

No. 760,184.

PATENTED MAY 17, 1904.

R. I. E. DUNN.
TROLLEY POLE HEAD.

APPLICATION FILED AUG. 29, 1903.

NO MODEL.

Fig. 1.

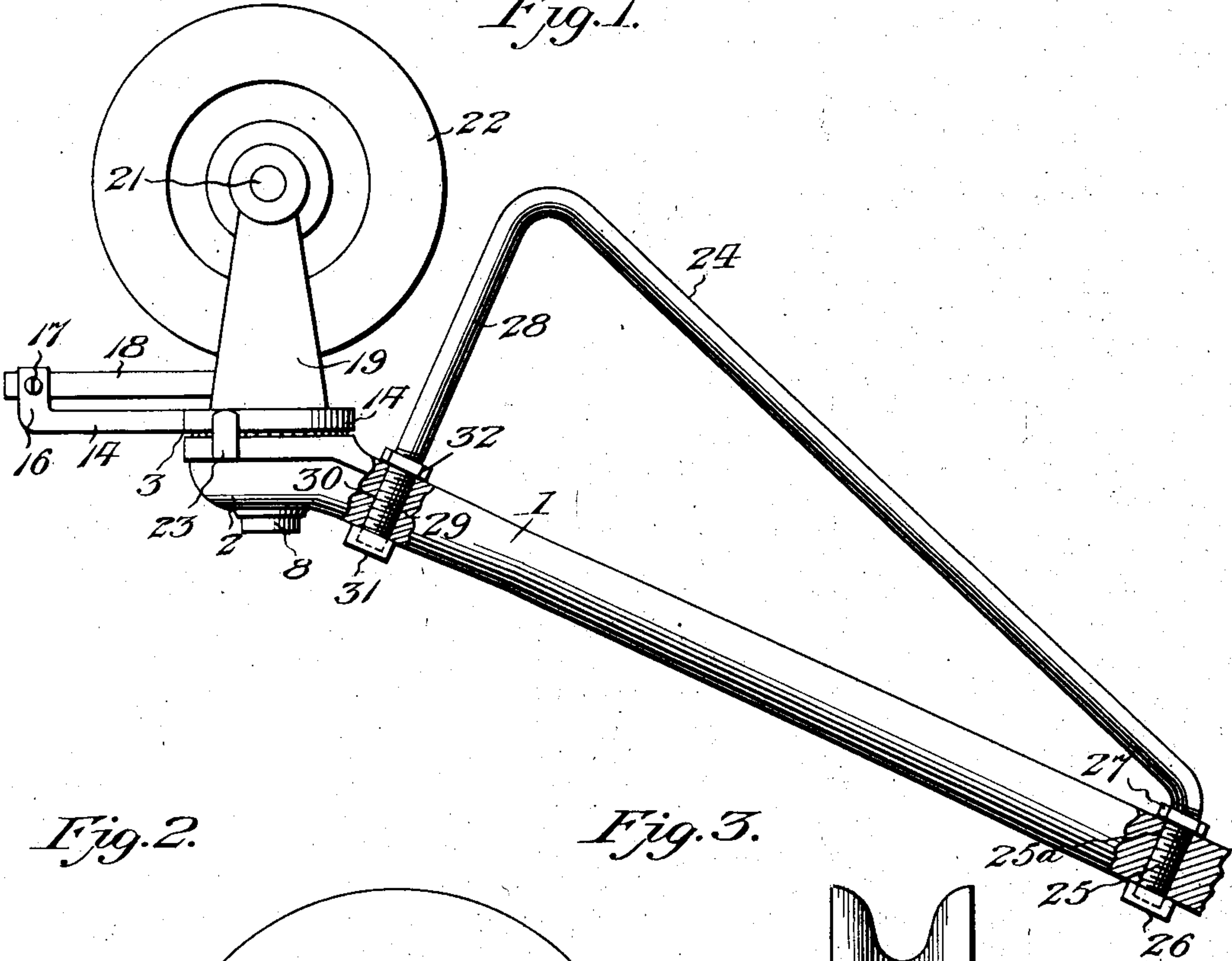


Fig. 2.

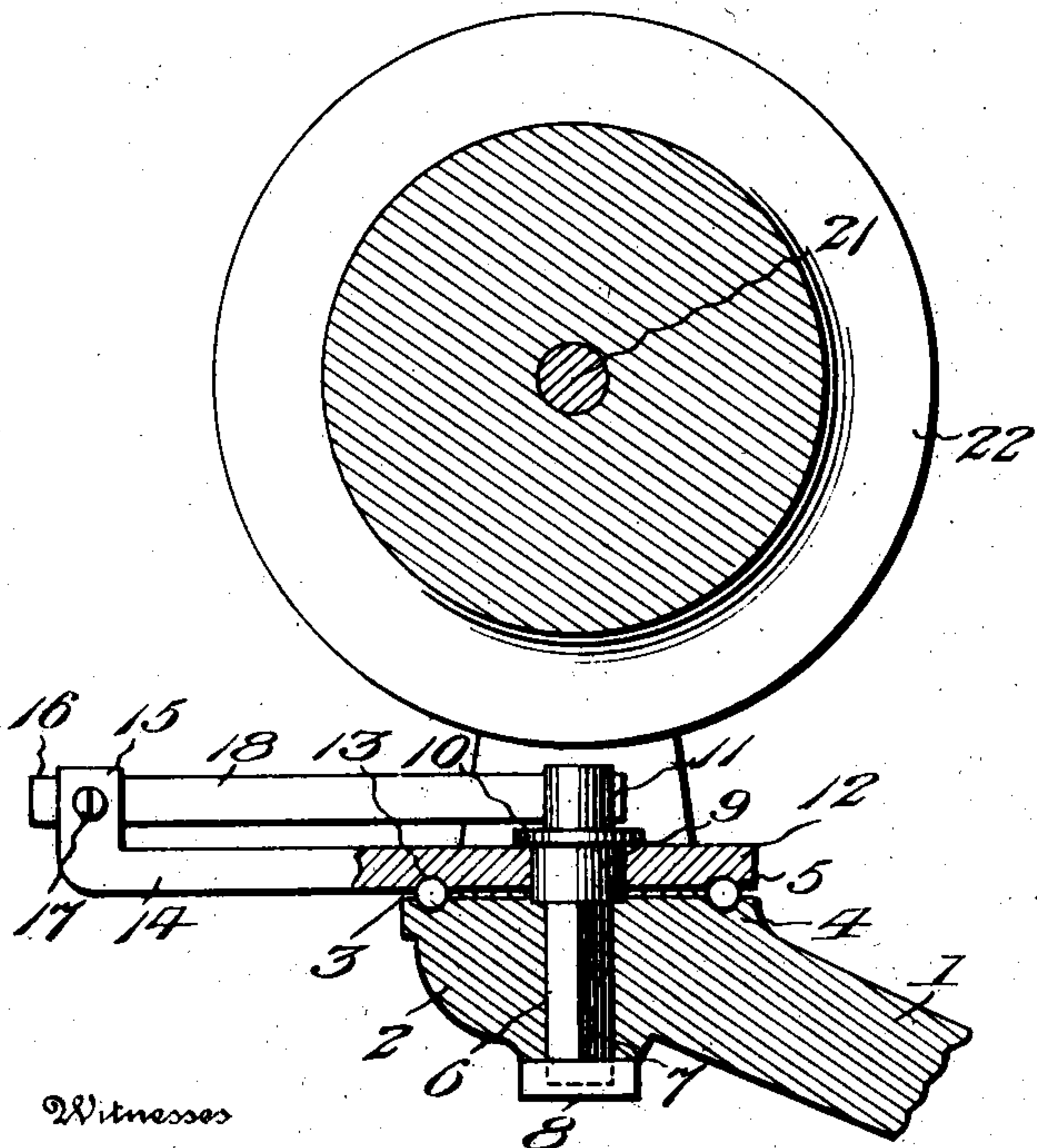
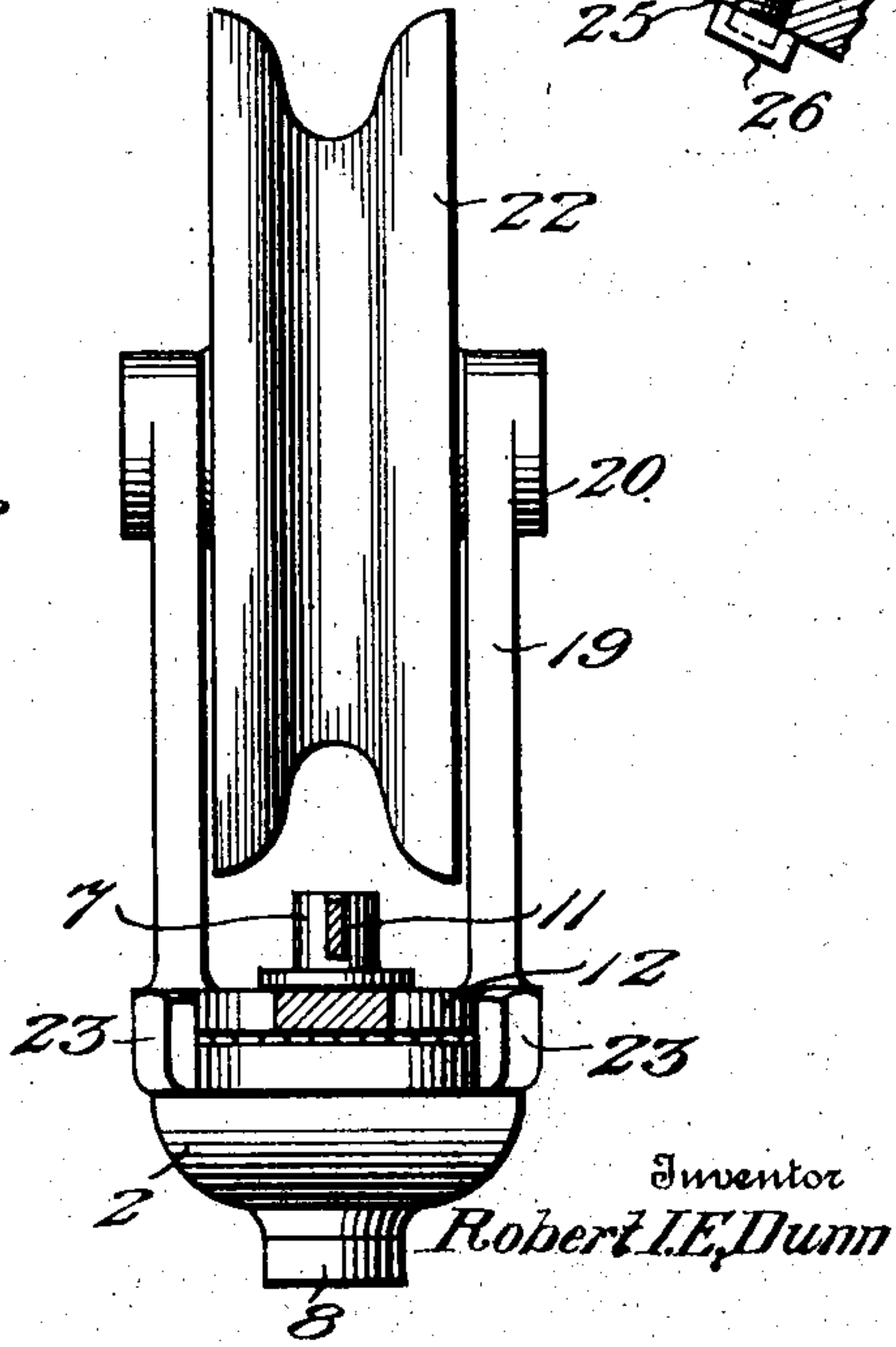


Fig. 3.



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ROBERT I. E. DUNN, OF DALLAS, TEXAS.

TROLLEY-POLE HEAD.

SPECIFICATION forming part of Letters Patent No. 760,184, dated May 17, 1904.

Application filed August 29, 1903. Serial No. 171,254. (No model.)

To all whom it may concern:

Be it known that I, ROBERT I. E. DUNN, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented new and useful Improvements in Trolley-Pole Heads, of which the following is a specification.

My invention has relation to new and useful improvements in trolley-pole heads for overhead electric railways; and the object of the invention is to provide a device of the character mentioned which is of a simplified construction and adapted to follow the wire under all conditions and without regard to irregularities or curves therein in order that a good contact may at all times be established between the wheel and the trolley-wire.

The invention consists in the novel arrangement and aggroupment of the various elements in operative combination, which will be more fully hereinafter described and the novelty of which will be clearly pointed out and distinctly claimed.

I have fully and clearly illustrated my invention in the accompanying drawings, forming a part of this specification, and wherein—

Figure 1 is a view in side elevation of a trolley-pole head embodying my invention. Fig. 2 is a central longitudinal section taken through the pole-head and the trolley-wheel; and Fig. 3 is a view in rear elevation, partly in section, of a pole-head constructed in accordance with my invention.

Referring to the drawings, 1 designates the upper end of a trolley-pole, which may be of any form and construction adapted to accomplish the purpose for which it is devised. At its extreme upper terminal this pole is provided with an enlarged portion or head 2, which is directed rearwardly from said pole at such an angle that the upper surface thereof will lie in substantially a horizontal plane when the wheel is in operative contact with the trolley-wire. The upper surface 3 of this enlarged portion of the trolley-pole is substantially circular in plan view and is formed with an annular groove or channel 4, constituting a raceway in which are arranged bearing-balls 5, as clearly shown in Fig. 2 of the drawings.

Extending centrally and entirely through the enlarged head 2 from top to bottom is an aperture 6, which is square in cross-section and within which is arranged a vertical bearing-pin 7, which extends for a distance above the upper surface of the head, the lower portion of said pin being squared in order to fit snugly within the aperture 6 and be held against rotation by the engagement of the respective sides of the aperture and the pin. This pin is of sufficient length to extend for a short distance beneath the lower side of the head 2, where it is threaded and is adapted to be engaged by a nut 8, by means of which it is held securely and rigidly in position on the head. That portion of the pin 7 adjacent the upper surface of the head 2 is formed for a portion of its length with an enlarged bearing-space 9, which is surmounted by an annular flange 10, substantially as shown in the drawings, from which point the pin is extended vertically and provided with a transverse slot 11, which is arranged in longitudinal alinement with the axis of the trolley-pole.

Rotatably mounted upon the bearing-space 9 of the pin 7 is the base-plate 12 of the trolley-harp which carries the contact-wheel. This base-plate is preferably circular in plan view and is formed with an annular groove or channel 13, which coincides with the raceway 4 in the head 2 and in which the upper surface of the bearing-balls 5 are seated.

Extending rearwardly from the base-plate 12 for a suitable distance is a radial horizontally-disposed arm 14, formed at its rear terminal with a vertical post 15, which is provided with a slot 16, said slot being in longitudinal alinement with that formed in the upper end of the bearing-pin 7. Rigidly secured within the slot 16 in the post 15 by means of a screw 17 or other suitable fastening device is a flat spring 18, the opposite end of which is slidably arranged within the slot 11, formed in the upper end of the vertical pin 7. At opposite sides of the base-plate 12 are formed vertical arms or standards 19, the upper terminals of which are provided with suitable alining bearings 20, within which is secured a transverse bearing-pin 21, upon which the trolley-wheel or collector 22 is rotatably

mounted, said wheel and the bearings therefor being of any approved form and construction which will accomplish the purposes for which they are employed.

5 From the above description, taken in connection with the drawings, it will be seen that during the progress of the car the trolley-wheel, by virtue of the rotatability of its harp, will at all times assume a position at such an
10 angle as to suit the irregularities or curves in the line-wire and will at all times maintain a contact with said wire when the car is running around curves or being switched from one track to another. It will also be seen that
15 the function of the spring 18 is to hold the wheel normally in the same vertical plane as the pole and that said spring serves to return the harp and wheel to their normal position when the car passes from a curve to a straight
20 track. In order to prevent the harp from being rotated such a distance as to throw the wheel transversely of the wire, and thereby prevent its running along the one or being thrown into operative engagement therewith,
25 I provide at suitable points upon the periphery of the curved upper surface 3 of the head vertical studs or abutments 23, the upper terminals of which extend upwardly for such a distance as to be in the path of movement of
30 the arm 14, so that in the rotation of the plate 12 said arm will abut against said studs 23, whereby the rotation of the harp is limited.

The base-plate 12 of the trolley-harp is held in close proximity with the upper surface 3
35 of the head 2 by means of the annular flange 10 on the pin 7, which when the parts of the device are assembled rests upon the upper surface of said plate 12 and prevents vertical movement thereof.

40 In order to prevent the wheel and its harp from being struck by the guy-wires in cases when the wheel flies off the wire, I provide a guard, which is positioned on the pole, closely adjacent the end thereof, and against which
45 the force of the blow will be exerted and which will serve to guide the wire upwardly over the wheel without striking the harp. I have shown this guard as consisting of an inclined bar 24, the lower end of which terminates at a point on the pole where it is provided with a threaded portion 25, disposed at
50 an angle to the bar 24 and adapted to be projected through an aperture 25^a in the pole, said threaded portion extending a short distance beyond the lower side, where it is engaged by a nut 26 for the purpose of fastening the lower end of the guard to the pole. The downward movement of the threaded portion is limited by means of a flange 27, formed
55 integral with the bar and adapted to engage the upper side of the pole. From its lower end the bar 24 is inclined upwardly at the proper angle to a point adjacent the wheel, where it is bent downwardly to provide a ver-

tical supporting-leg 28, which at its lower end 65 is threaded, as at 29, and is projected through an opening 30 in the pole adjacent the base of the harp, where it is secured rigidly by means of a nut 31 on said threaded portion, the downward movement of the leg 28 being 70 limited by the annular flange 32. It will be seen that should the wheel fly off the wire the guy-wires instead of striking the pole and being directed against the harp will strike the inclined bar 24, which will guide the guy- 75 wire upwardly over the top of the wheel.

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

1. In a trolley-head the combination with a 80 pole, of a bearing-pin rigidly mounted thereon, a wheel-harp rotatably mounted on said pin, an arm on the harp and a spring secured to the arm and engaging the bearing-pin.

2. In a trolley-head, the combination with a 85 pole, of a bearing-pin rigidly mounted thereon, a wheel-harp comprising a base-plate rotatably mounted upon said bearing-pin and provided with a radial arm, and a spring rigidly secured to said arm at one end and slid- 90 ably engaging the bearing-pin at its opposite ends.

3. In a trolley-head, the combination with a pole having an aperture therein, of a bearing-pin rigidly mounted in said aperture and 95 formed with an annular flange, a harp comprising a base-plate rotatable upon said pin and arranged beneath the flange, said plate being formed with a rearwardly-projecting arm, and a spring secured to said arm and en- 100 gaging the bearing-pin.

4. In a trolley-head, the combination with a pole, of a bearing-pin rigidly mounted thereon, a harp comprising a base-plate rotatably 105 mounted upon said bearing-pin, said plate being provided with a radial arm formed with a vertical post, and a spring secured to said post and slidably engaging the bearing-pin.

5. In a trolley-head, the combination with a pole formed with a squared aperture therein, 110 of a squared bearing-pin arranged within said aperture and formed with a slot in its upper portion, a harp including a base-plate, said plate being rotatably mounted upon the pin, a radial arm extending from said plate, and a 115 spring rigidly connected to said arm and movably engaging the slot in the bearing-pin.

6. In a trolley-head the combination with a pole, of a bearing-pin rigidly mounted thereon, a wheel-harp rotatably mounted on said 120 pin, and a spring secured to the harp and engaging the bearing-pin.

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

ROBERT I. E. DUNN.

Witnesses:

J. C. MUNDEN,
J. O. CATHEY.