

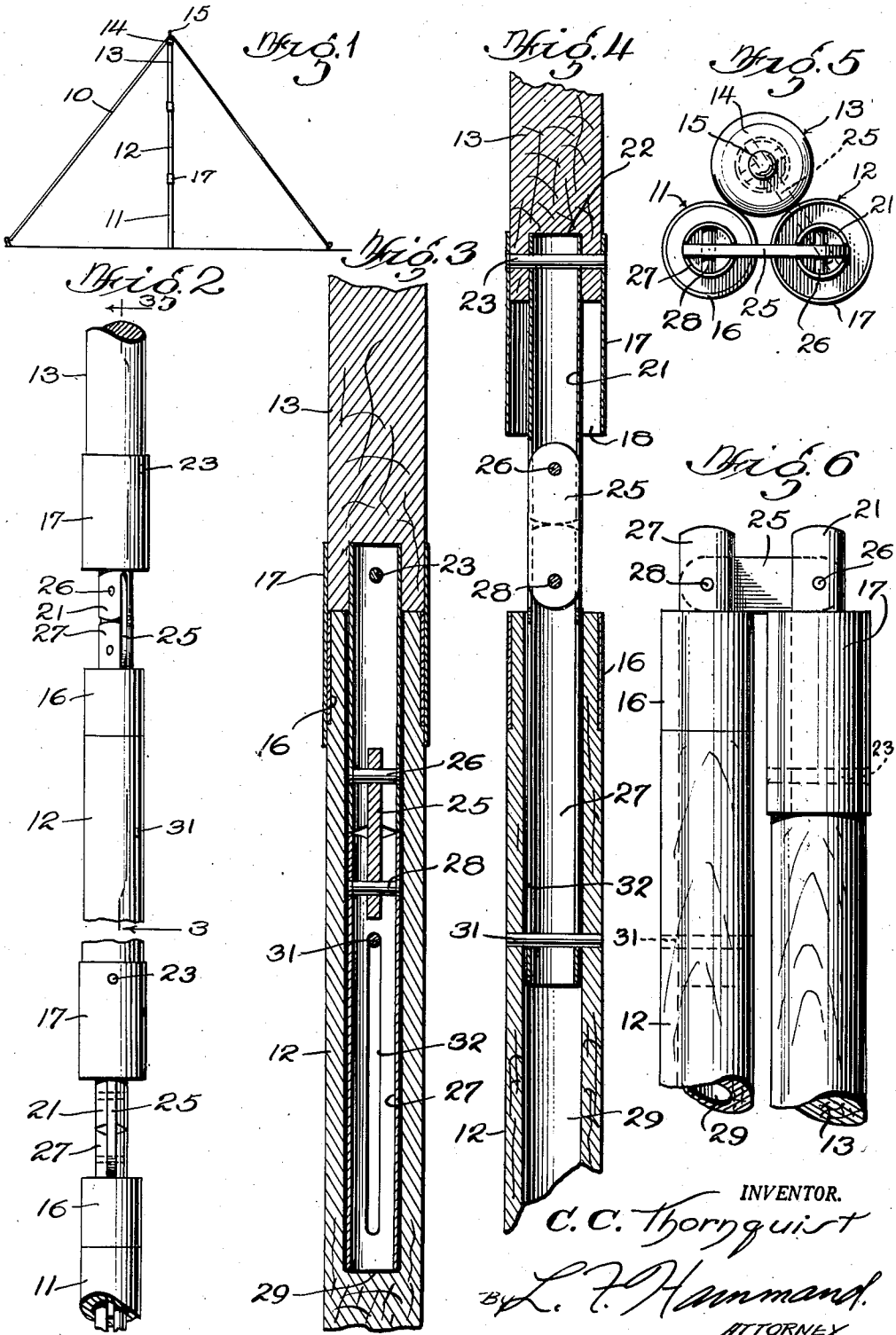
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TENT POLE

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TENT POLE

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6 Claims. (Cl. 135—15)

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The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

The present invention relates to sectional poles and more particularly to a novel and improved type of coupling for uniting the individual sections of a jointed pole such as a tent pole, so that the sections of the pole can be folded into a compact bundle.

The principle object of the present invention is to provide a novel coupling structure for inter-connecting a sectional pole to provide a rigid coupling of relatively great strength and of such mechanical construction that the sections may be easily coupled together or uncoupled for folding.

A further object of the invention is to provide a sectional pole as above described wherein the individual sections are permanently connected to each other so that they are not subject to loss.

A further object of the present invention is to provide a pole having the structural characteristics noted above and of such construction as to present a neat, smooth, undistorted exterior surface.

A further object of the invention is to provide a sectional tent pole as above, wherein the mechanical construction is such that the overall length of the tent pole must be substantially increased prior to folding of the sections so that the longitudinal thrust exerted by the tent fabric when the pole is in use will prevent accidental collapse of the pole.

A further object of the invention is to provide a tent pole having the above desirable characteristics and of such mechanical design as to be economical in cost, rugged in design, and adapted to mass production methods of manufacture.

These and other important objects are accomplished in the present invention by the provision of a novel and improved tent pole wherein the individual sections of the tent pole are secured together by means of a cylindrical sleeve around the exterior surfaces of the pole, and the individual sections of the pole are secured in permanently connected relationship by connecting means positioned in counterbores in each of the pole sections. The connecting means consists of anchor members and a link arranged to telescope into the counterbores, so that the anchor members and connecting link will be entirely concealed and housed within the tent pole structure when in erected position.

Before describing the structural details of the invention, it is believed pertinent to point out

that various attempts have been made in the prior art to provide a satisfactory jointed tent pole construction; and, while some of these have been moderately successful, all forms known to the present inventor have been unsatisfactory in certain respects which the present invention seeks to overcome. More specifically, certain prior structures have been objectionable in that the sections could be completely separated, with the result that the individual short sections were apt to be lost and the usefulness of the set destroyed. Further, certain prior art devices have been objectionable by reason of the fact that they could be accidentally manipulated into folding position by a person grasping the tent pole in entering or leaving a tent, resulting in a collapse of the tent. Other devices have been objectionable in that they include the structural irregularities on the outside of the tent pole which were objectionable as a matter of appearance, and because they might tend to catch upon the clothing of a person entering or leaving the tent, with the result that the clothing might be torn or the tent pole knocked down. Another disadvantage commonly encountered in the prior art devices arises by reason of the tendency of wooden poles to swell when subject to wet weather or excessive humidity and to thus prevent satisfactory operation of the coupling devices.

It is contemplated that the present invention will overcome these objections to the prior art devices by the provision of connecting and coupling means for the individual sections of a tent pole whereby the individual sections will be permanently connected together at all times, whether in folded or in erected position. Further, the coupling means is of such design and construction as to be unaffected by the swelling of the wood or other material of which the sections of the pole may be formed and the construction of the preferred embodiment of the invention is such that the exterior surface of the pole is entirely smooth and free from any projecting parts. In addition, a tent pole constructed in accordance with the teachings of the present invention is positively locked in erected position by the longitudinal thrust exerted by the tent so that the pole is incapable of folding until the tent has been removed.

Referring now more particularly to the drawing attached to and forming a part of present specification,

Fig. 1 is an end elevational view of a conventional type of tent utilizing a tent pole constructed

in accordance with the teachings of this disclosure.

Fig. 2 is a fragmental elevational view of the tent pole in fully extended position.

Fig. 3 is a sectional view through one of the coupling connections and is taken substantially on the plane of the line 3—3 of Fig. 2.

Fig. 4 is a detail sectional view through the coupling connection taken at an angle normal to the plane of Fig. 3 and showing the sections in fully extended position.

Fig. 5 is an end elevational view of the tent pole in fully folded position, and

Fig. 6 is a side elevational view of the coupling between the pole sections, the several parts thereof being shown in folded relationship.

The present preferred embodiment of the invention is illustrated as a three-section tent pole of relatively small size, suitable for supporting an individual shelter tent or "pup tent" 10.

The tent pole consists of a lower section 11, intermediate section 12, and upper section 13, jointed together by coupling means to be hereinafter described. The top of the upper section 13 may be finished with a ferrule 14 and vertical pin 15 to engage an eyelet in the fabric of the tent. The coupling means and connectors between the sections 11 and 12 are identical with those between the sections 12 and 13, and each of these couplings means are arranged so that the tent pole sections may be secured rigidly in end-to-end relationship to support the tent, or so that the individual sections may be folded into side by side relationship to form a three cornered bundle.

The coupling means between each of the adjacent sections of the tent pole consist of a cylindrical metal ferrule 16 permanently fitted on the upper extremity of the lowermost section and a sleeve 17 secured to the uppermost section. The ferrule 16 has an external diameter such that it will fit freely in telescoping relationship with the lower end of the cylindrical metal sleeve 17. Each of these metallic members are tightly fitted to the exterior surface of the pole, but the ferrule 16 terminated at the end of the pole, while the sleeve 17 extends substantially beyond the end of the pole section 13 to provide a cylindrical socket 18 adapted to receive the ferrule 16.

It has been previously stated that one of the objects of the invention is to provide a tent pole wherein the individual sections are permanently secured to each other. To this end connecting means are provided so that the adjacent ends of the several sections of the pole will be permanently secured to each other at all times and thus not subject to loss even when the tent pole is collapsed. The connecting means consists of an upper anchor member 21, illustrated as being of tubular formation, and mounted in a center counterbore 22 coaxial with the section 13 and with the sleeve 17. The anchor member 21 may be secured to the section 13 in any desired manner, as for example, by means of the cross pin 23 which extends through the sleeve 17 and through the tubular walls of the pole section 13 so that all of the individual parts of the device are permanently secured to each other. The anchor member 21 extends beyond the lower extremity of the cylindrical socket 18 and is bifurcated at its lower end to receive the upper end of a connecting link 25. The link 25 is secured to the lower end of the anchor member 21 by a pivot pin 26. The lower end of the link 25 is similarly secured to a lower anchor member 27 by a pivot

pin 28, so that the link 25 functions as a tension element to prevent complete separation of the individual pole sections. The lower anchor member 27 is also illustrated as of tubular formation and, in the preferred form of the device illustrated, it is loosely fitted into a deep counterbore 29 in the lowermost section of the pole, so that it may be telescoped into and out of the lower section for the purposes that will appear shortly. The tubular anchor member 27 is permanently secured to the lowermost section by a cross pin 31, but since considerable longitudinal movement of the member 27 is necessary to the proper functioning of the coupling, the side walls of the tube 27 are provided with long slots 32 to provide a lost motion connection between the lower pole section and the anchor member 27.

The coupling and connecting means between the sections 11 and 12 is identical to that just described, although it may be pointed out that the link 25 at the lower end of the middle section 12 is located in an angular position 60° apart from the angular position of the link at the upper end of the section, so that the three sections of the pole may be collapsed into a triangular bundle as illustrated in Fig. 5.

The operation of the device is as follows:

With the tent pole in erected position as illustrated in Fig. 1 it may be collapsed into a triangular bundle by first removing the tent, then grasping the lower and upper sections 11 and 13, drawing them longitudinally apart to disengage the ferrules 16 from the sockets 18 in the sleeves 17 and to extend the connecting means into the position illustrated in Fig. 2 of the drawing. The tent pole is then free to fold on the pivot pins 26 and 28 so that the individual sections of the pole double back upon one another in the manner illustrated in Fig. 6. In this connection it will be noted that the links 25 are of a length at least equal to the diameter of the individual tent pole sections so that the tent pole sections may lie exactly parallel with each other and will occupy a minimum amount of space.

To erect the tent pole, it is only necessary to pivot the individual sections into aligned position as shown in Fig. 4, and then telescope the connecting members 21, 25, and 27 into the counterbore 29 of the lowermost section of the pole. As this operation is performed, the ferrules 16 on the lowermost sections of the pole will enter and seat in the cylindrical sockets 18 of the upper sleeves 17 so that the individual pole sections will be rigidly secured in end-to-end relationship and will be capable of satisfactorily supporting the tent.

From the foregoing it should be apparent that by practicing the teachings of the present invention the known deficiencies of the prior art devices of this character have been overcome and a highly satisfactory, rugged, and economical tent pole connection has been provided.

It may be noted in passing that the present invention has been specifically designed to meet present military requirements, and that the details of the devices illustrated in the drawing of this application show a preferred embodiment of the invention as designed for use with a regulation army shelter tent, but it is contemplated that the device may have equal value for civilian or commercial uses and it is therefore requested that the scope of the inventive thought of this application be regarded as limited only by the terms of the appended claims.

Having thus described my invention, what I

claim as new and desire to secure by United States Letters Patent is:

1. In a sectional pole, a plurality of pole sections adapted to be coupled together in end-to-end relationship; coupling means permanently secured to each section, the coupling means consisting of an external ferrule rigidly affixed to the end of one of the pole sections and a coupling sleeve rigidly affixed to the other pole section and extending beyond the end of the section to provide a socket, said socket being of dimensions to receive the aforementioned ferrule; together with a counterbore in each section, and connector means mounted within said counterbores, said connector means comprising an anchor member positioned in the counterbore of each section and adapted to extend beyond the end of the section, a pivot adjacent the outer end of each of said anchor members, a link interconnecting said pivots, and a lost motion connection between one of said anchor members and its pole section, whereby the anchor member may slide inwardly substantially beyond the end of the pole section, to permit the outer end of the anchor member of the opposite pole section to be received in the counterbore and thus permit the sleeve of the coupling means to telescope over the aforementioned ferrule.

2. In a sectional pole, a plurality of pole sections adapted to be coupled together in end-to-end relationship; coupling means permanently secured to each section, the coupling means consisting of an external ferrule rigidly affixed to the end of one of the pole sections and a coupling sleeve rigidly affixed to the other pole section and extending beyond the end of said pole section to provide a cylindrical socket at the end of the section, said socket being of dimensions to receive the aforementioned ferrule; together with a counterbore in each section, and connector means mounted within said counterbores, said connector means comprising an anchor member positioned in the counterbore of each section and adapted to extend beyond the end of the section, a pivot adjacent the outer end of each of said anchor members, a link interconnecting said pivots, and a lost motion connection between at least one of said anchor members and its pole section.

3. In a sectional pole, a plurality of pole sections adapted to be coupled together in end-to-end relationship; coupling means including a socket at the end of one section, said socket being of dimensions to receive the end of the

other section; together with a counterbore in each section, and connector means mounted within said counterbores, said connector means comprising an anchor member positioned in the counterbore of each section and adapted to extend beyond the end of the section, a pivot adjacent the outer end of each of said anchor members, a link interconnecting said pivots, and a lost motion connection between at least one of said anchor members and its pole section.

4. In a sectional pole, a plurality of pole sections adapted to be coupled together in end-to-end relationship; coupling means including a socket at the end of one section, said socket being of dimensions to receive the end of the other section; together with a counterbore in each section, and connector means mounted within said counterbores, said connector means comprising an anchor tube positioned in the counterbore of each section and adapted to extend beyond the end of the section, a pivot adjacent the outer end of each of said anchor tubes, a link interconnecting said pivots, a pair of long longitudinal slots in one of the tubes, and a cross pin extending through the poles section and through the slots in the tube to provide a lost motion connection between said anchor members and at least one of the pole sections.

5. In a sectional pole, a plurality of separate, independent, non-telescopic pole sections adapted to be coupled together in end-to-end relationship; coupling means comprising a cylindrical tube to receive the adjacent ends of two sections, and folding connector means interconnecting said sections to permit said pole sections to be folded into side-by-side relationship, said connector means including a lost motion connection, a tension element, and a pair of anchor portions, said tension element and anchor portions being concentric with and housed within said coupling means.

6. In a sectional pole, a plurality of separate, independently, non-telescopic pole sections adapted to be coupled together in end-to-end relationship; coupling means permanently secured to each section; and folding connector means interconnecting said sections to permit said pole sections to be folded into side-by-side relationship, said connector means including a lost motion connection, a tension element, and a pair of anchor portions, said tension element and anchor portions being concentric with and housed within said coupling means.

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