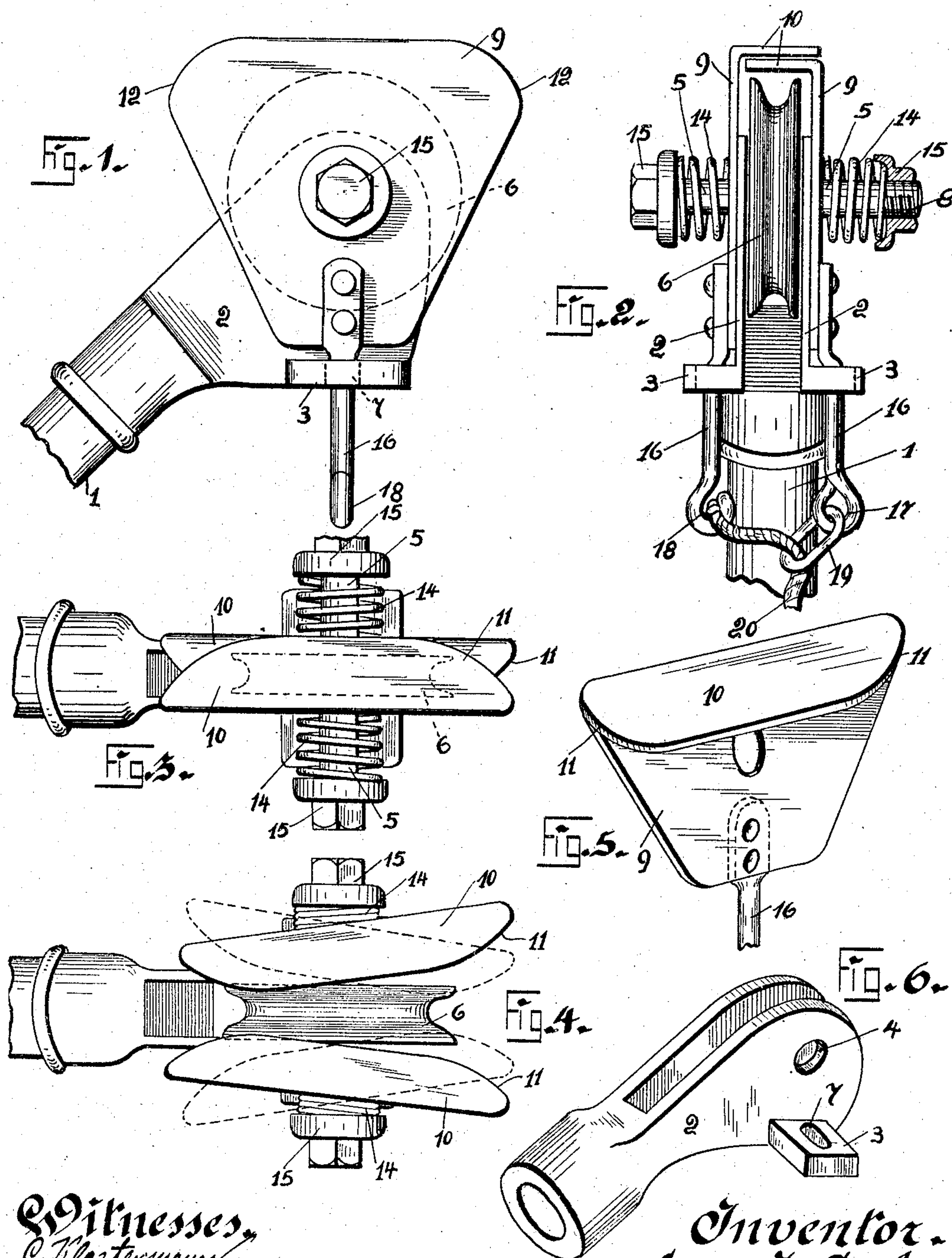


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G. J. COOK.
TROLLEY.

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UNITED STATES PATENT OFFICE.

GEORGE J. COOK, OF PITTSBURG, PENNSYLVANIA.

TROLLEY.

SPECIFICATION forming part of Letters Patent No. 780,977, dated January 31, 1905.

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To all whom it may concern:

Be it known that I, GEORGE J. COOK, a citizen of the United States of America, residing at Pittsburg, 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 drawings.

10 This invention has relation to trolleys, and has for its object the provision of novel means to obviate the trolley-wheel from becoming disengaged from the trolley-wire during the movement of the car or vehicle upon which the trolley pole and wheel are mounted.

15 Another object of my invention is to provide novel mechanism for retaining the trolley-wheel upon the wire along which it travels, the mechanism being so constructed that at any time it may be desired the trolley may be removed from the wire.

A further object of this invention is to construct an attachment for trolley-wheels which will be extremely simple in construction, strong and durable, and comparatively inexpensive to manufacture, the construction being upon such lines as to present an attachment which will be serviceable and withstand the rough usages to which devices of this character are subjected.

25 Briefly described, my improvement in trolleys resides in providing two retaining-arms, which are pivotally mounted upon the journal-pin of the trolley-wheel, these arms being adapted to overlap the trolley-wheel and trolley-wire and prevent the wire from leaving the trolley-wheel owing to the speed of the car or any obstruction upon the wire which may interfere with the travel of the same.

30 In connection with these retaining-arms I employ novel means for moving said arms upon their pivots to permit the trolley-wheel to be removed from the trolley-wire, which is often necessary in some instances.

45 The construction above described will be hereinafter more fully described in detail, reference being had to the drawings accompanying this application, wherein like numerals of reference indicate like parts throughout the several views.

Figure 1 is a side elevation of a trolley-harp, showing my improvement thereon. Fig. 2 is an end view of the same. Fig. 3 is a top plan view of a trolley-harp, showing my improvement applied thereto. Fig. 4 is a similar view showing the retaining-arms in the position they will assume when it is desired to remove the trolley-wheel from the wire. Fig. 5 is a detail perspective view of one of the retaining-arms, and Fig. 6 is a perspective view of my improved harp.

In carrying my invention into effect I employ the ordinary and well-known form of trolley-poles as designated by the reference-numeral 1, deeming it only necessary to illustrate the upper end of said pole, upon which my improvement is placed, and the reference-numeral 2 indicates the harp of the pole, which is similar in some respects to the ordinary harps commonly used, with the exception that lugs 3 3 are formed upon the sides of the harp directly beneath the apertures 4 4, through which the journal-pin 5 of the trolley-wheel 6 passes, the trolley-wheel, it being understood, rotating on the said pin 5. The lugs 3 3 may be formed integral with the sides of the harp or may be secured thereon, and these lugs are provided with oblong apertures 7 7, the object of which will be hereinafter described. The journal-pin 5 is made of a greater length than the pins commonly used, and upon this pin is mounted the trolley-wheel 6, and each end of the journal-pin is provided with screw-threads 8 8. Upon the journal-pin and at each side of the harp are mounted the retaining-arms 9 9. These arms are preferably triangular in shape and have their upper edges 10 10 bent inwardly to overlap each other, as illustrated in Figs. 2 and 3 of the drawings. The overlapping edges 10 10 of these retaining-arms are beveled, as designated by the reference-numerals 11 11, these beveled edges extending downwardly upon the vertical edges of the triangular-shaped retaining-arms, providing rounded corners, as designated by the reference-numerals 12 12. After the retaining-arms are mounted upon the journal-pin 5 a spiral spring 14 is placed upon each end of the journal-pin and a cup-shaped nut 15 is secured upon the

threaded ends of the journal-pins, these nuts retaining the springs upon the journal-pin and compressing the same, whereby the springs will normally hold the arms 9 9 in engagement with the sides of the harp 2.

Centrally mounted upon the lower edge of the retaining-arms are the depending levers 16 16, these levers passing through the oblong apertures 7 7, and one of said levers has an eyelet 17 formed on its end, while the other of said levers has its end bent to form a hook 18, and in the eyelet 17 is mounted a link 19. A rope or cable 20 is attached to the hook 18 and passes through the link 19.

In constructing my improved attachment for trolleys I have endeavored to overcome the trouble which has been experienced in the trolley-wheel striking obstructions upon the wire, such as the overhead work which is commonly employed to support the wire and the running-boards which are used where the wire passes beneath a bridge. By constructing the retaining-arms with overlapping edges I have provided means whereby should the trolley-wheel leave the wire the upward movement of the same would be neutralized, and should the trolley-wheel pass any obstructions I have provided the beveled edges 11 11, so as when the overlapping edges 10 10 strike the obstructions the retaining-arms will be forced apart by the obstruction and the trolley-wheel permitted to pass by the obstruction. It is necessary that the overlapping edges 10 10 should at all times span the wire, and it has been found by experiment that when the beveled edges 11 11 strike an obstruction they will spread apart and permit the trolley-wheel to continue its travel, the front end of the retaining-arms remaining closed until the obstruction has reached that end, and upon the obstruction reaching said end the rear end, in which it first entered, will be closed, thus preventing the trolley-wheel from departing from the wire during any time the same is passing an obstruction, the retaining-arms being formed with a large hole for the passage of the pin 5, as shown in Fig. 5, so that the retaining-arms can either separate or turn, as on a swivel, with the levers 16 in the slots 7 of the lugs 3. The movement of the retaining-arms is permitted by the compression of the springs 14 14 and by the oblong aperture 7 7, formed in the lugs 3 3, these apertures allowing the levers to assume an inclination when the retaining-arms are forced outwardly. In Fig. 4 of the drawings I have illustrated these retaining-arms as assuming a position they would occupy when it would be desired to remove the trolley-wheel from the trolley-wire, this position not by any means illustrating the distance apart they would assume when

the wheel is being removed, and to spread the retaining-arms sufficiently to permit the removal of the trolley-wheel from the wire the operator of the car or vehicle pulls downwardly upon the rope 20, which draws the ends of the levers 16 16 together and opens the retaining-arms 9 9, compressing the spiral springs 14 14, which when the rope is released will return the retaining-arms to their normal position.

While I have herein shown and described the retaining-arms as being of a triangular shape, it will of course be understood that these arms may be made of any desired shape to accomplish the results above enumerated, and I may make other changes in the construction of my improved trolley attachment without departing from the spirit of the invention.

What I claim is—

1. In combination with a trolley-harp having a pin mounted therein, a wheel mounted upon said pin, of retaining-arms pivotally mounted upon the ends of said pin, the upper edges of said arms adapted to lie over the wheel, means carried by the ends of said pin for retaining said arms in said position, means carried by the lower end of said arms to move said arms from an overlying position, substantially as described.

2. The combination with a harp, of lugs formed thereon, a pin mounted in said harp, a wheel mounted upon said pin, retaining-arms loosely mounted upon said pin, said arms adapted to overlap each other above said wheel, means mounted upon the end of said pin to retain said arms in said position, levers secured to the lower ends of said arms, said levers passing through said lugs, substantially as described.

3. The combination with a harp having lugs formed therein, said lugs having apertures formed therein, a pin mounted in said harp, a wheel mounted upon said pin, retaining-arms loosely mounted upon said pin, the upper edges of said arms adapted to overlap each other above the wheel, the ends of said overlapping portions extending beyond the trolley-wheel and being "rounded," levers secured to the lower edges of said arms, said levers protruding through the lugs, means carried by the lower end of said levers to force said arms from their overlapping position, and springs arranged on said pin and outside of said retaining-arms to return said arms to said position, substantially as described.

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

GEORGE J. COOK.

Witnesses:

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K. H. BUTLER.