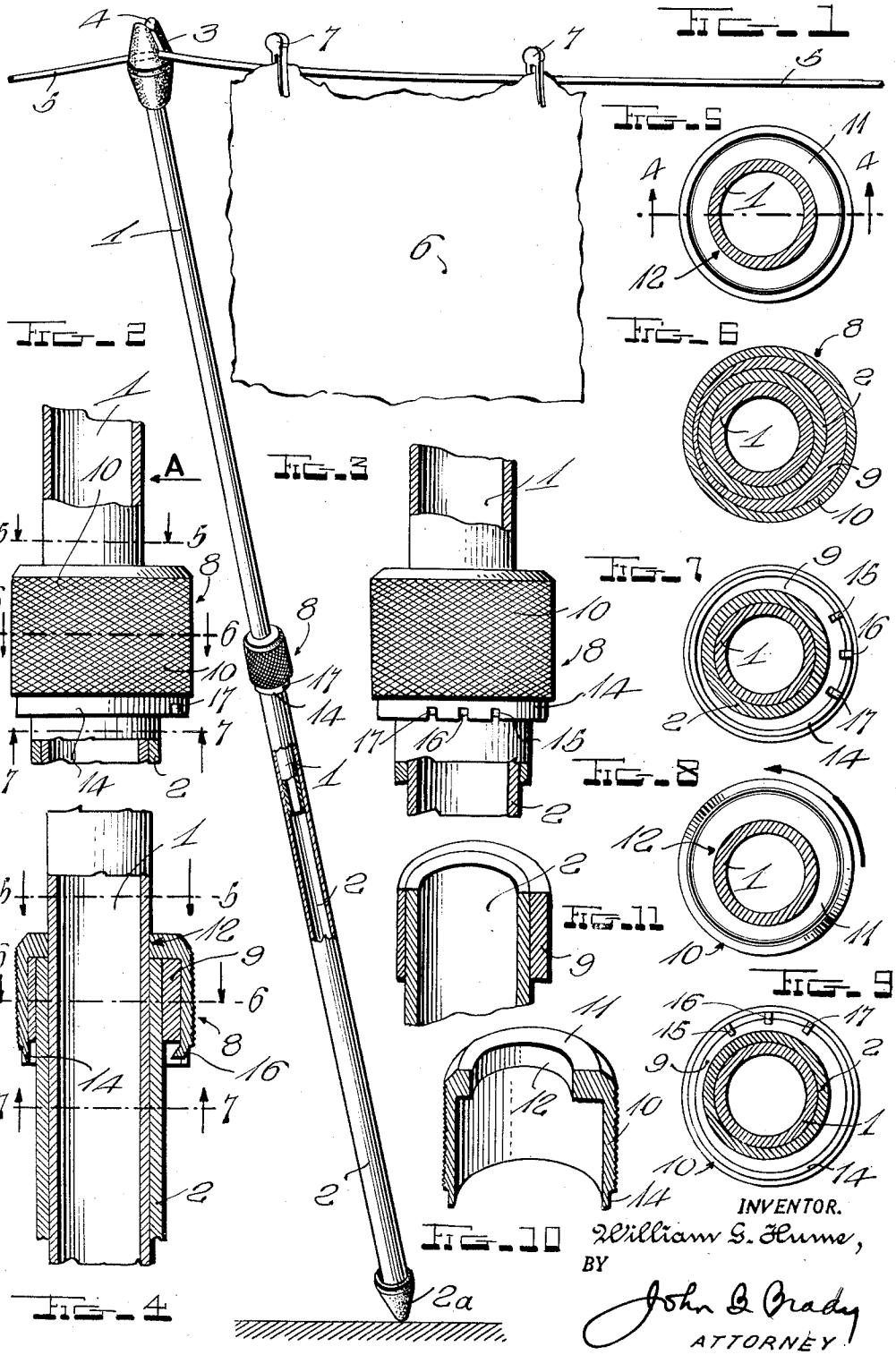
March 27, 1951 W. G. HUME 2,546,157

LOCKING MEANS FOR ADJUSTABLE TELESCOPIC MEMBERS

Filed April 1, 1949




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Patented Mar. 27, 1951 2,546,157

# UNITED STATES PATENT OFFICE

2,546,157

## LOCKING MEANS FOR ADJUSTABLE TELESCOPIC MEMBERS

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Application April 1, 1949, Serial No. 84,992

6 Claims. (Cl. 287—58)

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My invention relates broadly to adjustable supports and more particularly to adjustable securing means for adjustable telescopic members.

One of the objects of my invention is to provide a construction of telescopic support including means for locking the telescopic members constituting the support in a predetermined adjusted relative position by a simple twist of the hand.

Another object of my invention is to provide a construction of adjustable lock for telescopic members in which an eccentric sleeve is positioned over the end of a telescopic member through which a coacting telescopic member is free to slide longitudinally with a cylindrical sleeve disposed over the eccentric sleeve and confined thereon and having means associated therewith for establishing a frictional binding connection between the telescopic members in adjusted position.

Still another object of my invention is to provide a construction of adjustable locking means for telescopic members in which an eccentric sleeve is provided around the end of one telescopic member with respect to which a coacting telescopic member is arranged for longitudinal adjustment, the eccentric sleeve having a cylindrical sleeve rotative adjustably thereon, the cylindrical sleeve carrying at one end thereof an annular internal eccentrically disposed face adapted to frictionally engage the sides of one of the telescopic members for locking the said member in adjusted relation to the coacting telescopic member and in which the cylindrical sleeve is provided with a skirt having means therein for confining the cylindrical sleeve for rotative movement about the eccentric sleeve.

A further object of my invention is to provide an improved and simplified twist lock for adjustably maintaining telescopic members in predetermined adjusted relation and wherein the twist lock comprises an eccentric sleeve surrounding the end of one of the telescopic members and a cylindrical sleeve surrounding the eccentric sleeve with a skirt in the cylindrical sleeve deformed at the periphery thereof for confining the cylindrical sleeve for rotative movement about the eccentric sleeve with an annular eccentric internal face carried by the said sleeve for establishing binding relation with the side walls of the coacting telescopic member when the cylindrical sleeve is twisted about the eccentric sleeve.

A still further object of my invention is to provide a simplified arrangement of confining means for a rotative cylindrical sleeve forming a part of a twist lock at the junction of coacting telescopic slidable members constituted by a multiplicity of instruck lugs peened under the periphery of the coacting eccentric guide sleeve for permitting controlled rotative movement of the cylindrical sleeve.

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Other and further objects of my invention reside in the arrangement of confining means for the rotative cylindrical sleeve of an adjustable lock for telescopic members as set forth more fully in the specification hereinafter following by reference to the accompanying drawings, in which:

Figure 1 is a perspective view, partially broken away and illustrated in section, of a telescopic metallic clothes prop in position for supporting a clothes line and showing the application of the locking means to the telescopic members of the prop; Fig. 2 is a side elevational view of the locking means applied to the telescopic members of the clothes prop with fragmentary parts of the prop broken away and illustrated in longitudinal section; Fig. 3 is a side elevational view of the locking means shown in Fig. 2, looking in the direction of arrow A in Fig. 2; Fig. 4 is a vertical sectional view through the locking means illustrated in Figs. 2 and 3, taken substantially on line 4—4 of Fig. 5; Fig. 5 is a transverse sectional view taken substantially on lines 5—5 of Figs. 2 and 4; Fig. 6 is a transverse sectional view taken substantially on line 6—6 of Figs. 2 and 4; Fig. 7 is a transverse sectional view taken substantially on line 7—7 of Figs. 2 and 4, looking upwardly to illustrate the confining lugs in the skirt of the cylindrical sleeve; Fig. 8 is a transverse sectional view showing the top of the cylindrical sleeve twisted into a position to release the tubular members so that they are free to slide to an adjusted position; Fig. 9 is a transverse sectional view looking beneath the cylindrical sleeve in a position corresponding to the position illustrated in Fig. 8; Fig. 10 is a vertical sectional view of the cylindrical sleeve shown partially in perspective for more clearly illustrating the eccentric arrangement of the aperture in the end flange of the cylindrical sleeve; and Fig. 11 is a fragmentary vertical sectional view showing the manner of attaching the eccentric sleeve to the end of one of the telescopic sections, the view being shown partially in perspective.

My invention is directed to an arrangement of locking means for telescopic members in which an eccentric sleeve is secured around the end of one telescopic member through which a coacting telescopic member is adapted to adjustably slide. A cylindrical sleeve having an eccentrically aper-

tured flange on one end, and a skirt on the other end surrounds the coacting telescopic members and the eccentric sleeve on one of said members. The skirt is provided with instruck lugs which confine the sleeve for rotative movement around the eccentric sleeve. The eccentric aperture provided in the flanged end of the cylindrical sleeve establishes frictional binding relation with the sides of one of the coacting telescopic members for locking the telescopic members in predetermined adjusted position. The locking action is effected by a simple lateral twist to permit the telescopic members to be slidably adjusted and maintained in predetermined rotative position. The particular application of my invention illustrated herein relates to a clothes prop and it will be understood that the structure of my invention is not restricted to clothes props, but may be employed in connection with any telescopically adjustable arrangement of tubes.

Referring to the drawings in more detail reference character 1 designates a metallic tube adapted to be longitudinally adjusted telescopically with respect to metallic tube 2. The metallic tube 2 contains a rubber tip 2*a* in the end thereof which may engage the pavement, floor, or ground in suporting the prop as shown in Fig. 1 with respect to clothes line 5 which passes through slot 4 in pliable head 3 mounted in the end of tubular section 1. The construction of the pliable head 3 is set forth more fully in my co-pending application Serial No. 81,365 filed March 14, 1949, for Line-Gripping Device for Props.

The line 5 is shown suitably loaded with clothes 6 supported thereon by pins 7. While the invention is illustrated in connection with a clothes prop it will be understood that my invention is equally applicable to extensible and retractible telescopic members used as supports under trees for supporting the loaded branches thereof in protecting the branches against injury under conditions which are encountered in loaded orange trees, fruit trees, nut trees, etc.

The coacting tubular sections 1 and 2 are locked in adjusted position by means of the twist lock 8 of my invention. The twist lock 8 includes an eccentric sleeve 9 which fits over the end of one of the coacting tubular tube sections 2 as shown more clearly in Fig. 11. A relatively broad flattened annular end is thereby presented by the combined thicknesses of the tubular member 2 and the eccentric sleeve 9 through which the coacting tubular member 1 is arranged to telescopically slide. A cylindrical sleeve 10 having a knurled external surface surrounds the coacting tubular members 1 and 2 and the eccentric sleeve 9.

The knurled cylindrical sleeve 10 has a flange 11 on one end thereof extending in a plane substantially normal to the axis of the sleeve. Through this flattened end 11 there is an eccentric aperture 12 presenting a flat annular internal face adapted to make slidable frictional contact with the exterior surface of the adjustable tubular section 1.

The knurled cylindrical sleeve 10 has a skirt 14 of reduced section extending integral therewith. This skirt 14 is thinner than the wall of the knurled cylindrical sleeve 10 and after the cylindrical sleeve 10 has been slipped over the eccentric sleeve 9 the skirt 14 is deformed out of its normal shape in at least one portion of its periphery for confining the knurled cylindrical sleeve 10 for rotative movement about the eccentric sleeve 9. This is accomplished by forming instruck lugs at spaced intervals in skirt 14 as shown at 15, 16 and 17. The intermediate lug 16 is disposed in a position directly opposite the position of maximum eccentricity of the eccentric aperture 12 in flange 11. The related lugs 15 and 17 are symmetrically arranged on opposite sides of lug 16 and conjointly confine knurled cylindrical sleeve 10 for rotative movement upon eccentric sleeve 9. The relation of the knurled cylindrical sleeve 10 to the eccentric sleeve 9 is such that by a simple twist the eccentric inner annular face 12 of flange 11 may establish binding frictional contact with tubular section 1. As the eccentric tubular face 12 is twisted a binding force is exerted against tubular section 1 tending to cant it to a position wherein it frictionally binds within coacting tubular section 2.

Fig. 8 indicates the manner in which a twisting force is applied to knurled cylindrical sleeve 10 in unlocking the tubular sections; whereas, Fig. 9 is a view of the under side of the cylindrical sleeve 10 in the process of unlocking the bound parts of the telescopic structure. The external surface of the knurled sleeve 10 provides a finger grip for facilitating the twisting of the knurled sleeve 10 in locking and unlocking the adjusted tubular sections.

By forming all of the parts of the prop and locking means from aluminum conditions of rust are eliminated so that the prop may be exposed to all conditions of weather. The collapsible structure of the support is such that the structure may be carried into a basement from outside installations and compactly stored. The tubular sections may be readily adjusted to different lengths of the order, for example, from 4½′ to 8′ in height.

While I have described my invention in one of its preferred embodiments I realize that modifications may be made and I desire it to be understood that no limitations upon my invention are intended other than those which may be imposed by the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is as follows:

1. Adjustable locking means for telescopic rod sections comprising an eccentric sleeve secured over the end of one telescopic tubular rod section, a second rod section slidable within the aforementioned tubular rod section, a cylindrical sleeve enveloping both of said rod sections and surrounding said eccentric sleeve, said cylindrical sleeve having an inwardly directed flange on one end extending laterally over the end of said first mentioned tubular rod section and the eccentric sleeve thereon and terminating in an eccentric inner annular face operative to establish rotative sliding contact with the surface of said second mentioned rod section, and means for confining said cylindrical sleeve for movement about said eccentric sleeve for wedging said eccentric inner annular face into binding relation with said second mentioned rod section.

2. Adjustable locking means for telescopic rod sections comprising an eccentric sleeve secured over the end of one telescopic tubular rod section, a second rod section slidable within the aforementioned tubular rod section, a cylindrical sleeve enveloping both of said rod sections and surrounding said eccentric sleeve, said cylindrical sleeve having an inwardly directed flange on one end extending laterally over the end of said first mentioned tubular rod section and the eccentric sleeve thereon and terminating in an eccentric

inner annular face operative to establish rotative sliding contact with the surface of said second mentioned rod section, said cylindrical sleeve having a depending annular skirt thereon, and means extending from said annular skirt and enveloping the edge of said eccentric sleeve for confining said cylindrical sleeve for rotative movement with respect to said eccentric sleeve for effecting frictional engagement between the eccentric inner annular face of the flange of the cylindrical sleeve and said second mentioned rod section for securing said rod sections in a selected relative position.

3. Adjustable locking means for telescopic rod sections comprising an eccentric sleeve secured over the end of one telescopic tubular rod section, a second rod section slidable within the aforementioned tubular rod section, a cylindrical sleeve enveloping both of said rod sections and surrounding said eccentric sleeve, said cylindrical sleeve having an inwardly directed flange on one end extending laterally over the end of said first mentioned tubular rod section and the eccentric sleeve thereon and terminating in an eccentric inner annular face operative to establish rotative sliding contact with the surface of said second mentioned rod section, said cylindrical sleeve having a depending annular skirt thereon, means extending from said annular skirt and enveloping the edge of said eccentric sleeve for confining said cylindrical sleeve for rotative movement with respect to said eccentric sleeve for effecting frictional engagement between the eccentric inner annular face of the flange of the cylindrical sleeve and said second mentioned rod section for securing said rod sections in a selected relative position, and a knurled external surface on said cylindrical sleeve for facilitating the manual twisting of said cylindrical sleeve.

4. Adjustable locking means for telescopic rod sections comprising an eccentric sleeve secured over the end of one telescopic tubular rod section, a second rod section slidable within the aforementioned tubular rod section, a cylindrical sleeve enveloping both of said rod sections and surrounding said eccentric sleeve, said cylindrical sleeve having an inwardly directed flange on one end extending laterally over the end of said first mentioned tubular rod section and the eccentric sleeve thereon and terminating in an eccentric inner annular face operative to establish rotative sliding contact with the surface of said second mentioned rod section, said cylindrical sleeve having a depending annular skirt thereon, an instruck lug in said skirt extending radially inwardly beyond the peripheral limits of said eccentric sleeve for confining said cylindrical sleeve for rotative movement with respect to said eccentric sleeve for effecting a binding engagement between the eccentric inner annular face of the flange of the cylindrical sleeve and said second mentioned rod section for securing said rod sections in a selected relative position.



5. Adjustable locking means for telescopic rod sections comprising an eccentric sleeve secured over the end of one telescopic tubular rod section, a second rod section slidable within the aforementioned tubular rod section, a cylindrical sleeve enveloping both of said rod sections and surrounding said eccentric sleeve, said cylindrical sleeve having an inwardly directed flange on one end extending laterally over the end of said first mentioned tubular rod section and the eccentric sleeve thereon and terminating in an eccentric inner annular face operative to establish rotative sliding contact with the surface of said second mentioned rod section, said cylindrical sleeve having a depending annular skirt thereon, an instruck lug in said skirt extending radially inwardly beyond the peripheral limits of said eccentric sleeve at a position aligned with the position of maximum eccentricity of the eccentric inner annular face of said flange for confining said cylindrical sleeve for rotative movement with respect to said eccentric sleeve for effecting a binding engagement between the eccentric inner annular face of the flange of the cylindrical sleeve and said second mentioned rod section for securing said rod sections in a selected relative position.

6. Adjustable locking means for telescopic rod sections comprising an eccentric sleeve secured over the end of one telescopic tubular rod section, a second rod section slidable within the aforementioned tubular rod section, a cylindrical sleeve enveloping both of said rod sections and surrounding said eccentric sleeve, said cylindrical sleeve having an inwardly directed flange on one end extending laterally over the end of said first mentioned tubular rod section and the eccentric sleeve thereon and terminating in an eccentric inner annular face operative to establish rotative sliding contact with the surface of said second mentioned rod section, said cylindrical sleeve having a depending annular skirt thereon, and a multiplicity of spaced instruck lugs extending from said annular skirt and enveloping the edge of said eccentric sleeve for confining said cylindrical sleeve for rotative movement with respect to said eccentric sleeve for establishing a frictional engagement between the eccentric inner annular face of the flange of the cylindrical sleeve and said second mentioned rod section for securing said rod sections in a selected relative position.

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No references cited.