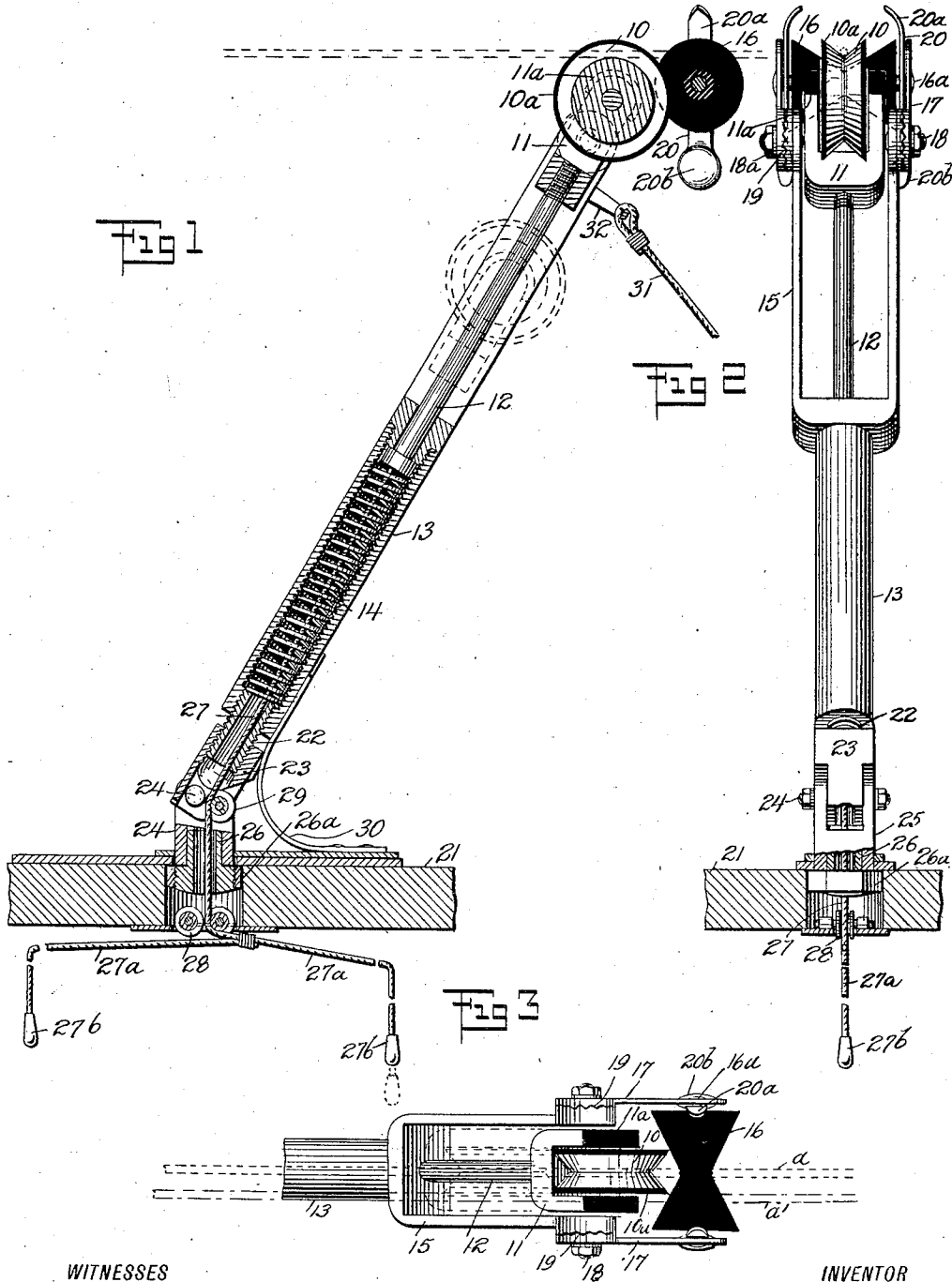


G. A. SPAETH.
TROLLEY REPLACER.
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1,065,851.

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TROLLEY-REPLACER.

1,065,851.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GUSTAVE A. SPAETH, a citizen of the United States, and a resident of Columbus, in the county of Franklin and State of Ohio, have invented a new and Improved Trolley-Replacer, of which the following is a full, clear, and exact description.

My invention relates particularly to overhead trolleys, and the object of the invention is to provide an improved replacer device to guide and replace the trolley wheel on the conductor wire.

The invention will be particularly explained in the specific description following.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a vertical sectional elevation; Fig. 2 is a front view, partly in section; and Fig. 3 is a fragmentary plan view.

In constructing a trolley and replacer in accordance with the illustrated example, the trolley wheel 10 is mounted in the fork 11 of a plunger 12, which is fitted for axial movement in a tubular portion or cylinder 13 forming part of the trolley pole, there being a helical spring 14 within said cylinder normally tending to force the plunger 12 outward to carry the trolley wheel to the upper, normal position.

The outer end of the trolley pole is in the form of a fork 15 in which is mounted a replacer roller 16, and relatively to which the trolley wheel has movement. The replacer roller is in the form of a double cone, presenting a perimeter tapering from each end toward the center, and is of insulated material, or is insulated from the trolley pole. Similarly the sides 10^a of the trolley wheel 10 are insulated, and the upper end of the fork 11 carrying the trolley wheel is provided with insulating material, as indicated at 11^a.

In order that the replacer roller 16 may be adjusted with respect to its angular position relatively to the trolley pole, said replacer roller is mounted on arms 17 that may be turned on pivot bolts or pins 18, and the opposed faces of the fork 15 and the arms 17 are corrugated or roughened, as indicated at 19, to interlock upon the tightening of nuts 18^a on the pivot bolts 18. Arms 20 may be employed and pivoted on

the axle 16^a of the replacer roller 16, the upper ends of the arms 20 being interned as at 20^a, to prevent the trolley from completely leaving the conductor. The lower ends 20^b of the arms 20 are weighted to normally maintain the inwardly curved upper ends 20^a in the raised position.

Any approved means may be provided to mount the trolley pole on the car roof, a portion of which is indicated by the numeral 21. In the illustrated example of my invention a threaded nipple 22 takes into the lower end of the cylinder 12, and its opposite end takes into a threaded socket 23, which is mounted on a pivot 24, so that the pole may rock vertically in the usual manner. It will be obvious that the relative turning of the cylinder 13 and nipple 22 will serve to adjust the tension of the spring 14. The pivotal connection of the socket 23 is in the present instance on a tubular standard 25, that rises from the roof 21 and receives a bushing 26 which may be held by a nut 26^a.

A pull rope 27 is connected with the inner lower end of the plunger 12 and extends through the cylinder 13, the nipple 22, socket 23, and bushing 26 to the interior of the car, the pull rope branching as at 27^a in opposite directions and extending in practice, to the ends of the car within convenient reach of the attendants. It is to be understood that the pull rope may be suitably guided to the ends of the car from the trolley pole, and that the arrangement shown is only intended as one example. The said rope is shown as running over guide sheaves or rollers 28, 29. Any approved spring 30, here shown conventionally as a plate spring, tends to raise the trolley pole, and a pull rope 31 connects with the trolley pole in any suitable manner, as indicated at 32.

With the described construction the trolley wire will normally assume the position indicated by the letter *a*, (Fig. 3) in line with the peripherally grooved trolley wheel, and disposed over the center of the replacing roller 16. It will be seen that the roller 16 extends at each side beyond the trolley wheel, and when the trolley wheel leaves the conductor the latter will be caught by a side of the trolley wheel, as indicated by the dotted lines *a'*, the conductor resting on the replacer roller and on the insulated material 11^a of the trolley fork 11, the coned perimeter of the replacer roller causing the

conductor to be pressed against the side of the trolley wheel. The described insulation cuts off the current. The conductor or motorman may now by a pull on the rope 27, 5 move the plunger 12 axially of the pole, lowering the trolley wheel 10 below the top of the replacer roller, and permit the conductor wire to assume the central position on the replacer roller. Upon releasing the pull 10 rope 27 the spring 14, it is obvious, will give a return axial movement to the plunger 12, throwing the same outwardly and raising the trolley wheel 10 into engagement with the conductor.

15 It is to be understood that the trolley wheel is merely illustrated as the generally accepted form of contact device, and that when referring to the trolley wheel any equivalent contact member is meant.

20 The described construction affords a practical means for carrying my invention into effect, and I would state in conclusion that I do not limit myself to the mechanical details herein illustrated, since manifestly the 25 same can be considerably varied without departure from the spirit of the invention.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent:

30 1. A trolley pole having a trolley wheel, a support for said wheel slidably mounted on the trolley pole, to move longitudinally therewith, and a relatively fixed replacer roller carried by the trolley pole adjacent 35 to the outer position of the trolley wheel.

40 2. A trolley pole, having a trolley wheel, a shank carried by said wheel and slidably mounted on the pole for movement longitudinally of the latter, a spring normally 45 tending to force the said shank and trolley

wheel upward and outward on the trolley pole, a pull rope connected with the said shank whereby the latter may be pulled downward against the action of the spring, and a relatively fixed replacer roller carried by the upper end of the pole adjacent 45 to the upper position of the trolley wheel.

3. A trolley pole having a trolley wheel, a fork carrying the trolley wheel, a plunger in which said fork is mounted, the trolley 50 pole having a tubular portion in which the said plunger is slidable, a spring within the cylinder and normally tending to press the plunger outward, a pull rope extending from the plunger whereby a pull may be 55 exerted on the plunger against the tension of the spring, and a replacer roller carried by the trolley pole adjacent to the upper position of the trolley wheel.

4. A trolley pole having a trolley wheel, 60 a fork carrying the trolley wheel, a shank on which the fork is mounted, said shank being slidable axially of the trolley pole, and a relatively fixed replacer roller on the trolley pole adjacent to the outer portion 65 of the trolley wheel and extending laterally at each end beyond the plane of said trolley wheel, the replacer roller being of double cone form to present a perimeter tapering from the ends toward the center, the 70 replacer roller, the sides of the trolley wheel and the upper end of the trolley wheel fork being insulated from the pole.

In testimony whereof I have signed my name to this specification in the presence of 75 two subscribing witnesses.

GUSTAVE ADOLF SPAETH.

Witnesses:

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