

(No Model.)

F. A. SEAVER.
TROLLEY POLE AND STAND.

No. 593,424.

Patented Nov. 9, 1897.

Fig. 2.

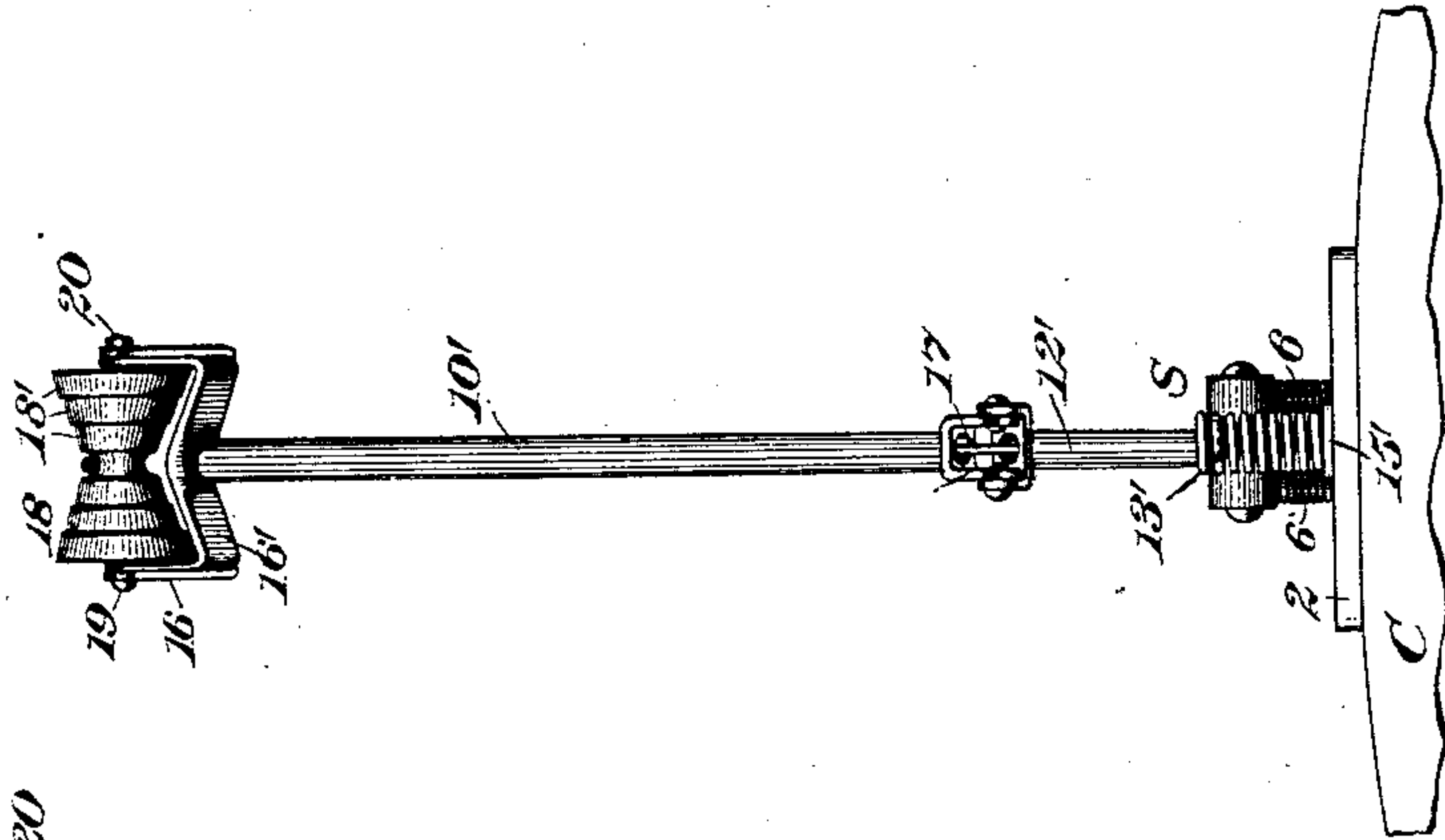


Fig. 3.

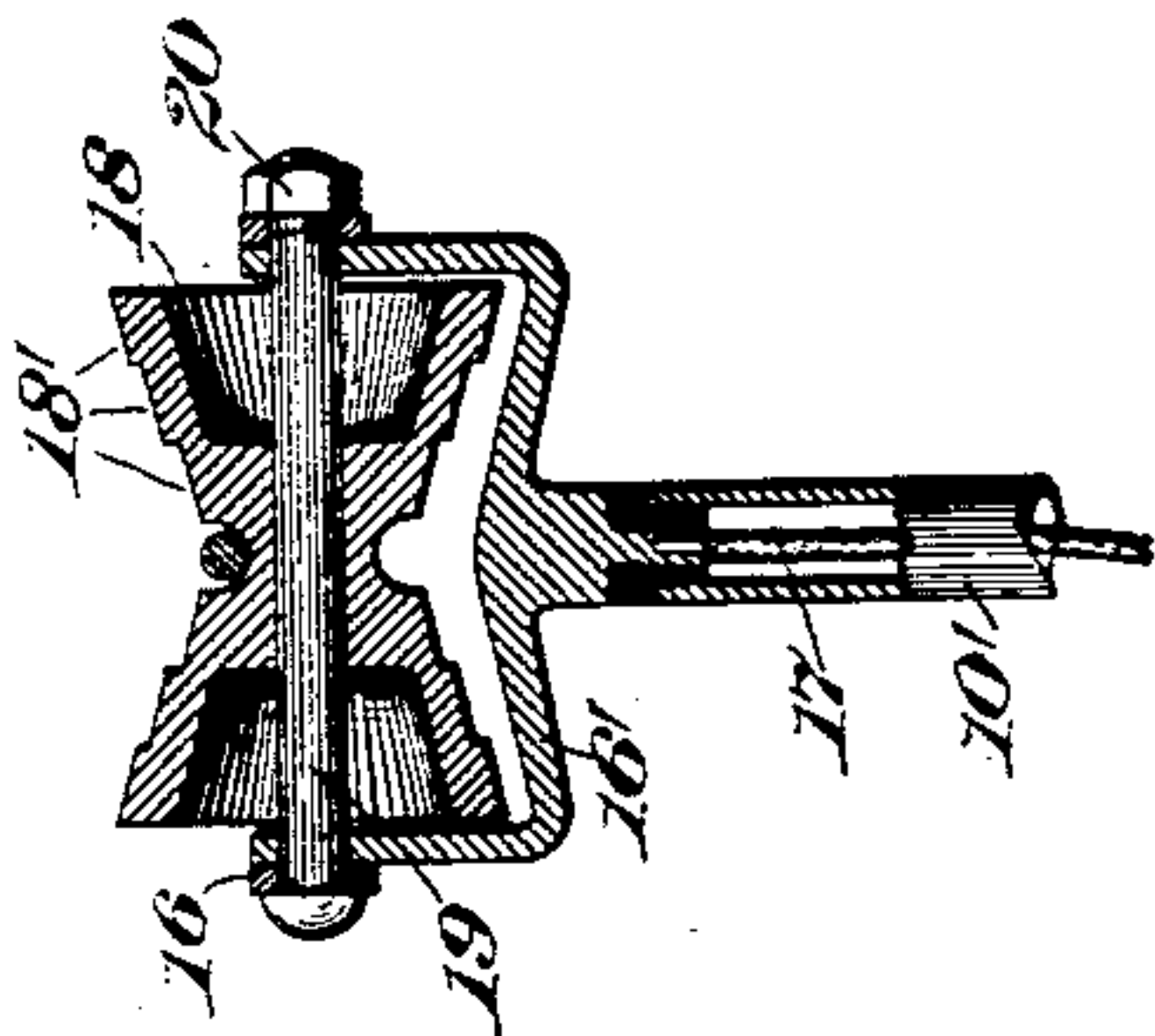
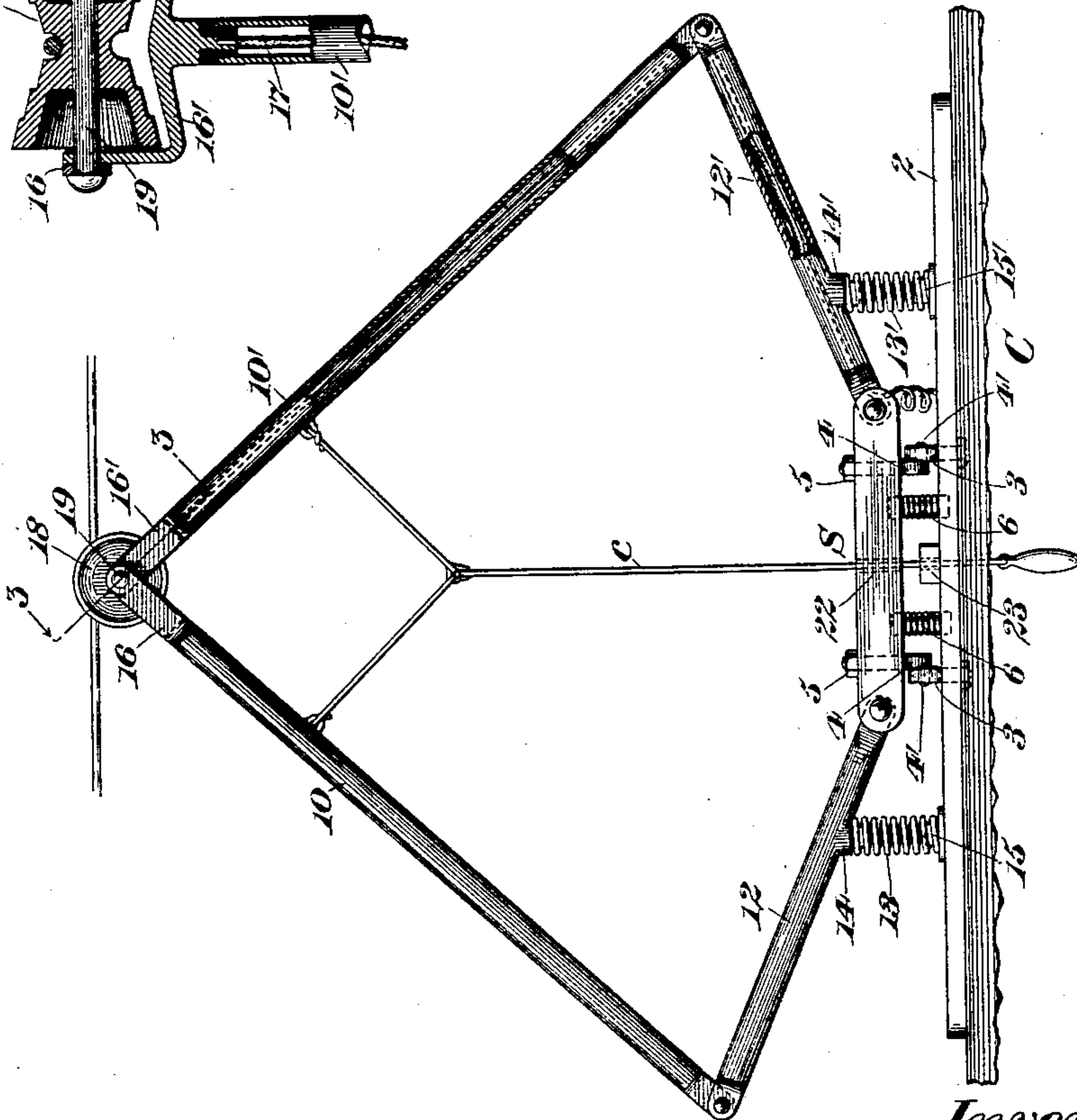


Fig. 1.



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UNITED STATES PATENT OFFICE.

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TROLLEY POLE AND STAND.

SPECIFICATION forming part of Letters Patent No. 593,424, dated November 9, 1897.

Application filed March 29, 1897. Serial No. 629,700. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC A. SEAVER, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Trolley Poles and Stands, of which the following is a specification.

This invention relates to improvements in trolley poles and stands; and it has for its main object the provision of an improved trolley pole and stand of that type in which the pole is formed by toggle-arms pivotally connected with each other.

One of the principal features of my present invention is the employment of improved means for supporting the trolley-pole proper by a stand having a pivotal connection with the top of a car or other support to which the stand may be secured and by means of which connection transverse rocking movements of the trolley-stand will be permitted to thereby enable the trolley to remain in contact with the line-wire or overhead conductor during the turning of a curve.

In the drawings accompanying and forming part of this specification, Figure 1 is a sectional side elevation of a trolley pole and stand constructed in accordance with my invention and in operative relation with the top of a car-body. Fig. 2 is an end view of the same. Fig. 3 is an enlarged detail sectional view showing the manner in which the trolley or traveling contact device is supported at the upper end of the trolley-pole, the section being taken in line 3 3, Fig. 1, looking in the direction of the arrow.

Similar characters designate like parts in all the figures of the drawings.

My invention embodies as its essential features a trolley-stand pivoted to a suitable supporting-base in such a manner as to have a transverse rocking movement; springs between the stand and the base, these springs being disposed at opposite sides of the longitudinal axis of such stand; a trolley-pole having a trolley-supporting toggle-arm and a pair of toggle-arms secured thereto and also pivoted to the trolley-stand, and suitable springs by means of which the pole will normally be held elevated.

C designates a portion of the top of a car-body, to which is fastened a suitable support

or base 2, on which the trolley-pole is mounted. The trolley-pole is not in this case secured directly to this base, but is carried by a long trolley-stand pivoted on the base 2. This stand is designated in a general way by S, and the main body portion thereof is pivoted on the base 2, so as to rock transversely. The connection between the stand and the base may be effected in any desired manner, but in the present instance I have shown eyebolts 3 3 passing through the base 2 and in position to receive pins 4', projecting from the heads of a pair of bolts 4, passed through the body portion of the trolley-stand and secured in place by nuts 5 5.

For the purpose of forming a firm support for the pole and at the same time permitting a limited amount of rocking movement of the trolley-stand I have shown at 6 expansile springs interposed between the stand and the base 2, these springs being normally under compression and the ends thereof being seated in suitable sockets in the under side of the trolley-stand and the upper side of the base, these sockets being indicated by dotted lines.

It will be obvious that in order to maintain the trolley-stand normally in parallelism with the base and also enable the stand to tip laterally when the car is turning a curve these springs should be disposed at opposite sides of the longitudinal axis of the stand, and they are so illustrated, as is clearly shown in Fig. 2, the springs being held at their upper ends in this case in sockets close to the longitudinal edges of the body of the trolley-stand, while the lower ends of the springs are seated in corresponding sockets in the base in perpendicular alinement with those in the stand.

The trolley-pole proper comprises in this case a plurality of parts connected on the toggle principle, four toggle-arms being illustrated herein for this purpose. The upper two toggle-arms are indicated by 10 and 10', respectively, and are pivotally connected at their upper ends so as to form approximately a right angle, the lower ends of these arms being pivotally connected with the outer ends of a second pair of toggle-arms 12 and 12', the inner ends of which latter arms are pivoted to the body portion of the trolley-stand.

It will be noticed that the toggle-arms 12 and 12' are disposed at a relatively slight angle to a horizontal line, and that the trolley-

pole is of relatively great width as compared with its length, its width in this case being in fact somewhat greater than its length or height. Moreover, the toggle-arms 12 and 12' are preferably connected to the stand S at the extreme ends of the latter, so that while lateral movement of the pole and the stand is permitted movement of these parts longitudinally of the trolley-stand is almost entirely prevented, and by reason of the fixity of the body of the stand in longitudinal direction a rotary motion of the stand is also substantially entirely obviated, owing to the considerable length of the fixed base of the triangle along which base-line the trolley-pole is supported.

By reason of the slight inclination of the toggle-arms 12 and 12' I am also enabled to dispose between these toggle-arms and the base 2 and at a considerable distance from the inner ends of such toggle-arms the usual springs by means of which the toggling movements of the toggle-arms of a trolley-pole of this type are effected and by which such pole is elevated. These springs are indicated herein at 13 and 13' and are preferably in the form of helical springs, the ends of which are received by bosses 14 and 14' on the toggle-arms 12 and 12', respectively, and corresponding bosses 15 and 15', rising from the base 2.

It will be noticed that the distance between the springs 13 and 13' forms a base-line of very great length for preventing torsional movement of the trolley-pole and movement thereof longitudinally of the car-body.

All of the toggle-arms shown herein are hollow, and they are connected by riveted forks, except at the points of connection of the arms 10 and 10', where each of these toggle-arms has a very wide fork, and the two are joined by means of a smooth cylindrical bolt which constitutes the pin or carrier for the usual trolley or roller. The fork at the end of the toggle-arm 10' is designated herein by 16' and is screwed into and insulated from the upper end of said toggle-arm, the conductor or wire to the motor being shown at 17 connected with this fork and extended down through the hollow-arms 10' and 12' and into the body of the car. The fork 16' will preferably be sufficiently wide to accommodate a trolley having a long contact-face inclined toward a central line-wire-receiving groove and preferably stepped, as shown at 18'. This trolley is indicated by 18 and is supported on the smooth bolt 19, which joins the forks 16 and 16', a nut 20 being provided for holding the parts in their proper positions.

As it will be apparent from the foregoing description that a trolley-pole constructed in accordance with my invention will have movement only transversely of the car-body it will be clear that the trolley may be brought into contact with and removed from the line-wire by a vertical pull on the trolley-pole. Hence the operating means for this pole is in this case connected to the two toggle-arms 10 and 10' at points substantially equidistant from the axis of the roller 18 and will be manipulated from the inside of the car at a point directly below the trolley. This operating means is illustrated as a cord or pull-rope c, such as is usually employed for this purpose. It will be noticed that the body of the trolley-stand has an opening (indicated herein at 22 by dotted lines) and that the cord c passes therethrough and through a similar opening 23 in the base 2 and in the top of the car in alinement with the opening 22, thus assuring that the trolley will be pulled straight down in a vertical direction and will rise in the same manner regardless of the manner in which the rope is pulled. Hence it will be clear that by using a trolley having a relatively wide contact-face and a trolley-pole pull-cord constructed and organized as shown herein the trolley may be brought into contact with the wire with great facility and precision and as easily withdrawn therefrom.

Having described my invention, I claim—

The combination, with a suitable supporting-base, of a long trolley-stand pivoted thereto for transverse rocking movement and held against turning in the direction of its longitudinal axis; expansile springs between said stand and base at opposite sides of the longitudinal axis of the trolley-stand; a trolley-pole having two pairs of connected toggle-arms, one pair supporting the trolley, the other two toggle-arms being connected with the toggle-arms of the first pair and pivotally secured to the trolley-stand at points remote from each other and near the ends of the stand for oscillation in the longitudinal plane of said stand and adapted to form therewith a long firm support for the trolley-pole; and springs connected to the lower toggle-arms between the ends thereof and also connected to the base at points beyond the ends of the trolley-stand, for normally raising the trolley-pole.

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