

(No Model.)

W. J. KAUFFMAN, E. W. CONKELL & O. F. KAUFFMAN.

TROLLEY WIRE SYSTEM.

Patented Mar. 8, 1898.



INVENTORS,  
William J. Kauffman  
Elias W. Conkell  
Orvin H. Kauffman  
By Fred W. Bond  
Attorney.



# UNITED STATES PATENT OFFICE.

WILLIAM J. KAUFFMAN, ELIAS W. CONKELL, AND ORRIN F. KAUFFMAN,  
OF CANTON, OHIO.

## TROLLEY-WIRE SYSTEM.

SPECIFICATION forming part of Letters Patent No. 600,202, dated March 8, 1898.

Application filed June 5, 1897. Serial No. 639,528. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM J. KAUFFMAN, ELIAS W. CONKELL, and ORRIN F. KAUFFMAN, citizens of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Trolley-Wire Systems; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the figures of reference marked thereon, in which—

Figure 1 is a perspective view showing our system properly connected to a pole and illustrating the different parts properly arranged with reference to each other and in their normal condition. Fig. 2 is a top view showing the different parts properly arranged and connected.

The present invention has relation to trolley-wire systems; and it consists in the different parts and combination of parts hereinafter described, and particularly pointed out in the claims.

Similar numbers of reference indicate corresponding parts in each figure of the drawings.

In the accompanying drawings, 1 represents a pole, which in this instance supports the various parts pertaining and belonging to our system. To the pole 1 is securely attached in any convenient and well-known manner a bracket, which in this instance consists of the horizontal bar 2, the vertical bar 3, and the brace 4, said parts being located and arranged substantially as shown in Fig. 1; but it will be understood that the objects and purposes hereinafter described can be carried out without any reference to the kind or style of bracket or support for the parts hereinafter described, except that it must be so constructed that the various parts can be held in an operative position.

To the outer end of the bar 2 is pivotally connected the bar 5, which bar is so located and arranged that its outer end will extend a short distance beyond the outer end of the horizontal bar 2, substantially as illustrated in the drawings. To the outer end of the pivoted bar 5 is connected in any convenient and well-known manner the trolley-wire sup-

port or hanger 6, which hanger may be of any desired kind or style, reference being had to the purposes hereinafter described. The hanger 6 supports and carries the trolley-wire 7, which trolley-wire is located substantially as illustrated in the drawings. To the inner end of the pivoted arm 5 is attached the wire 8, which wire is extended and connected to the switch-bar 9. The wire 8 is formed in two sections or parts and the sections or parts connected together by means of the insulator or cut-out 10.

The switch-bar 9 may be substantially of the form shown in the drawings, and, as shown, it is pivotally attached to the flanges 11, which flanges may be formed as shown. Directly opposite the pivotal point of the switch-bar 9 are located the clips 12 and 13, which clips are connected to the plate 14 in any convenient and well-known manner. The feed-wire 15 is located parallel with the trolley-wire 7 and may be arranged as illustrated in the drawings, or it may be differently arranged and the same object accomplished. From the feed-wire 15 leads the wire 16, which wire is connected to the post 17 or its equivalent.

It will be understood that the flanges 11 and the clips 12 and 13 are to be attached to the plate 14, which plate is preferably formed of slate or may be of any other suitable material. When the switch-bar is in the position illustrated in Fig. 1, the current passes from the switch-bar through the clips 13 to the wire 18, which wire is connected to the trolley-wire hanger 6, by which arrangement the current is conducted to the trolley-wire 7. Parallel with the trolley-wire 7 is located the emergency-wire 19, which emergency-wire is supported and carried by the hanger 20, which hanger is connected to the horizontal arm 2 in any convenient and well-known manner. If in the event the trolley-wire becomes broken, the pivoted arm 5 will be turned upon its pivotal point in the direction of the strain or pull at its outer end, thereby causing the pivoted arm to turn or rock, which in turn pulls the wire 8, which action disengages the switch-bar 9 from the clips 13 and engages said switch-bar with the clips 12, thereby causing the current to pass from the switch-bar through the clips 12 and the wire 21, which wire con-



ducts the current to the emergency-wire 19. It will be understood that the instant the switch-bar 9 is disengaged from the clip 13 the trolley-wire 7 will become dead or entirely cut out, in which condition it falls to the ground and becomes harmless. The current having been switched from the trolley-wire 7 to the emergency-wire 19 the trolley connected to the car is brought into contact with the emergency-wire and the current fed to the motor in the ordinary manner.

To the bar 2 is connected the housing 22, to which housing the pulleys 23 are journaled, and between which pulleys the wire 8 is passed. The object and purpose of providing the pulleys 23 and locating them as shown are to form a guide for the movement of the wire 8 and at the same time permit said wire to move freely to operate the switch-bar 9. It will be understood that the wire 8 should be so connected to the pivoted bar 5 and to the switch-bar 9 that said wire will be slack between said points, so that any normal movement of the trolley 7 will not throw the switch-bar 9 out of its normal position.

In the drawings we have illustrated but one horizontal arm and the parts belonging thereto, but it will be understood that a number of said arms or their equivalents are to be placed along the railway-line to properly support the trolley-wire and the emergency-wire; but we do not desire to be confined to any particular kind of arm, inasmuch as our invention can be applied to the trolley-wire and emergency-wire without any reference to their supports.

For the purpose of constructing trolley-wire lines for safety purposes only, in which instance the emergency-wire would be dispensed with, the pivoted bar 5 would operate to cut out the trolley-wire in the same manner that it now operates to cut out said wire. In some instances that construction may be desired, and we do not desire to be confined to the emergency-wire, as one object of our invention can be carried out without the use of the emergency-wire.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of a support or pole having attached thereto a bracket or arm, the pivoted bar 5, carrying a trolley-wire, the wire 8, connected to the pivoted bar 5, and to the switch-bar 9, the wire 7, arranged as described, the switch-bar 9, pivotally attached and located between the clips 12, and 13, and the emergency-wire, all arranged substantially as and for the purpose specified.

2. The combination of a bracket or arm having pivoted thereto the bar 5, a pivoted switch-bar, a trolley-wire supported and carried by the pivoted bar, an emergency-wire located parallel with the trolley-wire, a wire connected to the pivoted bar and to the switch-bar, the switch-bar pivoted between the clips 12, and 13, the wire 18, connected to the trolley-wire hanger 6, and the wire 21, substantially as and for the purpose specified.

3. The combination of a bracket or arm carrying an emergency-wire, a pivoted bar connected to the bar carrying a trolley-wire, a wire connected to the pivoted bar and to the switch-bar, pulleys located between the pivoted bar carrying the trolley-wire, and the pivoted switch-bar, the clips or contact-points located upon opposite sides of the pivotal point of the switch-bar, and wires for conducting the current to the trolley-wire and to the emergency-wire, substantially as and for the purpose specified.

4. The combination of a pivoted switch-bar located in the path of circuit, clips or contact-points located upon opposite sides of the pivotal point of the switch-bar, an emergency-wire and trolley-wire located parallel to each other, a pivoted bar carrying the trolley-wire, feed-wires, and wires located in the path of circuit between the feed wires or wire and the trolley and emergency wires, all arranged substantially as and for the purpose specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

WILLIAM J. KAUFFMAN.  
ELIAS W. CONKELL.  
ORRIN F. KAUFFMAN.

Witnesses:

J. A. JEFFERS,  
F. W. BOND.