Dec. 5, 1961 M. H. CROWDER 3,011,810

COLLAPSIBLE POLE ASSEMBLY

Filed Jan. 12, 1959

Fig 1

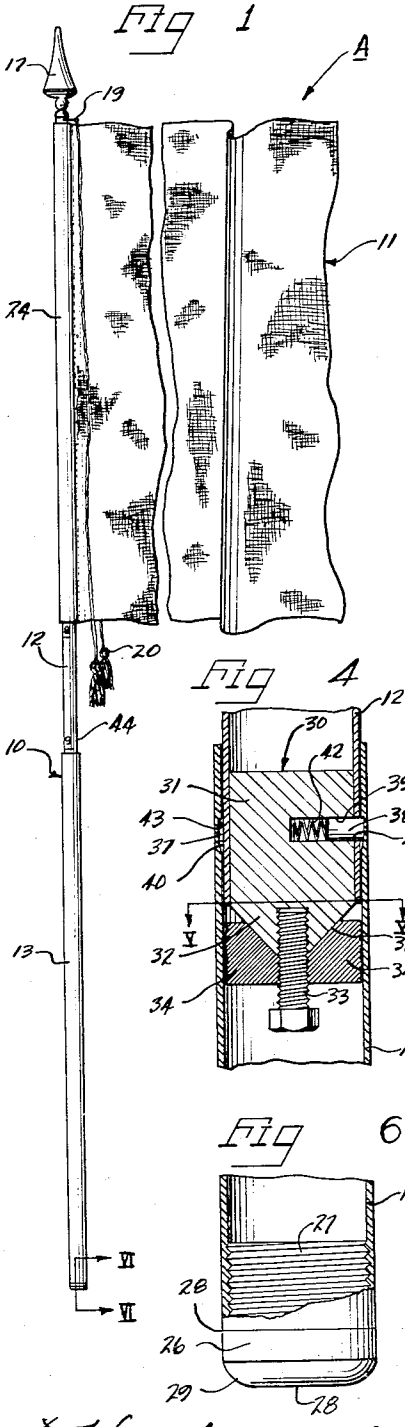


Fig 2

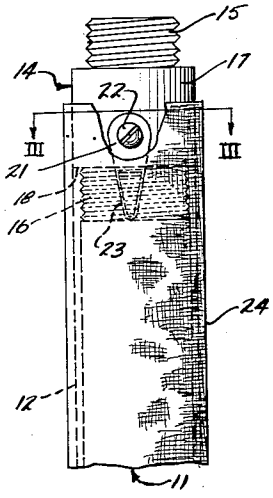


Fig 3

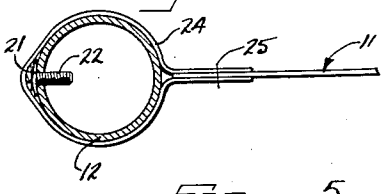


Fig 4

Fig 5

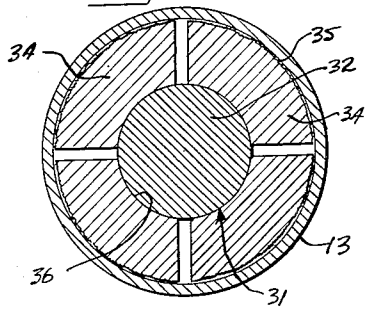


Fig 6

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COLLAPSIBLE POLE ASSEMBLY

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The present invention relates broadly to collapsible pole assemblies, and is more particularly concerned with a flag and flagstaff therefor which may be readily adjusted as to length to permit its use in parades and other functions by persons of different heights.

The conventional wooden flagstaff is supplied in varying fixed lengths, depending principally upon the height of the flag bearer. Specifically, a five or six foot staff is provided for use by youth organizations such as cub scouts or boy scouts, while for parade use by grown persons the fixed length staff is furnished in seven, eight or nine foot sizes. This requires a substantial inventory in the hands of the supplier, and organizations sponsoring both youth and adult activities are required to procure flagstaffs in at least two lengths. In addition, there are obvious manufacturing cost advantages in producing flagstaffs in only a single length.

It is accordingly a primary aim of the present invention to provide a flag assembly wherein the flagstaff portion may be readily adjusted as to length to permit use of the assembly by persons of different heights.

Another object of this invention lies in the provision of a collapsible or telescopic flagstaff preferably constructed of lightweight tubular members and featuring ease of adjustability as to the length thereof.

Another object of the invention is to provide a flag assembly featuring a collapsible flagstaff and novel means for removably attaching the flag to one of the tubular flagstaff members.

A further object of the present invention lies in the provision of a collapsible flagstaff comprising at least two tubular members of standard stock material one received inside the other and which may be fixed at a predetermined length by merely the application of a turning force to said members.

Other objects and advantages of the invention will become more apparent during the course of the following description, particularly when taken in connection with the accompanying drawings.

In the drawings, wherein like numerals are employed to designate like parts throughout the same:

FIGURE 1 is an elevational view of a flag assembly constructed in accordance with the principles of this invention;

FIGURE 2 is an elevational view of the upper end of the flagstaff, with parts removed and parts in section, to illustrate novel means for removably attaching the flag to the flagstaff;

FIGURE 3 is a sectional view taken substantially along the line III—III of FIGURE 2;

FIGURE 4 is a vertical sectional view of portions of the flagstaff tubular sections, showing the means herein provided to control the adjustability of the length of one tubular member relative to the other;

FIGURE 5 is a sectional view taken substantially along the line V—V of FIGURE 4; and

FIGURE 6 is a horizontal sectional view of the base of the flagstaff and taken substantially along the line VI—VI of FIGURE 1.

Referring now to the drawings, there is shown in FIGURE 1 a flag assembly A comprising a flagstaff designated generally by the numeral **10** and removably mounting thereon a flag, pennant, banner or the like **11**.

The flagstaff **10** in the illustrative embodiment of the invention shown is formed of two tubular sections **12** and **13** of different inner and outer diameters, although it is to

be appreciated that more than a pair of tubular sections may be provided. The tubular sections are formed of standard aluminum, stainless steel or like stock materials to thereby provide a relatively light weight structure which may be fabricated at substantial manufacturing economies.

The upper end of the relatively lesser diameter tubular member **12** is internally threaded to receive therein a cap member **14** having threaded shanks **15** and **16** at opposite ends thereof. Received upon the threaded shank **15** of the cap member is an ornamental element **17** which may be of the general spiral shape shown, or which may be a cone, eagle, cross or the like. It is to be seen from FIGURE 2 that the cap member **14** has a generally cylindrical body portion **17** which abuts against the upper end of the tubular section **12**, as indicated at **18**, and that the outer diameter of the cap body portion **17** is essentially the same as the inner diameter of the upper tubular section **12**.

Threaded into the cap body portion **17** is pin means **19** (FIGURE 1) supporting a decorative tassle **20**, although of course award pennants or other items could be mounted by the pin means **19**. At a diametrally opposed location or other desired position upon the cap body portion **17** is novel means for assuring that the flag **11** will not slide downwardly upon the flagstaff **10** during use.

Referring again to FIGURE 2, the flag retaining means is preferably in the form of a relatively flat, triangular in plan tab **21** maintained in position upon the cap member **14** by screw means or the like **22**, the tab having an open triangular end portion **23** which is threaded, stapled or otherwise secured to hem portion **24** of the flag **11**. It is to be noted that the hem portion **24** is formed into a generally circular loop which surrounds the upper tubular member **12**, and that the main body portion of the flag **11** is received in the hem portion and stitched thereto, as at **25** in FIGURE 3. It is to be further seen that when the flag **11** is mounted upon the flagstaff **10** in the manner of FIGURE 1, the tab means **21** is obscured by the hem portion **24** of said flag, although this is of course not required. Accordingly, the flag is not only firmly secured against displacement along the flagstaff, and by simply removing the screw means **22** the flag may be readily removed from the flagstaff **10**, but at the same time there is no interference with the pleasing decorative appearance of the flag assembly A.

Referring now to FIGURE 5, the opposite end of the extensible flagstaff **10** is normally closed by a cap or plug member **26** threadably received in the relatively larger diameter tubular member **13**. A friction fit could of course also be used. The cap member **26** is provided for this purpose with a threaded stud portion **27**, and when the cap member is fully threaded into the tubular member **13**, the parts are in flush abutting contact along a line designated by the numeral **28**. It is to be further seen that the plug member **26** and tubular member **13** have essentially corresponding inner and outer diameters. For ease of handling by the flag bearer, as well as to facilitate its positioning in a flagstand, the cap member **26** is machined or otherwise formed with a generally flat bottom **28** connecting with rounded corners **29**.

The mechanism for effectively tightening or locking the tubular members **12** and **13** relative to one another after collapsing or extending said members to the desired length is shown in FIGURES 4 and 5 to which reference is now made. The locking mechanism, designated generally by the numeral **30**, comprises a generally cylindrical plug member **31** tightly received in the lower end of the tubular member **12** and having a tapered or conical end portion **32** extending outwardly from the tubular member **12**. Received in the apex of the conical portion **32** in alignment with the axis of the plug member **31** is a bolt **33**, while located in threadable surrounding rela-

tion to the bolt means 33 are a plurality of circumferentially spaced quadrant members 34 having finely knurled outer surfaces 35 for radially outwardly pressing engagement with the inner diameter of the tubular member 13. It is to be seen from FIGURES 4 and 5 that each quadrant 34 is essentially arcuate when viewed in top plan, and when viewed in section as in FIGURE 4, each quadrant displays a semi-conical inner surface 36 and an essentially straight outer surface 35 conforming generally to the inner diameter of the tubular member 13. Accordingly, when considered with reference to the conical portion 32 of the plug member 31 and the inner diameter of the tubular member 13, the quadrants 34 are in the nature of threaded wedge members.

The view of FIGURE 4 shows the mechanism 30 effectively locking the tubular members 12 and 13 relative to one another. A firm rigid engagement of the parts, capable of resisting a man's weight without collapsing of the tubular members 12 and 13, is thus effected by a tight bearing engagement of the quadrant members 34 against both the conical plug portion 32 and inner diameter of the tubular member 13. To release this engagement, the tubular members 12 and 13 are rotated in one direction relative to each other which causes each quadrant member 34 to be threaded toward the head of the bolt means 33, which effects a loose connection of the quadrant members with reference to the plug conical portion 32 and a similar free connection of the outer surfaces 34 of the quadrants with reference to the inner walls of the tubular member 13. It is thus to be seen that the quadrant members are so dimensioned that a rigid connection or pressing contact of their outer surfaces 35 with the tubular member inner diameter is effected only when the quadrant members are threaded inwardly upon the bolt means a predetermined distance. Accordingly, to rigidly associate the tubular members 12 and 13 after the flagstaff 10 has been extended or retracted to the desired length, the tubular members 12 and 13 are rotated relative to one another in the opposite direction to cause the quadrants 34 to be threaded inwardly upon the bolt means 33 until a rigid or tight fit is accomplished between the inner surfaces 36 of the quadrants and the plug conical portion 32, at which time the knurled outer surfaces 35 of the wedge quadrants 34 press radially outwardly against the inner wall or inner diameter of the tubular section 13. Experience has clearly demonstrated that the rigid connection can readily be established with little muscular exertion, and of course, without the use of any tools.

During extension of the flagstaff 10 to its maximum length with the locking mechanism 30 deactivated, it is possible that the tubular sections 12 and 13 would become disassociated and this is prevented by means limiting the extensibility of said sections. The means provided for this purpose comprises an annular groove 37 formed in the inner diameter of the tubular section 13 inwardly of the upper end thereof, and resiliently urged pin means 38 radially movable in a bore 39 formed in the plug member 13 in the manner shown in FIGURE 4. It is to be noted that the annular groove 37 has an inclined downstream portion 40 to assure a more smooth locking of the tubular sections 12 and 13, and that the pin means 38 normally extends through an aperture 41 in the tubular section 12. The pin means is normally urged outwardly in the radial bore 39 by spring means 42. The locking mechanism 30 is of course disengaged during extension of the flagstaff 10, as well as during the contraction thereof, and it is to be seen that when the flagstaff is lengthened the maximum distance the pin means 38 slides down the inclined shoulder 40 of the groove 37 and into said groove, being limited or restrained against movement in the opposite direction by a relatively straight shoulder 43 at the end of the groove 37 opposite the inclined portion 40 thereof.

To provide the flag bearer with an indication as to the particular length to which the flagstaff 10 has been extended, thereby assuring that the flagstaffs of persons in a parade are all extended the same distance, the upper tubular section 12 may have applied thereto indicia 44 which may take the form of a line with a numeral thereabove indicating the total length of the flagstaff when extended to a particular distance. The line would then be aligned with the upper end of the lower tubular section 13, and of course, other means may be utilized to indicate the length to which the flagstaff 10 has been extended.

It will be apparent from the foregoing that applicant has provided a new and improved flag assembly having wide utility by persons of different heights, and which may be extended to a particular length with little muscular exertion. Flagstaffs of either metal or wooden construction which could be increased in length by the addition of threaded sections are of course known in the art; however, to provide a flagstaff of a particular length required substantial time and gave rise to storage problems and the likelihood that one or more of the insertable sections would be lost. The flag assembly of this invention, on the other hand, is a compact unit of parts which may remain associated with one another during storage, and during periods of non-use, the flag assembly may be encased in a cover which fits all such flagstaffs when collapsed. Accordingly, in addition to the structure of this invention, reducing the earlier requirement that flagstaffs of different lengths be provided for youth and adult organizations, there is now only a need to stock a single flag case or cover. In addition, by provision of the novel tab arrangement for fixing the position of the flag relative to the staff, mounting and removal of the flag from the staff is considerably facilitated.

It is to be further appreciated that various modifications may be effected in the structure herein disclosed without departing from the novel concepts of the present invention. In addition, the principles herein disclosed may readily be applied to fishpoles, oars, paddles, tripods, tree trim tools, light bulb changing tools, and other handle devices of known types.

I claim as my invention:

1. A collapsible pole assembly which comprises: an essentially hollow base section and at least one generally cylindrical member slidable therein and having a hollow portion at one end normally surrounded by said base section; and a locking mechanism effective upon relative rotation of the base section and cylindrical member in one direction to prevent slidable movement thereof, said mechanism including a generally cylindrical plug member tightly received in one end of said hollow portion and having a conical end portion providing a camming surface extending outwardly from said one end of the hollow portion, a plurality of internally threaded and outwardly knurled wedge members frictionally engageable entirely along their outer surfaces with the inner diameter of the base section when the base section and cylindrical member are locked one to the other and bearing entirely along their inner surfaces tightly against said conical end portion of said plug member when the base section and cylindrical member are locked, and bolt means threadably engageable with each of said wedge members and terminating in said plug member in fixed relation thereto, the base section and cylindrical member upon relative rotation in one direction being effective to threadably move the wedge members in one axial direction to release the base section and cylindrical member from locked relation and when rotated in an opposite direction to threadably move the wedge members in an opposite axial direction to lock the base section and cylindrical member one to the other.

2. A collapsible pole assembly comprising inner and outer tubular members arranged in telescoping relation, a generally cylindrical plug member tightly received in one end of said inner tubular member and having a coni-

cal end portion providing a camming surface extending outwardly from said one end of the inner tubular member, a plurality of internally threaded and outwardly knurled wedge members frictionally engageable entirely along their outer surfaces with the inner diameter of the outer tubular member when the tubular members are locked one to the other and bearing entirely along their inner surfaces tightly against said conical end portion of said plug member when the tubular members are locked, bolt means threadably engageable with each of said wedge members and terminating in said plug member in fixed relation thereto, the tubular members upon relative rotation in one direction being effective to threadably move the wedge members in one axial direction to release the tubular members from locked relation and when rotated in an opposite direction to threadably move the wedge members in an opposite axial direction to lock the tubular members one to the other, said plug member having a radially extending blind hole therein axially spaced from the conical end portion thereof, said inner tubular member having an aperture therein for alignment with

said blind hole and said outer tubular member being provided with an annular groove on the inner diameter thereof to mate with said blind hole and said aperture, pin means in said blind hole, and spring means backing said pin means and received in said blind hole, said pin means moving radially outwardly into said annular groove when said tubular members are extended to prevent separation of said tubular members.

References Cited in the file of this patent

UNITED STATES PATENTS

1,396,787	Shepard	Nov. 15, 1921
1,631,567	Walton	June 7, 1927
1,741,969	Bellows	Dec. 31, 1929
1,859,223	Stevenson	May 17, 1932
1,970,624	Recker	Aug. 21, 1934
2,367,196	Butler	Jan. 16, 1945
2,456,205	Magder	Dec. 14, 1948
2,490,369	Neuwirth	Dec. 6, 1949
2,508,039	Neuwirth	May 16, 1950
2,873,129	Edmundson	Feb. 10, 1959