

No. 607,612.

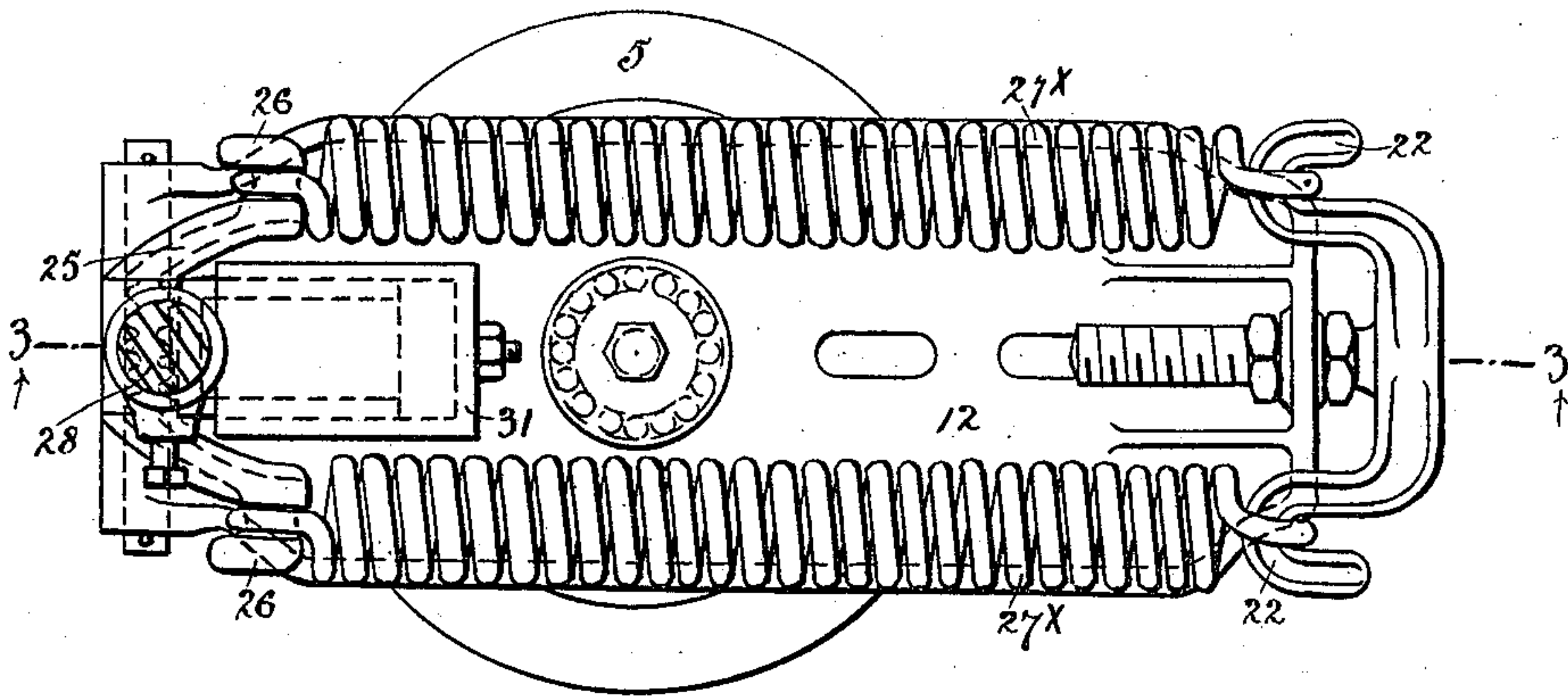
Patented July 19, 1898.

H. G. TAYLOR.
TROLLEY BASE.

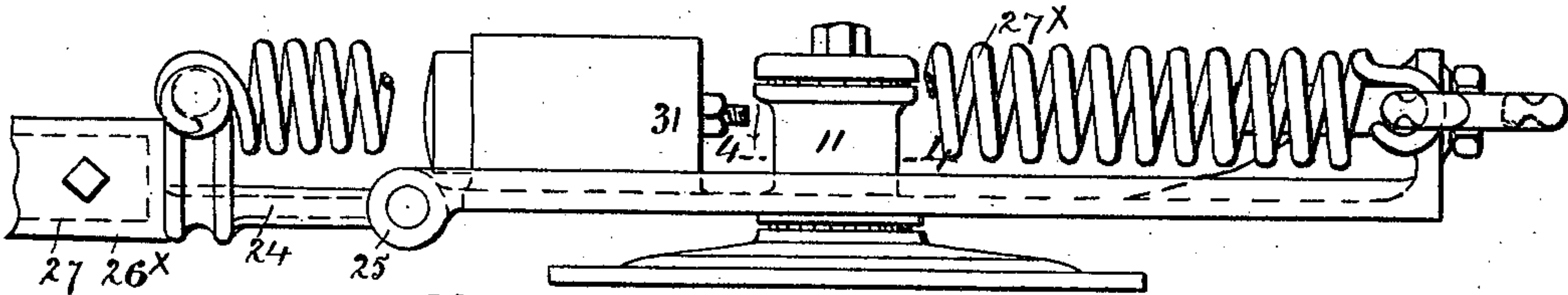
(Application filed Sept. 27, 1897.)

(No Model.)

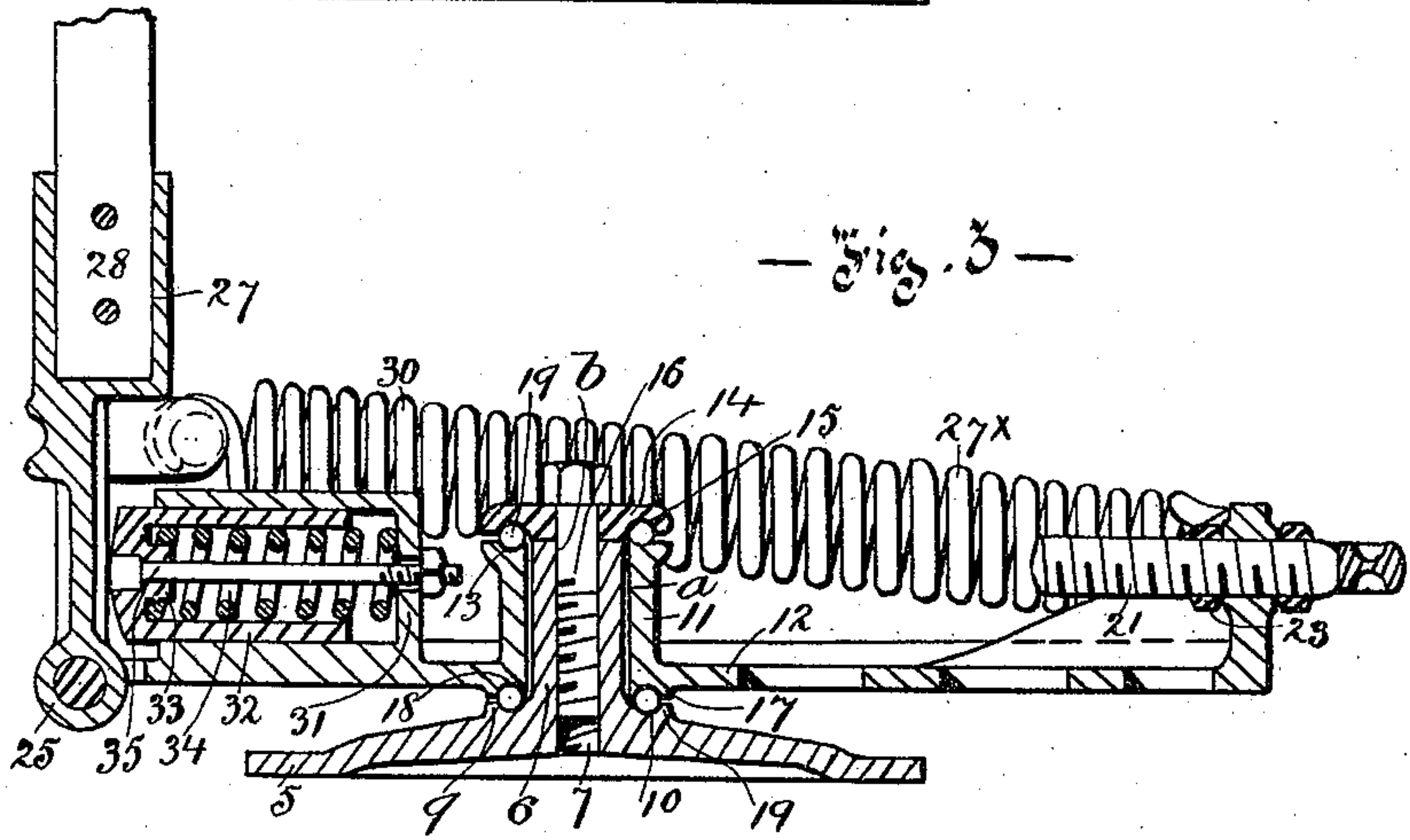
— Fig. 1 —



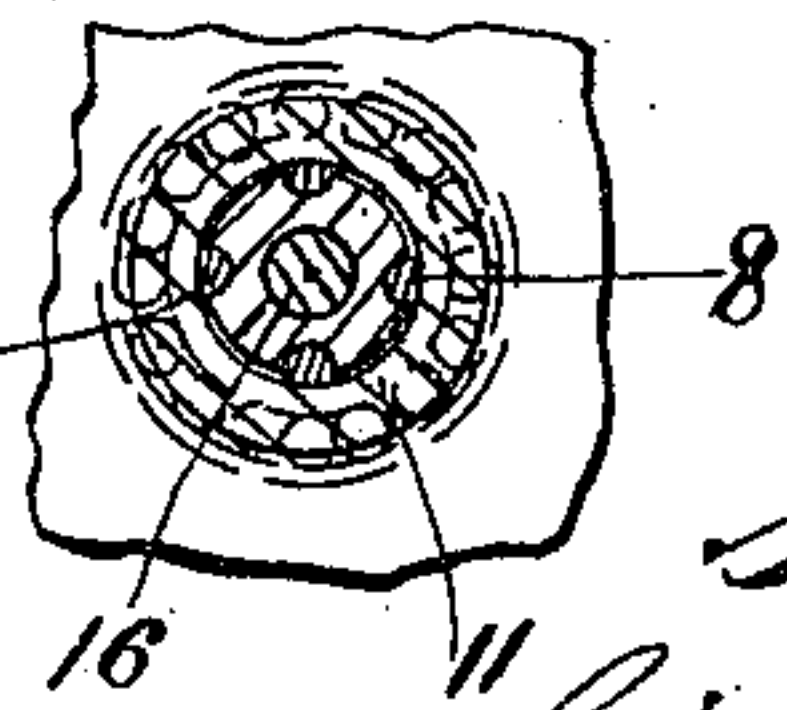
— Fig. 2 —



— Fig. 3 —



— Fig. 4 —



Witnesses

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HARRISON G. TAYLOR, OF MONTREAL, CANADA.

TROLLEY-BASE.

SPECIFICATION forming part of Letters Patent No. 607,612, dated July 19, 1898.

Application filed September 27, 1897. Serial No. 653,221. (No model.)

To all whom it may concern:

Be it known that I, HARRISON G. TAYLOR, of the city of Montreal, in the District of Montreal and Province of Quebec, Canada, have invented certain new and useful Improvements in Trolley-Bases; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention has for its object to produce a trolley-base that will have greater efficiency and durability than trolley-bases heretofore known, as well as rendering the pole easier to handle when the trolley is off the wire.

The invention may be said, briefly, to consist in providing an improved pivotal connection between the swinging pole-carrying plate and the stationary base of such a nature that antifriction-bearings may be used therein; also, in providing a buffer for the pole to strike against when the trolley accidentally leaves the wire, and thus relieve the parts from considerable shock, and also in so connecting the usual operating-springs with the pole and its carrying-plate that when the former is drawn down to a horizontal position such springs will be practically in a dead-center line, and the strain upon the pole consequently reduced to a minimum, besides other improved details of construction hereinafter described, and pointed out in the claims. For full comprehension, however, of the invention reference must be had to the accompanying drawings, forming a part of this specification, in which like symbols indicate the same parts, and wherein—

Figure 1 is a plan view of a trolley-base constructed according to my invention and with the pole-carrying section in its vertical position; Fig. 2, a side elevation thereof, but with the pole-carrying section in its horizontal position; Fig. 3, a longitudinal vertical sectional view thereof, taken on line 3-3, Fig. 1; and Fig. 4, a section on line 4-4, Fig. 2.

The base-plate 5 is preferably of circular form and has a central vertical trunnion 6, provided with a vertical screw-threaded boring 7, extending therethrough, the outside surface of said trunnion having a series of longitudinal grooves 8 to receive graphite or other lubricant, while its foot is encircled by a shoulder, having a groove 10, concentric of said trunnion. This trunnion receives

upon it a sleeve-like hub 11, formed integral with and centrally of the upper surface of the swinging pole-carrying plate 12. The central perforation *a* through this hub corresponds in size to the circumference of the trunnion and has its upper end extended in thickness in order to provide space in which to form a groove 13, concentric thereof. A circular cap 14, corresponding in circumference to the circumference of the extended upper end of the hub and grooved, as at 15, upon its under side to correspond with the groove in the upper end of said hub, is perforated centrally, as at *b*, to allow the passage therethrough of a screw-bolt 16, adapted to take into the screw-threaded boring 7 of the trunnion. The under side of the swinging plate 12 has a boss 17 formed thereon, concentric of the perforation *a* and corresponding in circumference to the shoulder 9 and having a groove 18, similar to that cut in the face thereof. These grooves 13 and 15 and 10 and 18, respectively corresponding with one another, each form a runway for a series of balls 19, acting as ball-bearings, to facilitate the movement of the hub about its trunnion, while the vertical longitudinal grooves 8 are, as before mentioned, adapted to be filled with graphite or the like for lubrication purposes, and, if desired, the particular portions of the parts in which the ball-bearing runways are formed can be made of hardened steel to assist in resisting wear.

On one end of the upper side of the swinging plate 12 a bracket 20 is rigidly mounted and provided with a horizontal boring adapted to receive a screw-threaded arm 21 of a T-shaped section, the other two arms whereof extend horizontally toward each side of the plate 12 and have their ends bent to form hooks 22, while the threaded arm 21 is held in place in the bracket 20 by a pair of jam-nuts 23, adapted to take upon said arm 21, one on each side of the bracket. To the opposite end of the plate 12 an arm 24 is pivotally connected, as at 25, and has its outer end 26^x made of cylindrical form and recessed, as at 27, to form a socket to receive the inner end 28 of the trolley-pole. Upon this arm 24, and preferably cast in one therewith, is formed adjacent to said socket a curved cross-piece 25, the ends whereof are laterally offset to

form a pair of hooks 26 in the same vertical planes as the hooked ends 22 of the T-shaped section, and between these latter and said hooks 26 the operating spiral springs 27^x are extended, with their ends secured to same. The tension of these springs may be reduced or increased by adjusting the screw-threaded arm 21 (by means of the jam-nut 23) toward or away from said trolley-pole socket, while the rearward position of the hooks 26 relatively to the longitudinal axis of the trolley-pole enables the springs to be brought into a line parallel to the dead-centering line of the trolley-pole relatively to its carrying-plate 12 when the pole is lowered to a horizontal position, as shown clearly in Fig. 2, and thus reduce to a minimum the strain upon the pole when being held down for any purpose.

It has frequently happened when the trolley has slipped or been displaced from the trolley-wire that the tension of the springs upon the trolley-pole has caused same to spring back with such force that the pivot-pin or some other part has been broken and the pole not infrequently completely detached from its base. To obviate this defect is a further object of my invention, and to that end I mount a buffer-section upon said swinging plate and immediately in line with the trolley-pole socket in order that when the springs are allowed to exert their full retractile strength upon the pole the arm of the socket will strike upon the buffer, and thus relieve the pivot-pin of all but a very small proportion of the strain. This buffer preferably consists of a hollow cylindrical portion 30, (having one end closed, as at 31, and perforated,) located upon the swinging plate 12, and preferably cast in one therewith, and adjacent to the trolley-pole socket. This cylinder 30 receives a second cylinder 32, also having one end closed and perforated and the outer face thereof being preferably of convex form and the inner face provided with a short hub 33, having a perforation of slightly smaller diameter than the perforation through the closed end. A spiral spring 34 is carried within the inner cylinder and is adapted to bear between the inner faces of said inner and outer cylinders, and the extent of movement of said inner cylinder out of said outer cylinder is limited by a bolt 35, having its head located in the perforation in the convex head of the inner cylinder and bearing upon the hub 33, while the end of the bolt projects through the perforation in the closed end of the outer cylinder and receives a nut thereon.

What I claim is as follows:

1. In a trolley-base, a base-plate presenting an upwardly-projecting trunnion and having a groove to receive antifriction-bearings; a swinging pole-carrying plate provided with a hub adapted to take over said trunnion and presenting upper and lower bearing-surfaces having grooves to receive antifriction-bearings, and a cap having grooves for antifriction-bearings on its under side and adapted to fit over said hub, antifriction-balls within said grooves and a central retaining-bolt passing through said cap and screwing into said hub for holding said swinging plate in place, as shown and described.

2. In a trolley-base, a base-plate presenting an upwardly-projecting trunnion; a swinging pole-carrying plate provided with a hub adapted to take over said trunnion, a cap adapted to fit over said trunnion and hub, bearing-surfaces having grooves to receive antifriction-bearings between said cap and hub and between said hub and base-plate, and a central retaining-bolt passing through said cap and screwing into said hub for holding said cap in place upon such bearings.

3. In a trolley-base, the combination with the frame having a vertical projection at one end, and a pivoted socket-section for the trolley-pole at the other end, said socket-section having a pair of integral arms of curved hook form projecting therefrom at a point between its pivot-point and free end, of springs adapted to normally yieldingly hold said trolley-pole in its working position, and means, comprising an integral T-shaped section having its cross-arms of curved hook form to receive the ends of the springs and its central arm screw-threaded to work in a screw-threaded horizontal boring in said vertical projection with jam-nuts on either side, for adjusting said springs, the latter having their ends connected to the hooked arms of the pole-section and to the hooked arms of said T-shaped section; and a spring-buffer carried by said frame adjacent to said trolley-pole socket and adapted to receive the impact of and to limit the distance said pole may be drawn by said springs, as and for the purpose set forth.

4. A trolley-base comprising a stationary base-plate said base-plate having a vertically-projecting trunnion formed integrally with and concentric thereof and having a central vertical screw-threaded perforation; a swinging plate having a hub formed centrally thereof and with a perforation extending vertically and centrally therethrough and through the swinging plate, the upper end of said hub being extended in thickness and grooved concentrically of the vertical perforation there-through, a boss formed upon the lower side of said swinging plate, said boss and the face of the base-plate being correspondingly grooved to form a runway concentric of the said vertical perforation, for a series of balls; a circular cap of a circumference equal to the circumference of the upper end of the hub, and grooved correspondingly in order to form, with the groove in the upper end of said hub, a runway for a series of balls; a headed screw-threaded bolt adapted to pass freely downwardly through a perforation in said cap and take into the vertical screw-threaded perforation in the trunnion, said swinging plate carrying the trolley-pole normally yieldingly

held in a vertical position and means for holding said pole, substantially as and for the purpose set forth.

5 A trolley-base comprising a stationary base-plate, said base-plate having a vertically-projecting trunnion formed integrally with and concentric thereof and having a central vertical screw-threaded perforation; a swinging plate having a hub formed centrally thereof and with a perforation extending vertically therethrough and through the swinging plate, the upper end of said hub being extended in thickness and grooved concentrically of the vertical perforation there-
10 through, a boss formed upon the lower side of said swinging plate, said boss and the face of the base-plate being correspondingly grooved to form a runway concentric of the said vertical perforation, for a series of balls; a circular cap of a circumference equal to the circumference of the upper end of the hub, and grooved correspondingly in order to form, with the groove in the upper end of said hub, a runway for a series of balls; a headed screw-threaded bolt adapted to take downwardly
20 through a perforation in said cap and into the vertical screw-threaded perforation in the trunnion, a trolley-pole-carrying section pivotally connected to one end of said carrying-plate, one or more coiled springs connected at one end to said trolley-pole section and at the other end to the opposite end of said carrying-plate, and a buffer consisting of a hollow cylindrical section, having one end closed, connected rigidly to said plate adjacent to
30 said trolley-pole section, a second hollow cylindrical section, having one end closed, adapted to slide within said first-mentioned cylindrical section, a spiral spring carried within said inner cylindrical section and adapted to bear between the inner side of the closed ends of said cylindrical sections, and a bolt connected to the closed end of the inner cylindrical section, and extending through
40 a perforation in the closed end of the outer cylindrical section and having a nut screwed thereon, all substantially as described.

6. In combination with a carrying-plate, a trolley-pole, pivotally connected to one end
50 of said carrying-plate, a bracket formed upon the opposite end of said carrying-plate and horizontally perforated in line with said trolley-pole, a T-shaped section having its vertical arm screw-threaded and adapted to take through said perforation in said bracket, a pair of jam-nuts taking upon said screw-threaded arm and located one at each side of said bracket, the cross-arms of said T-section being extended in a horizontal plane and
55 having their ends hooked a curved cross-piece formed upon said trolley-pole section and having its ends hooked, and a pair of retractile spiral springs each connected at one end to one of the hooks of the T-shaped section
60

and at its other end to one of the hooks of the trolley-pole section, substantially as and for the purpose set forth.

7. A trolley-base comprising a stationary base-plate, said base-plate having a vertically-projecting trunnion formed integrally
70 with and concentric thereof and having a central vertical screw-threaded perforation; a swinging plate having a hub formed centrally thereof and with a perforation extending vertically therethrough and through the swinging plate, the upper end of said hub being extended in thickness and grooved concentrically of the vertical perforation therethrough, a boss formed upon the lower side of said swinging plate, said boss and the face of the
80 base-plate being correspondingly grooved to form a runway concentric of the said vertical perforation, for a series of balls; a circular cap of a circumference equal to the circumference of the upper end of the hub, and grooved correspondingly in order to form, with the groove in the upper end of said hub, a runway for a series of balls; a headed screw-threaded bolt adapted to take downwardly
90 through a perforation in said cap and into the vertical screw-threaded perforation in the trunnion, a bracket formed upon the opposite end of said swinging plate and horizontally perforated in line with said trolley-pole, a T-shaped section having its vertical arm screw-threaded and adapted to take through said
95 perforations in said bracket, a pair of jam-nuts taking upon said screw-threaded arm and located one at each side of said bracket, the cross-arms of said T-section being extended in a horizontal plane and having their ends hooked, a curved cross-piece formed upon said trolley-pole section and having its ends hooked, and a pair of retractile spiral
100 springs each connected at one end to one of the hooks of the T-shaped section and at its other end to one of the hooks of the trolley-pole section, and a buffer consisting of a hollow cylindrical section, having one end closed, connected rigidly to said swinging plate adjacent to said trolley-pole section, a second
110 hollow cylindrical section, having one end closed, adapted to slide within said first-mentioned cylindrical section, a spiral spring carried within said inner cylindrical section and adapted to bear between the inner side of the closed ends of said cylindrical sections, and a bolt connected to the closed end of the inner cylindrical section and extending through
115 a perforation in the closed end of the outer cylindrical section and having a nut screwed thereon, all substantially as and for the purpose set forth.

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Witnesses:

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