

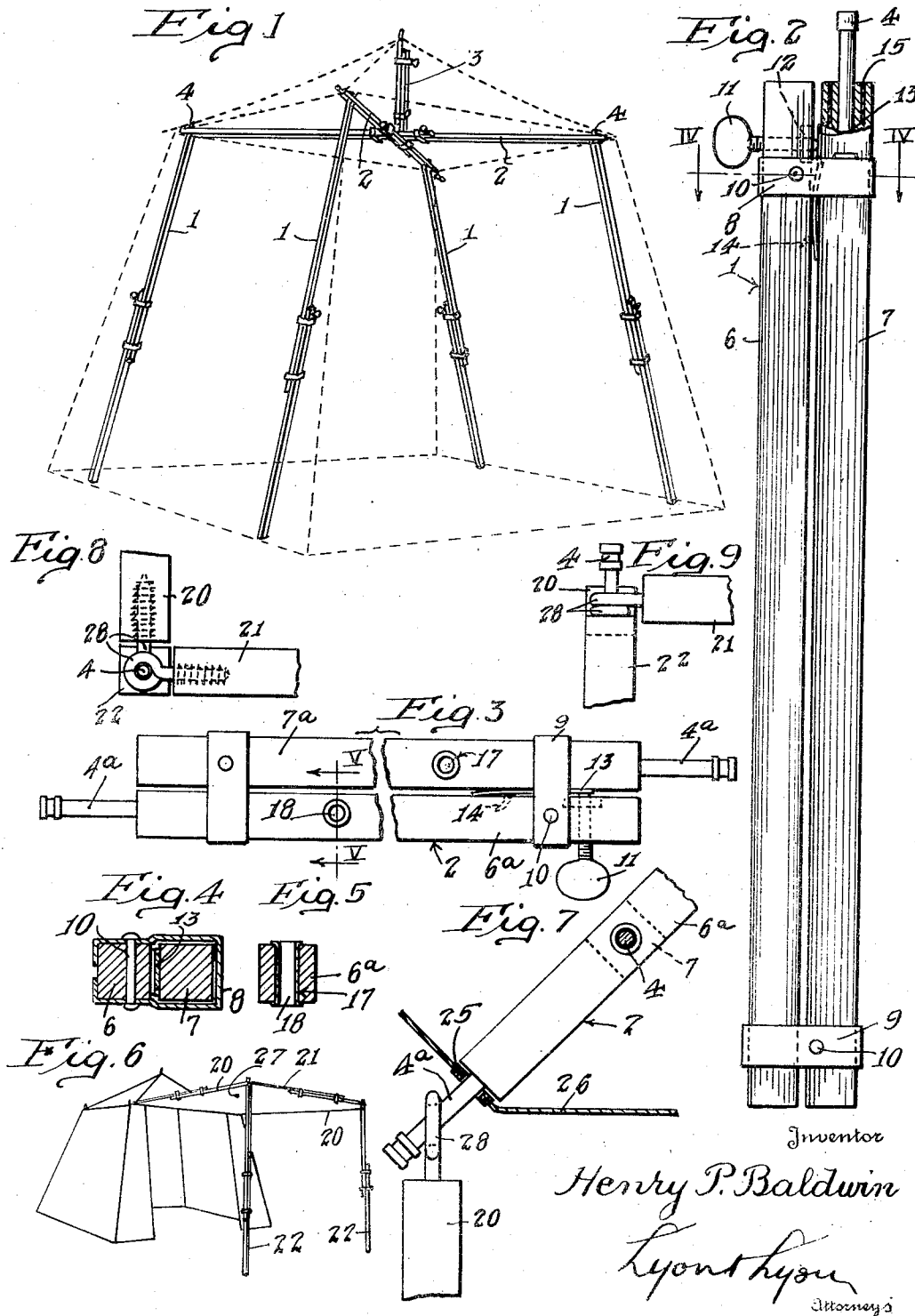
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TENT FRAME

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TENT FRAME

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This invention relates to collapsible frames such as are employed particularly with tents and camp shelters, although some certain features of the invention have other applications.

A broad object of the invention is to provide a simple yet strong and effective frame structure for an umbrella type tent, which eliminates the necessity of a center pole.

Another object is to provide a particularly simple and effective extensible strut or leg member for use as an element of a tent frame or the like.

Still another object is to provide a simple and effective frame structure for supporting the flap or awning of a tent.

Various minor objects, together with various features of the invention, will become apparent from the following detail description, with reference to the drawing, of certain specific embodiments of the invention.

In the drawing:

Fig. 1 is a perspective view of a tent frame in accordance with the invention, assembled within a tent, the latter being shown in dotted lines;

Fig. 2 is an enlarged elevation view of one of the extensible legs of the frame shown in Fig. 1;

Fig. 3 is a plan view of one of the extensible cross members in the assembly shown in Fig. 1;

Fig. 4 is a detail cross section in the plane IV—IV of Fig. 2;

Fig. 5 is a detail cross section in the plane V—V of Fig. 3;

Fig. 6 is a small, perspective view of a tent similar to that shown in Fig. 1, equipped with an awning support in accordance with my invention;

Fig. 7 is a detail plan view, partly in section, showing the connection of the awning frame members to the tent frame members;

Fig. 8 is a detail plan view, showing the connection between the outer end of the awning frame and one of the supporting legs therefor; and

Fig. 9 is an elevation view of the same structure shown in plan in Fig. 8.

Referring first to Fig. 1, a tent frame for an umbrella tent, or the like, in accordance with my invention, comprises a plurality of leg members 1 each positioned adjacent one corner of the tent and extending from the ground adjacent the margin of the tent to one end of a cross member in the top of the tent. Thus there are two cross members 2 which cross over each

other substantially at their centers, each member extending horizontally and diagonally from one corner of the tent to the other and being supported adjacent each outer end by one of the legs 1. The roof of the tent is supported at its center by a small leg 3 which rests at its lower end upon the upper of the two cross members 2 substantially at the point of cross over and bears against the peak of the tent at its other end.

The legs 1 are provided with spikes or pins 4 at their upper ends, which project through holes provided therefor in the cross members 2 so as to positively retain the cross members in connection with the upper ends of the legs. The upper ends of the legs preferably engage the cross members 2 at a point spaced somewhat from the ends thereof, which reduces the tendency of the cross members to sag at the middle because of the weight of the roof center support 3.

The general framework described provides a simple, inexpensive and very strong support for the tent while eliminating the necessity for any center pole or of any guy ropes extending out from the tent for supporting the upper corners of the tent.

Each leg 1 is preferably made adjustable in length to accommodate it to tents of different dimensions and to permit placing of the legs at slightly different angles, where desired. To this end, each leg 1, as shown to best advantage in Fig. 2, comprises two sticks of wood 6 and 7, respectively, both preferably of the same length and cross sectional dimensions. The two sticks 6 and 7 are interconnected against lateral movement with respect to each other, but having controlled longitudinal movement, by a pair of straps 8 and 9, respectively, on opposite ends of the sticks when they are collapsed into juxtaposed relation with each other. Each of the bands is secured to one of the sticks. Thus the band 8 is riveted to the stick 6 by a rivet 10 which extends clear through the stick and the band on both sides of the stick, and is riveted down against the band on its opposite ends. The band 9 is similarly riveted by rivet 10 to the stick 7. As shown in Fig. 4, each of the bands 8 and 9 is offset so as to freely, slidably engage the stick to which it is not anchored. Thus the band 8 is freely slidable along the stick 7 and the band 9 is freely slidable along the stick 6. As shown in Fig. 4, it is convenient to form the bands from flat strips of steel or other metal. It is not necessary that the bands be endless,

because the rivets 10 firmly secure the ends of the bands against separating motion and to one of the sticks.

To lock the two sections 6 and 7 of each leg in fixed positions longitudinally with respect to each other, a thumb screw 11 is provided in the stick 6 adjacent the band 8. This screw 11 is threaded through a nut 12 imbedded in the face of the stick 6, which is adjacent the stick 7 so that turning of the thumb screw 11 forces its inner end toward the stick 7. Since the sticks 6 and 7 are preferably made of some relatively soft material, such as wood, the end of the screw 11 would dig into the stick 7 if means were not provided to prevent it. The means provided in this instance is a pressure plate 13 which is interposed between the sticks 6 and 7 and anchored against longitudinal movement and edgewise lateral movement, while being free to move against the stick 7 in response to pressure by the screw 11. Thus plate 13 is positioned within the band 8 and is secured to the stick 6 by a prong 14 which is bent out of the plate material and forced into the stick 6. The prong 14 cannot escape from the stick 6 because of the limited separating movement of the sticks in view of the band 8. Furthermore the plate 13 cannot swing in its own plane about the prong 14 as a pivot because it is prevented from doing so by contact with the band 8. The plate 13 is therefore positively retained in position, always ready to function as a bearing plate between the screw 11 and the stick 7.

As previously indicated, pins 4 are provided on the upper ends of the legs 1 to center the upper ends of the legs with respect to the cross members 2. These pins or spikes 4 are driven into the ends of the sticks 7, which preferably are made of wood having the grain running parallel to the length of the sticks. To reduce any tendency of the sticks to split or break out at the ends in response to transverse or bending forces on the pins 4, each pin is surrounded by a reinforcing cylinder 15 of metal, which is driven into the end of the stick surrounding the pin 4. These reinforcing bushings 15 are driven in so that their outer edges are flush with the ends of the stick and are completely imbedded within the stick.

Referring now to Fig. 3, each of the cross members 2 is exactly similar in construction to one of the legs 1 as described with reference to Figs. 2 and 4, except that in this instance each of the sticks 6a and 7a is provided with a headed pin 4a at its outer end and furthermore each stick is provided with a hole 17 for receiving the leg pin 4. I preferably reinforce these holes 17 with metal grommets 18 (Fig. 5) which extend all the way through the stick and are beaded back at opposite ends to present smooth orifices and retain themselves within the stick. The use of these grommets 18 eliminates rapid wear of the stick adjacent the hole 17 by the pins 4 which results when no reinforcement is provided.

The small roof leg 3, described in connection with Fig. 1, is identical with one of the main legs 1, except that it is much shorter.

Referring now to Fig. 6, it is often desirable to provide an awning in front of an umbrella type tent, as shown in Fig. 1. Heretofore it has been the practice to support such awnings by means of a single pair of auxiliary legs which engage the outer corners of the awning and are held in place by guy ropes. In accordance with the present invention, I provide a simple yet rigid

framework for supporting the awning of a tent without the use of guy ropes.

Referring to Fig. 6, this framework comprises a pair of side struts 20, an end strut 21, and a pair of legs 22 for supporting the outer ends 5 of the strut 20 and the two ends of the strut 21. Each of these struts 20 and 21 may be of identically the same construction as the leg shown in Fig. 2, except that the two members of each leg have screw eyes 23 in their opposite ends. 10 The legs 22 are identical with the leg illustrated in Fig. 2. The inner ends of the struts 20 are supported by the screw eyes 23 therein, which are slipped over the pins 4a in the outer ends of the cross members 2 (Fig. 7). The pins 4a of course 15 project through suitable grommets 25 provided therefor in the tent material 26. The outer ends of the struts 20 are secured in place by slipping the screw eyes 23 therein over the pins 4 in the upper ends of the legs 22 (Figs. 8 and 9). Like- 20 wise, the two ends of the struts 21 are supported by slipping the screw eyes in the ends thereof over the pins 4 in the respective legs 22—22. The awning material 27 may be secured to the struts 20—20—21 in any desired manner, as by 25 small ropes or strips extending from the awning and adapted to be tied around the struts. The tension of the awning tends to draw the side struts 20—20 toward each other and thereby maintain the eyelets at the inner ends of the 30 struts on the diagonally extending pins 4a in the cross members 2.

I find it advantageous to employ the headed pin 4a in the ends of the cross members 2 instead of smooth pins, as have been formerly 35 employed. The heads on these pins 4a greatly reduce the possibility of the tent material becoming detached from the pins 4a in a wind. They also aid in retaining the eyes 23 on the awning struts 20 (Fig. 7).

Although for the purpose of explaining the invention a particular embodiment thereof has been described in detail, it is to be understood that various changes can be made from the structure shown without departing from the invention, 40 which is to be limited only as set forth in the following claims.

I claim:

1. A frame for an umbrella tent with awning comprising a plurality of horizontal members in 50 cross relation and adapted to extend between diagonally opposite upper corners of the tent, with their ends in supporting relation to the tent, and leg means for supporting said horizontal members above the ground, in which at least 55 two of the adjacent ends of said horizontal members have pins in the ends thereof projecting through said tent, a pair of parallel awning frame members having eyes in their ends, the eye in one end of each engaging the pin in one of said 60 horizontal members, a pair of leg members having pins in their upper ends engaging the eyes in the other ends of said parallel members, and a third awning frame member extending horizontally between said other ends of said parallel 65 members and having eyes in its ends also engaged by the pins in said leg members.

2. A tent frame for an umbrella tent comprising a horizontal member adapted to extend across the tent, leg means for supporting said horizontal 70 member near its outer ends, a vertical member for supporting the roof of the tent intermediate the ends of said horizontal member, said vertical member extending upwardly from and being supported on said horizontal member sub- 75

- stantially at its middle, said horizontal member comprising an extensible strut including a pair of elongated elements positioned side by side in overlapping relation at the midportion of the 5 strut, with means at the inner end of each element connecting it to the other element, whereby said strut has increased resistance to bending forces applied thereto by said vertical member.
- 10 3. A tent frame for an umbrella tent, comprising a horizontal member adapted to extend across the tent, leg means for supporting said horizontal member near its outer ends, a vertical member for supporting the roof of the tent intermediate the ends of said horizontal member, said vertical member extending upwardly from and being supported on said horizontal member substantially at its middle, said horizontal member comprising an extensible strut including a pair 5 of elongated parallel elements positioned in overlapping relation at the midportion of the strut and interconnected to each other at least at the ends of their overlapping sections whereby said strut has increased resistance to bending 10 forces applied thereto by said vertical member.

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