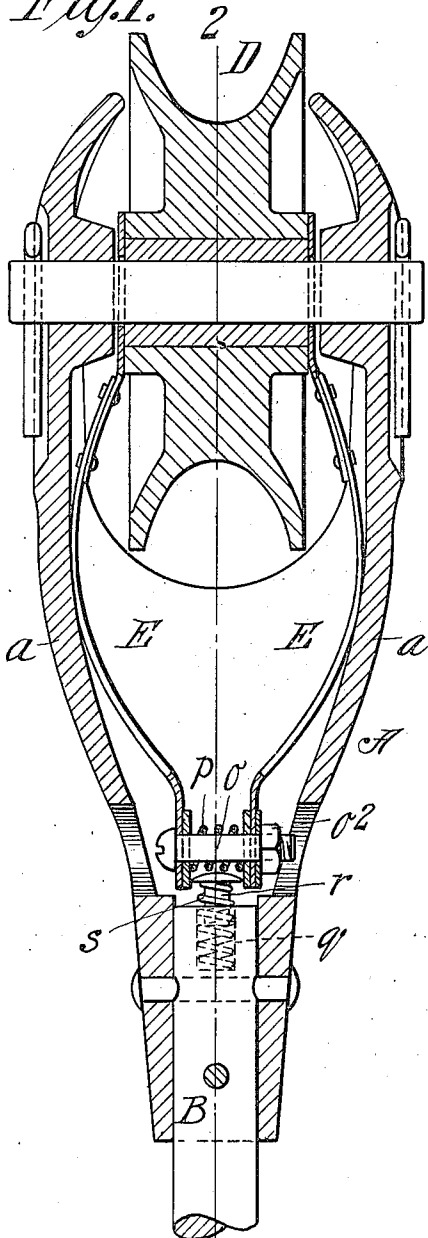


L. J. TETLOW.
TROLLEY.
APPLICATION FILED MAY 12, 1911.

1,045,758.

Patented Nov. 26, 1912.

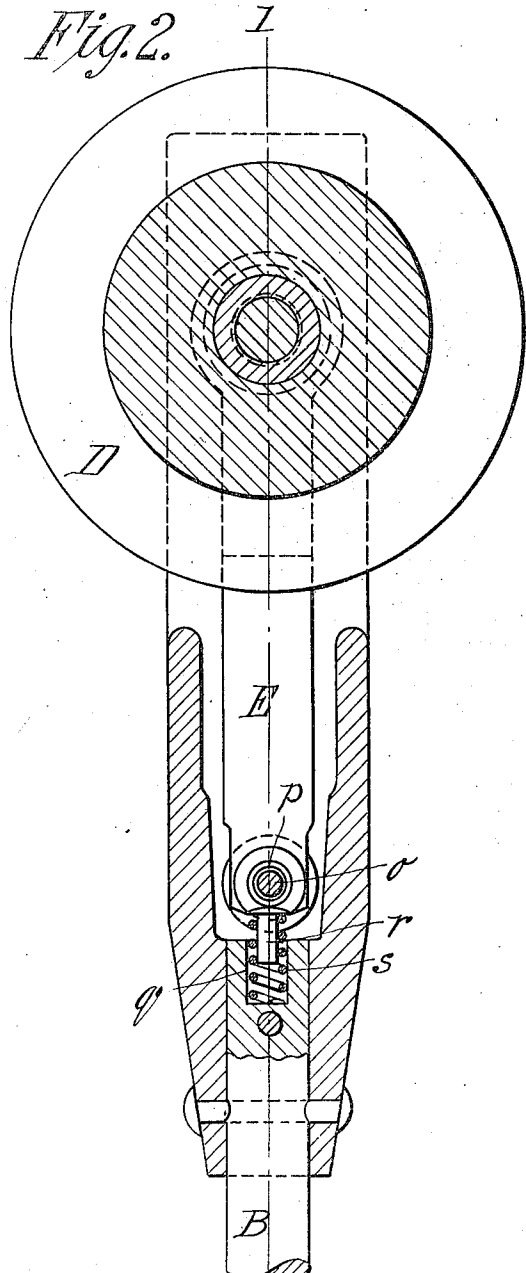
Fig. 1.



WITNESSES: 2

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Fig. 2.



1 INVENTOR,
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TROLLEY.

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To all whom it may concern:

Be it known that I, LEWIS J. TETLOW, a citizen of the United States of America, and resident of West Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Trolleys, of which the following is a full, clear, and exact description.

This invention relates to trolleys for electric railway cars.

The object is to so construct the contact springs in united pairs and to combine them within the trolley harp that a perfect contact both with the hub of the trolley wheel and with the harp is assured.

Other objects are to generally improve and increase the efficiency of the trolley in respects which will be hereinafter rendered manifest.

The invention is described in conjunction with the accompanying drawings and set forth in the claims.

In the drawings:—Figure 1 is a vertical sectional view through the trolley harp on the plane of the axle. Fig. 2 is a central vertical sectional view at right angles to Fig. 1. The lines 1—1 and 2—2, precisely indicate the planes on which Figs. 1 and 2 are taken.

In the drawings, A represents the trolley harp having a socket in its lower end into which the upper end of the trolley pole B is fitted and secured as usual, and which end of the pole constitutes the harp base. The harp comprises the oppositely located jaws *a a* which at their lower portions are made with apertures *b b*.

D represents the trolley wheel mounted on the axle C which is supported by the harp jaws *a a* as usual, and E represents the duplicated contact springs.

The preferred construction and manner of mounting of the united pair of contact springs is represented in Fig. 1 of the drawings, although limitation to this specific construction and mode of application is not intended to be made by me; and referring to Fig. 1, the contact spring plates have substantially parallel lower and upper extremities, the latter embracing the axle and bearing throughout their proximate areas on the hub ends of the wheel, and the said plates are outwardly oppositely bowed between their extremities so as to have re-

silient bearings against the inner faces of the trolley harp side members.

o represents a headed bolt the shank of which passes through the separated lower extremities of the contact spring plates, its head bearing on one plate and the nut *o*² engaging the bolt and bearing against the outer face of the other contact spring plate; and a spiral spring *p* encircles the bolt and is in compression between the loosely connected extremities of the contact spring plates. The nut operates both to prevent disconnection of the loosely connected parts and to vary the tension of the spring which forms a yielding separating means between the spring contact plates.

In the base of the trolley harp, which as illustrated is constituted by the upper end of the trolley pole B which is fitted and secured in the socket therefor in the shank of the trolley wheel as usual, is a vertical upwardly open cavity *q* in which is fitted a plunger *r* having a head enlargement, which plunger is upwardly pressed by the spring *s* and is downwardly yieldable against the force of such spring; and this plunger is in constant contact engagement with the spring encircled bolt which loosely connects and is in metallic connection with the spring contact plates. Therefore, it is to be seen that the contact springs E E have a comparatively broad and positive face bearing on the hub ends of the wheel, have, furthermore, bearings at their intermediately bulged parts with the side members of the harp, and also have metallic circuit forming connections constantly with the spring plunger at the base of the harp, assuring by reason of the latter even if one or both of the bowed parts of the springs should vibrate or become displaced from the trolley harp cheek contacts, a certainty of connection for current conductivity at the base of the trolley.

The springs *p* and *q* are made of comparatively large gage wire so as to be capable of carrying the maximum current carried on the trolley wire.

Various changes may be made in the details and minor features of construction of this trolley without departing from my invention or sacrificing the advantages thereof.

I claim:—

1. In combination, a trolley harp, an axle supported thereby and a trolley wheel, a pair of contact springs and means for uniting the

same at their lower portions, the extremities of said springs embracing the axle and bearing on the ends of the hub portion of the trolley wheel, and resilient means for effecting contact of the said contact springs with the trolley harp below the wheel.

2. In combination, a trolley harp, an axle supported thereby, and a trolley wheel, a pair of contact spring plates having substantially parallel lower extremities, and having their upper extremities embracing the axle and bearing on the ends of the hub portion of the trolley wheel, and said plates being oppositely outwardly bowed between their upper and lower extremities, means for connecting the pair of springs at their lower extremities, and means for imparting a yielding separating pressure to such lower extremities.

3. In combination, a trolley harp, an axle supported thereby, and a trolley wheel, a pair of contact spring plates having their upper extremities embracing the axle and bearing on the hub ends of the trolley wheel, means for loosely uniting the lower extremities of the springs, spring means for exerting a separating force to such lower extremities, and means for varying the tension of the spring separating means.

4. In combination, a trolley harp, an axle supported thereby, and a trolley wheel, a pair of contact spring plates having substantially parallel upper extremities embracing the axle and bearing on the hub ends of the trolley wheel, a headed bolt the shank of which passes loosely through sepa-

rated lower extremities of the contact spring plates, its head bearing on one plate and a nut engaging the bolt and bearing against the other plate, and a spiral spring encircling the bolt and in compression between the loosely connected extremities of the contact spring plates.

5. In combination, a trolley wheel, a trolley harp having a wheel supporting axle and having an upwardly spring pressed and downwardly yielding plunger in its base, a pair of contact springs, the upper portions of which embrace the axle and bear facewise on the hub ends of the trolley wheel and having their lower portions united and in engagement with the top of said spring pressed plunger.

6. In combination, a trolley harp, the axle and trolley wheel, a pair of contact spring plates having substantially parallel upper extremities bearing on the hub end of the wheel, a headed bolt the shank of which passes through the separated lower extremities of the contact spring plates for loosely connecting the same and having a spiral spring encircling it and in compression between such lower extremities, and the trolley harp having in its base a downwardly yielding plunger with which the spring encircled bolt has a constant engagement.

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

LEWIS J. TETLOW.

Witnesses:

WM. S. BELLOWS,
G. R. DRISCOLL.