26, the canopy may be stretched so that it will assume the desired taut condition, and by providing each of the collars 26 with a frictional clamping screw 28, the positions of such collars may be maintained, as well as the stretched condition of the associated canopy.

In order to provide the frame with an extension cover on one or more sides thereof, a pair, at least, of the corner rails 10 are provided, as shown in Figs. 6 and 7, with vertically adjustable rings or bands 29 which are formed with eyes 30 and with clamping screws 31 to retain their adjusted positions on their associated rails 10. Detachably connected by means of the hooks 32 with the lower of the bands 29 are forwardly and angularly extending rods 33, which have their outer ends formed with studs arranged to be received within eyelets provided in connection with a canopy extension 34, the rear edge of said extension being secured as at 35 to the fittings 12. Brace rods 36 have their outer ends pivotally connected as at 37 with intermediate portions of the rods 33, while the inner ends of said brace rods are equipped with hooks 38 which are received within eyes provided in connection with the upper of the bands 29.

To attach the extension rods 33 and 36, the bands 29 are lowered as shown in Fig. 7. The lower band is then tightened and the upper band is elevated to assume the position disclosed in Fig. 6, which constitutes a past center position and prevents the rod hooks from becoming disengaged with the eyes of the band 29. These extensions may be provided on one or more sides of the frame structure.

In view of the foregoing, it will be seen that the present invention embodies a frame structure consisting of a plurality of detachable and collapsible frame members which may be erected to assume an extended operative position by a single attendant without aid of others and, likewise, may be as easily taken down or dismantled. In the erection of the frame structure, the sides and intermediate rails 13 and 16 are first assembled while lying on the ground in rigid operative order. The canopy or cover 24 may then be connected with the center post and the latter elevated and retained in its desired position by the pin 22. The outer edges of the canopy are then connected with the rotatable fastening collars 26 and the fittings 12 in a manner which will remove slack or looseness from the canopy. Following this, the vertical corner rails are connected with the fittings 12. If the canopy extension is to be used, the rods 33 and 37 are connected with the band 29 and the extension rods adjusted to assume the position disclosed in Fig. 6 which properly stretches the canopy extension 34 provided in connection therewith. It will be understood that the sides of the frame structure, other than those where the extension 34 is employed may be enclosed by means of canvas or fabric walls suitably connected with the vertical and side rails 10 and 13 respectively. Such side walls are often found useful in periods of inclement weather. The frame structure is easy to erect and of sturdy design and when collapsed, occupies but a minimum of space.

The raising of the center pole or post stretches the top or canopy of the tent since the outer edges of said top or canopy are connected with the side frame members. The fastening collars, which are rotatably mounted on the side rails, may then be rotated, if desired, to take up local slackness which may be present in the canopy.

What is claimed is:

1. In a collapsible tent structure, a plurality of vertical corner posts, tubular side rails detachably connected with the upper ends of said corner posts, a transversely extending cross member having the outer ends thereof detachably connected with certain of said side rails, a vertical post detachably connected with said cross member, a canopy supported by the upper end of said center post, the marginal edges of said canopy being provided with eyelets, and a plurality of rotatable collars mounted on said side rails and provided with studs receivable within said eyelets, whereby upon the rotation of said collars around said side rails, slackness in the canopy may be removed.

2. A collapsible frame structure for tents, comprising a plurality of vertical corner posts, ground engaging elements secured to the lower ends of said posts, trisocketed fittings detachably connected with the upper ends of said corner posts, horizontally extending pairs of side rails, one rail of each of said pairs being rigidly secured in certain of the horizontal sockets of said fittings, coupling sleeves rigidly secured to the remaining rails of said pairs, certain of said sleeves being formed with angularly directed sockets, the free ends of said rails being formed for detachable connection with the other horizontal socket of said trisocketed fittings and sleeves respectively, a pair of horizontally and transversely extending intermediate rail members detachably positioned in the angular sockets of said certain sleeves, a vertical cross-shaped sleeve rigidly secured to the free end of one of said intermediate rail members and detachably secured to the other, and a center post slidably positioned in the vertical portion of said cross-shaped sleeve.

3. A collapsible tent structure, comprising a plurality of vertical corner posts, ground engaging elements secured to the lower ends of said posts, trisocketed fittings detachably connected with the upper ends of said corner posts, horizontally extending pairs of side rails, one rail of each of said pairs being rigidly secured in certain of the horizontal sockets of said fittings, coupling sleeves rigidly secured to the remaining rails of said pairs, certain of said sleeves being formed with angularly directed sockets, the free ends of said rails being formed for detachable connection with the other horizontal socket of said trisocketed fittings and sleeves respectively, a pair of horizontally and transversely extending intermediate rail members detachably positioned in the angular sockets of said certain sleeves, a vertical cross-shaped sleeve rigidly secured to the free end of one of said intermediate rail members and detachably secured to the other, a center post slidably positioned in the vertical portion of said cross-shaped sleeve, a canopy supported by the upper end of said center post, the marginal edges of said canopy being provided with eyelets, and a plurality of rotatable collars

mounted on said side rails and provided with studs receivable within said eyelets, whereby upon rotation of said collars around said side rails, slackness in the canopy may be controlled.

4. A collapsible frame structure for tents, comprising a plurality of vertical corner posts having their lower ends formed for engagement with the ground, tri-socketed fittings connected with the upper ends of said posts, said fittings having horizontal sockets, horizontally aligned pairs of side rails having their outer ends detachably positioned in the horizontal sockets, a detachable coupling uniting the adjoining longitudinally aligned inner ends of each pair of rails, a pair of horizontally and transversely aligned intermediate rail members detachably connected at their adjacent ends by a coupling member and at their outer ends with a pair of said detachable couplings, and a center post having its lower end secured to said coupling member employed in connecting the adjoining ends of the intermediate rail members.

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