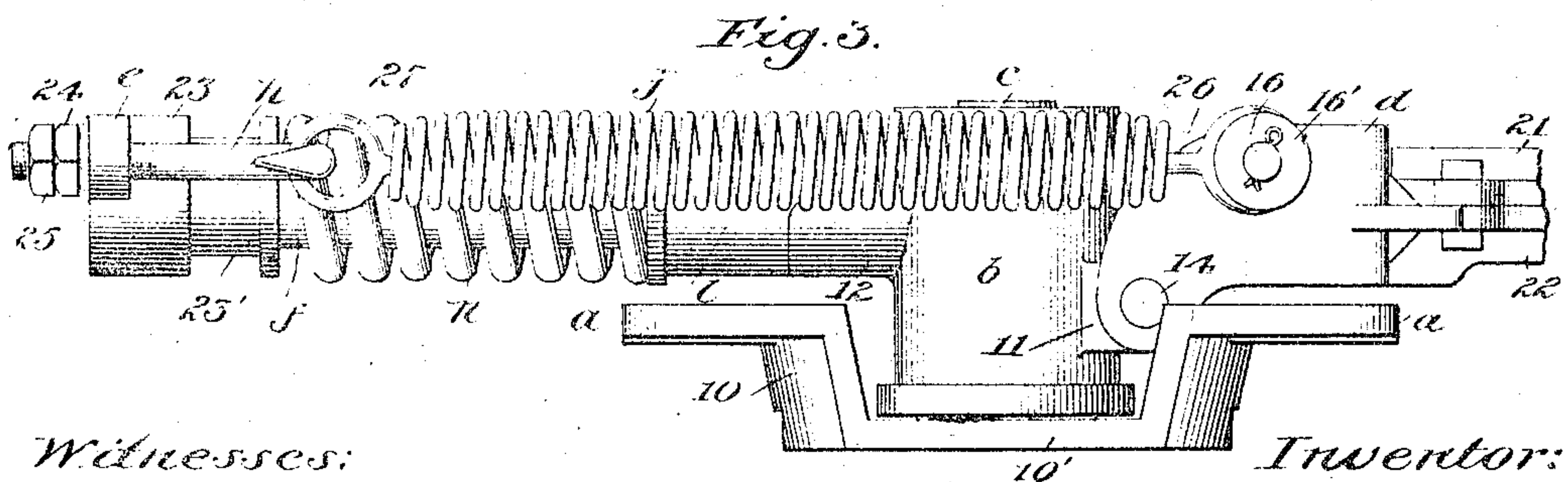
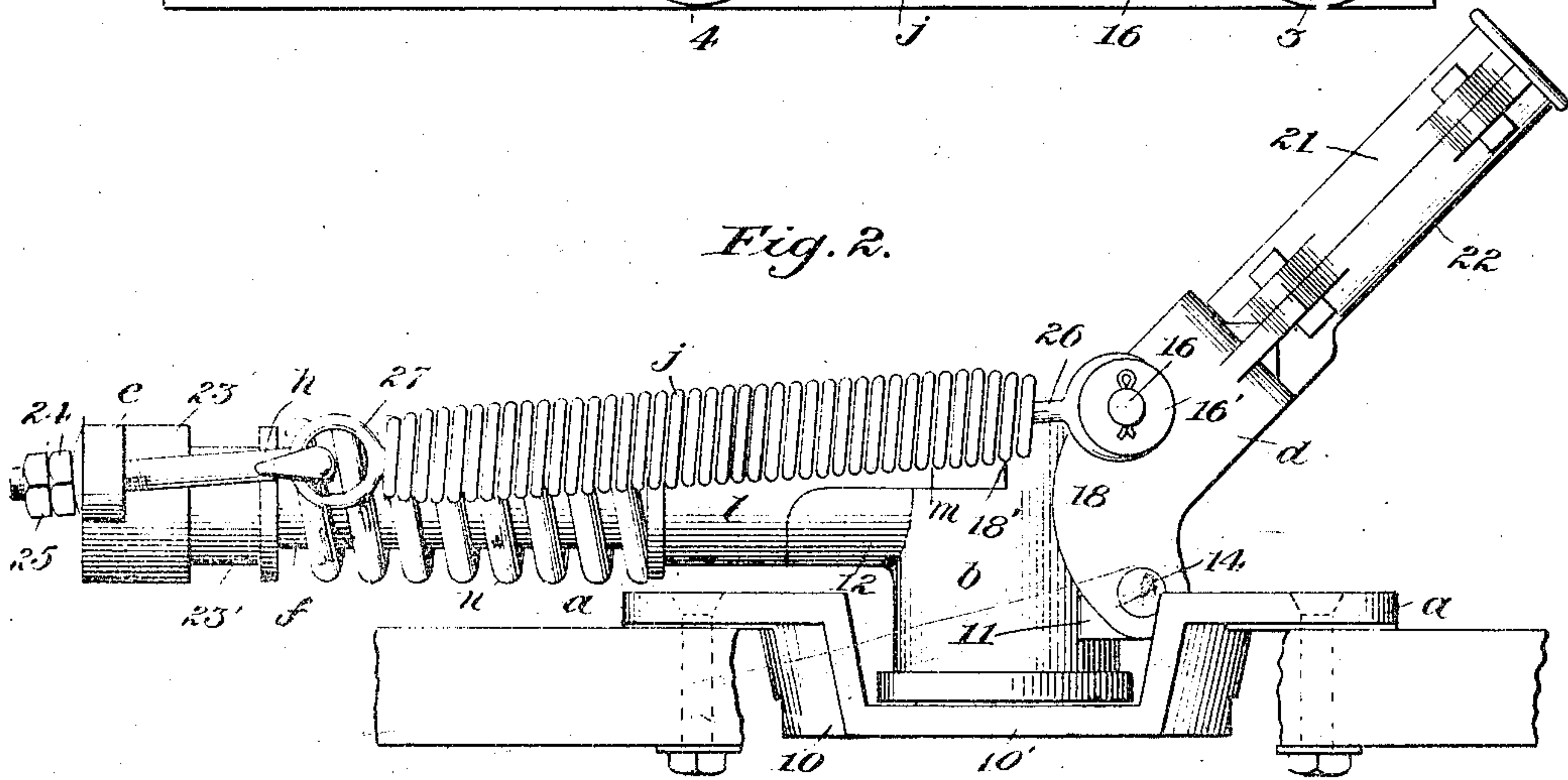
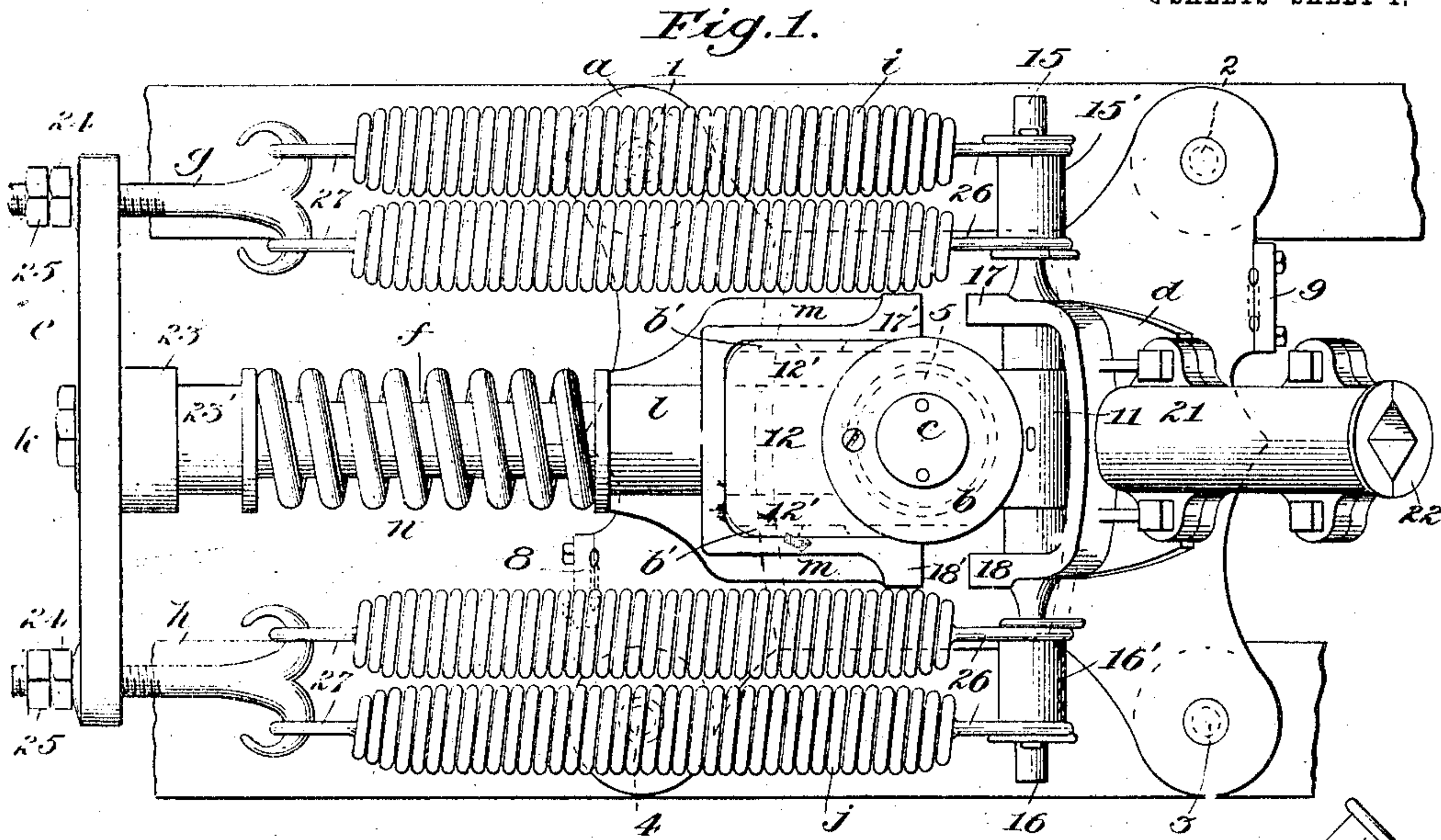


C. E. GIERDING.  
TROLLEY BASE.  
APPLICATION FILED JUNE 7, 1909.

970,211.

Patented Sept. 13, 1910.

3 SHEETS—SHEET 1.



Witnesses:

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Inventor:

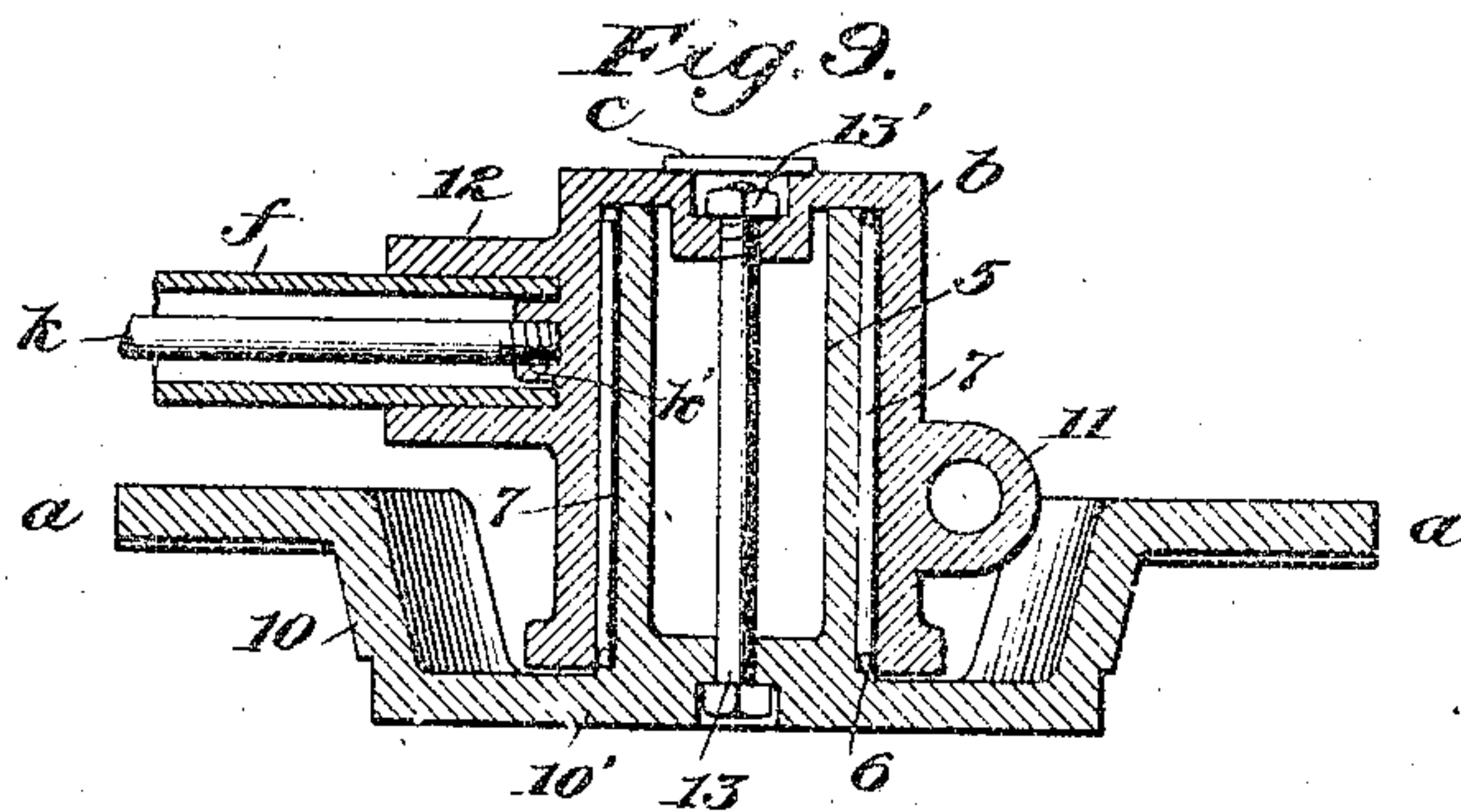
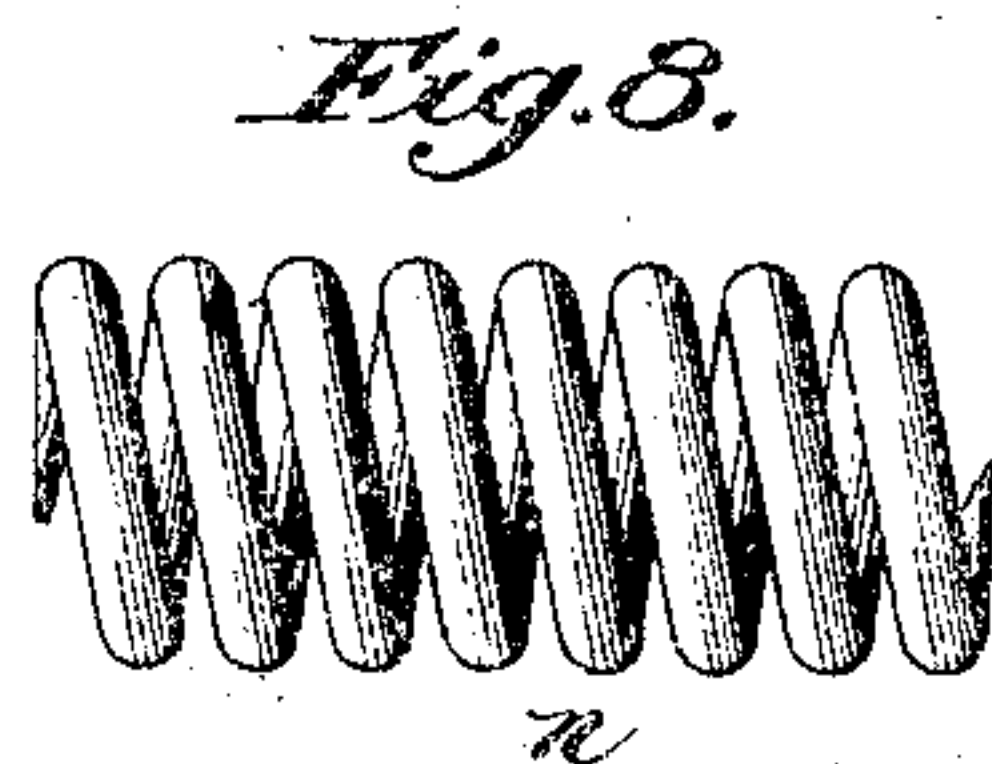
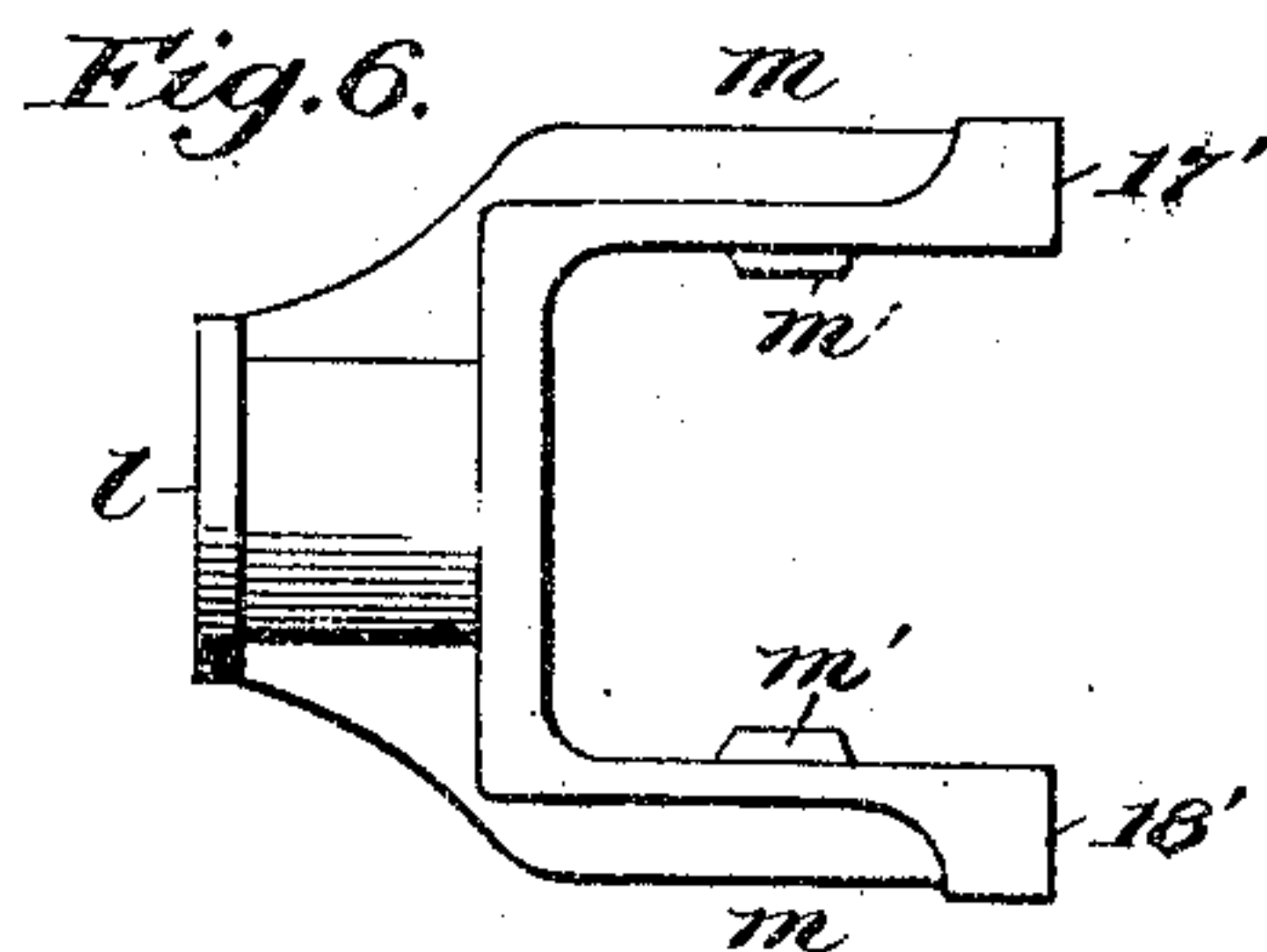
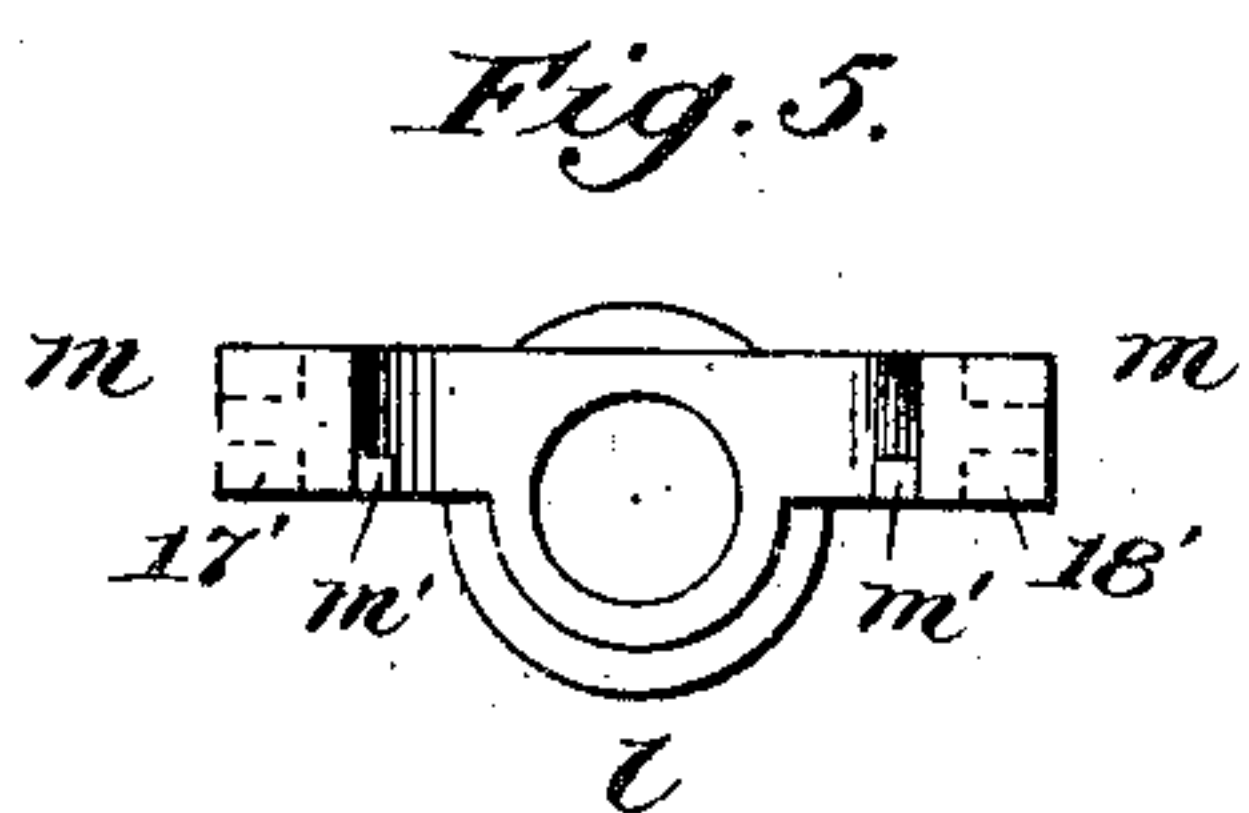
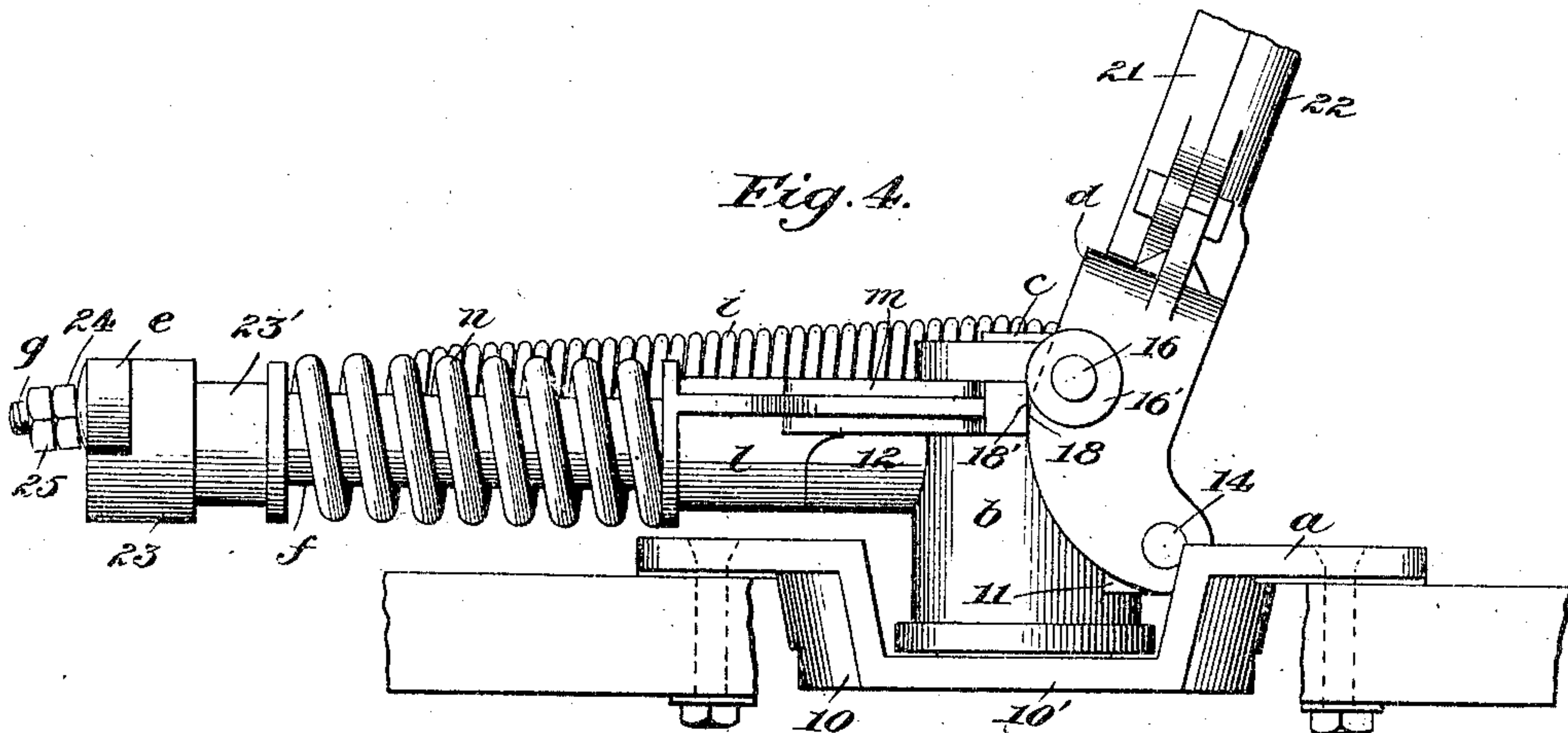
*Charles E. Gierding*  
*by his attorney*  
*J. L. Quinn*

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2 SHEETS—SHEET 2.



Witnesses:

*W. E. Cluett*  
*M. E. Smoot*

Inventor:

*Charles E. Gierding*  
by his attorney  
*W. E. Cluett*



# UNITED STATES PATENT OFFICE.

CHARLES E. GIERDING, OF NEWARK, NEW JERSEY, ASSIGNOR TO STERLING-MEAKER COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TROLLEY-BASE.

970,211.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed June 7, 1909. Serial No. 500,487.

To all whom it may concern:

Be it known that I, CHARLES E. GIERDING, a citizen of the United States of America, and a resident of Newark, in the State of New Jersey, have invented a new and useful Improvement in Trolley-Bases, of which the following is a specification.

In common with the improvements in trolley bases set forth in my specification forming part of United States Letters Patent No. 802,160, dated October 17, 1905, and a companion specification forming part of my application for patent filed August 14, 1908, and allowed December 26, 1908, Serial No. 448,507, (Letters Patent No. 928,422, dated July 20, 1909,) the present invention relates to the construction of stands or bases for trolley poles adapted to be attached to the roofs of trolley cars and to render the poles swiveled, folding and self-elevating with reference to the top of the car.

The present invention consists in certain novel combinations of peculiarly constructed and arranged parts including a "cushion stop," common hereto and to said companion specification and in an improved trolley base embodying such combinations or any of them, as hereinafter more particularly described and claimed.

The leading object of the present invention is to provide a trolley base of the type set forth in said patent specification, including modifications thereof, with said cushion-stop improvement.

Another object is to reduce to the utmost the minimum height of the trolley base above the roof of the car when the trolley pole is lowered to travel beneath bridges or within tunnels or the like.

Other objects will be set forth in the general description which follows.

Two sheets of drawings accompany this specification as part thereof.

Figure 1 is a top view of the improved trolley base with its pole fork in its normal working position; Fig. 2 is a side view projected from Fig. 1; Fig. 3 is a side view showing the parts as they appear when the pole fork is lowered; Fig. 4 is a side view, omitting the tensile springs at the rear side of the trolley base, showing the pole fork in contact with the buffer fork of the cushion stop; Figs. 5 and 6 are detail views of said buffer fork, detached; Figs. 7 and 8 are detail views of the buffer spring detached;

and Fig. 9 represents an axial vertical section through the turret and roller bearing.

Like reference characters refer to like parts in all the figures.

In common with the parts of said patented trolley base and the trolley base set forth in said companion specification, the present construction includes a base proper or base plate, *a*, having bolt-holes, 1, 2, 3, and 4, which provide for bolting it to the roof of the car, and having on top at its center a hollow cylindrical stem, 5, the periphery of which, together with an annular step, 6, Fig. 9, at its base, is adapted to interact with and support vertical anti-friction rolls, 7, as in Fig. 9; and further provided with sockets or couplings, 8 and 9, Fig. 1, which may be of any known or improved form, as means for connecting the trolley base with the electric conductors leading to the motor. The present base plate *a* is further constructed with a dished middle portion, 10, as shown in Figs. 2, 3 and 4, adapting its bottom, 10', to project downward into or through the roof of the car to any required extent.

The inner circumferential surface of a cap or turret, *b*, interacts with said anti-friction rolls 7, and the roller bearing is inclosed by said turret, which is also preferably constructed as in said patented trolley base in the form of an inverted cup having a transverse horizontal pivot socket 11, and a horizontal or substantially horizontal strut socket, 12, at right angles to said pivot socket and perpendicular or substantially perpendicular to the vertical axis of the turret. Said pivot socket 11 is preferably and conveniently located in the present construction at the front of the turret *b*, near said bottom 10'; a pair of guides, 12', are formed at the sides of said strut socket 12, the lateral surfaces of the guides being parallel with each other and as wide apart as the sides of the turret; and horizontal runways, *b'*, Fig. 1, are formed in the edges of said guides 12' and in the sides of the turret *b* in line with said guides.

The turret *b* is held in place longitudinally or vertically against accidental displacement, as in the patented trolley base, by an axial bolt, 13, Fig. 9, extending through the chamber of the hollow stem 5. In the present construction this bolt preferably interacts with a nut, 13', within a recess at



the top of the turret which is covered by a cap plate, *c*.

The pole fork, *d*, as in said patented trolley base, is pivoted to said turret *b* by a horizontal pivot, 14, fitted to said transverse socket 11 of the turret and to pivot holes in the respective sides of the fork. These pivot holes in the present construction are located at the lower extremities of the pole fork, which are suitably recurved as shown in Figs. 2, 3 and 4, so that they project downward in the lowered position of the pole (Fig. 3) said transverse socket 11 being also located as low down as may be convenient upon the front of the turret so as to locate said pivot 14 within said dished portion of the base plate *a*, and the laterally projecting wrist pins, 15 and 16, of the pole fork are arranged parallel with said horizontal pivot 14, at or about the level of the top of the turret in the normal or working position of the pole fork represented in Figs. 1 and 2.

The pole socket, 21—22, is preferably, as heretofore, bisected longitudinally, and its clamping piece 21, is held in place by bolts, extending through perforated lugs on its respective parts.

A crossbar, *e*, parallel with said horizontal pivot 14 and said wrist pins 15 and 16, is supported, as heretofore, by a central strut, *f*, preferably of metallic tubing or pipe, one end of the strut occupying said strut socket 12 at the back of the turret *b*, within which it is seated, and its other end a like socket within a central boss, 23, on the crossbar.

The crossbar *e* is provided as heretofore with holes through which the screw-threaded shanks of a pair of double hooks, *g* and *h*, extend; and each of said shanks is provided with a pair of nuts, 24 and 25, behind the crossbar to provide for the longitudinal adjustment of the screws, and for securely locking them in their adjusted positions. Stretched from said double hooks *g* and *h*, respectively, to the respective wrist pins 15 and 16, as heretofore, are two pairs of tensile springs, *i* and *j*, which are preferably of rod steel so coiled as to form conical ends within which the shanks of coupling eyes, 26 and 27, are securely held; the eyes of each spring embracing a sleeve, 15' or 16', of malleable iron or steel, on the adjoining wrist-pin 15 or 16, and one of the hooks of the opposing double hook *g* or *h*.

Both ends of the tubular strut *f* are seated within closed sockets; and an axial tie bolt, *k*, extends through the crossbar *e* lengthwise of the strut *f* into a tapped hole, *k'*, in the turret casting, as shown in Fig. 9.

The other parts of the cushion-stop device are a buffer fork, *l—m*, shown detached by Figs. 5 and 6, and a buffer spring, *n*, shown detached by Figs. 7 and 8. Said buffer fork has at its rear end a central sleeve portion (*l*) which embraces said

strut *f* and is slidable thereon, and at its front end a bifurcated portion (*m*), the respective extremities of which, 17' and 18', interact with the buffer surfaces 17 and 18 of the pole fork which are convexly curved and are suitably arranged to interact with said buffer fork extremities 17' and 18'. See Fig. 4. Inwardly projecting "fins", *m'*, Figs. 5 and 6, within the buffer fork *m* slide in said runways *b'*, Fig. 1, in the guides 12' and the sides of the turret to keep the buffer fork from yielding vertically under strain.

The buffer spring *n* is preferably and conveniently of helically coiled rod steel, and embraces the strut *f* between said sleeve portion *l* of the buffer fork and said central boss 23 of the crossbar *e*, a loose collar 23' being preferably interposed between the spring and said boss.

Normally, when the trolley wheel is in contact with the overhead wire (Figs. 1 and 2), as well as when the trolley pole is pulled down flat upon the top of the car (Fig. 3), or as occasion may require, the buffer surfaces 17 and 18 are out of contact with said extremities 17' and 18' of the buffer fork *l—m*, and the buffer spring *n* is free from tension.

When dewirement occurs, said buffer surfaces 17 and 18 come into contact with said extremities 17' and 18' of the buffer fork *l—m*, as in Fig. 4, and the buffer spring *n* is compressed between said sleeve portion *l* of the buffer fork and said boss 23 of the crossbar *e*, and serves to cushion the strain, so that no injury to any of the parts of the trolley base is likely to result.

That end of the trolley base and of each of its parts shown at the right in Figs. 1, 2, 3 and 4, is herein termed the front end.

The circumferential outer part of the roller bearing, instead of a central stem, may be formed on the base plate, as set forth in Patent No. 539681 to Alfred Green, dated May 21, 1895, or the roller bearing may be of other known or improved forms appropriate to the present improvement; the improved trolley base may obviously have any preferred form or number of tensile springs; the buffer spring may, if preferred, be volute or of any other appropriate form; and other like modifications will suggest themselves to those skilled in the art.

Having thus described said improvement, I claim as my invention and desire to patent under this specification:

1. A trolley base having, in combination, a base plate constructed with a dished middle portion, a turret having its vertical pivot within said dished portion and constructed with a transverse horizontal pivot socket on its front within and near the bottom of said dished portion and a strut socket at right angles to said pivot socket on its back im-



mediately above the plane of said dished portion, a pole fork having recurved lower ends pivoted to said turret at said pivot socket within said dished portion and having buffer surfaces at its back, a strut seated in said strut socket, a cross bar supported by the rear end of said strut, connections including tensile springs between said cross bar and said pole fork, a buffer spring embracing said strut and seated on said cross bar, and a buffer fork having a sleeve portion slidable on said strut in contact with said buffer spring and bifurcations arranged to interact with said buffer surfaces of the pole fork.

2. The combination, in a trolley base, of a turret having a vertical axis of rotation and constructed with a transverse horizontal pivot socket on its front near its bottom, a superjacent strut socket at right angles to said pivot socket on its back, a pair of guides at the sides of said strut socket, and horizontal runways in the plane of said guides, a pole fork pivoted to said turret at said pivot socket and having buffer surfaces at its back, a strut seated in said strut socket, a crossbar supported by the rear end of said strut, connections including tensile springs between said crossbar and said pole fork, a buffer spring embracing said strut and seated on said crossbar, and a buffer fork having a sleeve portion slidable on said strut in contact with said buffer spring and bifur-

cations constructed with extremities arranged to interact with said buffer surfaces of the pole fork and inwardly projecting fins arranged to slide within said runways of the turret.

3. The combination, in a trolley base, of a base plate having a dished middle portion, a turret mounted in said dished portion and having a vertical axis of rotation and constructed with a transverse horizontal pivot socket near the bottom of said dished portion and a strut socket at right angles to said pivot socket immediately above the plane of said dished portion, a pole fork constructed with recurved lower ends pivoted to said turret at said pivot socket within said dished portion and having convexly curved buffer surfaces at its back, a strut seated in said strut socket, a crossbar supported by the rear end of said strut, connections including tensile springs between said crossbar and said pole fork, a buffer spring embracing said strut and seated on said crossbar and a buffer fork having a sleeve portion slidable on said strut in contact with said buffer spring, and bifurcations arranged to interact with said buffer surfaces of the pole fork, substantially as hereinbefore specified.

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Witnesses:

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ELLA J. LEONARD.