H. SHAFFERT.

TROLLEY.

APPLICATION FILED JULY 15, 1912.

1,040,789. Patented Oct. 8, 1912.

FIG. 1

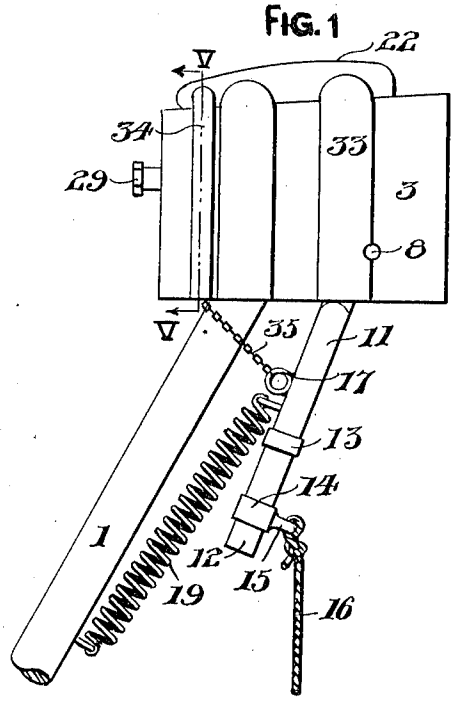


FIG. 2

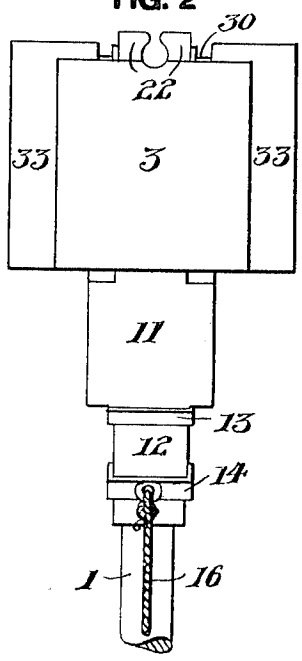


FIG. 3

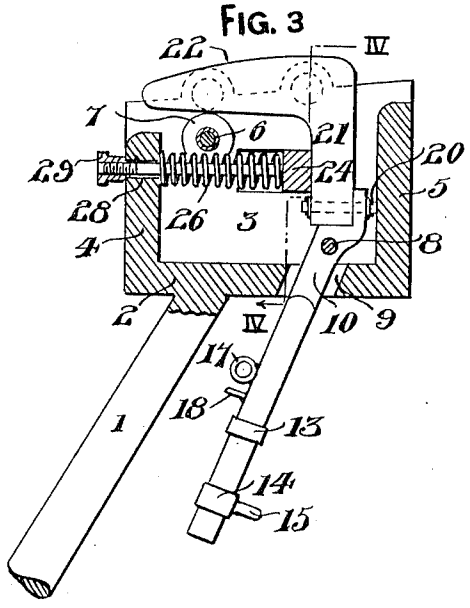


FIG. 4

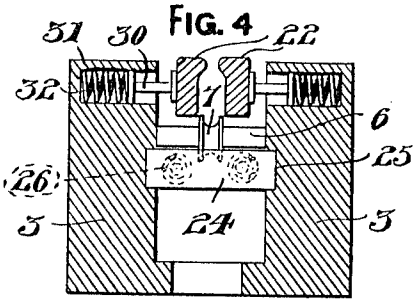
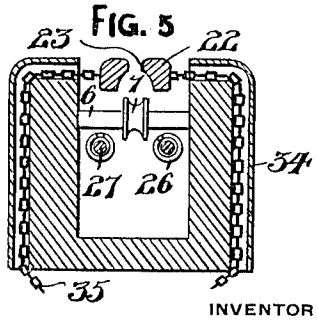


FIG. 5



WITNESSES

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TROLLEY.

1,040,789. Specification of Letters Patent. Patented Oct. 8, 1912.

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To all whom it may concern:

Be it known that I, HENRY SHAFFERT, a citizen of the United States of America, residing at East Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Trolleys, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to trolley harps, and the primary object of my invention is to furnish the upper end of a trolley pole with a harp provided with means for preventing accidental displacement of the harp relatively to a trolley wire, particularly when the harp is passing around curved sections of wire, encountering irregularity, or passing under switch-frogs and guide rails.

Another object of this invention is to furnish a trolley harp with yieldable retaining members that can be easily and quickly opened to permit of the harp being moved away from the trolley wire, particularly when the trolley pole is being reversed or car allowed to drift upon a grade.

A further object of this invention is to accomplish the above results by a mechanical structure that is durable, easy to manipulate, and highly efficient for the purposes for which it is intended.

With the above and other objects in view, the object resides in a novel construction, combination and arrangement of parts to be hereinafter specifically described and then claimed.

Reference will now be had to the drawing, wherein:—

Figure 1 is a side elevation of the harp. Fig. 2 is a rear elevation of the same. Fig. 3 is a longitudinal sectional view of the harp. Fig. 4 is a cross sectional view taken on the line IV—IV of Fig. 3, and Fig. 5 is a similar view taken on the line V—V of Fig. 1.

Further describing my invention in detail with reference to the drawing wherein like numerals denote corresponding parts throughout: 1 denotes the upper end of a trolley pole and formed integral with said pole is a rectangular hollow or box like harp 2 that has side walls 3, a front wall 4 and a rear wall 5, said side walls extending above the front and rear walls, with the front wall 4 of a less height than the rear wall 5, as best shown in Fig. 3.

6 denotes a transverse pin connecting the walls 3 adjacent to the front wall 4, and revolubly mounted upon the pin 6 is a circumferentially grooved trolley wheel 7 adapted to engage a trolley wire that extends over the upper edges of the walls 4 and 5.

8 denotes another transverse pin and this pin is carried by the walls 3 above an opening 9 in the bottom of the harp 2. Pivotally mounted upon the pin 8 is a lever 10 that extends through the opening 9 and has the lower end thereof enlarged, as at 11 and then reduced as at 12, the reduced end 12 supporting straps 13 and 14, the latter having an eye 15 to which a cord 16 is attached. The enlarged end 11 has the front side thereof provided with eyes 17 and 18, and connected to the eye 18 is a coiled retractile spring 19 that has the opposite end thereof connected to the pole 1. Pivotally connected to the upper end of the lever 10 by pivot pins 20 are the inner ends 21 of retaining members 22. The retaining members 22 are longitudinally disposed between the walls 3 and the confronting sides of said members have overhanging longitudinal flanges 23 adapted to overhang a trolley wire resting upon the wheel 7.

Engaging the lower ends 21 of the retaining members 22 is a transverse bar 24 that is slidably mounted in grooves 25 provided therefor in the confronting faces of the walls 3. Fixed to the transverse bar 24 are coiled compression springs 26 that surround rods 27 connected to said bar. The rods 27 extend through openings 28 provided therefor at the front wall 4 and the ends of said rods are screw threaded to accommodate knurled nuts 29.

The rods 27, bar 24 and springs 26 provide means for cushioning the movement in one direction of the retaining members 22 operating against the bar 24, the latter bearing against the member 22 and normally maintaining these latter in an upright position. By adjusting the nuts 29 upon the rods 27 the tension of the springs 26 can be increased or diminished when desired.

The outer sides of the retaining members 22 are engaged by headed pins 30 slidably mounted in sockets 31 provided therefor at the upper edges of the walls 3. Within the sockets 31 are arranged coiled compression springs 32 that retain the pins 30 normally in engagement with the retaining

members 22. The outer sides of the walls 3 have vertical strength reinforcing ribs 33, as best shown in Fig. 1. The outer sides of the walls 3 are also provided with tubular enlargements 34 and extending through said enlargements are chains or flexible connections 35 that have the lower ends thereof connected to the eye 17 of the lever 10 and the upper ends thereof connected to the outer sides of the retaining members 22.

When the cord 16 is pulled upon, the lever 10 is rocked upon the pin 8 and the retaining members 22 are shifted forward in the harp 2, while the chains 35 open the forward ends of the retaining members. With the retaining members in an open position, the trolley harp can be easily removed from the trolley wire, electric conductor or rail, and when the cord 16 is released the spring 19 restores the lever 10 to its normal position, said spring coöperating with the springs 26 and maintaining the retaining members in an upright position, the springs 26 as above stated bear against the bar 24, the latter engaging with the retaining members. The springs 32 provide means for forcing the retaining members toward each other and normally retain said members in close proximity as clearly shown in Fig. 4.

What I claim is:—

1. In a trolley harp, the combination with a pole, of a box like hollow harp carried by the upper end thereof, a lever fulcrumed in said harp and extending through the bottom thereof, a cord attached to the lower end of said lever, parallel retaining members pivotally connected to the upper end of said lever within said harp, spring pressed pins engaging the outer sides of said retaining members, a trolley wheel journaled in said harp below said retaining members, flexible connections connecting the lower end of said lever and the upper ends of said retaining members and a spring pressed bar engaging the lower ends of said retaining members within said harp.

2. In a trolley harp, the combination with a trolley pole, of a box like harp formed integral with the upper end thereof, a lever fulcrumed in said harp and extending through the bottom thereof, spring pressed retaining members arranged in said harp and pivotally connected to the upper end of said lever, a trolley wheel journaled in said harp below said retaining members, and flexible connections between the lower end of said lever and the upper ends of said retaining members, whereby said retaining members can have the upper ends thereof opened by shifting said lever.

3. In a trolley harp, the combination with a trolley pole, of a box like harp formed integral with the upper end thereof, a lever fulcrumed in said harp and extending through the bottom thereof, spring pressed retaining members arranged in said harp and pivotally connected to the upper end of said lever, a trolley wheel journaled in said harp below said retaining members, flexible connections between the lower end of said lever and the upper ends of said retaining members, whereby said retaining members can have the upper ends thereof opened by shifting said lever, means arranged interiorly of said harp for normally maintaining said members in a closed position, a cushioning means within said harp for said members, and means arranged exteriorly of said harp for maintaining the lever in its normal position.

In testimony whereof I affix my signature in the presence of two witnesses.

HENRY SHAFFERT.

Witnesses:
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KATHERINE ERRETT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."