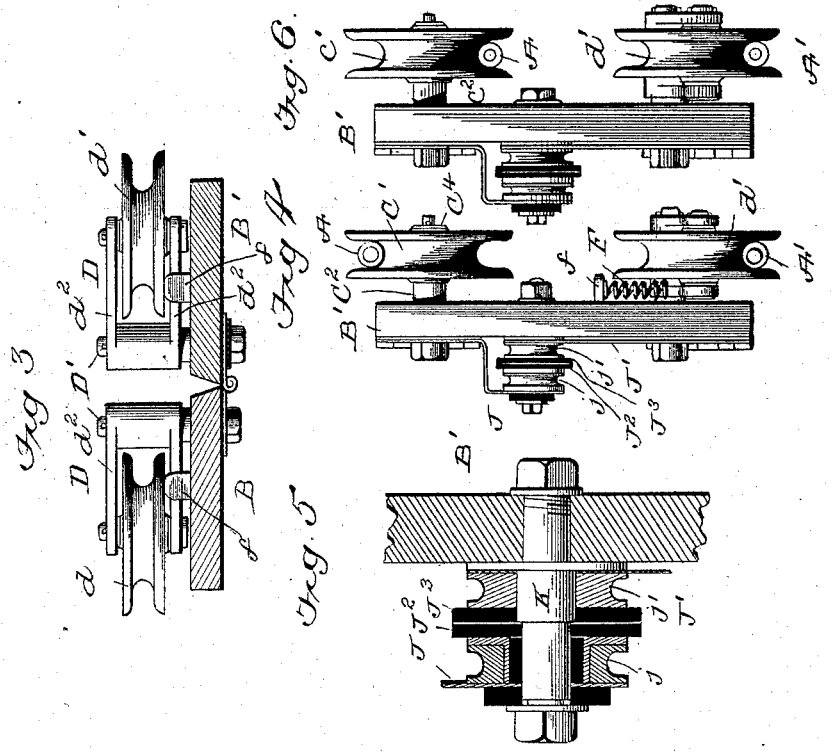
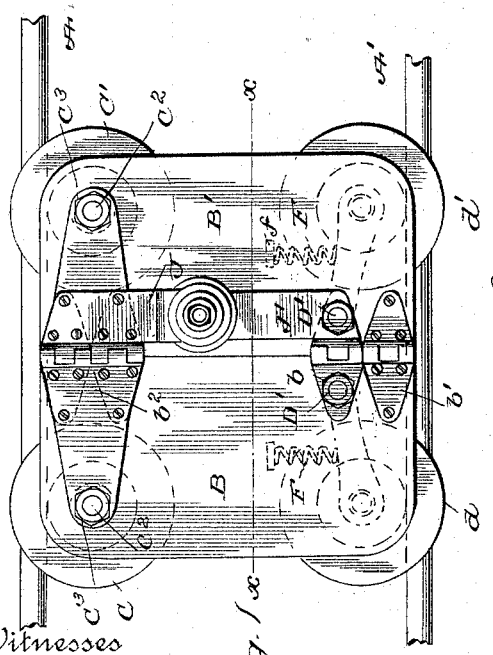
(No Model.) 2 Sheets—Sheet 1.

D. N. OSYOR.

TROLLEY FOR ELECTRICAL CONDUCTORS.

No. 526,580. Patented Sept. 25, 1894.





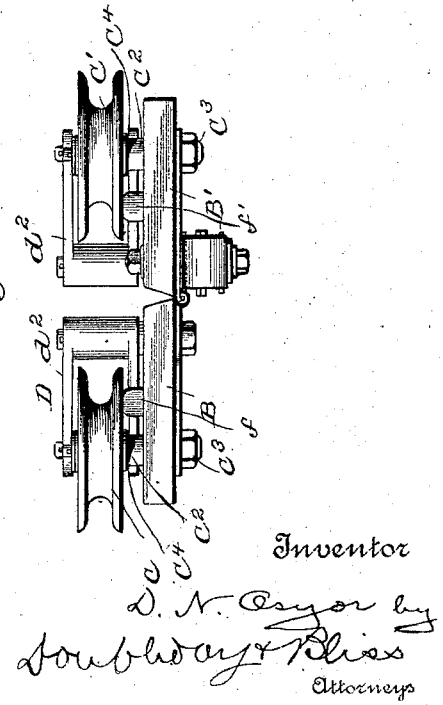


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Fig. 7

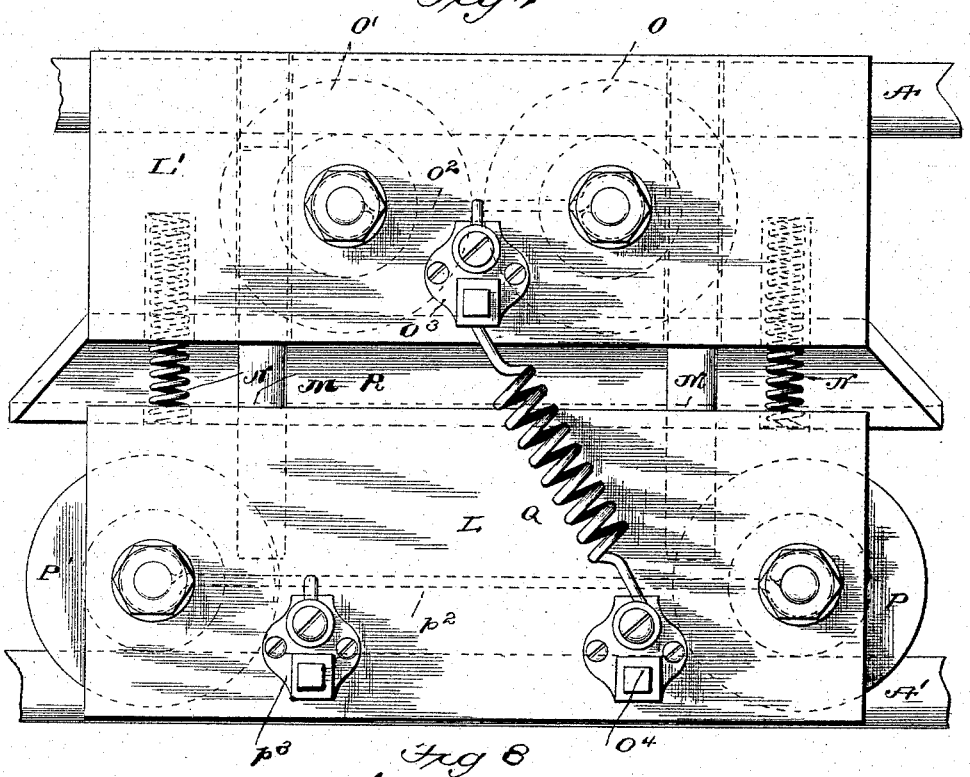
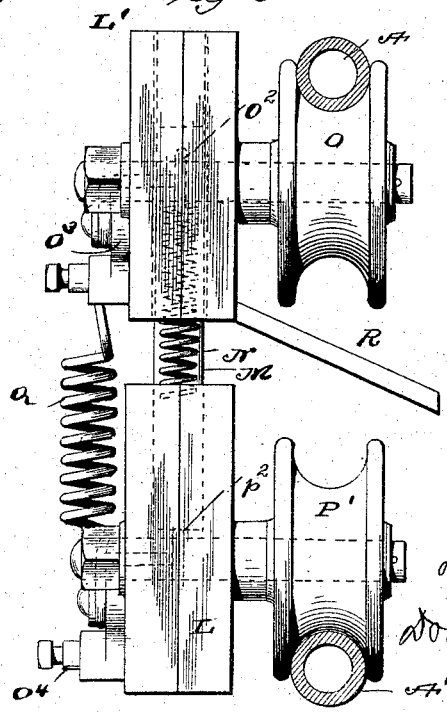


Fig 8



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UNITED STATES PATENT OFFICE.

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TROLLEY FOR ELECTRICAL CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 526,580, dated September 25, 1894.

Application filed December 6, 1893. Serial No. 492,937. (No model.)

To all whom it may concern:

Be it known that I, DAVID N. OSYOR, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Trolleys for Electrical Conductors, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a side elevation of a device containing my invention. Fig. 2 is a top plan view. Fig. 3 is a section on line *x*—*x*, Fig. 1. Fig. 4 is an end view. Fig. 5 is an enlarged section of the conducting strips, the insulation, and the adjacent parts. Fig. 6 is an end view of a slightly modified form. Figs. 7 and 8 are respectively a side and an end view of a device in which the main support is divisible on horizontal lines.

One of the objects of the invention is to provide a trolley carriage which will be firmly held at all times on the conductors, but which shall at the same time be possessed of a certain flexibility, so that it can readily travel over uneven places in the conductors. Provision is made for variations in the distances between the conductors, and also for the swerving of one or the other, or both, from the normal lines.

In the drawings, A, A′, indicate the conductors which may be of any suitable sort, those shown being hollow tubes or pipes. Upon these conductors are fitted the wheels which support the carriage, the wheels for the upper conductor being indicated by *c c′*, and those for the lower conductor being indicated by *d d′*. These are connected together by and are supported upon, a frame adapted to carry them all in proper position relatively to each other, and also to have attached thereto a flexible conductor section. As shown in Figs. 1 to 6 this frame or support is divisible on vertical lines, that is the parts may be turned on their connections in a horizontal direction. The part which lies upon one side of the hinged connection is indicated by B, while that on the other side is indicated by B′. These parts B, B′, are joined at the lower edge by hinges *b b′*, and at the top by a hinge b^2 which has longitudinally extended leaves for a purpose to be hereinafter described. By means of such hinges provision is made for the wheels to diverge more or less from straight lines to the right or to the left without tendency to displace the carriage from the conductors.

It is practically impossible to so arrange and support the conductors A A′, as to have them at all places, and under all circumstances exactly the same distance apart, and therefore provision must be made for the trolley wheels to follow them and stay in close contact whether the one or the other of the conductors should lie in a line somewhat above or below the normal. I make such provision by so mounting the wheels that they shall be movable toward and from each other. The wheels *c c′* are secured to the carriage B B′ in any preferred way. As shown they are secured by pintles or bolts c^2 c^2 having threaded ends for receiving binding nuts c^3, and there shouldered at c^4 to provide a stop for the wheels. The lower wheels *d d′* are carried by swinging hangers D, the arms d^2 d^2 of which receive the pintles of the wheels and which have tubular bearings to receive the fastening bolts or pintles D′.

At F, F, strong spiral springs are interposed between the hangers and lugs or projections *f f* on the rear face of the carriage. It will be seen that a constant pressure of the wheels against the conductors will be maintained and that the wheels will rise and fall relatively to each other. As above said the leaves of the hinge b^2 are elongated, so as to be in electrical connection with the pintles or bolts c^2 and the metallic trolley wheels *c c′*. The hinge *b* is in electrical connection with wheels *d d′* through the bolts or pintles D′ D′, and hangers D.

With the hinges, conductor plates as at J J′ are placed in electrical contact, they being respectively electrically connected with the binding socket *j* for one of the terminals for the motor, and *j′* for another terminal of the motor.

In Fig. 6 I have shown one form of the device quite similar to that illustrated in Figs. 1 to 5 differing therefrom only in having the wheels *c c′* resting upon the conductor A instead of pressing upwardly against the same. This enables me to dispense with the springs

F, F, as the wheels d d' will rise and fall, following the lines of the conductor A', without the aid of a spring.

In Figs. 7 and 8, I have illustrated one form of my invention in which the frame or support is not divided on vertical lines, but the parts of which are divided on horizontal lines; but in this construction, I am not able to attain some of the advantages incident to the first construction, that being the preferred form. In this device, I still preserve the advantages incident to having the wheels movable toward and from each other, although I accomplish this in a somewhat different way. The frame consists of two parts L, L', the part L having dowel pins M or guide-pins secured rigidly thereto and fitting at the opposite ends loosely in apertures or sockets in the part L.

N, N, indicate coiled springs which are secured at their ends to the upper and lower parts of the carriage being preferably counter-sunk considerably or inserted into recesses in the said two parts. These springs act to hold the parts of the carriage in firm contact, one with the upper conductor and the other with the lower, and at the same time are sufficiently yielding to permit the said parts to approach or move away from each other as may be demanded by any inequalities in the distances in the several places between the two conductors. Each part is divided in its central longitudinal vertical plane for a purpose to be described. The wheels O, O' and P, P' are mounted similarly to the wheels c c' in my first said device, that is on bolts or pintles. The bolts upon which the wheels O, O' are mounted are in electrical connection with each other by means of a wire or plate o^2, which itself is connected with a terminal o^3. The wheels P, P' are similarly connected by a wire or plate p^2 which is in connection with a terminal p^3 with which one of the conductors of the motor is connected. The terminal o^3 is connected with the terminal o^4 upon the part L' of the carriage by means of a coiled wire Q, the terminal o^4 being connected with the other conductor of the motor.

At R there is a water guard or shed consisting of a strip of wood or sheet metal secured to the carriage between the two sets of trolley wheels, and extending out far enough to prevent any water from passing from the upper wheels to the lower and avoiding any short circuit between the wheels or between the positive or negative contact points of the circuit which are carried by the carriage.

What I claim is—

1. In a trolley mechanism for conveying current from stationary conductors to a motor, the combination of a trolley carriage, two sets of trolley wheels mounted upon said carriage, means for electrically connecting the two wheels of each set, the wheels of the said two sets being movable toward and from each other in vertical lines, substantially as set forth.

2. In a trolley mechanism for conveying current from stationary conductors to a motor, the combination of a trolley carriage, two sets of trolley wheels mounted upon said carriage, means for electrically connecting the two wheels of each set, the opposite wheels of the said two sets being automatically movable relatively to each other, substantially as described.

3. In a trolley mechanism for conveying current from stationary conductors to a motor, the combination of a trolley carriage having one or more supporting wheels fixedly journaled thereto and engaging with one conductor, hangers pivoted on the carriage, wheels journaled in said hangers, movable relatively to said carriage, to engage with the other conductor, whereby the last said wheels will rise or fall as the distance between the conductors changes, substantially as set forth.

4. In a trolley mechanism for conveying current from stationary conductors to a motor, the combination of a carriage or support constructed in two sections, two vertically opposing wheels mounted on each section, and hinges connecting said sections whereby the wheels may diverge to the right or left without tendency to displace the carriage, substantially as described.

5. The combination with a vehicle, and the flexible conductors, of a carriage or support constructed in two sections, one or more wheels mounted on each section, hinges connecting said sections whereby the wheels may diverge to the right or left without tendency to displace the carriage, and electrical contact plates connecting said hinges with said flexible conductor, substantially as and for the purpose specified.

6. In a trolley mechanism for conveying current from stationary conductors to a motor, the combination of two plates hinged together, so as to swing in a plane parallel to the conductors, a wheel fixedly secured to each section to engage with one conductor, a hanger pivoted on each section of the carriage, and a wheel journaled in each hanger to engage with the other conductor, substantially as set forth.

7. The combination of the hinged carriage or support, and the wheels carried thereon, of the conductor plates in electrical contact therewith, and the electrical terminals, as set forth.

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

DAVID N. OSYOR.

Witnesses:

H. H. BLISS,

MARCUS B. MAY.