

No. 751,298.

PATENTED FEB. 2, 1904.

J. KELLY.
TROLLEY.

APPLICATION FILED JULY 11, 1903.

NO MODEL.

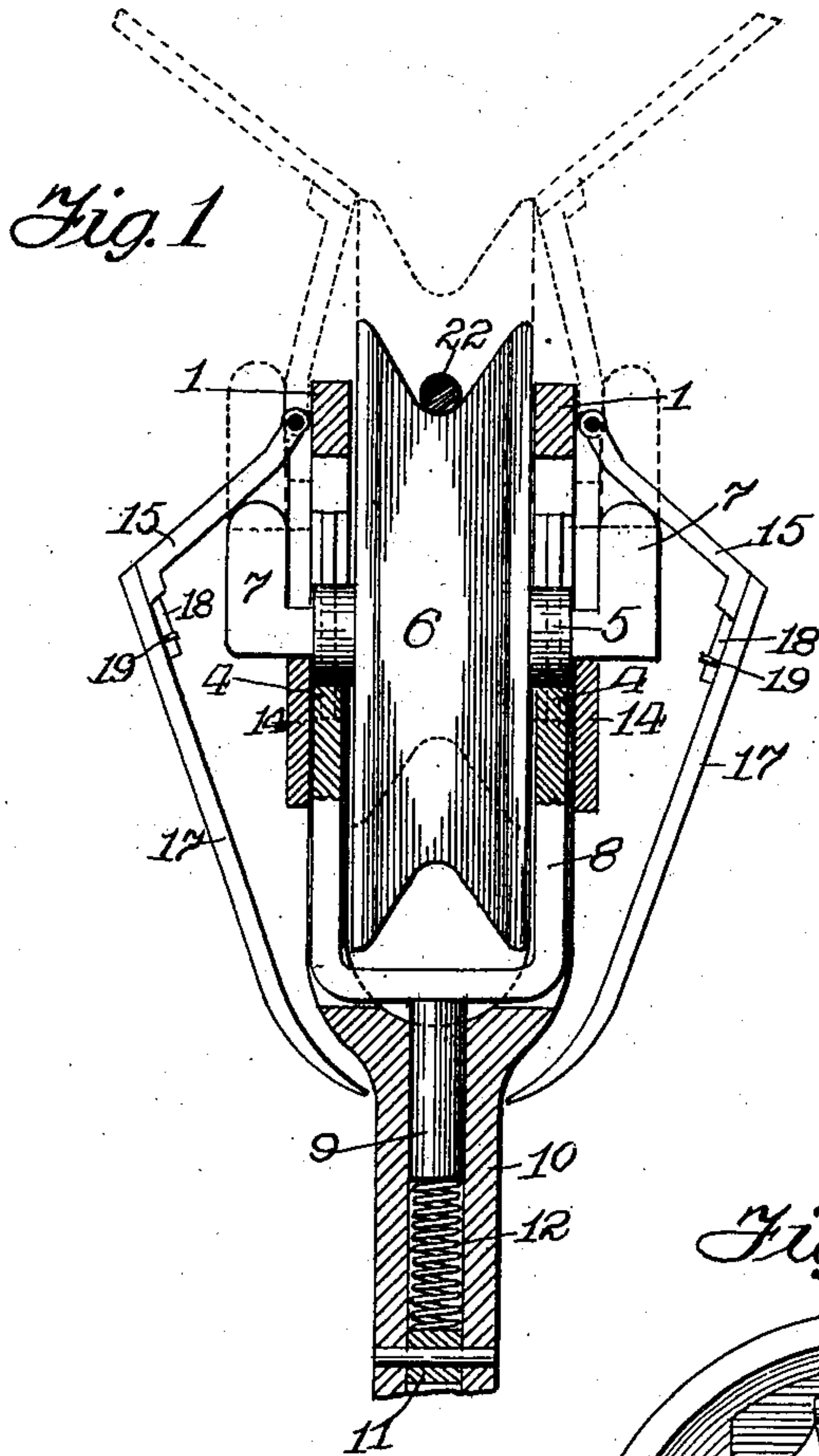


Fig. 2

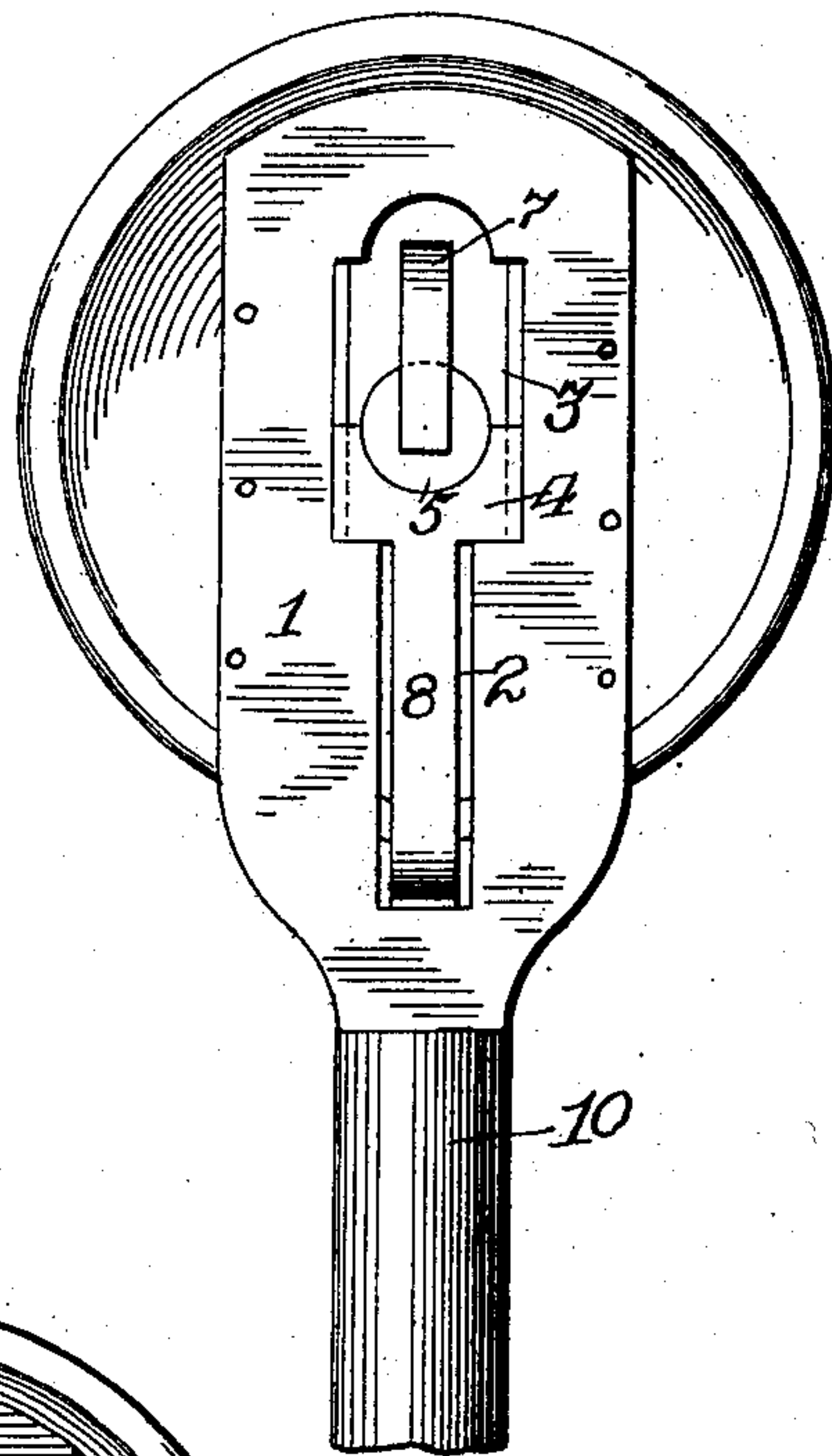
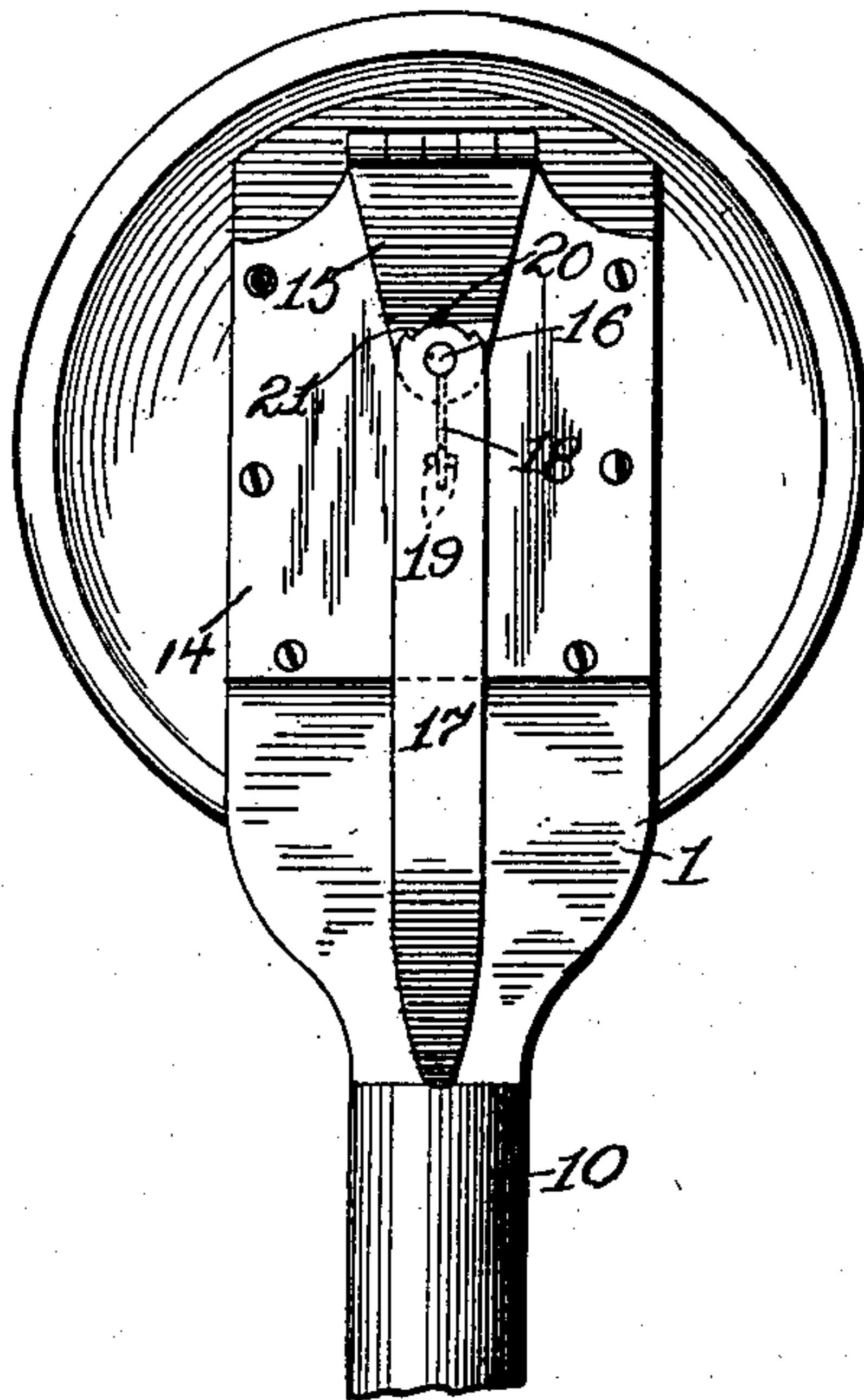


Fig. 3



Witnesses:
Geo. B. Rowley
E. C. Potter

Inventor:
James Kelly
By W. C. Everett
Attorneys

UNITED STATES PATENT OFFICE.

JAMES KELLY, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-THIRD
TO JAMES CROAK, OF PITTSBURG, PENNSYLVANIA.

TROLLEY.

SPECIFICATION forming part of Letters Patent No. 751,298, dated February 2, 1904.

Application filed July 11, 1903. Serial No. 165,086. (No model.)

To all whom it may concern:

Be it known that I, JAMES KELLY, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Trolleys, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in trolleys; and the object of the invention is to provide novel and effective means for maintaining the trolley-wheel in engagement with the current-wire, preventing its accidental disengagement therefrom.

Briefly described, the invention comprises a trolley-wheel, which is mounted in a spring-pressed vertically-operative harp. The trolley-wheel has vertical movement independent of the harp, and to the sides of the harp are pivoted or hinged finders or guards, which normally lie close against the harp, but which are actuated in event of the trolley-wheel leaving the wire, whereby to throw the same upwardly to a position to guard at each side of the wheel, whereby one of the guards or finders will engage with the wire and cause the wheel to be again conducted into engagement therewith. Means is provided whereby when these guards or finders are in their extended or guarding position the projecting arms thereof may safely pass crossover-wires or other obstructions without damage to the same or to the arms.

40 All of the above construction will be hereinafter more fully described, and specifically pointed out in the claims, and in describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate like parts throughout the several views, in which—

45 Figure 1 is a central vertical sectional view showing the normal position of the wheels and the guards or finders in full lines and in dotted lines the position of the parts when the wheel leaves the wire. Fig. 2 is a side elevation with the guards or finders removed. Fig. 3 is a side elevation of the trolley complete.

My invention comprises a main harp, which is rigid with the trolley-pole, and an auxiliary harp, which carries the trolley-wheel and which has vertical movement in the main harp.

To put my invention into practice, I provide 55 a main harp 1, which is secured in any secure manner to the trolley-pole, the cheek-pieces of said harp being provided with vertical slots 2, terminating at their upper ends in guides 3, in which the bearings 4, which receive the extending ends of the axle 5, are journaled. The trolley-wheel 6 is free to revolve independently of the axle 5, and this axle 5 carries at its extending ends arms or cams 7, which act to throw the guards or finders to the elevated position, 65 as will be hereinafter more fully explained. The auxiliary harp 8 operates in the slotted cheek-pieces of the main harp, this auxiliary harp carrying the bearings 4 for the axle or shaft of the trolley-wheel. At its lower end 70 this auxiliary harp carries a stub-shaft 9, which extends into a tubular extension 10 on the lower end of the main harp, which tubular extension has a recess or bore therein to receive the stub-shaft 9. Underneath the stub-shaft 9 between the lower end of the same and the plug 11 is a spring 12, adapted upon the trolley-wheel 6 leaving the current-wire to force the auxiliary harp to its elevated position, whereby the guards or finders are also 80 moved to the operative position. The guards or finders comprise plates 14, rigidly secured to the cheek-pieces of the main harp. Hinged or pivoted to the upper ends of these plates 14 is a leaf or strap 15, to which are secured 85 by means of the pin 16 the guards or finders 17. These guards or finders, together with the leaf or strap 15, are adapted to lie normally in position shown in full lines in Fig. 1 of the drawings. Upon the trolley leaving the wire 90 they are forced to position shown in dotted lines of said figure. In order that the guards or finders may readily pass the crossover-wires or other obstructions, I provide spring means which will normally hold the guards 95 or finders in alinement with the leaf or strap 15, but will permit the swinging of the same on their pivot-pin 16 in order to pass the crossover-wire or other obstruction. A convenient form of means is that of attaching a 100

spring 18 to the pin and have the other end of said spring lying between two pins 19, carried by the guard or finder. In order to limit the movement which may be given to the guards or finders I provide a pin 20 in the leaf or strap 15, which will travel in the cut-away portion 21 provided therefor in the pivoted end of the guard or finder. When the pin engages the shoulder on either end of the cut-away portion, the movement of the guard or finder will be arrested.

In Fig. 1 I show in full lines the normal position of the trolley when it is in engagement with the current-wire 22. When in this position, the auxiliary harp is depressed, thus compressing the spring 12. The bearings 4 are at the lower end of the guide-slots 3. In event of the trolley leaving the wire the upward pressure of the spring 12 serves to immediately elevate the auxiliary harp and trolley-wheel 6, causing the angle-arms or cams 7 to move the guards or finders up to the position shown in dotted lines in Fig. 1, thereby causing the current-wire to be engaged over the one or the other of the guards or finders and be conducted back into engagement with the trolley-wheel. Immediately on the return of the current-wire into engagement with the wheel the latter is depressed to its normal position, carrying the arms or cams 7 downwardly therewith and allowing the guards or finders to fall to their normal position. It will be observed that while the guards or finders are in the elevated position should they come in contact with the crossover-wire or other obstruction they will readily bend backward, due to the pivoted connection, whereby to permit the ready passage thereof.

Attention is directed to the fact that when the trolley is removed from the wire by means of the rope, which is always attached to the trolley-pole, the auxiliary harp and the trolley-wheel, together with the finders or guards, will assume the elevated position due to the action of the spring 12 and that consequently when the trolley-wheel is to be placed in engagement with the wire the guards or finders are in the elevated position, whereby to assist in the ready finding of the wire with the trolley-wheel, and as soon as the trolley-wheel engages the wire the pressure forces the auxiliary harp to the normal depressed position, allowing the guards or finders to also fall to their normal position. It will thus be observed that the device will be of material benefit, not only to retain the trolley in engagement with the wire while the car is traveling, but will assist in the ready finding of the wire with the trolley-wheel when used in connection with cars where the trolley is reversed at each end of the line.

It will be apparent that various changes

may be made in the details of construction without departing from the general spirit of my invention.

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

1. In a trolley, the combination of a main harp having a ferrule portion provided with a bore, said main harp having slots in its cheek-pieces, of an auxiliary harp mounted in the main harp to move in said slotted cheek-pieces, a stub-shaft carried by the auxiliary harp and extending into the bore of the ferrule, a spring arranged beneath said stub-shaft within the bore, an axle or shaft mounted in the auxiliary harp with the trolley-wheel mounted thereon, annular arms or cams carried by the ends of said axle or shaft, and guards or finders hinged to the main harp and adapted to be moved to the operative position by the engagement of the angular arms or cams, substantially as described.

2. In a trolley, a main harp, an auxiliary harp operative vertically in the main harp, a shaft or axle journaled in the auxiliary harp, a trolley-wheel carried thereby, straps hinged to the main harp at the upper end thereof, arms pivoted to the said straps, means for normally holding said arms in alined position with the straps, and means adapted on the trolley-wheel leaving the wire to elevate the auxiliary harp and move the pivoted arms to the operative position, substantially as described.

3. In a device of the character described, a main trolley-harp, an auxiliary harp mounted therein for movement independent thereof, a trolley-wheel carried by said last-named harp, straps hinged to the main harp, guards pivoted upon said straps, means carried by said auxiliary harp adapted to engage with said guards, and means for forcing said last-named means into engagement with the guards, on the trolley-wheel leaving the current-wire, substantially as described.

4. In a trolley, a main harp, an auxiliary harp vertically movable therein, a shaft mounted in the auxiliary harp, a trolley-wheel carried thereby, guards having hinged connections with said main harp, spring means for holding said guards in alined position with the main harp, cams carried by the said shaft adapted to engage and elevate said guards, and means adapted to elevate said auxiliary harp on the trolley leaving the wire, substantially as described.

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

JAMES KELLY.

Witnesses:

A. M. WILSON,
K. H. BUTLER.