

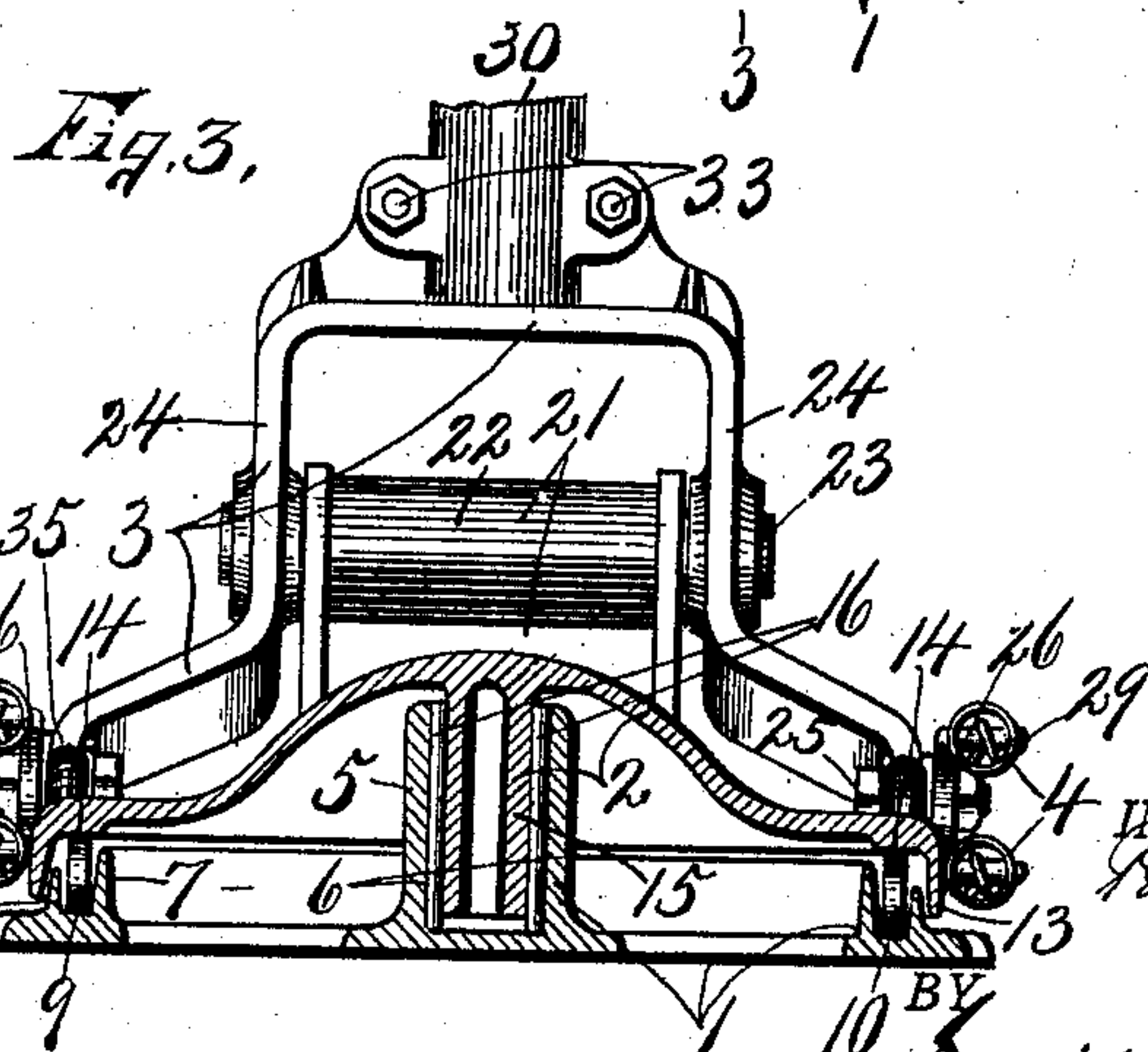
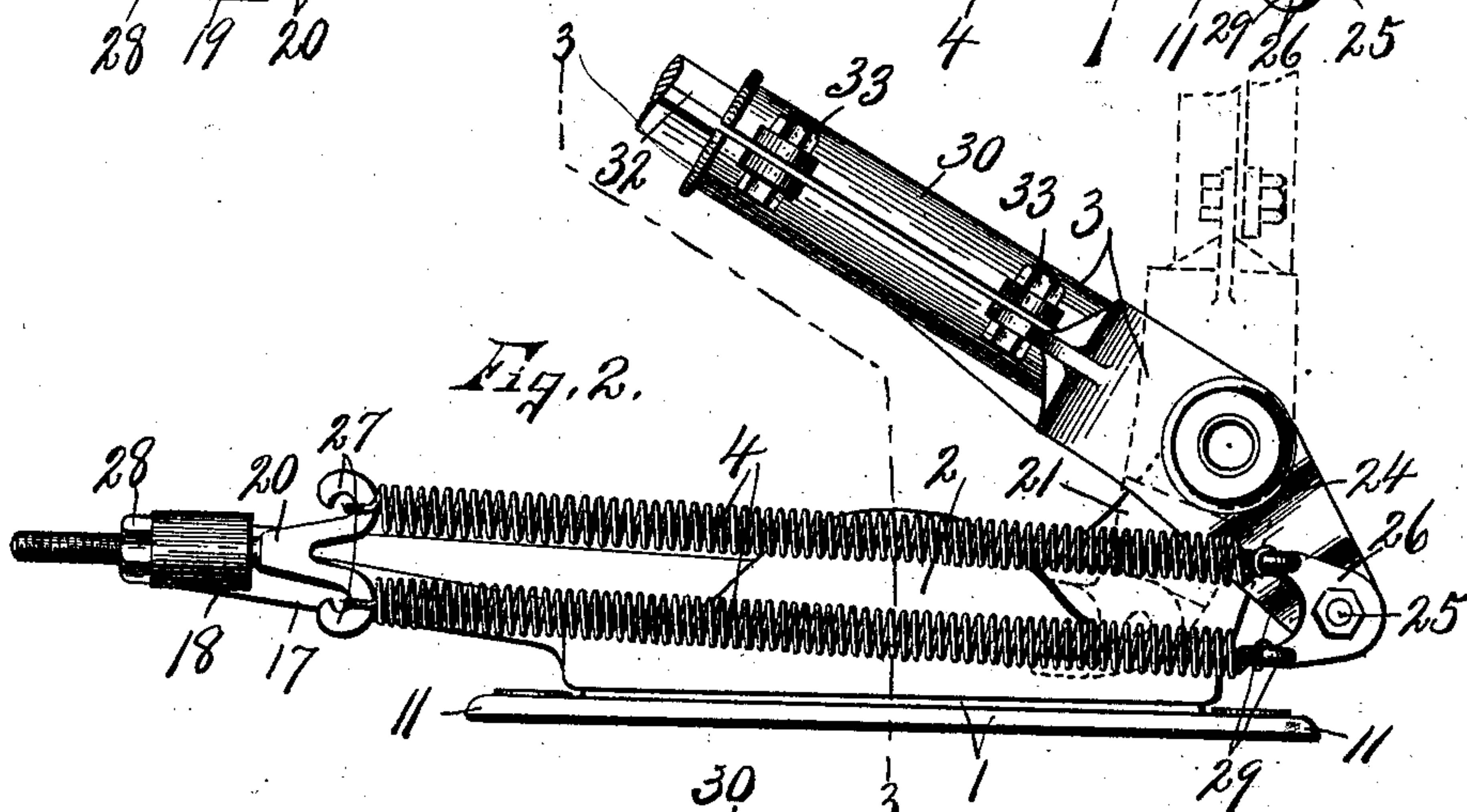
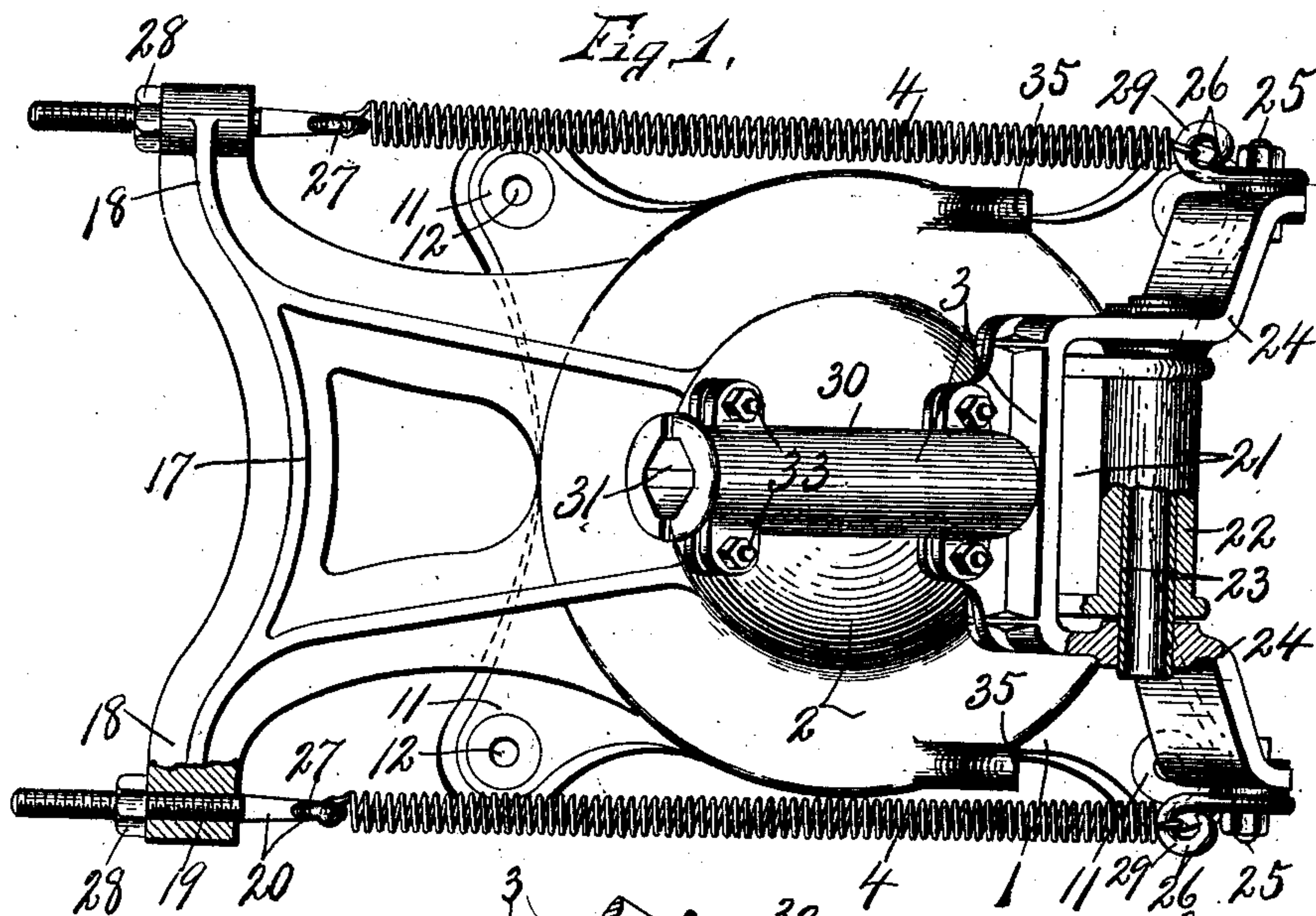
No. 762,831.

PATENTED JUNE 14, 1904.

P. D. MILLOY.
TROLLEY BASE.

APPLICATION FILED OCT. 27, 1902. RENEWED MAR. 29, 1904.

NO MODEL.



WITNESSES:
J. E. Arthur,
W. C. Chase

INVENTOR
Peter D. Milloy

BY
Smith & Brinson
ATTORNEYS.

UNITED STATES PATENT OFFICE.

PETER D. MILLOY, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO
WASHINGTON L. ALBEE, OF BUFFALO, NEW YORK.

TROLLEY-BASE.

SPECIFICATION forming part of Letters Patent No. 762,831, dated June 14, 1904.

Application filed October 27, 1902. Renewed March 29, 1904. Serial No. 200,639. (No model.)

To all whom it may concern:

Be it known that I, PETER D. MILLOY, of Buffalo, in the county of Erie, in the State of New York, have invented new and useful Improvements in Trolley-Bases, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in trolley-supports, and refers more particularly to the base and specific means for attaching the trolley-pole thereto.

There are two important functions in the successful operation of a trolley-pole. First, it is necessary to mount the pole so as to revolve horizontally, so that the position of the pole may be reversed when the direction of motion of the car is reversed, and, second, it is also necessary to provide suitable take-up means for holding the trolley in engagement with the line-wire during the transit of the car over the route in which the height of the line-wire at different points varies considerably.

My invention involves these two functions, the primary object of which is to distribute the strain incidental to the engagement of the trolley with the line-wire as counteracting the tension of the springs which tend to elevate the trolley-pole.

It is obvious that when the trolley-pole is pivotally mounted in a vertical plane coincident with the axis of revolution of the revolving section of the trolley-base the strain is practically borne by only a small portion of the bearings for said revolving section, which therefore tends to wear the bearings unequally and at the same time localizes the strain upon the axial bearings. This is particularly true where only central bearings are employed, the strain being proportionate to the distance of the bearings from the axis.

In carrying out the primary object of my invention I not only provide a central bearing and a broad concentric bearing, but also position the fulcrum of the lever which supports the trolley-pole in such manner that the strain is brought more nearly in a direct axial line, or rather more directly over the axis of the

central bearing, so that the strain is axially instead of laterally.

A more specific object of my invention is to mount the revoluble section of the base in such manner that it may be readily removed, the outer concentric bearings consisting of rollers movable in an annular groove or raceway, which annular groove serves as a retainer for the rollers when the revoluble section is removed without the employment of journal-bearings for said rollers.

To this end the invention consists in the combination, construction, and arrangement of the parts of a trolley-support, as hereinafter fully described, and pointed out in the claims.

Referring to the drawings, Figures 1 and 2 are respectively top, plan, and side elevation of my invention, the trolley-pole being removed in Fig. 1 and a portion of the pivotal bearing for the pole-supporting lever being shown in section. Fig. 3 is a sectional view taken on line 3 3, Fig. 2, the pole-supporting lever being supported in its normal elevated position.

Similar reference characters indicate corresponding parts in all the views.

As seen in the drawings, this invention consists, essentially, of a fixed base-section 1, a revolving base-section 2, a trolley-supporting lever 3, and suitable springs, as 4, for automatically operating the lever in one direction.

The base 1 is adapted to be secured to the top of a car and is preferably formed of cast metal, such as malleable iron, and is provided with a central boss 5, having a vertical socket 6, surrounding which at a considerable distance therefrom are separated inner and outer flanges 7 and 8 for forming an annular groove 9.

The central boss 5 is usually of considerable height to afford a long bearing for the revolving section 2, presently described.

The annular groove 9 serves as a race for roller-bearings 10, and the flanges 7 and 8 retain said rollers in their upright positions and are preferably of less height than the diameter of the rollers, so as to avoid friction with the revolving section 2. I preferably provide this

base with radially-projecting feet 11, having apertures 12 to receive suitable clamping-bolts, (not shown,) but which are employed to secure the fixed base to the top of the car in any desired manner.

The revolving base-section 2 is provided with a circular body of slightly greater diameter than that of the annular flange 8 and is usually formed of malleable iron or similar tenacious metal and provided with an annular flange 13, surrounding the outer flange 8 and depending beneath its upper edge for practically inclosing the annular groove 9 and roller-bearing 10 and preventing the entrance of dust and other foreign substance. This revolving section is provided with a substantially flat annular bearing-face 14, resting upon the rollers 10, and is also formed with a central boss or hub 15, depending from and formed of less diameter than the socket 6, for forming an annular chamber, in which are inserted suitable upright roller-bearings 16 to receive any lateral strain of the revolving section and to reduce the friction to a minimum.

It is desirable in this class of devices to have the base as low down as possible, so that the trolley-arm may be depressed to a substantially horizontal position close to the car in passing under low bridges and into their stalls, or when the car is moved into other cramped places, and I therefore arrange the outer edge of the circular body of the outer section as close to the fixed base as practicable; but in order to obtain the long bearing at the center I usually elevate or arch the center portion of the revolving section, from which the boss 15 depends.

It is apparent from the foregoing description that I have provided two concentric bearings, one at the center and the other of much greater diameter, and that by this construction and arrangement the revolving section is held in operative position without the aid of a central clamping or pivotal bolt and is capable of resisting considerable axial strain and any lateral strain which may be incidentally produced.

Projecting rearwardly from and formed integral with the revolving section 2 is a bracket 17, having diverging arms 18 formed with lengthwise substantially parallel apertures 19 for receiving adjustable anchors 20, the purpose of which will be presently described.

The opposite or front side of the revolving section 2 is formed with a forwardly and upwardly projecting arm 21, having a hollow bearing 22 located a considerable distance in front of the vertical axis of the revolving section and in a plane above the upper surface of the revolving section 2, and receives a pivotal member 23, upon which the lever 3 is mounted.

The pivotal member 23 projects beyond the opposite ends of the bearing 22, and the lever

3 is provided with a bifurcated lower extremity for forming arms 24, which are mounted directly upon the opposite projecting ends of the pivotal member 23, said projecting ends forming the fulcrum of the lever.

The arms 24 of the lever 3 extend a short distance below the fulcrum and are provided with pivotal bolts 25, to which are pivoted opposite rock-arms or anchors 26. I have thus provided two sets of anchors, one set at each side of the base-sections, and the anchors of each set are disposed in front and at the rear of the axis of revolution of the section 2. The anchors 20 are located at the rear of the axis of the revoluble head 2 and are each provided at one end with a pair of hook-shaped extremities 27, while their opposite ends are threaded and passed through the apertures 19 and engaged by suitable adjusting-nuts 28, the hooks 27 serving to receive corresponding ends of the springs 4, while the opposite ends of said springs are attached to hooks 29, provided upon the rocking anchors 26.

The lever 3 is provided with an upward cylindrical extension 30, which is preferably split longitudinally and is formed with a socket 31 of angular cross-section for receiving a trolley-pole 32 of similar cross-sectional form, which trolley-pole is held in operative position by the opposite jaws of the tubular extension 30 and suitable clamping-bolts 33, these latter bolts being passed through ears provided upon the opposite jaws of the tubular extension 30.

It is apparent from the foregoing description that by disposing the fulcrum of the lever 3 at the front of the axis of the revolution of the head of the section 2 the strain incidental to the rearward and downward movement of the trolley-pole as it engages the line-wire is more nearly directly over the center of axis of revolution, and therefore avoids to a considerable extent lateral strain upon the central bearing and at the same time tends to distribute the load incidental to such rearward and downward movement of the trolley-pole over a considerable area of the base—that is, the bearings in front and at the rear of the central bearing are brought into action with substantially equal force.

The lever 3 is adapted to move from a substantially horizontal to a vertical position by the action of the springs, and its further movement is prevented by suitable stops 35 on the sides of the revoluble section 2.

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

1. In a trolley-support, a fixed base-section having a central hub and an annular groove concentric with the hub, rollers in the groove, a revolving section bearing on the rollers and having a central hub telescoping with the former hub, rollers between the hubs, a lever fulcrumed on the revolving section in front

of its axis, an anchor pivoted to the lever beneath its fulcrum, a second anchor adjustably secured to the revolving head at the rear of its axis, and a spring connecting the anchors.

5 2. A trolley-support comprising a fixed base-section having a central hub and upwardly-projecting annular flanges concentric with the hub to form a race, rollers mounted in the race, the flanges serving to hold the
10 rollers in an upright position, a revolving base-section having a central hub telescoping with the former hub and having an annular bearing on its lower face resting upon the upper faces of the rollers, a trolley-supporting
15 lever fulcrumed on the revolving base at one side of its axis in a plane above the top face of the revolving section to permit the lever to be swung downwardly over said section to a substantially horizontal position, and springs
20 for elevating the trolley end of the lever.

3. In combination with a base comprising a fixed section and a revoluble section, the fixed section having concentric annular flanges to form a race, and the revoluble section having

a depending flange surrounding the outer 25 flange of the fixed section, rollers mounted and separate from the base-sections in the race, a trolley-arm fulcrumed on the revoluble section, and springs for elevating the trolley end
30 of the lever.

4. In a trolley-support, a fixed base-section formed adjacent its edge with a continuous raceway, a central hub formed with a socket, rollers freely mounted in said raceway, a revolving section entirely overlying said base- 35 section, a hub partly projecting into the first-named hub whereby its lower end is out of contact with the bottom of the socket, said rollers supporting said revolving section, a lever fulcrumed on said last-named section, 40 and springs for normally holding said lever in an elevated position.

In witness whereof I have hereunto set my hand this 17th day of October, 1902.

PETER D. MILLOY.

Witnesses:

H. P. DENISON,
MILDRED M. NOTT.