

A. H. FLETCHER.
TROLLEY RETAINER.
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1,019,774.

Patented Mar. 12, 1912.

Fig. 1

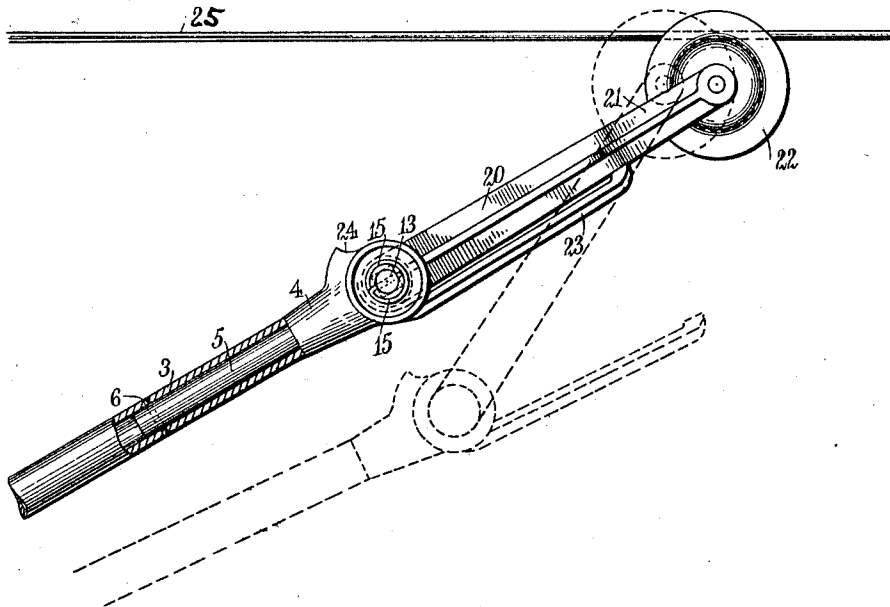


Fig. 2

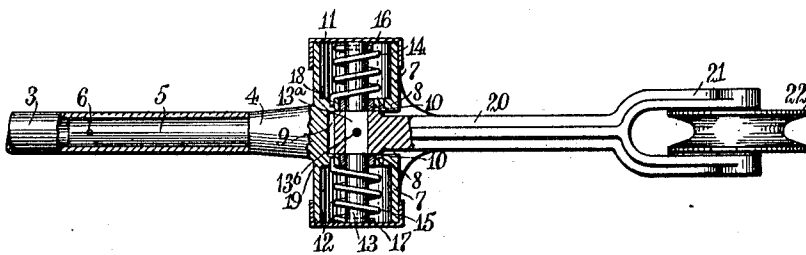
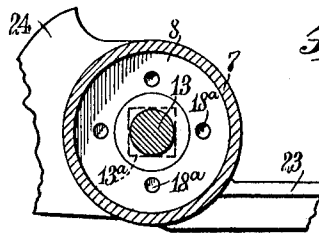


Fig. 3



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ALFRED HEWLETT FLETCHER, OF NEW YORK, N. Y.

TROLLEY-RETAINER.

1,019,774.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed October 8, 1910. Serial No. 586,006.

To all whom it may concern:

Be it known that I, ALFRED H. FLETCHER, a citizen of the United States, and a resident of the city of New York, New Brighton, borough of Richmond, in the county of Richmond and State of New York, have invented a new and Improved Trolley-Retainer, of which the following is a full, clear, and exact description.

My invention relates to trolley retainers, my more particular purpose being to provide an improved device of this type suitable for use upon trolleys generally, but especially adapted for overhead trolleys of the type suitable for passing under low bridges, through tunnels and in similar relations.

My invention comprehends a trolley pole provided with an arm movable relatively to the pole and carrying a trolley harp in which the contact wheel is mounted.

My invention further comprehends an improved housing for the spring mechanism used for raising the arm and normally pressing it constantly against the under side of the conductor which supplies the current.

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 figures.

Figure 1 is a side elevation showing in full lines my improved trolley retainer and indicating by dotted lines the relative movements of various parts while in use; Fig. 2 is a substantially central section through the device and shows particularly the spring mechanism; and Fig. 3 is a detail showing a side elevation, one of the caps being removed from the spring casing.

At 3 is a trolley pole, which in this instance is of tubular form. A head 4 is provided with a stem 5 which extends into the upper end of the trolley pole. A pin 6 extends diametrically through the pole and stem 5 so as to hold the head 4 rigidly in position. At 7 are two cup-like members which are provided with bottoms 8, the latter being rather thick and massive and being separated by an opening 9 having generally the form of a slot. At 10 are bearingsleeves made of tough metal and mounted in openings which extend through the bottoms 8. At 11, 12 are caps which cover the respective outer ends of the cup-shaped members.

A shaft 13 extends through the cup-like members or casings 7 and slot 9. Encir-

cling this shaft are two helical springs 14, 15, the outer ends 16, 17 of these springs extending diametrically through the outer ends of the shaft. The inner ends 18, 19 of the springs are lodged in holes 18^a (see Fig. 3) with which the bottoms 8 are provided. The shaft 13 is provided with a square portion 13^a which extends through an arm 20 and is secured to the same by aid of a pin 13^b. The shaft 13 is journaled within the bearing sleeve 10 so that the arm 20 can swing nearly ninety degrees relatively to the trolley pole 3. At 24 is a shoulder which serves as a stop for the arm 20. The arm 20 carries a trolley harp 21 and journaled within the latter is a contact wheel 22, usually designated as the trolley wheel. The head 4 carries a finger 23 rigid with it, this finger serving as a stop for the arm 20 and preventing excessive movement of said arm in one direction; that is, until the arm is in straight alinement with the axis of the trolley pole, as shown by full lines in Fig. 1. When the trolley pole swings downward, the arm 20 is free to swing upward at its outer end, carrying the wheel, until the arm 20 makes an angle of nearly ninety degrees with the trolley pole, the shoulder 24 preventing further upward movement of the arm 20. The conductor is shown at 25.

The operation of my device is as follows: The caps 11, 12 are removed and the helical springs 14, 15 are tightened up to any desired extent, which is done by shifting the ends 18, 19 from one hole 18^a to another. The arm 20 is thus given a satisfactory degree of spring tension, the helical springs being made strong enough for this purpose. The contact wheel being now brought into engagement with the conductor 25, the upward pressure of the trolley pole maintains the various parts in the positions indicated by full lines in Fig. 1. If, however, the trolley pole is drawn downwardly, as, for instance, in order to pass under a bridge, or even from a severe jolt from the car is thrown slightly downward, the trolley wheel tends to maintain its connection with the conductor, the arm 20 simply swinging upward, as indicated by dotted lines in Fig. 1. If, owing to variations in the height of different portions of the conductor 25, the trolley pole 3 swings upwardly and downwardly, and in making an abrupt downward movement the trolley wheel tends to leave the conductor, this tendency is lessened

by the fact that the arm 20 can make a quick movement upward upon the shaft 13 as a center, thereby maintaining the connection of the trolley wheel 22 with the conductor.

5 As is well understood in this art, a trolley wheel may at any moment be thrown out of engagement with a conductor and it is desirable that a quick movement shall be made by the member carrying the trolley wheel
10 in order that the latter may be quickly replaced against the conductor. Where a long and rigid trolley pole is employed and the wheel is thrown several inches off the conductor, the return of the wheel is entirely
15 too slow and upon this account the wheel is less likely to lodge against the conductor than would otherwise be the case, especially if the car happens to be moving rapidly.

The construction above described enables
20 the trolley pole to be deflected downward nearly twelve inches without any danger of pulling the contact wheel away from the conductor.

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

30 1. A trolley pole, comprising a tubular inner section, a head having a stem removably secured in the outer end of the section, said head being provided with oppositely arranged and spaced casings, a central for-

wardly projecting rigid finger on its under side, and a central shoulder on its upper side forming a stop, a shaft mounted in the casings, springs surrounding the shaft in the
35 casings and each having one end secured to the shaft and its other end to the casing, and an outer section fixedly secured to the shaft between the casings and carrying a trolley wheel at its free end, said outer section nor-
40 mally extending in alinement with the inner section and resting upon the said finger.

2. A trolley pole, comprising an inner section having at its outer end a head provided with oppositely arranged and spaced cas-
45 ings, a member projecting forwardly from its lower side, and a stop on its upper side, a spring actuated shaft mounted in the casings, and an outer section fixedly secured to the shaft between the casings and carrying a
50 trolley wheel, said outer section normally extending in alinement with the inner section and resting upon the forwardly projecting member of the head of the inner section.

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

ALFRED HEWLETT FLETCHER.

Witnesses:

PHILIP LICHs,
ROBERT CLEMENT.