

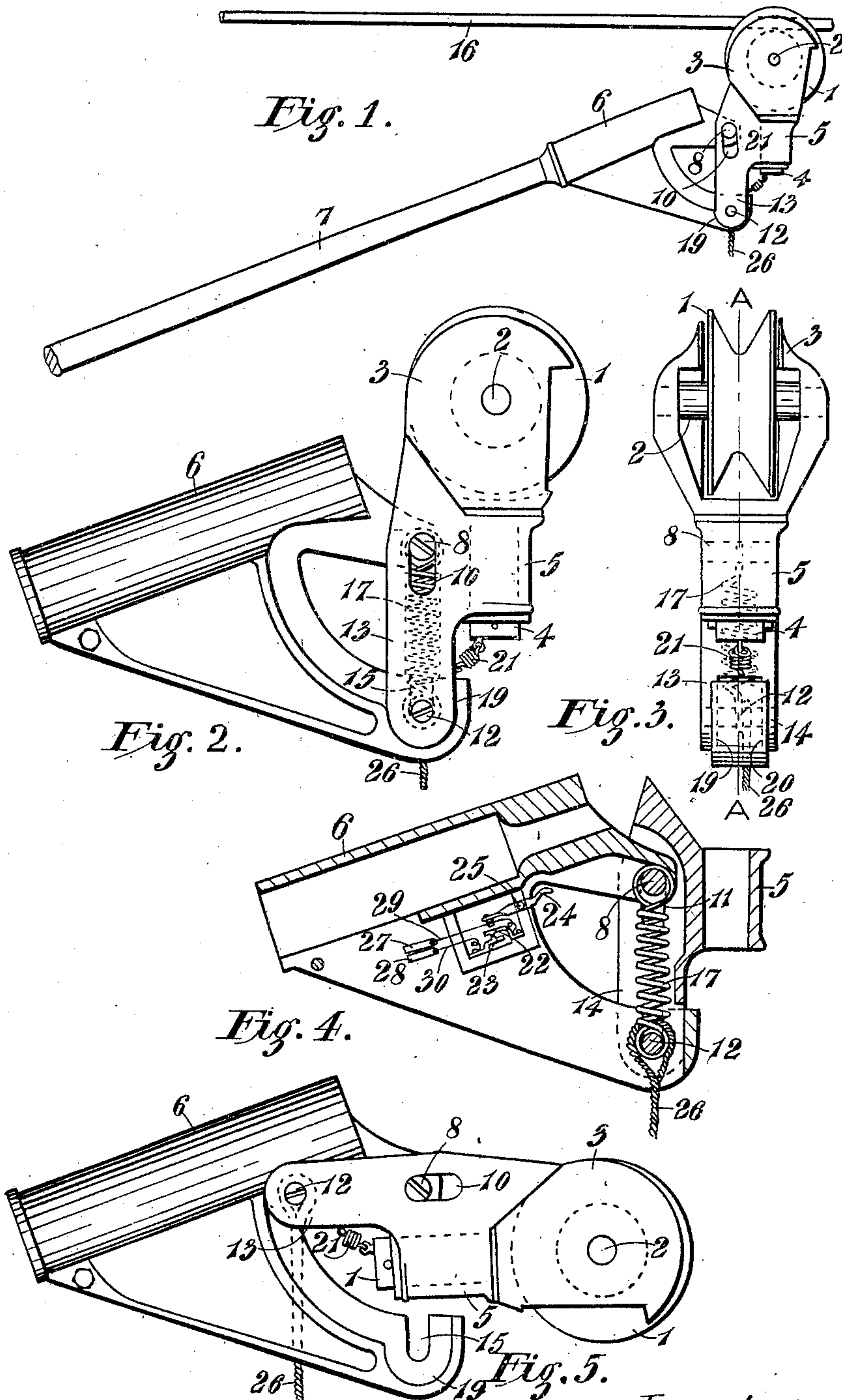
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PATENTED DEC. 4, 1906.

G. B. HOLMES & A. D. ALLEN.

TROLLEY HEAD FOR ELECTRICAL TRAMWAY SYSTEMS.

APPLICATION FILED MAR. 26, 1906.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## TROLLEY-HEAD FOR ELECTRICAL TRAMWAY SYSTEMS.

No. 837,836.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed March 26, 1906. Serial No. 308,170.

*To all whom it may concern:*

Be it known that we, GARNET BOWEN HOLMES, residing at 14 Austin street, and ARTHUR DUNSCOMBE ALLEN, residing at 15 Bolton street, Wellington, in the Colony of New Zealand, subjects of His Majesty the King of Great Britain and Ireland, have invented certain new and useful Improvements Relating to Trolley-Heads for Electrical Tramway Systems, of which the following is a specification.

The invention relates to trolley-heads employed in connection with electrical tramway and similar systems, and provides improvements therein whereby the danger through the fouling of the head with the overhead gear is very much reduced or entirely obviated.

According to our present invention the trolley-wheel is journaled within a jaw which is pivotally mounted within a bracket so as to be free to swivel therein within certain limits, spring means being employed to cause the wheel to normally tend to assume a position in line with the trolley-pole.

The bracket referred to is connected to a head carried upon the end of the trolley-arm, the connection preferably consisting of pins projecting from the head taking into slots formed in cheeks projecting from the bracket. A pin carried by the cheeks engages when the trolley-wheel is in contact with the conductor and the bracket pressed down thereby in a slot formed for its reception in the head. Spring means are employed whereby when the trolley-wheels leave the conductor the pin referred to is drawn out of the slot and the bracket turns upon its pivotal connection with the head, the bracket being so placed that the action of gravity has the effect of causing the trolley-wheel and its carrying means to fall until it is in such position that it will clear the overhead gear or damage will not be caused thereto by its contact therewith. Guides are employed for the cheeks referred to. The turning over of the bracket upon its pivotal connection causes contact to be made in an electrical bell-circuit, whereby indication is given to the motorman when the trolley-wheel has left the conductor. The conductors of the electrical circuit are provided with plug connections whereby they may be easily parted.

Our invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation showing our invention applied to the end of a trolley-arm. Fig. 2 is a side and Fig. 3 a corresponding end elevation of our invention. Fig. 4 is a part side sectional elevation on A A, Fig. 3. Fig. 5 is a similar view to Fig. 2, but showing the parts in another position.

The trolley-wheel 1 is journaled on spindle 2 within the jaw 3, which has the integrally-formed pin 4 journaled in the bracket 5. The head 6 is secured to the end of the trolley-arm 7, (see Fig. 1,) and a pin 8, projecting from each side of the head, works in slots 10 and 11, formed in the bracket. A pin 12, carried in the cheeks 13 and 14, projecting from the bracket 5, is adapted to engage in the slots 15, formed in the head, and is held therein for the purpose of maintaining the bracket 5 in its vertical position (see Figs. 1 and 2) by the pressure of the trolley-wheel 1 against the conductor-cable 16. When the trolley-wheel leaves the cable, a spring 17, secured at one end to the pin 12 and at the other end to the pin 8, fixed in the head, draws the pin 12 out of the slots in the head and allows the bracket to turn over upon the pin 8 until it assumes the position shown in Fig. 5. The cheeks work in recesses 19 and 20, and the fall of the bracket is arrested by contact of the cheeks with the end of the recesses. A spring 21, attached at one end to the pin 4 and at its other end to the bracket 5, tends to return the pin 4, so that the trolley-wheel is in line with the trolley-pole.

The current is carried from the trolley-wheel to the motors of the vehicle in the usual manner. The motorman is warned of the overturning of the bracket by the ringing of an electric bell, (not shown on the drawings,) an electric circuit being closed by the pin 12 striking the lever 24, pivoted upon a pin 25, the contact-pieces 22 and 23 being thereby pressed together. The connecting-plugs 27 and 28, affixed to the conductors 29 and 30, are of ordinary construction and fit into sockets, from which they are withdrawn when the head is removed from the trolley-pole. The head is restored to the vertical position shown in Figs. 1, 2, and 3 from the position shown in Fig. 5 by means of a cord 26, attached to the pin 12. The cord is pulled to bring the trol-



ley-pole below the electrical conductor-cable, and the strain thus exerted returns the pin 12 to the slots 15.

What we claim, and desire to secure by Letters Patent of the United States, is—

1. Apparatus for the purpose indicated comprising in combination a trolley-pole, a head secured thereto a bracket pivotally secured to the head a jaw swiveled in the bracket, a trolley-wheel journaled in the jaw, the pivotal connection of said bracket with the head arranged in such position that the bracket normally tends to turn over upon said pivot out of its vertical position, and means for retaining the bracket in its vertical position through the upward pressure of the trolley-wheel against the electrical conductor-cable substantially as specified.

2. Apparatus for the purpose indicated comprising in combination a trolley-pole, a head secured thereto, a bracket pivotally secured to the head in such manner that it tends to fall out of its vertical position, a jaw swiveled in the bracket, a trolley-wheel journaled in the jaw, cheeks projecting from the bracket a pin secured in the cheeks, slots in the head adapted to receive the said pin and spring, means tending to raise the bracket so that the pin leaves the slots substantially as set forth.

3. Apparatus for the purpose indicated comprising in combination a trolley-pole, a head secured thereto, a pivot-pin projecting at each end from the head, a bracket slots in the bracket receiving said pivot-pin, the posi-

tion of said pivot-pin being such that the bracket tends to turn upon it out of its vertical position, a jaw swiveled in the bracket, a trolley-wheel journaled in the jaw, cheeks projecting from the bracket a pin secured in the cheeks, slots in the head adapted to receive said pin and a spring secured to said pin and to said pivot-pin tending to raise the bracket and to cause the pin to leave the slots in the head, substantially as specified.

4. Apparatus for the purpose indicated comprising in combination a trolley-pole, a head secured thereto, a bracket pivotally secured to the head in such manner that it tends to fall out of the vertical position, a jaw swiveled in the bracket, a trolley-wheel journaled in the jaw, cheeks projecting from the bracket, a pin secured in the cheeks, slots in the head adapted to receive said pin, spring means tending to raise the bracket and to cause the pin to leave the slots in the head, a lever adapted to be struck by said pin, a contact-piece upon the lever in connection with an electrical bell-wire and a second contact-piece upon the other wire of the bell adapted to be engaged by the first contact-piece, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two witnesses.

GARNET BOWEN HOLMES.  
ARTHUR DUNSCOMBE ALLEN.

Witnesses:

ERNEST SMITH BALDWIN,  
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