

No. 767,025.

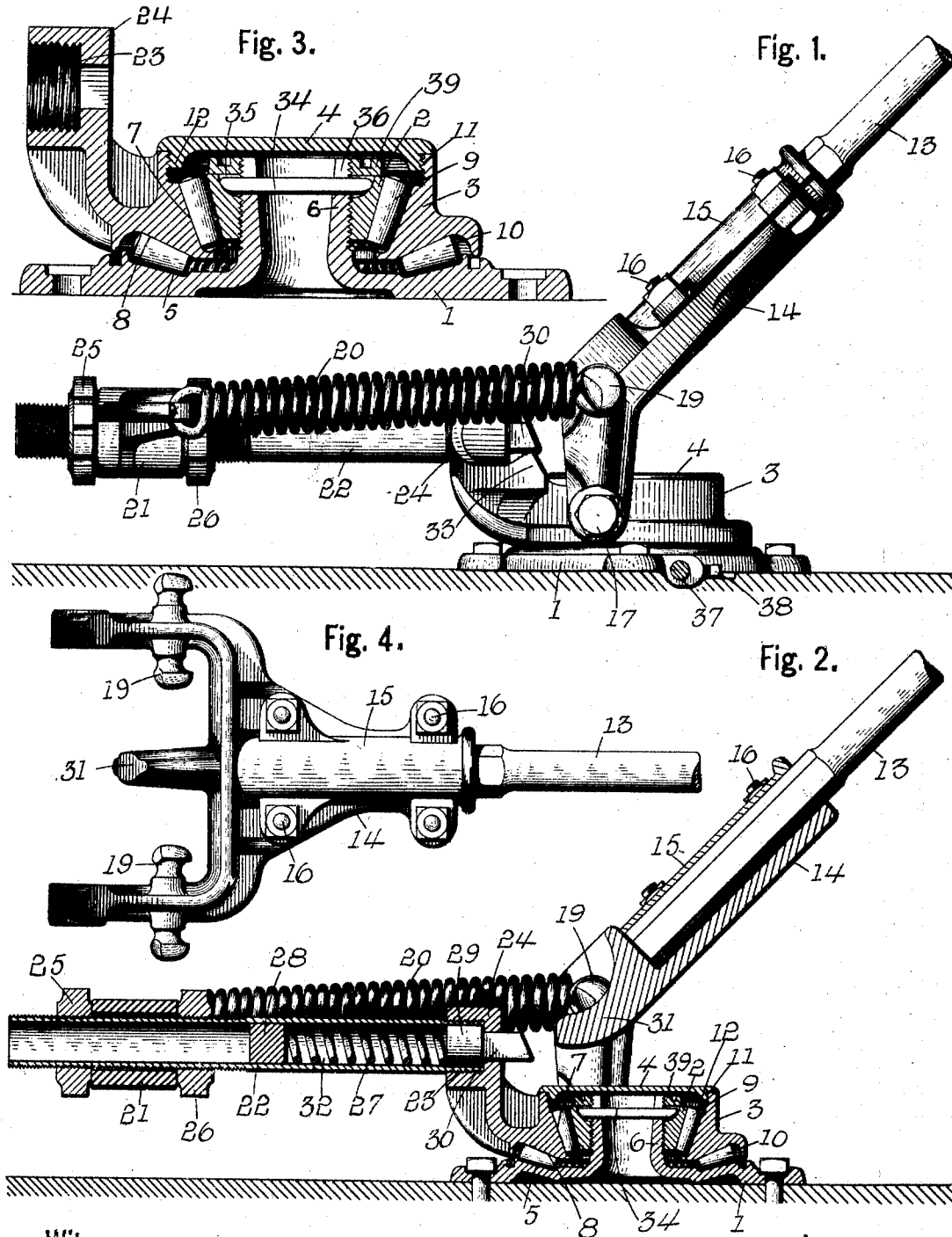
PATENTED AUG. 9, 1904.

G. VOLKER & A. W. & A. GOERLITZ.
TROLLEY BASE AND POLE OR ARM THEREFOR.

APPLICATION FILED OCT. 16, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses.

L. M. Sangster
Geo. A. Neubauer.

By

Inventors.

George Volker.
Albert W. Goerlitz.
August Goerlitz.
A. Sangster, Attorney.

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2 SHEETS—SHEET 2.

MODEL.

Fig. 5.

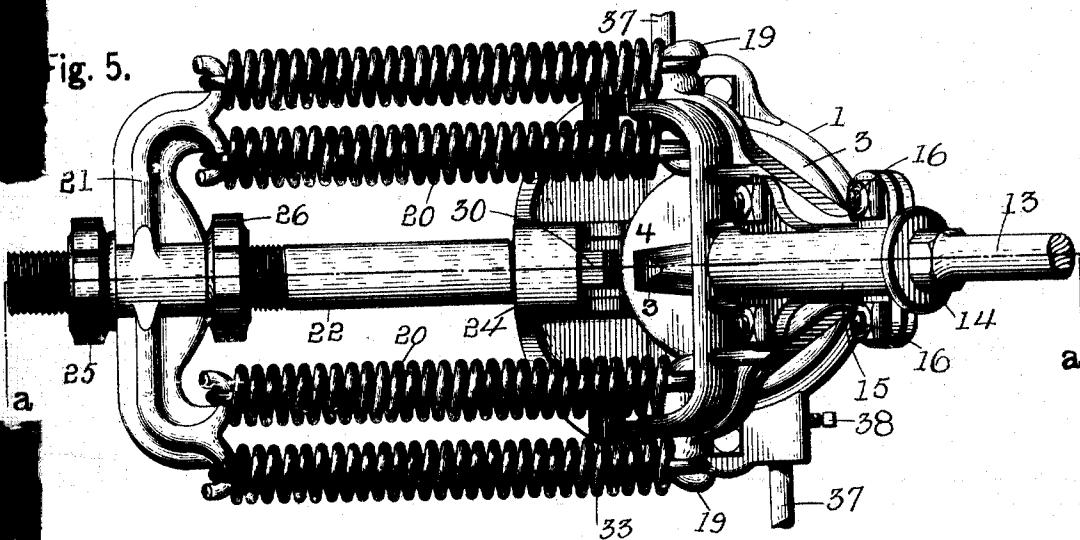


Fig. 6.

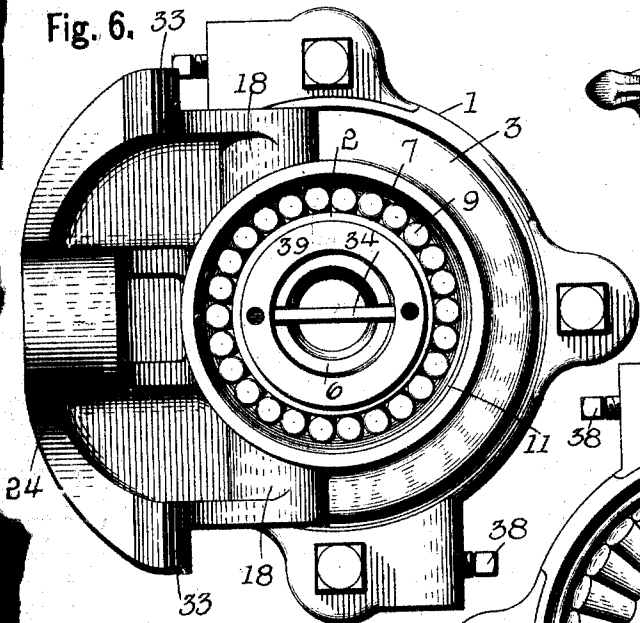


Fig. 8.

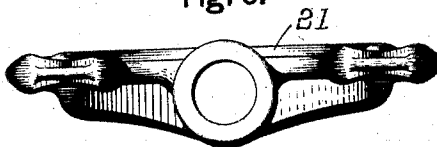


Fig. 9.

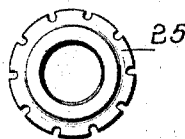


Fig. 7.

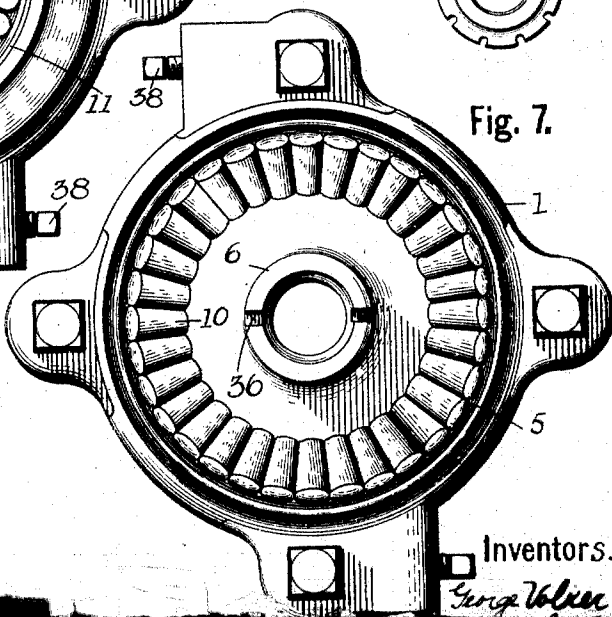
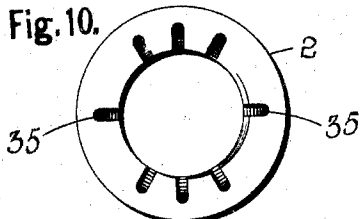


Fig. 10.



Witnesses.

Inventors.
G. Volker
A. W. & A. Goerlitz

UNITED STATES PATENT OFFICE.

GEORGE VOLKER, ALBERT W. GOERLITZ, AND AUGUST GOERLITZ, OF
BUFFALO, NEW YORK.

TROLLEY-BASE AND POLE OR ARM THEREFOR.

SPECIFICATION forming part of Letters Patent No. 767,025, dated August 9, 1904.

Application filed October 16, 1903. Serial No. 177,300. (No model.)

To all whom it may concern:

Be it known that we, GEORGE VOLKER, ALBERT W. GOERLITZ, and AUGUST GOERLITZ, citizens of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Trolley-Bases and Poles or Arms Therefor, of which the following is a specification.

This invention relates to an improved trolley-base and pole or arm therefor in which the movable support to which the trolley-arm is pivoted is supported between a plurality of hardened antifriction-bearings, such as roller-bearings, with the rollers of one set of bearings arranged at an angle to the rollers of another set of bearings, the object being to reduce the friction to the lowest minimum and to as nearly as possible eliminate the wear, and also to distribute the weight and the tensioning strain throughout the surface of the rollers. To this end the roller-bearings are arranged so that one set, which is preferably in horizontal or nearly-horizontal position to distribute the weight throughout the surface of the rollers and another has its rollers in vertical or nearly-vertical position to distribute the tensioning strain of the trolley-pole.

This invention also relates to certain improvements in construction, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which an adaptation of the invention is shown.

Figure 1 is a side elevation of the trolley-base and a fragment of the trolley-pole. Fig. 2 is a central vertical section through the trolley-base on line *a a*, Fig. 5. Fig. 3 is an enlarged central vertical section through the base proper on line *a a*, Fig. 5. Fig. 4 is a detached plan view of the yoke or fork of the trolley-pole. Fig. 5 is a top plan view of the trolley-base and a fragment of the trolley-pole. Fig. 6 is an enlarged top plan view of the base proper with the top cap removed to disclose the upper bearings. Fig. 7 is an enlarged detached plan view of the bottom sta-

tionary disk or plate, showing the lower set of rollers in position. Fig. 8 is a detached front view of the cross-arm for supporting the springs. Fig. 9 is a side elevation of one of the adjusting-nuts. Fig. 10 is a detached plan view of the cone of the upper set of bearings.

In referring to the drawings in detail like numerals designate like parts.

In this improved device the revoluble portion of the base, to which the trolley-pole is connected, is supported between two stationary parts, and a set of antifriction-bearings are interposed between each of the stationary parts and the revoluble part, so that the revoluble part is actually located between two independent sets of hardened bearings, such as roller-bearings. These bearings sustain the tension of the trolley-pole when bearing against the trolley-wire and serve in a large measure to relieve the stationary parts of the same.

In the adaptation shown in the accompanying drawings the base proper consists of the lower stationary part or base-plate 1, the upper stationary part or cone 2, the revoluble part or member 3, and the top cap 4. The lower stationary part or base 1 is formed substantially as shown in Figs. 2, 3, 6, and 7, being provided with an inclined annular bearing-surface 5, which constitutes the lower race or track for the antifriction-rollers, and a central vertical tubular portion 6, which is substantially concentric with the annular bearing-surface 5. The revoluble part or member 3 has a circular opening through which the tubular portion 6 is adapted to loosely fit, and the upper and lower surfaces 7 and 8 of that portion of the part 3 immediately adjacent to the opening are substantially flat to form bearing-surfaces for rollers. The surfaces 7 and 8 gradually taper toward each other toward the opening, as shown in Figs. 2 and 3. A cone 2 is adapted to screw upon the tubular portion 6, which is screw-threaded, as shown in Figs. 2 and 3. A set of tapering rollers 9 are interposed between and roll between the outer surface of the cone 2 and the upper surface 7 of the revoluble part or member which constitutes the

the upper set of rollers, and a similar lower set of rollers 10 are interposed and roll between the lower surface 8 and the annular bearing-surface 5 of the base-plate 1. The upper set of rollers are in vertical or nearly-vertical position to distribute the tensioning strain of the trolley-pole throughout the surface of the rollers, and the lower set are in horizontal or nearly-horizontal position to distribute the support of the revoluble member and trolley-pole throughout the surface of the rollers. Both of these sets of bearings are adjusted by the adjustment of the cone 2. That portion of the revoluble member extending above the upper bearings is internally screw-threaded at the top, as shown at 11 in Figs. 2 and 3, and the top cap 4 has a lower projecting annular flange 12, which is externally screw-threaded and screws into the corresponding screw-threaded top portion 11. This cap serves to inclose and protect the bearings from dirt, dust, or the like.

The trolley-pole proper, 13, has its lower end clamped to an angular fork 14, being fitted in a depression in the upper extension of the fork and held there by a plate 15, which is bolted to the fork by the bolts 16. (See Figs. 1, 2, 4, and 5.) The fork 14 is pivoted to the revoluble member 3 by pivot bolts or pins 17, which pass through openings in the lower ends of the forks and screw into sockets 18 in the revoluble part. Each of the two forks is provided with a pair of lateral hooks or lugs 19, each of which extends oppositely to the other and from the opposite side of the fork, which serve to support the ends of tension-springs 20. The opposite ends of these springs 20 are hooked over similar lugs extending from a cross-arm 21, which is adjustably mounted on a tube 22, which has one end screwed into a socket 23 in an upper extension 24 of the revoluble part or member 3. (See Fig. 2.) The cross-arm 21 is adjusted and locked in position on the tube 22 by lock-nuts 25 and 26, the tube being screw-threaded, as shown, and one nut being fitted on each side of the cross-arm.

A combined spring and air-cushion is arranged to relieve the jar when the trolley-wheel leaves the trolley-wire and flies up under tension of the springs 20, which in the adaptation shown consists of a coil-spring 27, arranged in the tube 22 with one end against a block or stop 28 and the other against the inner surface of a slide-block 29, which has a finger 30 projecting through the inner wall of the extension 24 in the rear of the socket 23. (See Fig. 2.)

When the trolley-pole flies upward, the curved central projection 31 of the forks strikes against the finger 30 and forces it inward against the tension of the spring and also by means of the inward movement of the snugly-fitting slide-block 29 compressing the air in the chamber 32. Two shoulders 33 are formed one on each side of the socket 23, (see

Fig. 6,) which forms positive rigid stops to limit the upward movement of the trolley-pole.

The cone 2 is locked in its adjusted position by a metal strip or rod 34, which is seated in depressions 35 in the cone and depressions 36 in the tubular portion 6, said cone being turned to bring the depressions into registering position.

The conducting-wires 37 are connected to the base by fitting their ends in sockets in the base-plate and fastening them therein by set-screws 38.

The cone 2 is additionally locked against movement by a lock-nut 39, which is screwed upon the tubular portion 6 of the lower stationary part 1 above the cone 2. (See Figs. 3 and 6.)

We claim as our invention—

1. In a device of the class described, a base, a revoluble member, a trolley-pole having connection to said revoluble member, and a plurality of sets of bearings between which said revoluble member is rotatably supported; one of said sets having rollers which are arranged in approximately horizontal position.

2. In a device of the class described, a base, a revoluble member, a trolley-pole having connection to said revoluble member, and a plurality of sets of bearings between which said revoluble member is rotatably supported; one of said sets having rollers which are arranged in approximately vertical position.

3. In a device of the class described, a base-plate having a vertical tubular portion, a revoluble member having an opening through which the tubular portion extends, a cone on the tubular portion between the revoluble member and the tubular portion and antifric-tion devices, such as rollers, interposed between the base-plate and the revoluble member and the cone and the revoluble member.

4. In a device of the class described, a base-plate having a vertical tubular portion, a revoluble member having an opening through which the tubular portion extends, a cone on the tubular portion between the revoluble member and the tubular portion, a top cap attached to the revoluble member, and antifric-tion devices, such as rollers, interposed between the base-plate and the revoluble member and the cone and the revoluble member.

5. In a device of the class described, a base-plate having a vertical tubular portion, a revoluble member fitting loosely around the tubular portion, a cone on the vertical tubular portion, a set of tapered rollers between the base-plate and the revoluble member and a second set of tapered rollers between the cone and the revoluble portion.

6. In a device of the class described, a base-plate having a vertical tubular portion, a revoluble member fitting loosely around the tubular portion, a cone on the vertical tubular portion, a set of nearly-horizontal tapered

rollers between the base-plate and the revoluble member, and a second set of nearly-vertical tapered rollers between the cone and the revoluble portion.

5 7. In a device of the class described, a base-plate having a vertical tubular portion, a revoluble member fitting loosely around the tubular portion, a cone on the vertical tubular portion, a set of rollers between the base-plate and the revoluble member, a set of rollers between the cone and the revoluble member and a trolley-pole having a fork pivotally attached to the revoluble member.

15 8. In a device of the class described, a base, a revoluble member, a trolley-pole having connection to said revoluble member, and a plurality of sets of bearings between which said revoluble member is rotatably supported; one of said sets having rollers which are arranged in approximately horizontal position and another having rollers which are arranged in approximately vertical position.

25 9. In a device of the class described, a base, a revoluble member, a trolley-pole having connection to said revoluble member, and a plurality of sets of roller-bearings between which said revoluble member is rotatably supported, the rollers of one set of bearings

being arranged at an angle to the rollers of another set.

10. In a device of the class described, a base, a revoluble member, a trolley-pole having connection to said revoluble member, and a plurality of sets of bearings between which said revoluble member is rotatably supported; one of said sets having rollers which are arranged in approximately horizontal position and upon which the revoluble member is rotatably mounted.

11. In a device of the class described, a base-plate having a vertical tubular portion, a revoluble member fitting loosely around the tubular portion, a cone on the vertical tubular portion, a set of tapered rollers arranged in approximately horizontal position between the base-plate and the revoluble member, and a second set of tapered rollers between the cone and the revoluble portion; the rollers of said second set being in approximately vertical position.

GEORGE VOLKER.
ALBERT W. GOERLITZ.
AUGUST GOERLITZ.

Witnesses:

L. M. SANGSTER,
CHAS. PANKOW.