No. 711,022. Patented Oct. 14, 1902.

C. E. THOMAS & J. M. OLINGER.

TROLLEY FOR ELECTRIC RAILWAYS.

(Application filed July 21, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

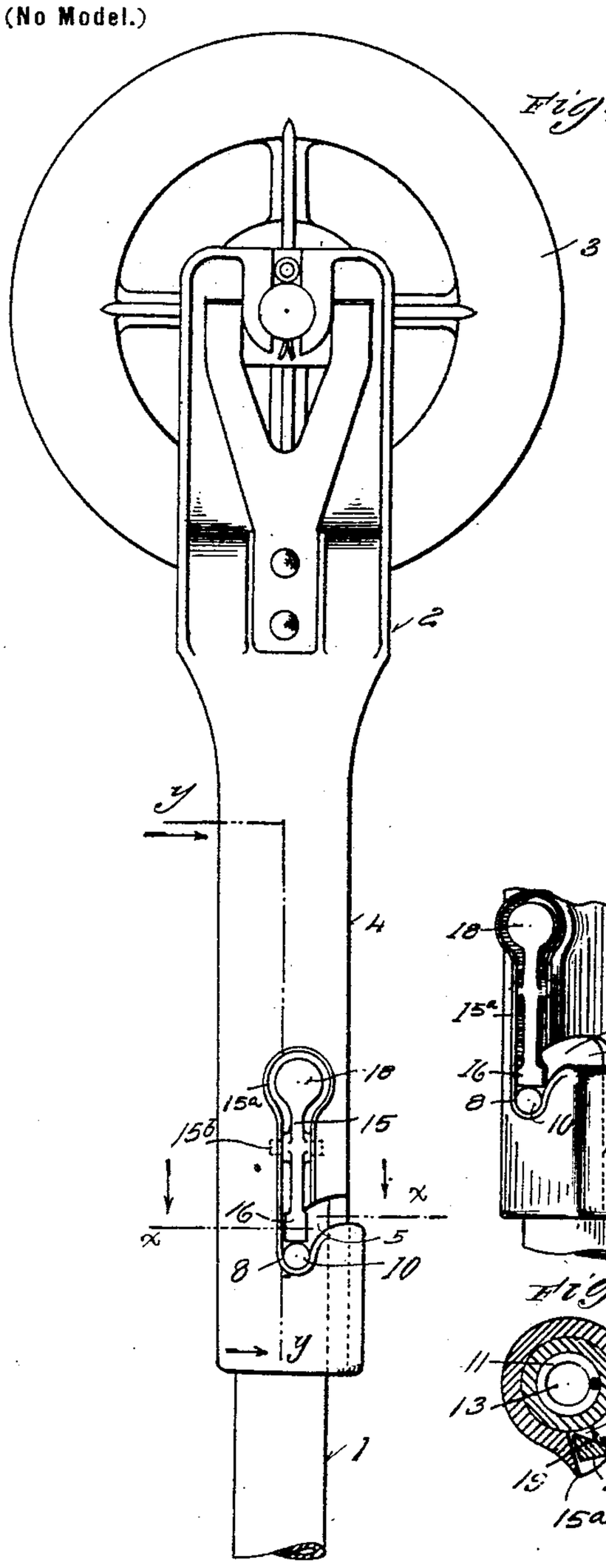

Fig. 3.

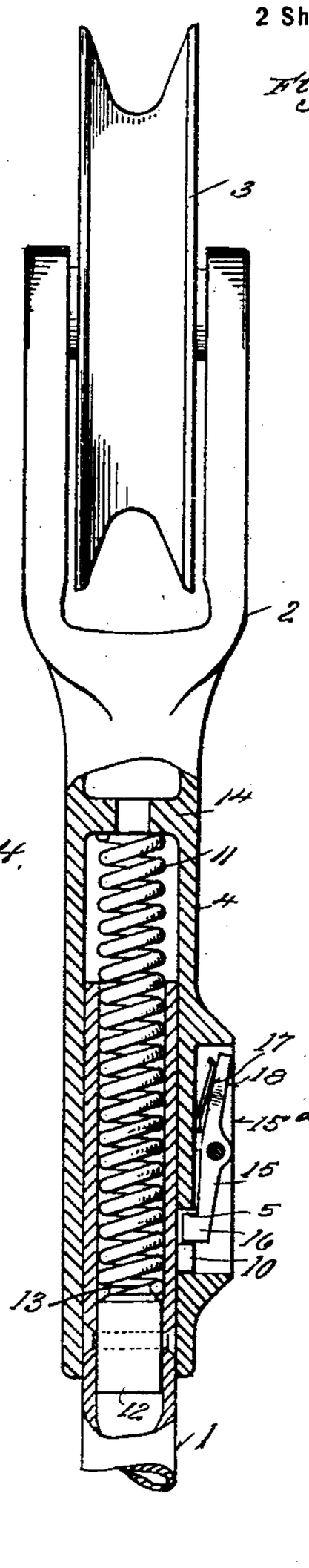

Fig. 4.

Fig. 2.

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Fig. 5.

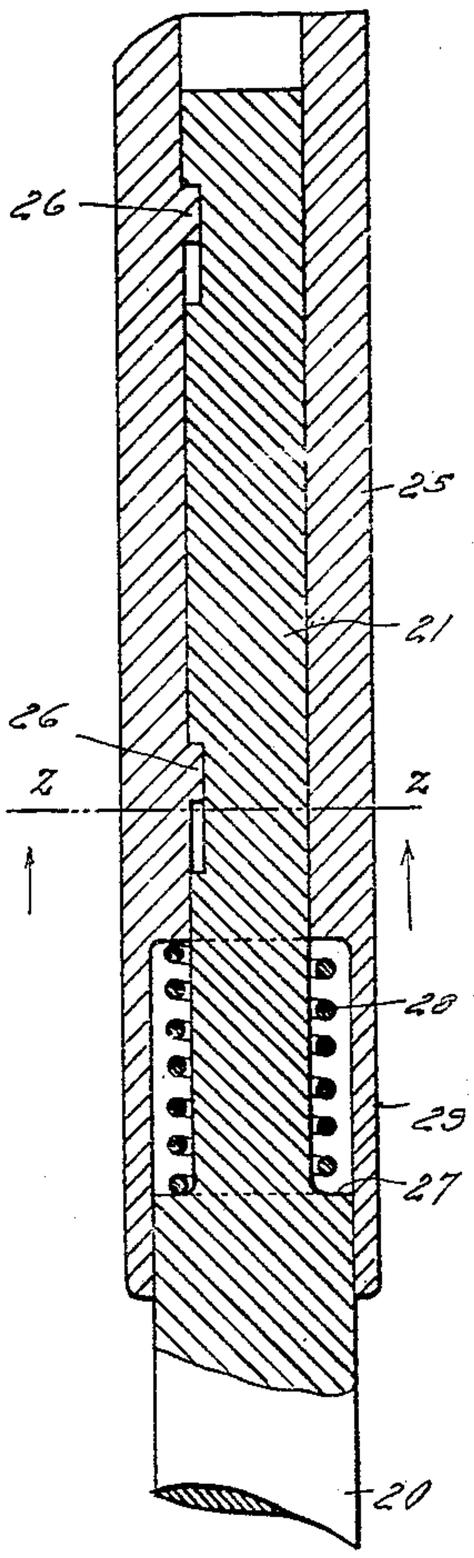


Fig. 6.

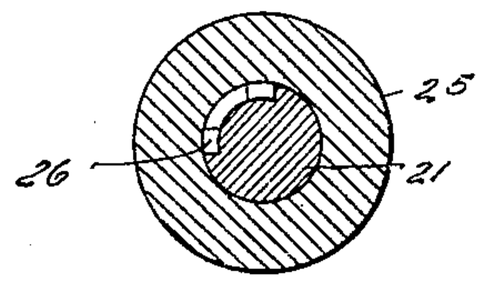
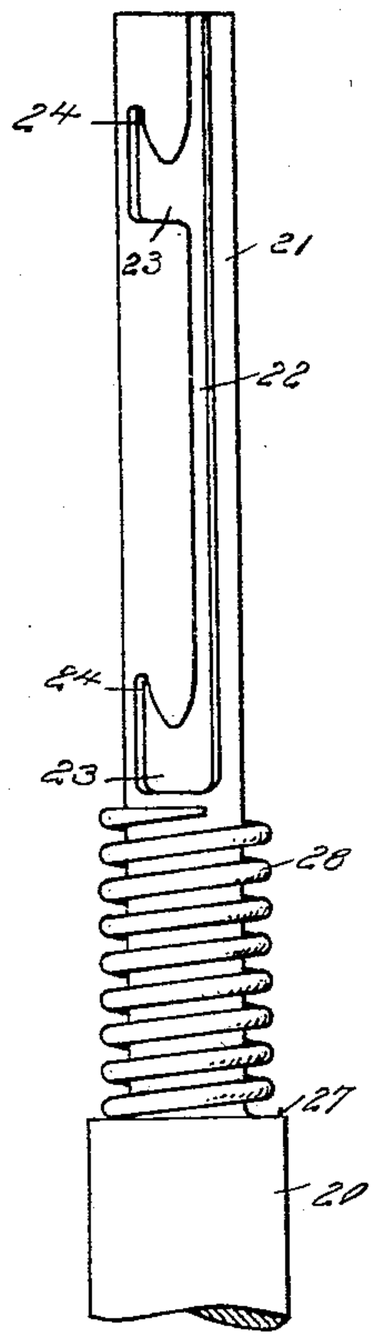


Fig. 7.



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UNITED STATES PATENT OFFICE.

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TROLLEY FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 711,022, dated October 14, 1902.

Application filed July 21, 1902. Serial No. 116,320. (No model.)

To all whom it may concern:

Be it known that we, CHARLES E. THOMAS, residing at Springfield, and JACOB M. OLINGER, residing at Vienna Crossroads, in the county of Clark and State of Ohio, citizens of the United States, have invented certain new and useful Improvements in Trolleys, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to trolleys, and has for its object to provide a construction whereby the trolley head or harp which carries the trolley-wheel may be readily disconnected from or connected with the trolley-pole, being firmly held against accidental displacement when in position, so that in case of injury or wearing out of the trolley-wheel or its bearings the entire head may be at once removed and a new head and wheel substituted therefor without loss of time and without requiring the aid of skilled labor or tools of any description.

To these ends our invention consists in certain novel features, which we will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a structure embodying our invention in one form. Fig. 2 is a transverse sectional view of the same, taken on the line $x\,x$ of Fig. 1 and looking in the direction of the arrows. Fig. 3 is a view, partly in elevation and partly in section, upon the line $y\,y$ of Fig. 1 and looking in the direction of the arrows. Fig. 4 is a detail view illustrating the construction of the slot. Fig. 5 is a central sectional view of a modified form of the joint connecting the pole and head. Fig. 6 is a detail sectional view taken on the line $z\,z$ of Fig. 5 and looking in the direction of the arrows, and Fig. 7 is a detail view of one of the members of the structure shown in Figs. 5 and 6.

In our preferred form of construction, which is that shown in Figs. 1 to 4, inclusive, 1 indicates the trolley-pole, which is shown, as usual, tubular in form, or an extension thereof, and 2 indicates the trolley-head as a whole, having the trolley-wheel 3 mounted therein in any approved manner. The head is provided with an extension or socket 4, in which the end of the trolley-pole fits, as shown more particularly in Fig. 3, the two parts being united by a bayonet-joint, which is rendered self-locking by a spring. The preferred form of this construction is that shown in Figs. 1 to 4, in which the slot, which is indicated as a whole by the reference-numeral 5, is formed in the socket of the trolley-head and comprises a longitudinally-extending portion 6 and a transverse portion 7, terminating in a notch or recess 8. In the construction shown the longitudinal portion of the slot is covered by a guard or shield 9, which may be continued over the whole of the slot, if desired, the latter thus having the form of a groove. The pole or its extension is provided with a pin or projection 10, which fits in the groove or slot 5, and there is interposed between the trolley head and pole a spring 11, which tends to keep the projection 10 seated in the notch or recess 8. As a convenient mode of mounting this spring we provide within the trolley-pole 1 an abutment 12, riveted in the hollow interior of the pole and having a stud 13 with a thread cut thereon to fit the spiral spring, into the center of the coil of which it is adapted to screw, as shown. The abutment for the other end of the spring is provided by a ring or diaphragm 14 in the hollow interior of the head.

It will be seen that with the construction described in case of any injury to the wheel or head, rendering repair necessary, it is only necessary for the attendant to press the head toward the pole, so as to compress the spring 11 and at the same time turn the head until the pin 10 comes opposite the longitudinal part 6 of the slot 5, whereupon the head may be at once removed, its separation from the pole being assisted by the expansion of the spring. By a reversal of these operations a new head and wheel may be as readily and as quickly applied to the pole. These operations are readily performed without any tools and by unskilled attendants in a minimum of time, thereby avoiding the delay now frequently occuring when it becomes necessary to remove the trolley-wheel or its pivot-pin.

The spring 11 is made of sufficient strength to resist any ordinary or even unusual pressure to which the device may be subjected when in use, and in practice we have found that said spring, in connection with the notch or recess 8, serves to hold the parts firmly locked together under such conditions as have come under our observation. In order to provide, however, for an absolute locking of the parts to insure against accidental separation, we provide a locking-dog 15, pivoted on the outside of the socket 4 and having at one end a locking-block 16, which is adapted to fit between the pin 10 and the outlet of the notch or recess 8 in the manner shown in the drawings, so as to prevent said pin from leaving said recess until said locking-block is withdrawn. The locking-dog 15 is surrounded by a protective flange 15^a, which not only serves to prevent injury to the dog in case the trolley accidentally leaves the wire, but also serves to receive the pivot 15^b, on which the dog is supported. The dog is normally held in locking position by means of a spring 17 and is provided with a finger-plate 18 at the end thereof opposite to that at which the locking-block is located, by means of which said spring may be readily depressed, so as to raise the locking-block. In order to permit the ready assemblage of the parts, the locking-block is provided with a beveled face 19 on that side thereof adjacent to the transverse portion 7 of the slot or groove 5, so that in uniting the parts the pin 10 will strike said incline and raise the locking-block so as to permit the pin to enter the notch or recess 8, the block being immediately thrown into locking position by the spring 17 after the pin has entered the notch or recess.

It is obvious that various modifications in the details of the construction just described may be made without departing from the principle of our invention. For instance, the bayonet-joint construction may be duplicated or the location of the parts thereof reversed, so that the groove is formed on the pole or its extension, the projections being formed on the head. In Figs. 5, 6, and 7 we have shown such a construction, in which the pole (indicated at 20) is provided with an extension 21, having a longitudinal groove 22 and two transverse grooves 23, each terminating in a notch or recess 24. The trolley-head socket is indicated at 25 and is shown as provided with two projections 26 to coöperate with the parts 22, 23, and 24. A shoulder 27 is formed between the pole 20 and its extension 21, and a spring 28 is interposed between said shoulder and the end of the socket 25, which latter is provided with an annular flange 29, which incloses and protects the spring and may also extend over the end of the pole 20, as shown. Again, by a mere reversal the pole may be made the female member and the head the male member. We prefer, however, the construction shown in Figs. 1 to 4 of the drawings, as it is one readily applicable to trolley-poles already in use; but we do not limit ourselves to the precise details of construction hereinbefore described, and shown in the accompanying drawings.

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

1. In a trolley, the combination, with a trolley-pole, of a trolley-head provided with a trolley-wheel, said pole and head being united by a bayonet-joint, the slot or groove whereof is provided with a terminal locking-seat, and a spring interposed between the head and pole to hold the projection of the bayonet-joint in said locking-seat when the parts are united, substantially as described.

2. In a trolley, the combination, with a trolley-pole, of a trolley-head provided with a trolley-wheel, said pole and head being united by a bayonet-joint, the slot or groove whereof is provided with a terminal locking-seat, a spring interposed between the head and pole to hold the projection of the bayonet-joint in said locking-seat when the parts are united, and means for positively locking said projection in said seat, substantially as described.

3. In a trolley, the combination, with a trolley-pole having a projection, of a trolley-head provided with a trolley-wheel and having a socket extension to receive the end of the trolley-pole, said extension being provided with a bayonet-joint groove or slot terminating in a locking-seat, and a spring inclosed within the pole and socket extension and abutting against said parts, said spring serving to hold the projection in the locking-seat when the parts are united, substantially as described.

4. In a trolley, the combination, with a trolley-pole provided with a projection, of a trolley-head provided with a trolley-wheel, said head having a socket extension provided with a bayonet-joint, slot or groove having a terminal locking-seat, a spring-actuated locking-dog pivoted on said extension and having a locking-block adapted to lock the projection in the locking-seat, and having a beveled face to yield to said projection when it enters said seat, and a spring interposed between the head and pole and inclosed within the same to hold the projection in said locking-seat when the parts are united, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES E. THOMAS.
JACOB M. OLINGER.

Witnesses:
E. O. HAGAN,
IRVINE MILLER.