No. 859,233. PATENTED JULY 9, 1907.

G. M. LANE.

POLE.

APPLICATION FILED OCT. 20, 1906.

FIG. 1.

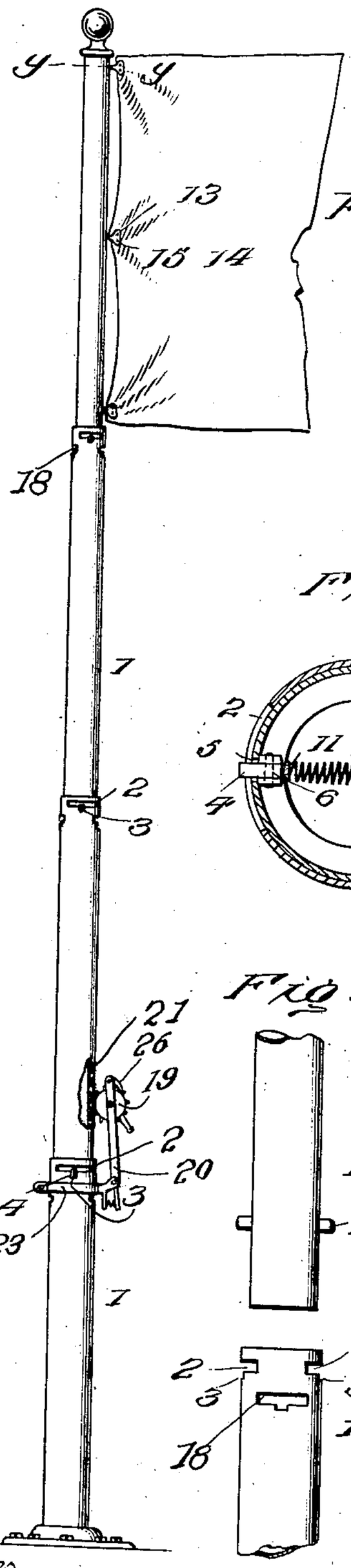


FIG. 2.

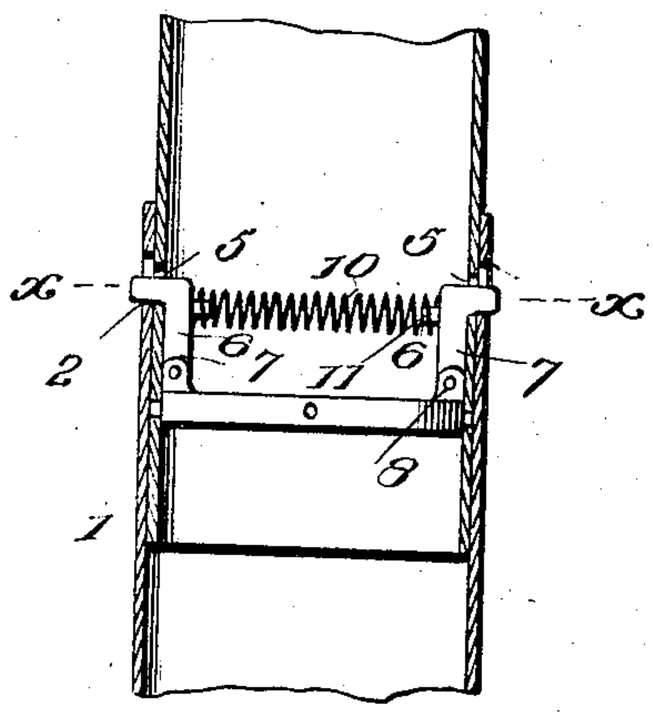


FIG. 3.

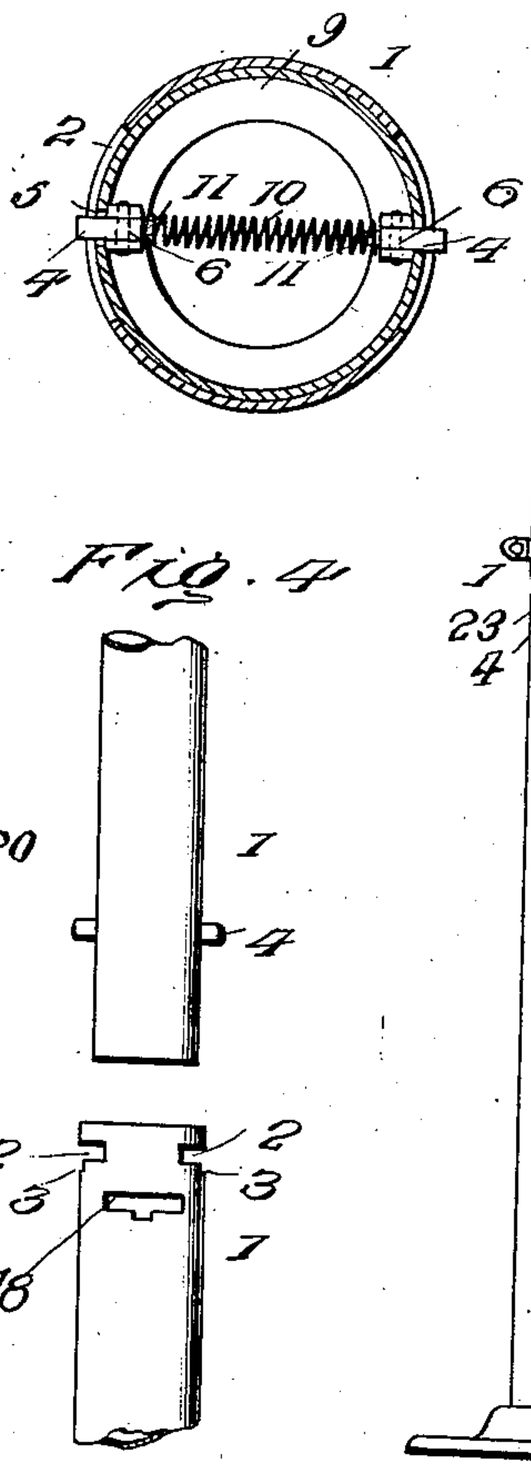


FIG. 4.

FIG. 5.

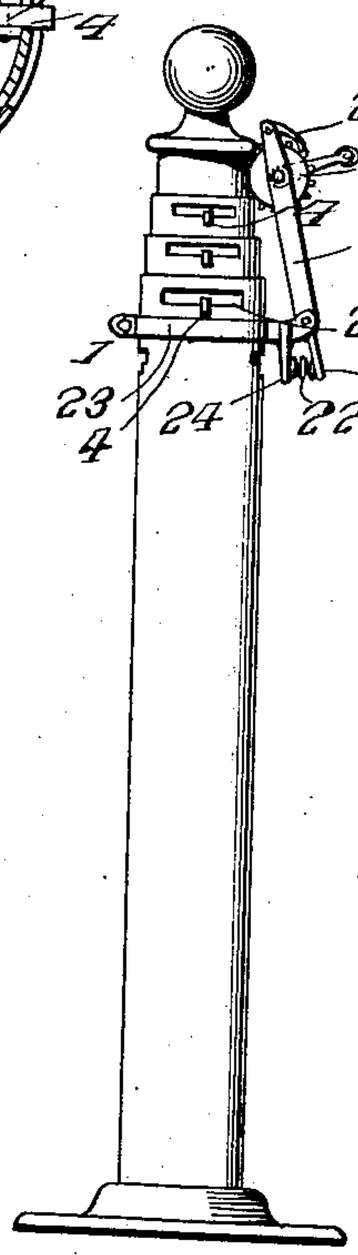


FIG. 6.

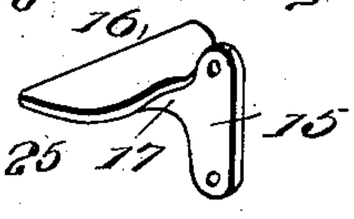
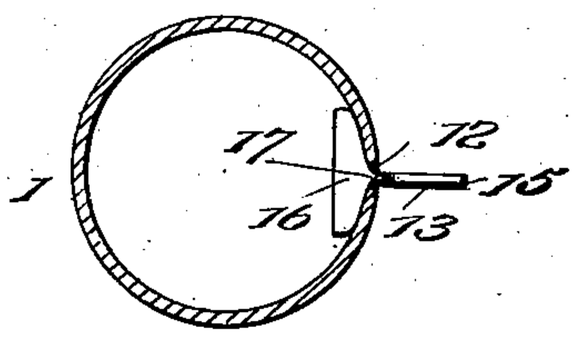


FIG. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

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POLE.

No. 859,233. Specification of Letters Patent. Patented July 9, 1907.

Application filed October 20, 1906. Serial No. 339,846.

To all whom it may concern:

Be it known that I, GEORGE M. LANE, a citizen of the United States, residing at Lanoka, in the county of Ocean and State of New Jersey, have invented certain new and useful Improvements in Poles, of which the following is a specification.

This invention has relation to a pole, staff, mast, spar, boom or the like, and has for its object to provide a device of this character which may be readily extended or contracted and which when extended may be firmly secured against movement in either direction, except by design and the application of properly directed force.

The invention consists, essentially, of an extensible pole, spar or the like comprising telescoping sections and novel means coöperating with the sections to secure them in a projected position, said securing means being of peculiar formation and arrangement.

The invention further consists of novel means for attaching a flag, sail or the like to the pole or boom.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which:

Figure 1 is a view in elevation of a flag pole embodying the invention, said pole being extended and having a flag attached thereto. Fig. 2 is a sectional detail view showing the joint formed between telescoping sections and the connection between the pole and the flag or like part attached thereto. Fig. 3 is a horizontal section on the line *x*—*x* of Fig. 2. Fig. 4 is a detail view showing the ends of adjacent sections when separated. Fig. 5 is a detail view showing the pole telescoped. Fig. 6 is a detail perspective view of one of the couplings employed for connecting a flag, sail or the like to the pole, mast or boom. Fig. 7 is a horizontal section on the line *y*—*y* of Fig. 1, showing the parts on a larger scale.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The pole, spar, boom or the like is composed of similarly formed sections 1 having a telescopic arrangement to admit of reducing its length when required by sliding the sections one within the other, after being released. One end of a section is provided in opposite sides with slots 2 in the lower edge of which are formed notches 3 to provide seats for receiving the interlocking extensions 4 by means of which the sections are held projected and in alinement. The opposite end of a section is provided at opposite sides with openings 5 through which the interlocking extensions 5 project. The interlocking extensions 4 form the horizontal arms or members of angle pieces 6 which are located within the extension and have pivotal connection therewith in any suitable and convenient way. The vertical arms or members 7 of the angle pieces normally lie against the inner sides of the section and the ends remote from the extensions 4 are pivoted to lugs 8 projected from a ring or hoop 9 arranged within the section and secured thereto by rivets or in any substantial way. A spring 10 is interposed between the angle pieces 6 to hold the extensions 4 projected, said spring being of the extensible coil type and having its ends encircling teats 11 extended inward from said angle pieces 6, thereby retaining the spring in proper position. When the sections are drawn apart to the limit of their movement to bring the openings 5 of the one in register with the slots 2 of the other, the extensions 4 held repressed by the enveloping section, fly outward through slots 2 and secure the sections against movement in either direction. When the interlocking extensions 4 enter the notches or seats 3, the sections are prevented from relative turning and are held in alinement.

When it is required to telescope the sections so as to reduce the length of the pole, boom, spar, or the like, the outer ends of the extensions 4 are pressed upon to cause them to clear the inner sides of the section having the slots 2. When the section telescoping within said section is free to slide or move therein, as will be readily understood, the sections may be operated either by hand or by mechanical means according to the weight and construction of the pole, spar or the like.

When the pole or staff is used for supporting a flag, sail or the like, said pole is provided in its length with longitudinal slots 12 to receive coupling pieces 13 attached to the flag 14 or like parts. Each coupling piece 13 comprises outer wings 15 and 16 and an intermediate neck 17. One of the wings, as 15, is provided with openings to receive the stitching or like fastening means employed for connecting it to the flag or like part. The wings 15 and 16 have a rectangular arrangement, thereby admitting of the wing 16 occupying a position cross-wise of the pole, staff, boom or the like when the wing 15 is in line therewith, thereby preventing the wing 16 from passing through the slot 12. The inner edge of the wings 16 is made rounding to conform approximately to the inner transverse curvature of the pole or section thereof with which the coupling coöperates. When attaching the flag or like part to the pole or staff, the coupling is turned to cause the wing 16 to aline with the slot 12, after which the said wing is thrust through the slot and permitted to make a one-

quarter turn, thereby preventing its withdrawal. To uncouple the flag or like part, the coupling is turned to bring the wings 16 in line and register with the slot 12 when it may be withdrawn therethrough.

When the pole or like part is not required for immediate use, it may be telescoped, in which condition the interlocking extensions 4 are held repressed by engaging with the inner walls of the section within which they are arranged to slide. If it be required to uncouple any of the sections they are turned to cause the interlocking extensions 4 to register with the part of the section coming between the slots 2, hence upon drawing the sections apart the interlocking extensions 4 will pass by the slots 2 and enable the sections to be separated.

It sometimes happens that upon turning a section too far, it will separate from the coöperating section when extending the pole and thereby cause inconvenience and delay at an inopportune moment. To avoid such extent, other slots 18 are provided in the sides of the sections at the end having the slots 2, said slots 18 being arranged a short distance from the plane of the slots 2 and opposite to the part of the section between them, as indicated most clearly in Fig. 4. When it is required to separate any of the sections, the member to be removed is turned so as to direct the interlocking extensions around the ends of the slots 2 and 18, as will be readily understood.

When the pole, mast or the like is of heavy construction, it is preferred to provide mechanical means for operating the sections both in extending and telescoping the parts. For this purpose, a spur wheel 19 is provided and mounted in a swinging frame 20 which in turn is supported at or near the upper end of the outer or lower section. The spurs, cogs or the like of the spur wheel 19 are adapted to enter openings 21 formed in a side of the sections and constituting a rack. A spring 22 normally exerts a pressure to swing the frame 20 inward and cause the cogs of the spur wheel 19 to make positive engagement with the openings 21 of the sections so that upon turning the spur wheel, the sections may be extended or withdrawn. A clamp band 23 is fitted to the upper portion of the outer or lower section of the pole and has a projection 24 against which one end of the spring 22 bears, the opposite end of said spring engaging with a projection 25 at the lower end of the frame 20. A detent pawl 26 coöperating with the teeth or cogs of the spur wheel 19 holds the latter in an adjusted position and prevents downward displacement of the sections. By having the frame 20 mounted so as to swing the spur wheel 19 accommodates itself to the various sections both when lengthening or shortening the pole or like part.

Having thus described the invention, what is claimed as new is:

1. A pole, boom, spar or the like, comprising telescoping sections, one of the sections having opposite openings in its sides, the coöperating section having corresponding openings in its sides, angle pieces arranged within the inner section and having pivotal connection therewith and having members or arms arranged to project through the openings of adjacent or coöperating sections when drawn outward to form positive interlocking means, and means for normally exerting pressure upon said extensions.

2. In combination, a sectional pole, boom, spar or the like adapted to have its sections telescope and provided at opposite points with corresponding openings, angle pieces arranged within the inner section and having pivotal connection therewith and having their relatively horizontal members arranged to project through the registering openings of the coöperating sections when extended, the vertical or longitudinal members of the angle pieces adapted to lie against the inner side of their carrying section, and a spring interposed between said angle pieces to normally press them apart.

3. A sectional pole, boom, spar or the like adapted to have its sections telescope, one of the sections having slots in opposite sides and a notch in an edge of each slot forming a seat, and the coöperating section having corresponding openings, and interlocking extensions arranged within the inner section and normally pressed outward through the openings thereof to enter the slots of the coöperating sections when drawn outward to hold them in fixed position, said extensions adapted to enter the aforementioned seats to prevent relative turning of the sections and to hold them in alinement when projected.

4. A sectional pole, boom, spar or the like adapted to have its sections telescope and provided with corresponding openings in their sides, a hoop or band secured within the inner section, angle pieces located within said section and having the free ends of their longitudinal members pivoted to said hook and having their horizontal members adapted to project through the openings of companion sections when projected, and a spring interposed between the angle pieces and normally pressing the horizontal members thereof outward.

5. In a device of the character set forth, the combination of two telescoping sections having corresponding openings in their sides, a hoop or band secured within the inner section and having lugs, angle pieces having the free ends of their longitudinal members pivoted to said lugs and having their horizontal members adapted to extend through the openings of the sections when drawn apart, and a spring interposed between the angle pieces and having connection therewith and serving to normally press the same apart.

6. In combination, a telescoping pole, a spur wheel adapted to coöperate with the sections to admit of lengthening or shortening the pole, and a movable support for said spur wheel.

7. In combination, a pole comprising telescoping sections, the sections having a rack at one side, a spur wheel for coöperating with the racks of the several sections to admit of lengthening and shortening the same, and a swinging support for the spur wheel secured to a section of the pole.

8. In combination, an extensible pole comprising telescoping sections provided with racks, a spur wheel for cooperating with the racks of the sections to admit of lengthening or shortening the pole, a swinging support for said spur wheel, means for connecting said swinging support to a section of the pole, a spring normally exerting a force upon the swinging support to hold the spur wheel in engagement with the racks of the respective sections, and a detent pawl for holding the sections extended against accidental downward movement.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE M. LANE. [L. S.]

Witnesses:
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