March 28, 1961 J. R. LÖNNQVIST 2,976,876

STAY-ROD FOR TENTS

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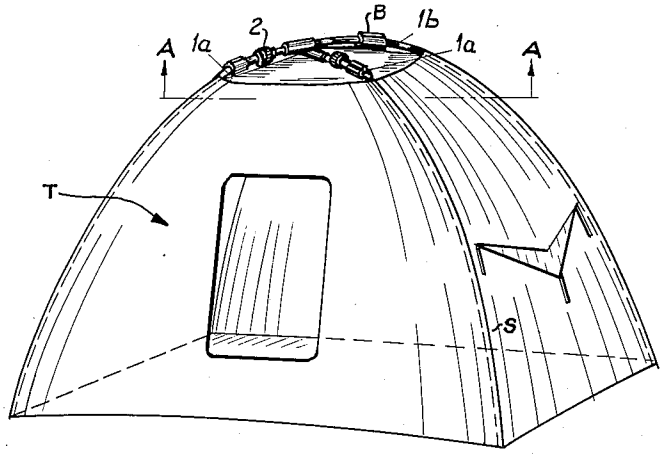


FIG. 1.

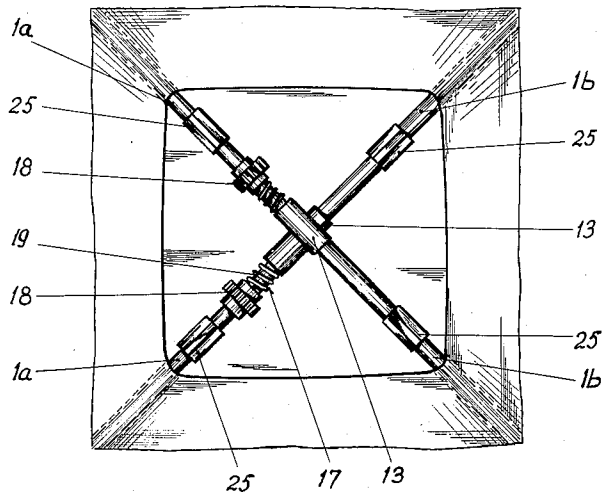


FIG. 2.

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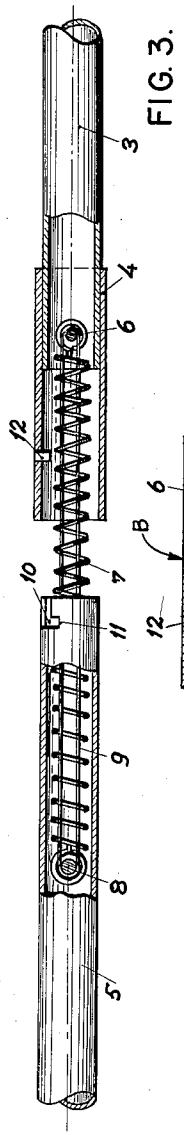


FIG. 3.

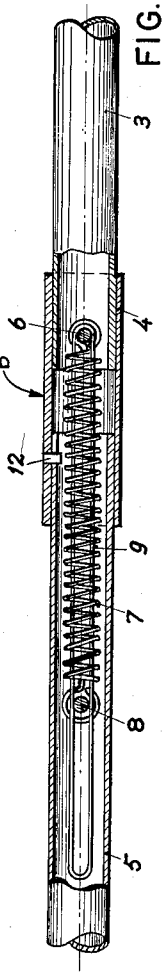


FIG. 4.

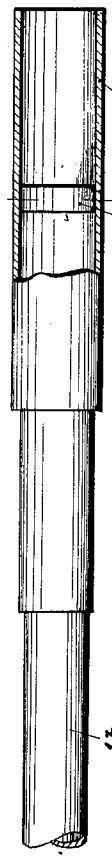


FIG. 5.

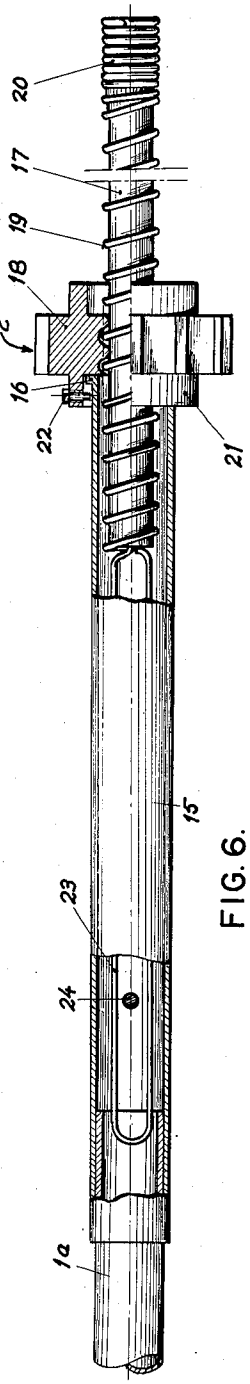


FIG. 6.

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STAY-ROD FOR TENTS

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7 Claims. (Cl. 135—3)

This invention relates to tent structures and components therefor.

It is an object of the invention to provide an improved tent structure and improved components therefor.

It is a further object of the invention to provide for improved tent structure components enabling a facile bracing of the tent cloth.

It is another object of the invention to provide for the improved assembling and disassembling of tent structures.

Still another object of the invention relates to the provision of an improved structure whereby a tent may be adjustably braced after having been assembled.

Briefly, to achieve the above and other of its objectives the invention contemplates the provision of a frame member for a tent comprising at least two elongated elements adapted for being braced in end-to-end relationship with means being provided for the engagement of said elements. Said means comprises a threaded portion on the end of one of said elements and a socket portion on the other of said elements for accommodating and loosely encircling said threaded portion. A threaded member is mounted on said one element and adjustably and threadably accommodates said threaded portion to control the penetration of the threaded portion into the socket portion. Moreover, a stop is provided in said other element to engage said threaded portion in abutting relationship whereby said elements can be braced and controllably arched.

As a feature of the invention the above mentioned frame member comprises a further elongated element adapted for being positioned in end-to-end relationship with one of the first said elements and forming a pair therewith. A collar is provided on one end of the pair, the collar and the other element of the pair including a bayonet connection therebetween. In accordance with the invention resilient means are provided which urge the elements of the pair apart so as to lock the bayonet connection. Flexible means are provided on the elements of the pair to limit the extent to which these elements can be urged apart.

Details and further objects of the invention will be found in the following description as illustrated in the accompanying drawings wherein:

Fig. 1 is a perspective view of a pitched tent provided with stay-rods according to this invention,

Fig. 2 illustrates, on enlarged scale, a part of the tent as seen from above,

Fig. 3 shows a longitudinal section of part of a stay-rod, with two rod parts drawn apart and ready to be folded alongside of one another into a bundle,

Fig. 4 illustrates the rod parts engaged with each other,

Fig. 5 is a sectional view of a rod end forming part of a further feature of the invention, and

Fig. 6 is a longitudinal sectional view of the rod end forming a pair with the rod end shown in Figure 5, there being shown a tightening device provided according to the invention for stretching the canvas of the tent.

The expression "upper end of stay-rod" or the like refers hereinafter to the rod end at the ridge of the associated tent roof when the tent is pitched, and the expression "down end or lower end" or the like of the rod refers to the part that contacts the ground.

According to Figure 1, there is fitted into the sheaths, at each of the corners of the tent T, an end of an extensible stay-rod provided according to the invention. Two stay-rod sections 1*a* and 1*b* are provided in each stay-rod, one of which sections is provided with a tightening device as will be shown. These two rods are, at their upper ends, connected with one another by means such as connection B, thus making a stay-arch for the tent.

The construction of the stay-rod sections 1*a* and 1*b* together with the tightening device is illustrated in Figures 3–6.

According to Figures 3 and 4, each of the stay-rod sections 1*a* and 1*b* consists of several attachable tube parts. One end of tube part 3 that forms the end of one of said sections is provided with a collar or socket 4 into which one end of the tube part 5 can be fitted. Tube part 5 constitutes an end of the other of said sections. Inside the socket 4 is fixed by means of a pin 6 a coil spring 7, the other end of which is held inside the tube part 5 by a pin 8. In Figure 3, the tube parts 3 and 5 are urged apart against the effect of a resilient means or spring 7. In order to prevent the withdrawal of these parts too far, there is arranged inside spring 7 an elongated, a flexible means or closed loop 9 made, for example, of flexible steel wire. The ends of this loop pass around the pins 6 and 8 so that the coil-spring 7 only can be stretched to the length of loop 9.

The end of tube part 5 defines a slot 10, from which there projects at right angles a slot 11. When the tube parts 3 and 5 are permitted to assume their natural positions, the end of part 5 is urged, by the effect of the spring 7, inside the socket 4 on the end of part 3 (Fig. 4). The stopper 12 on the inner wall of socket 4 moves into slot 10, after which part 4 is rotated until stopper 12 moves into the slot 11, the stopper 12 and slots 10 and 11 thus constituting a bayonet connection. Owing to this arrangement, the parts 3 and 5 cannot be drawn apart without being turned. This stopper and slot arrangement has further the purpose of making the arched parts of the stay-rod always attain the same position, thus forming an arched stay-rod which always fully follows the form of the tent.

As seen from the illustration in Figure 4, the loop 9 inside the coil spring 7 does not in any way stop the part 3 from entering the socket 4 as the loop can freely slide inside the coil spring.

Figures 3 and 4 show one connecting part which can be placed between two rod parts or sections. It will be noted in these figures that the parts 3 and 5 can be drawn apart, folded and placed alongside another, and bound together with strings or the like and made into bundles of even length, in order to facilitate transport.

As shown in Figure 2, one of the assembled stay-rods 1*b* has on its upper end a socket 13, shown in Fig. 5, inside of which, at some distance from the edge, there is a firmly secured stopper 14.

The arrangement shown in Figure 6 can also be employed. To the upper end of stay-rod section 1*a* as shown in Fig. 6 is secured an elongated cylinder or collar 15, the end of which is provided with a stop-collar 16. A tightening device is provided which consists of a flexible spindle or threaded portion 17 and a nut or threaded member 18 that can be turned around this spindle. Around spindle 17 is arranged a coiled thread of steel wire 19 with a relatively steep pitch, which thread is fastened to the spindle by a tight thread part 20. The nut

18 is provided with a thread corresponding with the thread 19. The nut 18 has on its lower end a flange 21 extending over the stop-collar 16 of the shell 15. The flange 21 has a radial hole, through which a set-screw 22 passes. This screw is placed so that it and the stop-collar 16 keep the nut on the end of collar 15, but in such a way that it allows turning of the nut. In order to prevent spindle 17 from becoming detached from the nut and from falling out of collar 15, the thread is made to continue inside the collar as a loop or flexible means 23. This loop can also be made from a separate wire and fastened to the spindle 17 or to the end of thread 19. Through shell 15 passes a diametrical pin 24, which is situated at such a point in the shell that when the end of loop 23 strikes against the pin 24 while the spindle 17 is in its farthest drawnout position, the end of thread 19 towards the collar 15 remains inside the threaded part of nut 18. Simultaneously the pin 24 stops, by means of loop 23, the spindle 17 and the thread 19 from turning around the longontudinal axis of spindle 17. By turning the nut, the spindle 17 can, by the action of thread 19, be forced into the collar 15 only to the point where the thread 20 meets the thread in the nut.

In pitching the tent, the bundles that contain the folded stay-rods are opened, after which the lower, rounded ends of the assembled stay-rods are pushed into the sheaths in the corners of the tent. By engagement with the very convenient grips 25 near the upper end of stay-rod sections 1*a* and 1*b*, thread 19 provided on spindle 17 and projecting from the upper end of stay-rod 1*a*, as shown in Fig. 6, is fitted into socket 13 on the upper end of stay-rod 1*b*, shown in Fig. 5, whereby the end of spindle 17 is made to rest aganst the stop 14 in socket 13 so that the penetration of spindle 17 into socket 13 is limited. The spindle 17 is then by means of nut 18 forced outwards sufficiently (or, in other words, the penetration of spindle 17 into socket 13 is adjusted) for giving the walls of the tent the desired stretch.

What is claimed is:

1. A frame member for a tent comprising at least two elongated elements adapted for being braced in end-to-end relationship and means for the engagement of said elements; said means comprising a threaded portion on the end of one of the elements, a socket portion on the end of the other element for accommodating and loosely encircling the threaded portion, a threaded member mounted on said one of the elements and adjustably and threadably accommodating said threaded portion to adjust the penetration of the threaded portion into the socket portion, and a stop in said other element to engage said threaded portion in abutting relationship to limit the penetration of the threaded portion into the socket portion.

2. A frame member as claimed in claim 1 comprising a further elongated element adapted for being positioned in end-to-end relationship with one of said two elongated elements and forming a pair therewith, a collar on one end of the pair, the collar and the other element of the pair including a bayonet connection therebetween, resilient means urging the elements of the pair apart to lock the bayonet connection, and flexible means on the elements of the pair to limit the extent to which these elements can be urged apart.

3. A frame member as claimed in claim 1 comprising a collar on said other element constituting the socket portion, and a set screw on the threaded member for locking the same to said collar.

4. A frame member as claimed in claim 1 comprising flexible means on the elements for limiting withdrawal of the threaded portion from the socket portion.

5. A frame member as claimed in claim 1 wherein the threaded portion comprises a threaded section of a first pitch accommodating the threaded member and a contiguous threaded section of different pitch to restrict movement of the threaded member.

6. A frame member as claimed in claim 1 wherein the threaded portion comprises a cylindrical body and a wire on the body in spiral form.

7. A frame member as claimed in claim 6 wherein the wire extends from the body in the form of a loop, said other element including a pin engaging the loop for limiting movement between the elements.

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