

May 8, 1934.

L. M. CROW

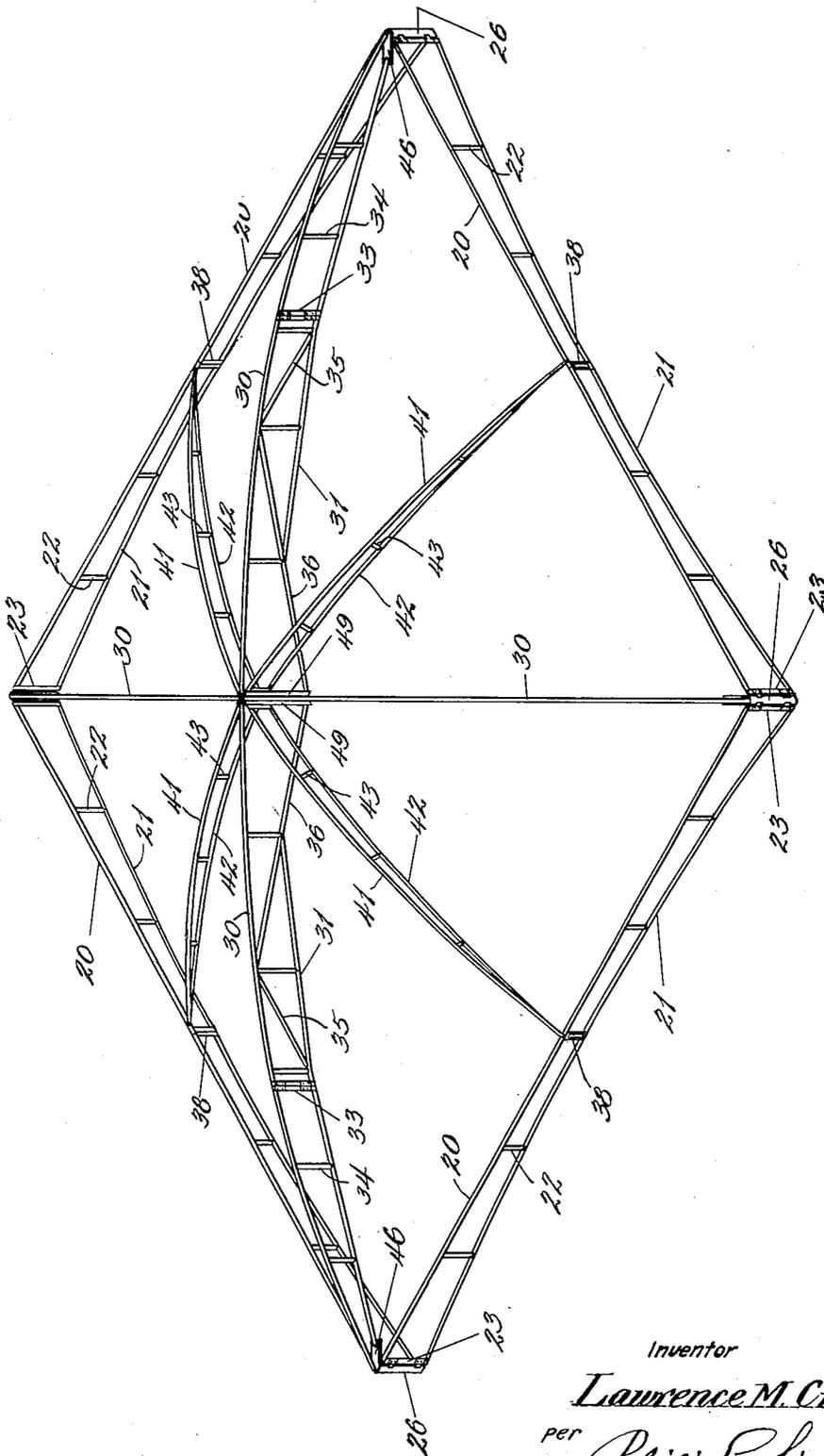
1,958,296

TENT FRAME

Filed Aug. 4, 1933

3 Sheets-Sheet 1

Fig. 1



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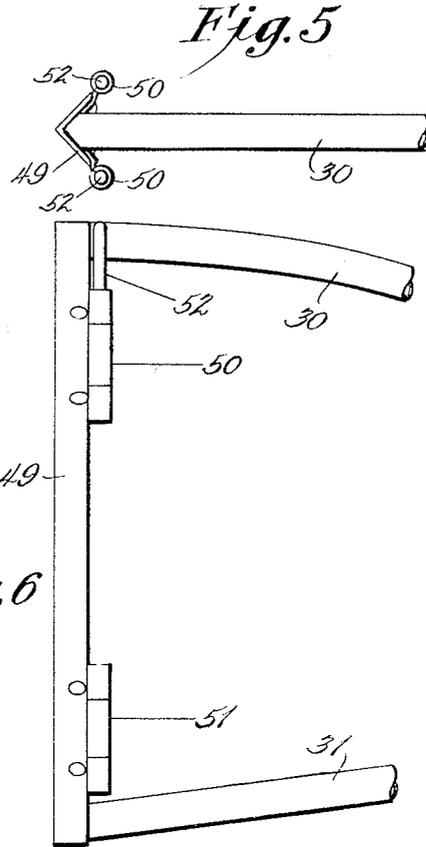
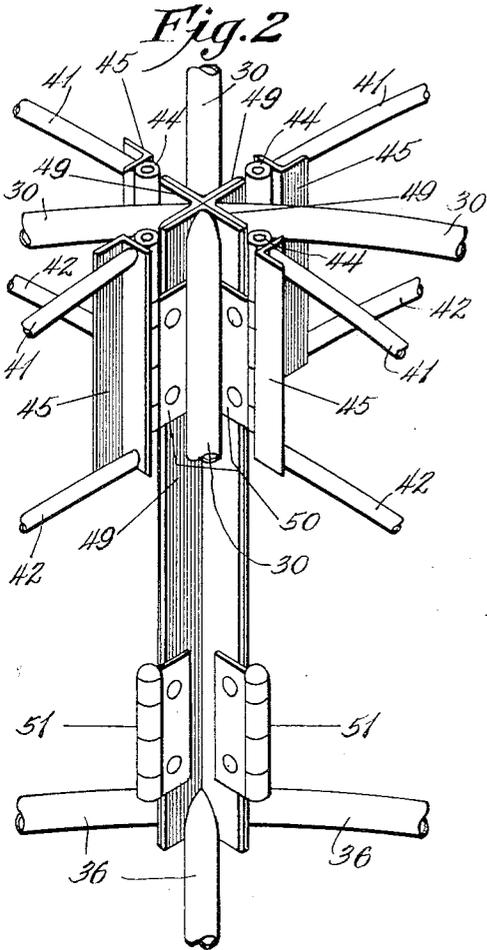
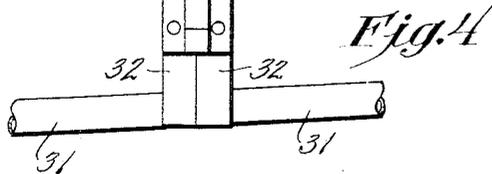
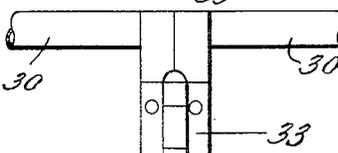
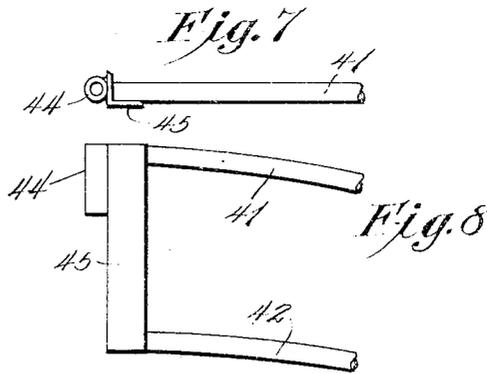
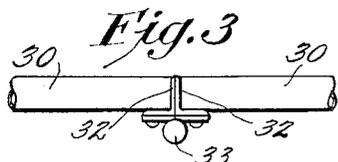


Fig. 6



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TENT FRAME

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Fig. 9

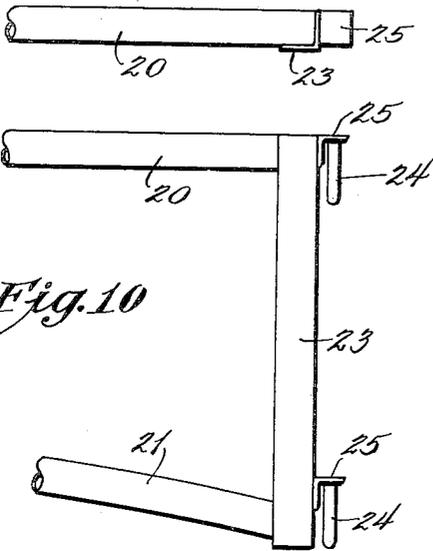


Fig. 10

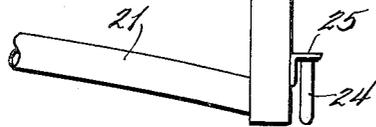


Fig. 11

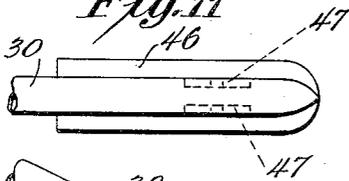


Fig. 12

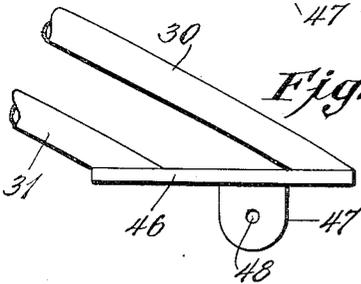


Fig. 13

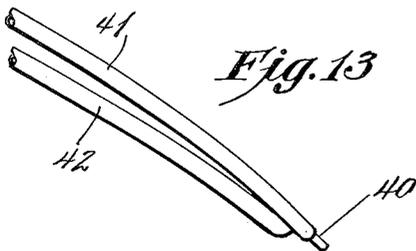


Fig. 14

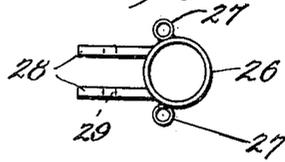


Fig. 15

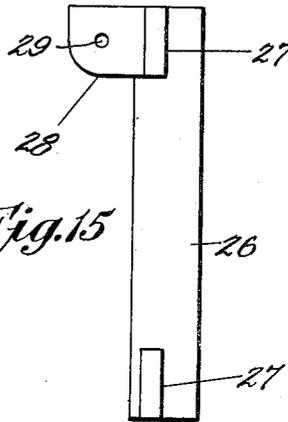


Fig. 16

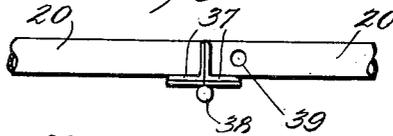
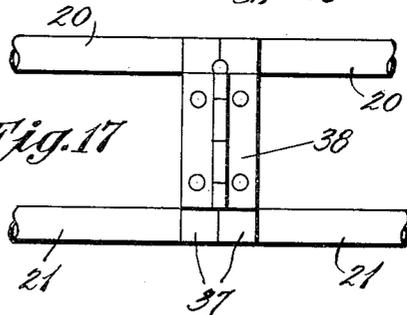


Fig. 17



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UNITED STATES PATENT OFFICE

1,958,296

TENT FRAME

Lawrence M. Crow, Waco, Tex., assignor to Clifton Manufacturing Company, Waco, Tex., a copartnership composed of A. T. Clifton, A. L. Clifton, and the executor of the estate of W. R. Clifton

Application August 4, 1933, Serial No. 683,704

12 Claims. (Cl. 135-4)

This invention relates to tent frames, and among other objects, aims to provide a frame made almost entirely of tubular steel which combines lightness with strength, which is easily erected and taken down, which will not sway or twist or buckle when the tent is subjected to winds, and which is foldable into a very compact bundle of parts. The preferred embodiment shown in the accompanying drawings, when covered with canvas, provides a tent which is especially useful for concessionaires at fairs, carnivals, tent shows etc.

In said drawings,—

Fig. 1 is a perspective view of the tent frame shown without the four poles or standards which support it elevated at a suitable distance above the ground; and

Figs. 2 to 17 inclusive are views on an enlarged scale of various details of the construction.

Referring particularly to the drawings, the illustrative rectangular frame has four side trusses and eight arched braces, which are also trusses, each brace being connected to the sides and all meeting at the center of the frame, providing a construction which needs no center pole.

The four sides are alike, each having a top chord 20 and a bottom chord 21, with struts 22, all preferably of tubular steel welded together. Preferably stainless steel is used for the entire frame. The top and bottom chords 20, 21 are connected at each end to angle iron 23 (Figs. 9 and 10) and a pair of pintles 24 are secured to each angle iron 23, one at the upper end, the other at the lower end, by means of angle sections 25 welded to angle iron 23. A pole socket 26 (Figs. 14 and 15) has four tubes welded to the outside to provide pairs of alined sockets 27 for receiving the two alined pintles 24 on each of two side members which are connected together by said pole socket. A pair of ears 28 project outwardly from each pole socket 26 at the top and have alined apertures 29 for a purpose to be described. A tent pole (not shown) fits and supports each pole socket, thus providing a support for the entire tent frame.

The described corner construction, it will be clear, is a hinge connection which permits two sides to be folded together, and which facilitate assembly or disassembly, as there are no pins, screws, bolts or nuts to be removed. To disassemble two sides, it is only necessary to lift each side member relative to the pole socket to which it is connected.

The eight trusses which brace the frame against collapsing and support the canvas when stretched

over the frame are of two kinds, namely, the primary braces, four in number, which extend diagonally across the frame from corner to corner, and the secondary braces, which are of lighter material and extend from the center of one side member across to the center of the opposite side member. Fig. 2 shows the way in which the primary and secondary braces are connected together at the center of the frame.

Each primary brace, being a diagonal member, is longer than the secondary braces, and to be more compact for shipping and storing, is hinged intermediate its ends. The hinge construction is shown in Figs. 3 and 4, Fig. 3 being a top plan and Fig. 4 an elevation. As shown, the segments of the top chord 30 and the bottom chord 31 are connected together at the hinge end by angle bars 32, to which a hinge is secured. Between the hinge and the center of the frame, the chords 30 and 31 are connected by struts 34 and diagonals 35, 36, the diagonals 36 extending to the end of the brace, so that four diagonals 36 meet at the center of the frame and may be connected as shown in Fig. 2 and as will be described in more detail. The bottom chords are not extended beyond the point where the diagonals 36 are connected to them, so that the bottom chords 31 are, in effect, replaced by diagonals 36, resulting in a much greater width for the primary braces at the center of the frame. This is clearly shown in Fig. 1. The result is increased strength and rigidity at the center.

As the side members may be inconveniently long, they are hinged as best shown in Figs. 16 and 17, the top chord segments 20 of each side member being joined to the bottom chord segments 21 by angle bars 37 and a hinge 38 connecting the angle bars 37. One of the top chord segments 20 of each side member has an aperture 39 (Fig. 16) receiving the outer end 40 of a secondary brace, as will be understood from Figs. 1 and 13. The secondary braces each comprise a top chord 41, a bottom chord 42 and struts 43, and taper to a point at the outer ends 40. The inner ends of the secondary braces, as shown in Figs. 7 and 8, have sockets 44 secured by angle bars 45 which are welded to the separated ends of the chords 41, 42, and are connected at the center to the primary braces as shown in Fig. 2 and as will be described.

The primary braces have their outer ends constructed as shown in Figs. 11 and 12, the top chords 30 being united to the bottom chord 31 by a plate 46 having ears 47 perforated as at 48. The ears 47 are so spaced as to fit between ears

28 (Figs. 14 and 15) on the pole socket, and when so positioned, the perforations 47 are alined with the perforations 29. Thus a bolt or pin may be passed through the four ears at each corner of the frame, to unite the primary braces to said corners. The inner ends of the primary braces are as shown in Figs. 5 and 6, an angle bar 49 being welded to the ends of chord 30 and diagonal 36. Welded to angle bar 49 are hinge members 50, 51, the former having a pintle 52 which fits into the socket member 44 on each secondary brace (see Fig. 8), so that said braces may be hingedly assembled with the primary braces as shown in Fig. 2. The hinge members 51 on the several braces are complementary, so that the primary braces are hinged together just above the point where the four diagonals 36 meet.

The braces interfit and interlock at the center of the frame in the manner shown in Fig. 2. The four primary braces have their angle bars 49 lying adjacent each other throughout their entire lengths, so that the main braces are prevented from turning relative to each other in any direction; and due to the wide spacing of the top chords 30 from the diagonals 36, there is a large bearing surface for the transmission of stresses imposed on any of the main braces. Furthermore, the main braces are so closely fitted together that even rattling or vibration as during windstorms is practically obviated. The secondary braces rest on the main braces at their inner ends and though capable of being folded, and easily removed individually, when assembled are rigidly held against any movement. The large sizes of the angle bars 49 and the manner in which they fit together affords adequate strength at the center for the strain imposed by the auxiliary braces and the loads on them.

Obviously the invention may be embodied in several forms neither shown nor described. For example, the frame may have more than four side members, and such members need not be of equal lengths.

Having described the preferred embodiment of the invention, what I claim as new and desire to secure by Letters Patent is:—

1. A tent frame comprising, in combination, four side members each having a hinge connection at each end; a pole socket member adapted to fit over an upright tent pole and having sockets to be hingedly connected with the side members; primary braces connected with the pole socket members and extending diagonally across the rectangular frame formed by the four side members; secondary braces connected with the side members at points intermediate their ends; and means to unite the primary and secondary braces at the center of the frame.

2. A tent frame comprising, in combination, four side members; four primary braces extending diagonally across from corner to corner of the side members; four secondary braces extending from the middle of each side member to the middle of the opposite side member; manually separable means to connect the outer ends of all of said braces to the side members so that said braces may be individually removed by hand; and complementary means formed on the inner ends of the several braces to unite them at the center of the frame, said means permitting manual disengagement of any brace at said center.

3. A tent frame comprising, in combination, three or more side members each composed of top and bottom chords and struts; a plurality of

braces each composed of top and bottom chords and struts; means removably to connect the braces at their outer ends with the side members; and a series of separable hinge connections at the inner ends of the braces uniting them at the center of the frame and permitting the manual removal of any brace.

4. A tent frame comprising three or more side members each composed of top and bottom chords and connecting struts; each side member having a hinge intermediate its ends, said hinge comprising a pair of transverse angle bars welded to the top and bottom chords and lying adjacent each other with two of the flanges substantially in contact and a hinge connected to the other two flanges; and braces removably connected to said side members at their outer ends and removably connected to each other at their inner ends, which meet at the center of the frame.

5. A tent frame comprising three or more side members each composed of top and bottom chords and connecting struts; said top chords having perforations midway between their ends; three or more braces each composed of top and bottom chords and connecting struts and having projections at the outer ends fitting said perforations; and means at the inner ends of said braces connecting them together at the center of the frame.

6. A tent frame comprising, in combination, three or more side members each having vertically spaced alined pintles at each end; four or more pole socket members each having two sockets at each end for pivotally receiving the pintles attached to two side members, so that each pole socket member serves as a hinge connection between two side members and as a support for the same when a pole is thrust into the pole socket member; and braces connecting the side members so as to form a rigid frame.

7. A tent frame comprising, in combination, three or more side members; four or more pole socket members each having means connecting it to the ends of two of the side members; each pole socket member having a pair of spaced ears at its upper end; said ears having alined perforations; and braces extending across the frame, said braces each having a pair of spaced ears on their outer ends with alined perforations, and being so spaced as to fit between the other ears, so that fastening means passed through all the ears may unite the outer ends of the braces to the corners of the frame formed by the side members.

8. A tent frame comprising, in combination, four or more side members connected end to end and forming a frame; four or more braces extending from the corners of the frame formed by the side members to the center; each of said braces comprising top and bottom chords and bracing members; the inner ends of each of said braces having diagonal bracing members secured to the top and bottom chords and replacing the bottom chords at the points where joined thereto, and diverging from the top chord so as to provide widely separated end bearing points; angle bars joining said widely separated ends; and readily disengageable means to connect the angle bars together so that the braces are united at the center of the frame.

9. A tent frame comprising three or more side members connected together end to end forming a closed frame; and braces connected at their outer ends to the frame and at their inner ends

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meeting and being connected to each other; each alternate brace being hingedly connected to the other braces, which are rigidly but removably connected to each other.

tom chord spaced apart and an angle bar connected to the chords of each rib at its inner end; said angle bar so arranged that its angle is at the extremity of the rib; and means to connect the ribs together so that each of the four angle bars is between two angle bars and the flanges thereof lie flat against the flanges of the two laterally adjacent angle bars.

10. A tent frame having a perimeter and ribs connected to it and meeting each other at the center; means connecting said ribs together at the center so that turning movements are obviated; and other ribs alternating with the first mentioned ribs and connected at their outer ends to the perimeter of the frame and also connected to and resting upon the inner ends of the first mentioned ribs.

12. A tent frame comprising a plurality of pole socket members each adapted to be supported above the ground by a pole; side members detachably carried by the pole sockets, there being one pole socket between each pair of adjacent side members; and braces detachably connected at their outer ends with the pole sockets and at their inner ends with each other.

11. A tent frame having a closed perimeter and four ribs meeting at the center and connected at their outer ends to the perimeter of the frame; said ribs each having a top and bot-

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