

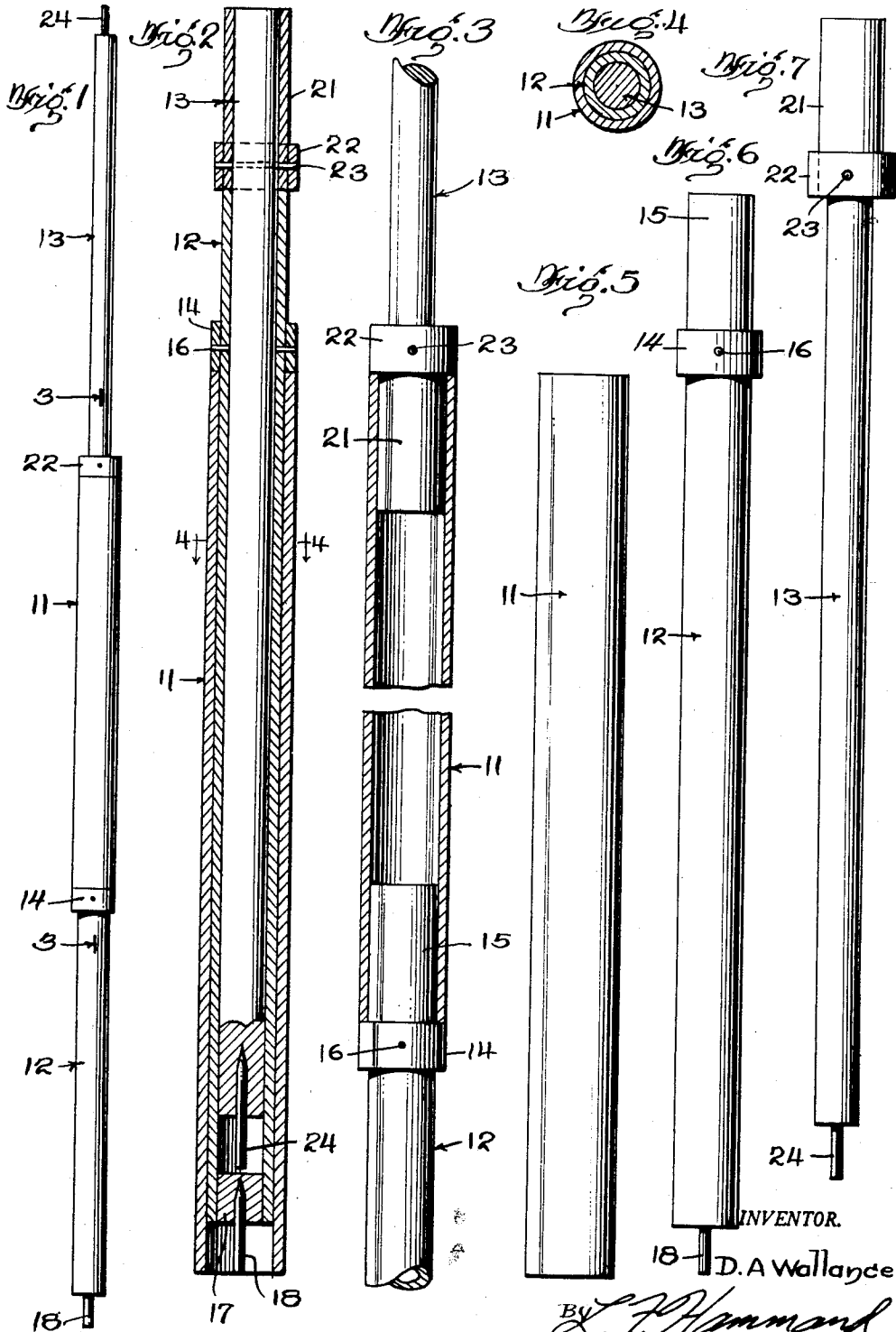
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TENT POLE

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TENT POLE

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9 Claims. (Cl. 135—15)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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 tent poles. More specifically, it relates to sectional tubular tent poles together with means for telescoping several tubular sections, one inside the other, to conserve space when the tent pole is packed, and to provide the joining of several individual sections of the pole in rigid end-to-end relationship to serve as a support for an individual shelter tent.

It may be well to point out in passing, that for many years the United States Army and other armies throughout the world have used sectional tent poles, usually consisting of three short sections, to support the individual shelter tents of the soldiers. Numerous different designs of poles have been utilized and some of these have been reasonably successful for ordinary purposes, but changes in military tactics in recent years have given rise to new and more exacting requirements whereby the types of sectional poles used in the past have become obsolete and unsatisfactory; largely due to their relatively great weight and unnecessary bulk.

This is particularly true in the case of equipment designed to be used by parachute troops. For such use, every unnecessary ounce of weight must be eliminated. This applies to any structure designed to be transported by air, whether actually carried by the parachute troops, or whether dropped from airplanes without parachutes. In this connection it is called to attention that present-day air invasion tactics presuppose the use of parachutes for the descent of personnel and certain types of heavy equipment, but it is an increasing practice to supply much of the equipment required by invading parachute troops by simply throwing it from a plane at a low altitude. When this procedure is followed, it is not only essential that all excess weight is eliminated; it is imperative that the equipment have the greatest possible physical strength, particularly when in disassembled or collapsed position, since it may be subjected to very severe blows, particularly if it falls onto hard, rocky and uneven ground surfaces.

It will be readily understood that for purposes such as outlined above, the factors of weight, strength, and unnecessary bulk become of extreme importance and that every effort must be made to provide a structure having not only great strength when in operating position, but

also in providing a structure offering great resistance to accidental damage when in disassembled or packed position. The structure disclosed in this application is believed to meet the requirements noted above in an unusually successful manner, as will appear.

The structure disclosed in this application comprises a sectional tubular tent pole, preferably formed of three cooperating sections so arranged that they may be fitted in end-to-end relationship when in use and may be telescoped one within the other to provide a compact bundle when not in use. This structure gives rise to important savings in space over the three-section tent poles now commonly known, for such conventional tent poles, when folded, consist of three sections folded into a more or less triangular bundle, while the present pole is so designed that the individual sections telescope one within the other and thus the entire pole assembly occupies only about $\frac{1}{3}$ of the space required for the types commonly used in the past. Further, it will be observed that although the pole is made up of thin tubular sections, yet when these are telescoped one within the other, they are so fitted as to provide a substantially solid pole. This is capable of resisting great impact when dropped from a speeding airplane, and is also capable of withstanding extremely large crushing forces.

The tubular construction also provides great strength with comparatively small weight when the pole is assembled. In fact, a three-section tent pole constructed in accordance with the teachings of this invention may be of a weight no more than 4.1 ounces, and yet provide sufficient strength to support a parachutist's shelter tent.

Referring now more particularly to the drawing illustrating a present preferred embodiment of the teachings of this invention:

Fig. 1 is a side elevational view of a three-section tent pole, the several sections thereof being shown in assembled, end-to-end position.

Fig. 2 is a central sectional view of the pole illustrated in Fig. 1, the several sections thereof being shown in packed position, telescoped one within the other.

Fig. 3 is a fragmental detail sectional view taken on the plane of the line 3—3 of Fig. 1 and illustrating the couplings between the several sections of the tent pole when in extended operating position.

Fig. 4 is a sectional view taken substantially on the plane of the line 4—4 in Fig. 2, and

Figs. 5, 6, and 7 are side elevational views of

the main center section, the bottom section, and top section respectively, the views being positioned in the same relative locations that the separate sections occupy in Fig. 2.

The tent pole assembly includes, in general, a main center tubular section 11 together with a lower section 12 and an upper section 13. In the preferred form of the device illustrated, the main center section 11 consists of a simple tube of uniform diameter and wall thickness, having an external diameter of $1\frac{1}{8}$ inch and an internal diameter of $\frac{3}{4}$ of an inch.

In the preferred construction of the device this tube and the other tubular members described hereinafter are formed of laminated tubular plywood. The side wall of the tube consists of a number of thicknesses of thin coiled wood veneer bonded together by any of the suitable adhesives well known in the art. Preferably the individual laminations of these tubes are formed of wood veneer in which the grain of the alternate plies is reversely coiled, so that the individual plies bear a crossgrain relationship to each other. The details of construction of this plywood tubing are included in this application only in the interest of providing a complete disclosure and pointing out the most suitable materials for use in practicing the teachings of this invention, but it should be understood that beneficial results can be obtained by providing a sectional pole as disclosed in this application wherein the tubular sections are formed of metal, plastic, fiber, or any other tubular material having reasonable physical strength.

The lower section 12 of the tent pole is formed of a similar plywood tube having an external diameter such that it will fit inside of the tube 11 in a close, but freely sliding relationship. The lower section 12 is provided with a stop shoulder consisting of a ring 14 of plywood, secured to the exterior surface of the tube 12 by adhesive means and by the pins 16. The shoulder 14 is much nearer one end of the tube than the other. This construction will thus provide a body portion of the tube and a coupling portion 15 of the same diameter, but separated by the shoulder ring 14. The opposite end of the tube 12 is closed by a plug 17 which may be provided with a bottom pin 18.

The upper or top section 13 of the assembly consists of a cylindrical body portion provided at its lower end with a head, or adapter, so that it may be fitted within the upper end of the center tubular section 11. As illustrated, the head is formed by fitting the end of the upper section 13 into a tube 21 having an external diameter equal to the diameter of the lower tubular section 12. This tube 21 will comprise a coupling portion adapted to slide freely into the center tube 11, as will appear. The tube 21 is also provided with a limiting stop or shoulder consisting of a tubular ring 22 secured to the outside of the tube 21 by adhesive means and by the pin 23. Thus the top section consists of a head portion including a telescoping coupling portion and a limiting shoulder, together with a slender column projecting upwardly from the head. A top pin 24 may be mounted at the top of the column if desired.

The top section of the assembly is illustrated as being formed of a solid cylindrical column or dowel. It should be understood that this is a matter of choice and it may, if desired, be formed of a tube similar to those used for the center and lower sections. In either event, however, the external diameter of the column 13, which in the

present preferred embodiment of the invention is about $\frac{1}{2}$ inch, should be of such a dimension that it will fit into a close but freely sliding fit inside of the bore of the lower tubular section 12.

The three sections of the tent pole assembly may be coupled or jointed into the extended position shown in Fig. 1 by inserting the mounting portion 15 of the lower tube section 12 into one end of the center tube 11 and inserting the mounting portion 21 of the upper section into the tube 11 at its opposite end. When so joined, the rings or shoulders 13 and 22 act as limiting means to limit the distance the upper and lower sections may slide into the center section. An overlap of about $1\frac{1}{2}$ inches is permitted so that both the upper sections and the lower sections will be rigidly secured and the three sections will coact to form an efficient and extremely lightweight tent pole.

In this connection it may be pointed out that although it is recognized that prior art discloses numerous telescoping tubes, most of these known to the applicant are so designed that the section of greatest diameter is located at one end of the pole and that the sections of smaller diameter and consequently of lesser strength are located in intermediate positions where the greatest strength is required. This is in contradiction to recognized principles of engineering and gives rise to faults overcome by the device disclosed in this application. By the teachings of this invention the largest tube, that is, the main center tube 11, is positioned intermediate the two small sections where the greatest strength is required.

The several sections of the tent pole may be telescoped into packed relationship merely by reversing the position of the lower section and inserting it, pin first, into the center tube 11. It will telescope completely into the tube 11 before the shoulder or ring 14 meets the end of the center tube. As illustrated, the center and bottom sections are dimensioned so that the tube 12 terminates just short of the end of the tube 11 in order that the pin 17 will not project substantially beyond the end of the tube 11. The top section 13 of the pole is then inserted, pin first, into the bore of the bottom section 12 until the shoulder 22 abuts the coupling portion 15. The relationship of the lengths of the sections 12 and 13 is such that the top pin 24 will terminate just short of the plug 17.

Thus the three sections telescope entirely one within the other so that the packed tent pole will have a total diameter no greater than the diameter of the assembled pole and considerably less than half of the total pole length. Further, it will be observed from examination of Figs. 2 and 4 that when the individual sections of the pole are telescoped within each other, they co-operate to provide a substantially solid structure. This is important, since equipment of this character may be thrown from airplanes and may be subject to any and every kind of abuse during operations in combat zones. The relatively solid structure, particularly when formed of telescoping tubes of cross-grain plywood, has extremely great strength and will successfully resist heavy crushing loads of extreme impacts that might break or crush any structure having less resistance.

The present invention has been designed particularly to meet present military requirements, but it is believed to have utility extending to commercial and civilian fields as well, and it is accordingly requested that the scope of the inven-

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tive thought be regarded as limited only by the language of the appended claims.

I claim:

1. As a sectional pole, the combination of two end sections and at least one intermediate section; the intermediate section and an end section comprising tubes of dissimilar diameter; each end section including a limiting stop; said limiting stops being remote from one end of the respective end sections and close to the other end thereof to define a body portion and a coupling portion each adapted to telescope into the end of the aforementioned intermediate section; the stops functioning to limit the telescoping movement of the end sections in the intermediate section, so that the end sections may be coupled in end-to-end relationship with said center section, and may be reversed and said body portions telescoped into the intermediate section; at least one of said end sections having an internal diameter greater than the external diameter of the opposite end section so that the body portion of one of the end sections may in turn be telescoped into the other end section.

2. As a sectional tent pole, the combination of a center section comprising a tube; two opposite end sections slidable into said center section, each including a limiting stop positioned to abut an end of the center tubular section and limit the relative movement of the end sections and the said tubular section; each limiting stop being remote from one end of its end section and close to the other end thereof to define a body portion and a coupling portion adapted to fit in the end of the aforementioned center tubular section, so that the end sections may be coupled in end-to-end relationship with said center section, and may be reversed and said body portions telescoped into the center tubular portion substantially the full length of said center tubular portion.

3. As a sectional pole, the combination of a center section comprising a cylindrical tube of uniform diameter and uniform wall thickness; two opposite end sections, each being adapted to be coupled to the center section by telescoping in the opposite ends thereof, each end section including a limiting stop to limit the telescoping movement of its section and the center section; said limiting stops being remote from one end of the respective end sections and close to the other end to define a body portion and a coupling portion adapted to fit in the end of the aforementioned center tubular section, so that the end sections may be coupled in end-to-end relationship with said center section, and may be reversed and said body portions telescoped together into the center tubular portion.

4. A sectional pole including inner and outer sections, the outer section comprising a tube having a uniform external diameter throughout its length and the inner section having an external dimension less than the inside dimension of said tube; together with a limiting stop permanently secured to and encircling said inner section, the external diameter of the stop being of substantially the same dimension as the external diameter of the tube, said limiting stop being positioned very near one end of said section and greatly spaced apart from the other end, to divide the section into a short coupling portion and a long body portion, said limiting stop limiting the telescoping movement of the inner section from either direction by abutting against the outer end of said tube so that when the short

coupling portion is inserted in the outer tube, the body portion of the inner section will be secured in substantially end-to-end relationship with said tube; and when the relationship of these sections is reversed the entire body portion of the inner section can be telescoped into the outer tube.

5. As a sectional pole, the combination of two end sections and at least one intermediate section and at least one of the end sections, the intermediate section comprising tubes, at least a portion of each of the end sections being of dissimilar diameter and each being adapted to be coupled to the intermediate section by telescoping in the opposite ends thereof, each end section including a limiting stop to limit the telescoping movement of the associated end sections and the intermediate section, said limiting stops being spaced from the ends of the respective end sections to divide each end section into a body portion and a coupling portion adapted to fit in an end of the aforementioned intermediate section, so that the end sections may be coupled in end to end relationship with the intermediate section and may be reversed and said body portions telescoped together into the intermediate section.

6. As a sectional pole, the combination of two end sections and at least one intermediate section, the intermediate section comprising a tube, the end sections each being adapted to be coupled to the intermediate section by telescoping in the opposite ends thereof, at least one of the end sections including a limiting stop to limit the telescoping movement of the end section and the intermediate section, said limiting stop being remote from one end of the end section and close to the other end to define a body portion and a coupling portion adapted to fit in an end of the aforementioned intermediate section so that the end section may be coupled in end to end relationship with the intermediate section and may be reversed and said end sections telescoped together into the intermediate tubular portion.

7. As a sectional pole, the combination of two end sections and at least one intermediate section, the intermediate section comprising a tube, the end sections each being adapted to be coupled to the intermediate section by telescoping in the opposite ends thereof, each end section including a limiting stop to limit the telescoping movement of the end sections and intermediate section, said limiting stops being spaced from the ends of the end sections to divide each end section into a body portion and a coupling portion, said body portions each having a different external diameter, and said coupling portions each being adapted to fit in the end of the aforementioned intermediate section so that the end sections may be coupled in end to end relationship with said intermediate section and may be reversed and both of said body portions telescoped together into the intermediate tubular portion.

8. As a sectional pole, the combination of two end sections and at least one intermediate section, the intermediate section comprising a tube, the end sections each being adapted to be coupled to the intermediate section by telescoping in the opposite ends thereof, at least one of the end sections including a limiting stop adapted to abut against the outer end of said tube to limit the telescoping movement of the end section and the intermediate section, said limiting stop being of substantially the same external diameter as the

external diameter of the intermediate section and being spaced from the ends of the end section to divide the end section into a body portion and a coupling portion adapted to fit into the end of the aforementioned intermediate section so that the end section may be coupled in end to end relationship with the intermediate section and may be reversed and said body portion telescoped into the intermediate tubular portion.

9. As a sectional pole, the combination of two end sections and at least one intermediate section, the intermediate section comprising a tube, the end sections each being adapted to be coupled to the intermediate section by telescoping in the opposite ends thereof, each end section including

a limiting stop to limit the telescoping movement of the end sections and intermediate section, said limiting stops being spaced from the ends of the end sections to divide each end section into a body portion and a coupling portion, said body portions each having different external diameters, and said coupling portions each having substantially the same external diameters, and each being adapted to fit in the end of the aforementioned intermediate section so that the end sections may be coupled in end to end relationship with said intermediate section and may be reversed and both of said body portions telescoped together into the intermediate tubular portion.

DONALD A. WALLANCE.

CERTIFICATE OF CORRECTION.

135-15
Patent No. 2,368,692.

February 6, 1945.

DONALD A. WALLANCE.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, second column, line 10, claim 5, strike out "and at least one of the end sections" and insert the same after "section" in line 11, same claim; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 5th day of June, A. D. 1945.

Leslie Frazer

(Seal)

Acting Commissioner of Patents.