May 8, 1923. 1,454,404

H. F. POELL

UMBRELLA

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Fig. 1.

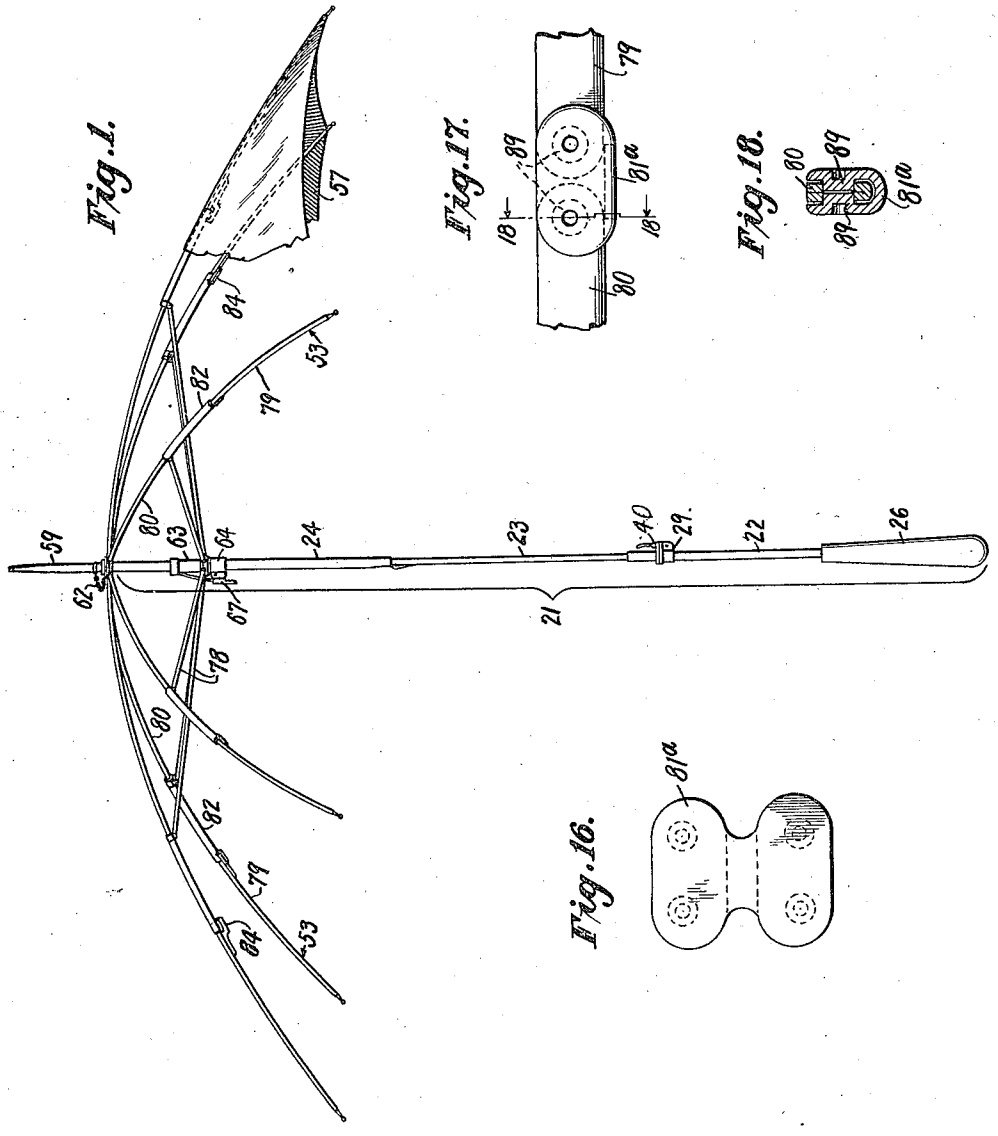


Fig. 17.

Fig. 18.

Fig. 16.

Witnesses

W. C. Fielding

Augustus B. Hoppes

Inventor

Harry F. Poell

By Joshua R. H. Potts

His Attorney

May 8, 1923. 1,454,404

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Fig. 2.

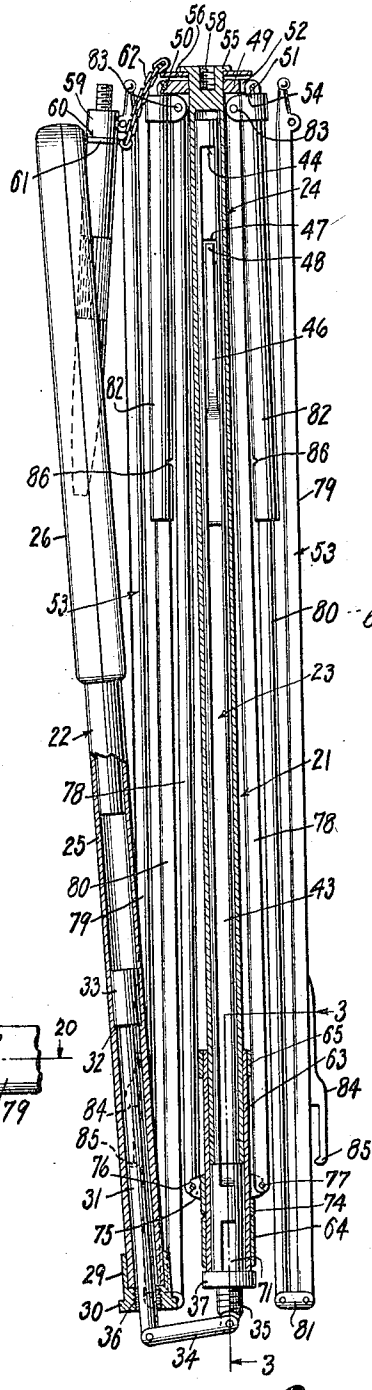


Fig. 3.

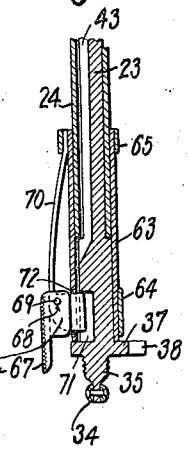


Fig. 19.

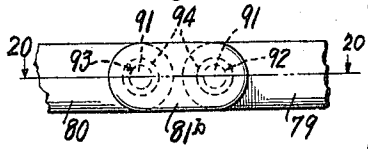
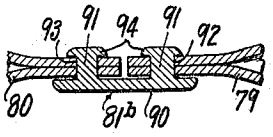


Fig. 20.



Witnesses

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Fig. 4.

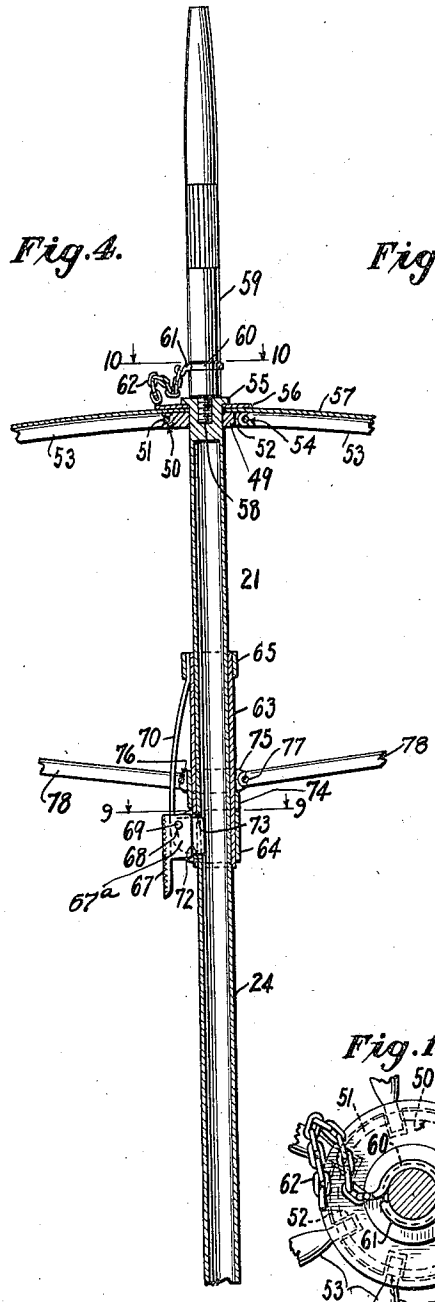


Fig. 5.

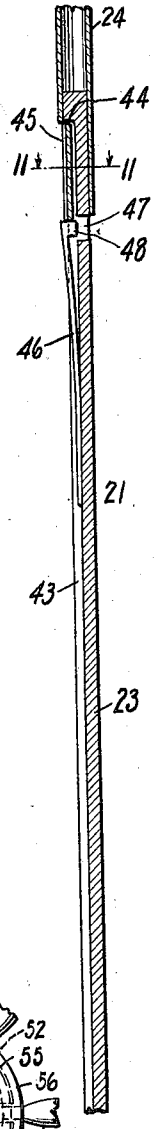


Fig. 9.

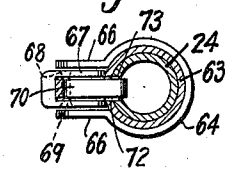


Fig. 11.

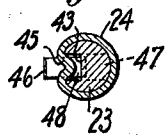


Fig. 10.

Witnesses

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Fig. 6.

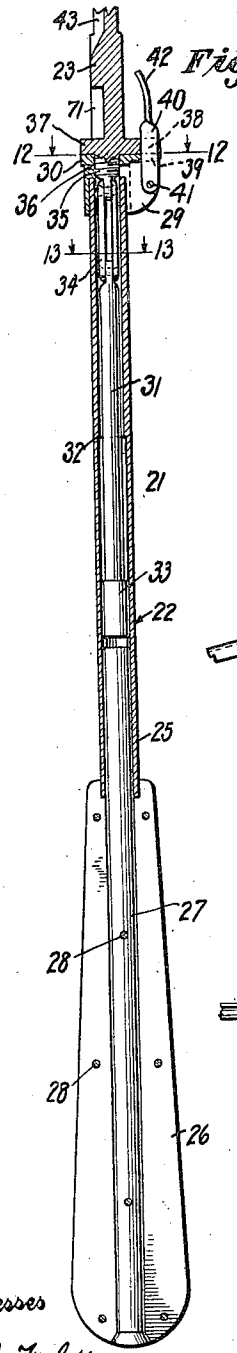


Fig. 12.

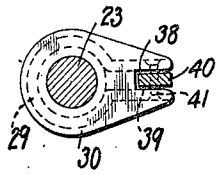
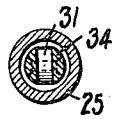


Fig. 13.



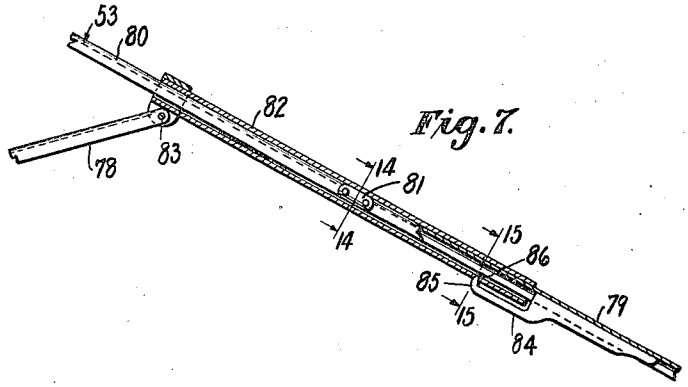


Fig. 7.

Fig. 8.

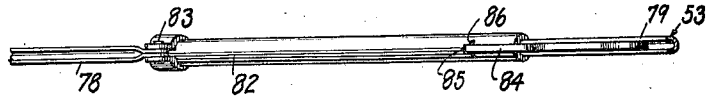


Fig. 14.

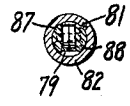
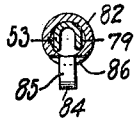


Fig. 15.



Witnesses

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His Attorney

Patented May 8, 1923. 1,454,404

UNITED STATES PATENT OFFICE.

HARRY F. POELL, OF PHILADELPHIA, PENNSYLVANIA.

UMBRELLA.

Application filed July 2, 1919. Serial No. 308,207.

To all whom it may concern:

Be it known that I, HARRY F. POELL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Umbrellas, of which the following is a specification.

One object of my invention is to provide an improved umbrella which will be strong and durable when in use and which can be easily folded within its length so as to occupy a comparatively short space and can be readily carried in a short bag or package.

Another object is to so construct my improved umbrella that when desired for use it can be quickly extended into its full length position.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is an elevation of my improved umbrella in its extended position ready for use and showing a part of the cover broken away so as to reveal the under portions,

Figure 2 is a view of my improved umbrella with the cover removed showing the position of the several elements when folded within their length, certain of the parts being shown in section,

Figure 3 is a fragmentary section taken on the line 3—3 of Figure 2,

Figure 4 is a fragmentary sectional view showing the upper portion of my improved umbrella when extended ready for use,

Figure 5 is a fragmentary sectional view showing the central portion, the same being a lower part of the elements shown in Figure 4,

Figure 6 is a fragmentary sectional view of the lowermost parts, the same being a continuation of the lower part of Figure 5,

Figure 7 is a fragmentary view, partly in section, showing how the main rib sections are coupled together when in their operative positions,

Figure 8 is an inverted plan view of the elements shown in Figure 7,

Figure 9 is a cross section taken on the line 9—9 of Figure 4,

Figure 10 is a cross section taken on the line 10—10 of Figure 4,

Figure 11 is a cross section taken on the line 11—11 of Figure 5,

Figure 12 is a cross section taken on the line 12—12 of Figure 6,

Figure 13 is a cross section taken on the line 13—13 of Figure 6,

Figure 14 is a cross section taken on the line 14—14 of Figure 7,

Figure 15 is a cross section taken on the line 15—15 of Figure 7,

Figure 16 is a developed view showing a modified form of coupling link for the sections of the main ribs,

Figure 17 is a fragmentary elevation showing the coupling link of Figure 16 as it appears when coupling two sections of a main rib together,

Figure 18 is a section taken on the line 18—18 of Figure 17,

Figure 19 is a view of similar nature to Figure 17, showing another form of coupling link for the sections of the main ribs, and

Figure 20 is a section taken on the line 20—20 of Figure 19.

Referring to Figures 1 to 15 inclusive of the drawings, 21 represents the main rod or stick of my improved umbrella which includes a handle section 22, an intermediate rod section 23 and an upper tubular section 24. The handle section 22 includes a tube 25 having a handle 26 secured thereto; said handle being made in sections and inclosing a rod 27, said rod being secured to the handle by rivets 28. A portion of the rod 27 extends into and forms a reinforcement for the handle tube 25. The outer end of the tube 25 has a boss 29 thereon provided with a flange 30. A bar 31 slidably fits within the tube 25 above the rod 27 and is limited in its outward movement by a shoulder 32, said shoulder forming an abutment for an enlarged portion 33 of said bar 31. The upper end of the bar 31 has a link 34 pivoted thereto, said link at its outer end being pivotally secured to the free end of a screw threaded stem 35 on the lower end of the rod section 23. The boss 29 has a tapped or screw threaded hole 36 in which the screw threaded stem 35 is adapted to be screwed, and the lower end of the rod section 23 has a flange 37 adapted to engage the top of the flange 30 when the handle section is screwed on the threaded stem 35; it being noted that

the link 34, when the parts are thus screwed together, is in straight alignment with the stem 35 and the bar 31 and is inclosed in the tube 25. The flange 37 has a notch 38 which is adapted to register with a notch 39 in the boss 29. A latch 40 is pivoted to the boss 29 as shown at 41, said latch having a handle 42 whereby it can be easily swung so as to extend through the notches 38 and 39, thereby preventing accidental rotation between the tube 25 and the rod section 23.

The rod section 23 has a longitudinally extending a groove 43 which stops short of its upper end to provide a shoulder 44. The upper tubular section 24 has an internally pressed rib 45 formed therein at its bottom, said rib entering the groove 43, as clearly shown in Figures 5 and 11, and thereby serving to prevent relative rotation between the tubular section 24 and the rod section 23. The upper end of the rib 45 is also adapted, when the parts are extended, to abut the shoulder 44 and thereby prevent the accidental separation of the rod section 23 and the tubular section 24. A strip spring 46 has one end secured within the groove 43 and its opposite end projecting part way out of said groove and under the bottom of the rib 45. A hole 47 is provided so that by pressing the end 48 of the spring 46 inwardly, it will free the lower end of the rib and allow the tubular section 24 and rod section 23 to slide telescopically together.

The upper end of the tubular section 24 has a head 49 secured thereto; said head being annularly grooved as shown at 50 to provide space for a wire pivot ring 51 to extend around said head, as clearly shown in Figure 4. The head 49 has notches 52 in which the upper ends of main ribs 53 are positioned, said main ribs having holes 54 through which the wire pivot ring 51 extends so as to pivotally connect and space said main ribs within the head 49. The upper end of the tubular section 24 has a flange 55, and under this flange is positioned a ring 56, said ring being spaced from the top of the head 49 to permit the cover 57 to be extended between the ring 56 and the head 49. The extreme upper end of the tubular section 24 is made solid and is provided with a tapped hole 58 in which is screwed the threaded end of a ferrule tip 59, said ferrule tip having an annular groove 60. A ring 61 is positioned within the groove 60, and a chain 62 connects the ring 61 with the ring 56. By this construction it is possible to rotate the ferrule tip within the ring 61 to permit it to be screwed into or out of the screw threaded hole 58.

A sleeve 63 is slidably mounted on the tubular section 24 (see Figures 3 and 4), said sleeve having a collar 64 secured thereto adjacent its lower end and a band 65 secured thereto at its top end. The collar 64 has ears 66 which are spaced apart, and a trigger 67 which is substantially U-shaped in cross section, as shown in Figure 9, is positioned between the ears and is pivoted at 68 to a bolt 69. The bolt 69 is connected to a bowed strip spring 70, said spring being secured between the band 65 and the sleeve 63, said bowed spring normally tending to move the bolt, for example as shown in Figure 3, within a cavity 71 in the rod section 23, or, as shown in Figure 4, through holes 72 and 73 respectively formed in the sleeve 63 and upper part of the section 24, said bolt serving to hold the sleeve in its upper position, as shown in Figure 4 or in its lower position, as shown in Figure 3. By arranging the bolt as described, when it is desired to release the bolt from the holes 72 and 73 or from the cavity 71, the lower part of the trigger 67 may be swung toward the tubular section 24 and the U-shaped part 67^a, fulcruming on the outer surface of sleeve 63, will withdraw the bolt from hole 73 or cavity 71.

A collar 74 surrounds the sleeve 63 above the collar 64 and has a band 75 secured thereto, said band having a peripheral groove 76 in which is positioned a wire pivot ring 77. The pivot ring 77 forms a pivotal connection for brace ribs 78.

Each of the main ribs 53 is made in two sections 79 and 80, said sections, as clearly shown in Figure 7, being pivotally connected by links 81 so as to permit the main ribs to be folded under certain conditions for example as shown in Figure 2. Bridge coupling sleeves 82 are slidably mounted on the main ribs 53 and are pivotally connected at 83 to the brace ribs 78. The coupling sleeves 82 are so arranged that when the sections 79 and 80 are moved into alignment said coupling sleeves can be moved so as to enclosed the links 81 and portions of the sections 79 and 80, thereby serving to hold said sections 79 and 80 in substantially straight alignment, as shown in Figures 1 and 7. The sections 79 have spring detents 84 which have curved hook ends 85 adapted to snap or spring into notches 86 in the coupling sleeves 82 and thereby hold the coupling sleeves in position so as to require a manual movement of said sleeves if it is desired to move them so as to permit the sections 79 to swing with the links 81, for example into the position shown in Figure 2. When the umbrella is folded the coupling sleeves 82 occupy positions entirely upon the sections 80 and in order to move all of the coupling sleeves into their positions as shown in Figures 1 and 7, it is merely necessary to pull the sleeve 63 to its extreme lowermost position with one hand upon the tubular section 24 at the same time holding the sections 79 and 80 in substantially straight alignment by grouping them, with

the other hand, around the tubular section 24.

The links 81 are made in two sections 87 and 88 and the ends of the sections 79 and 80 are positioned between the sections 87 and 88, as clearly shown in Figure 14.

In the form of my invention shown in Figures 16 to 18 inclusive, I have shown links 81^a which are made of one piece in distinction to the links 81 which are made in two pieces. The links 81^a can be made by stamping the same out of sheet metal and by pressing lugs 89 inwardly from the sides thereof and bending as shown in Figures 17 and 18. The lugs 89 provide the pivots for the ends of the main rib sections 79 and 80 so that it is unnecessary to provide any separate pivot pins for the links, since the lugs 89 form the direct pivots for the sections 79 and 80 of the main ribs.

In Figures 19 and 20, I have shown an instance where links 81^b are provided which only have one side section 90, said section having pins 91 which project through holes 92 and 93 in the main rib sections 79 and 80. The ends of the pins 91 are upset so as to provide flanges 94 to secure the main rib sections in position.

It will be understood that when it is desired to fold the umbrella, for example from the position shown in Figure 1 to the position shown in Figure 2, that the same can be done by manually depressing the spring 46 to permit the sections 23 and 24 to slide together, then actuating the trigger 67 to lower the main ribs on their pivots after which, by pushing upwardly on the sleeve 63 while the main ribs are held in a grouped condition around the rod 21, the coupling sleeves can be pushed entirely upon the sections 80 and the handle section can be released by swinging the latch 40 out of the notches in the flanges 30 and 36, and unscrewing the stem 35 so as to permit the bar 31 to slide out of the tube 25 sufficiently to permit the link 34 to swing into the position shown in Figure 2. The ferrule tip 59 can then be unscrewed and allowed to hang on the chain 62, all as clearly shown in Figure 2.

If desired, instead of manually depressing spring 46 to free rib 45 and allow sections 23 and 24 to slide relatively to each other, bolt 69, after being released for lowering the bracing ribs, may be utilized for depressing the spring. This may be done by moving sleeve 63 downward until the bolt is opposite the spring and then pressing the bolt inward.

While I have described my invention as taking a particular form, it will be understood that the various parts of my invention may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. An umbrella having a main rod including a tubular section and a rod section, said rod section having a groove therein extending lengthwise; a rib pressed in said tubular section and extending into said groove, said rib being slidable within said tubular section and having a portion providing a shoulder for abutment with one end of said rib; and means movable into engagement with the opposite end of said rib to prevent said slidable movement between the rod and the tubular section, substantially as described.

2. An umbrella having a main rod including a tubular section and a rod section, said rod section having a groove therein; a rib pressed in said tubular section and extending into said groove, said rod being slidable within said tubular section and having a portion providing a shoulder for abutment with one end of said rib; and a spring on said rod section and movable into engagement with the opposite end of said rib, said spring being manually movable out of engagement with said rib whereby said sections can be moved together, substantially as described.

3. An umbrella of the character described including a main rod; main ribs pivotally connected to said rod; brace ribs for supporting said main rods in an extended position; means to which said brace ribs are attached and slidably movable on said main rod; a bolt carried by said slidable means for locking said means to the rod, said main rod including a tubular section and a rod section slidable one within the other, said rod section having a groove extending lengthwise, the tubular section having a rib extending into said groove, said rod section having a shoulder for abutment with one end of said rib; and means movable into engagement with the opposite end of said rib to prevent said slidable movement between the rod and the tubular section, said bolt when said first slidable means is slid upon the rod for folding the umbrella being operative to engage and move said rib engaging means to allow the rod and tubular sections to slide relatively to each other, substantially as described.

4. An umbrella including main ribs, brace ribs; a main rod having a tubular section and a rod section slidable relatively to each other and a recess adapted to receive a bolt, the rod section having a longitudinal groove and the tubular section having a rib extending into the groove, the rod section having a shoulder for abutment with the rib; means normally engaging the other end of the rib to hold it against slidable movement; a

sleeve connected with the brace ribs and slidable on the main rod; a bolt adapted to engage with the recess in the main rod; a spring, for supporting the bolt, attached to the sleeve; a trigger pivoted to the bolt, fulcrumed on the sleeve and adapted to withdraw the bolt, the bolt being operative, when the sleeve is moved downward to actuate the rib holding means and permit the rod section and the tubular section to telescope, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY F. POELL.

Witnesses:
HENRY HAELER,
CHAS. E. POTTS.