

No. 684,136.

Patented Oct. 8, 1901.

C. TOCHTERMAN.
TROLLEY WHEEL SUPPORT.

(Application filed Mar. 8, 1901.)

(No Model.)

Fig. 1.

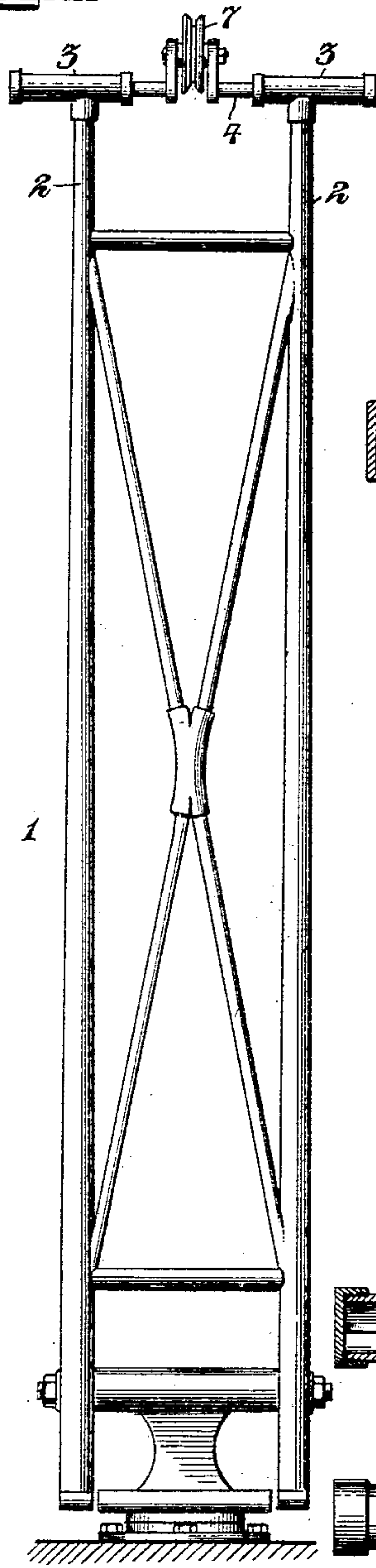


Fig. 2.

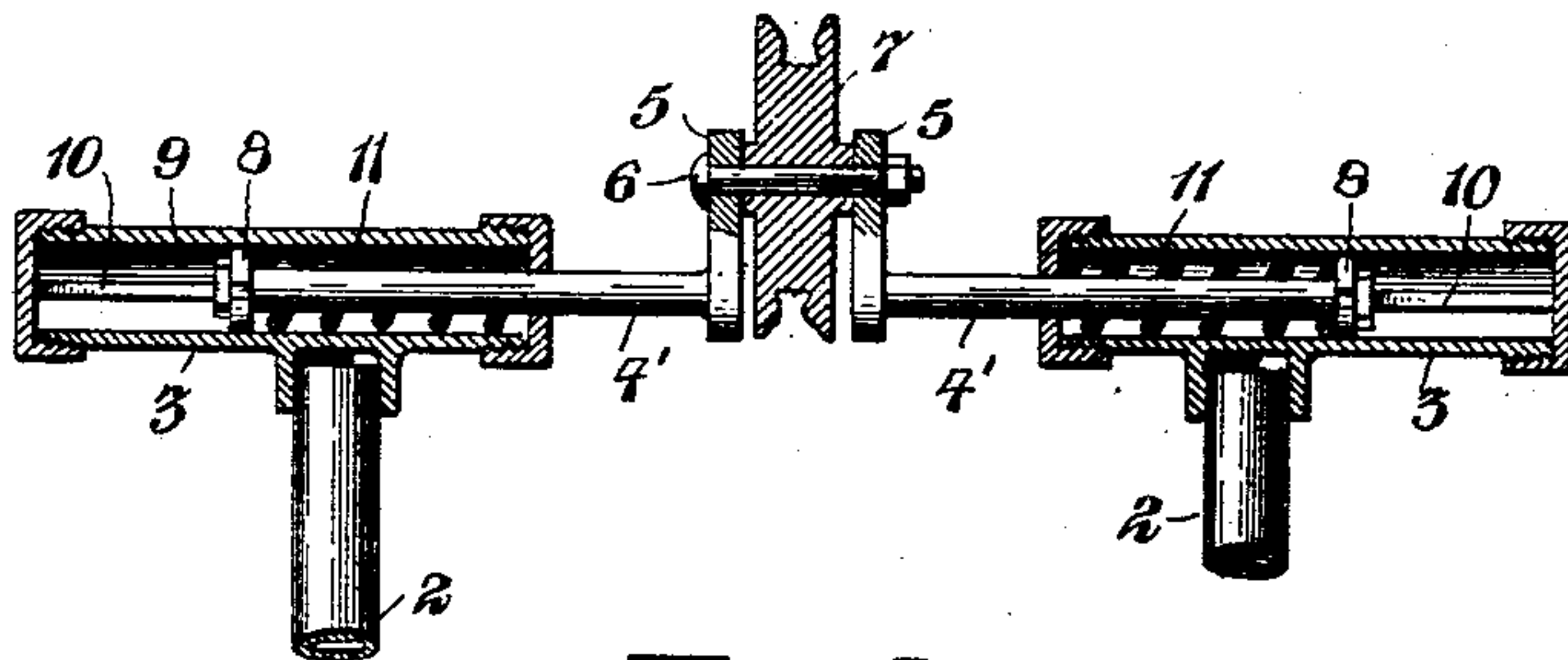


Fig. 3.

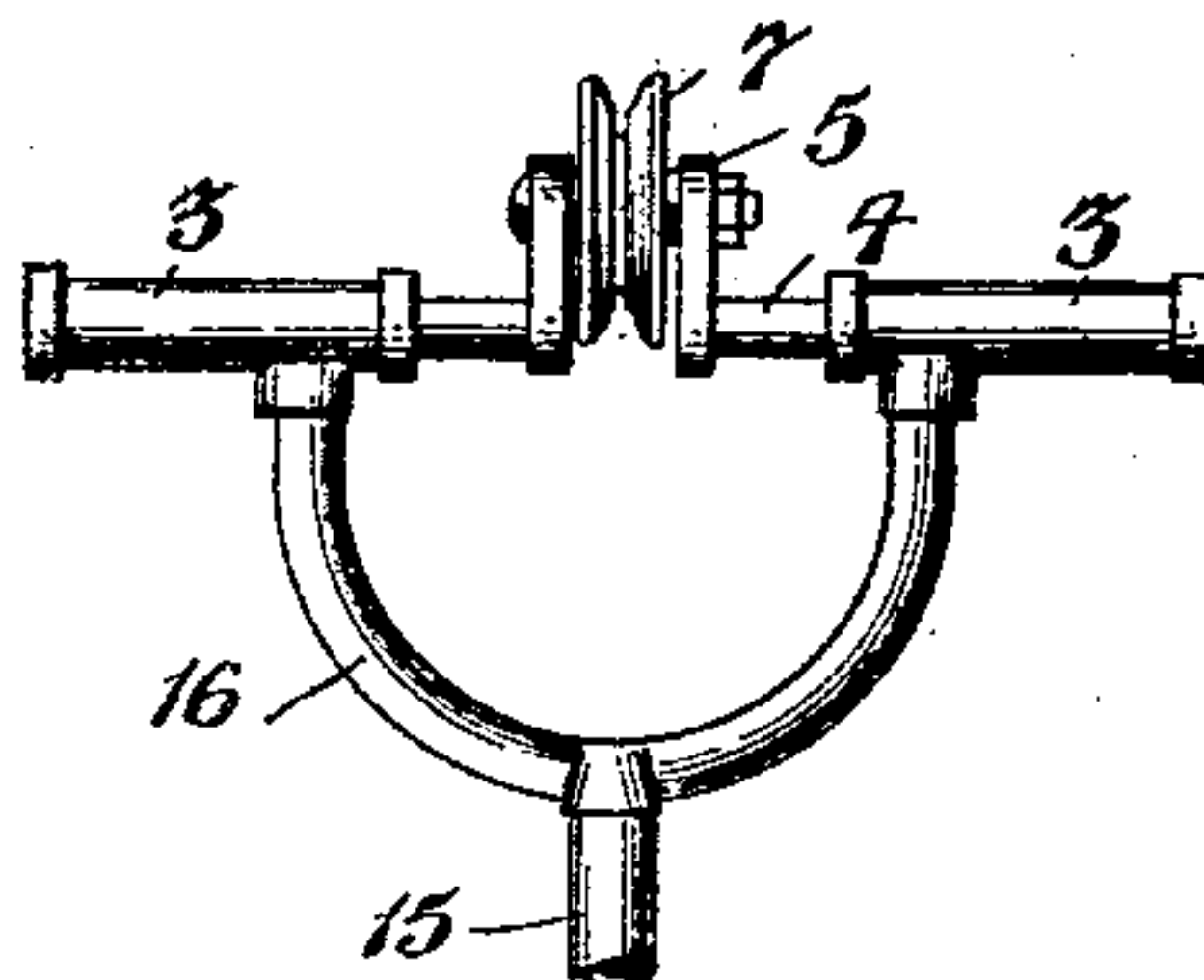


Fig. 4.

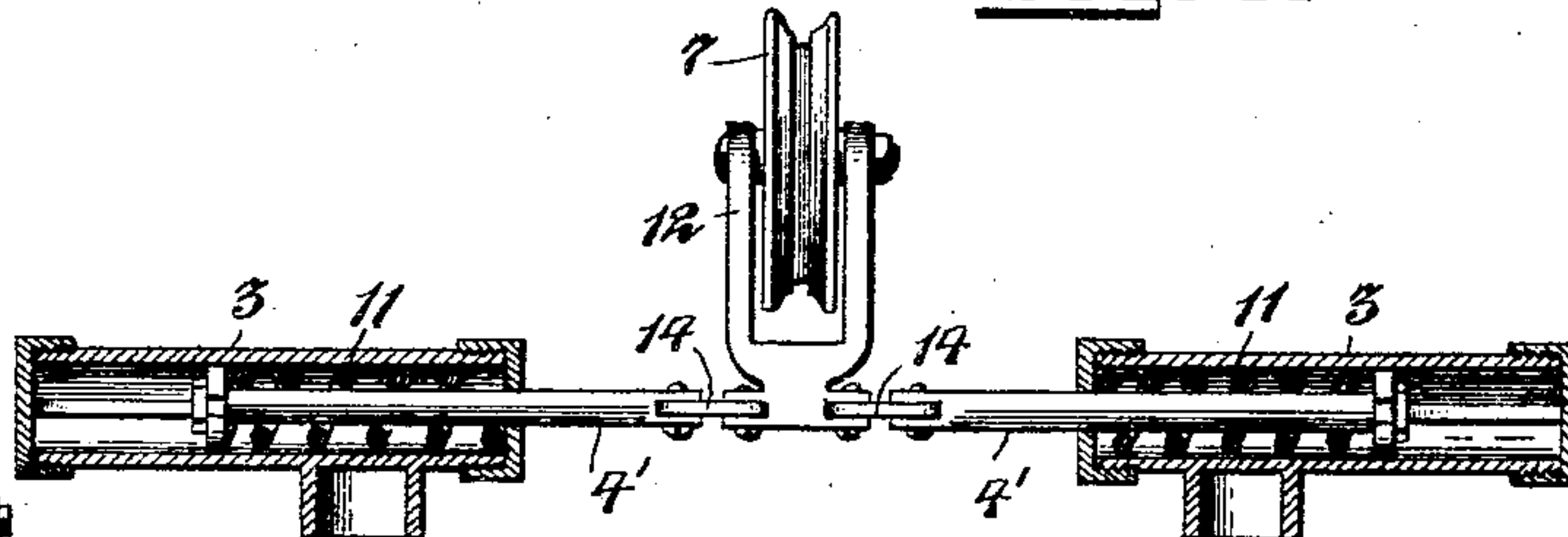
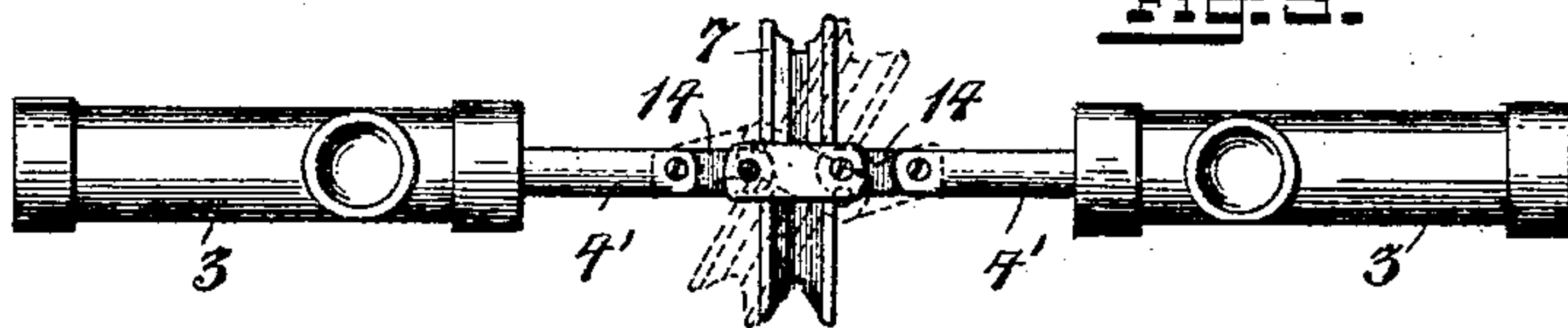


Fig. 5.



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TROLLEY-WHEEL SUPPORT.

SPECIFICATION forming part of Letters Patent No. 684,136, dated October 8, 1901.

Application filed March 8, 1901. Serial No. 50,277. (No model.)

To all whom it may concern:

Be it known that I, CHARLES TOCHTERMAN, a citizen of the United States, and a resident of New York, borough of Brooklyn, Kings county, State of New York, have invented certain new and useful Improvements in Trolley-Wheel Supports, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

In the operation of electrically-propelled or so-called "trolley-cars" considerable trouble and annoyance is caused by the trolley-wheel slipping or moving from engagement with the overhead feed-wire. Such disengagement is caused in part by reason of the curves and irregularities in the feed-wire and the non-adjustability of the trolley-wheel to automatically adapt itself thereto.

Having such facts in mind, it has been the object of my invention to provide an improved means for supporting the trolley-wheel whereby it will be movable in a lateral direction and also be capable of rotating at various angles, so as to readily and automatically adapt itself to the curves and irregularities in the feed-wire, and so maintain its engagement therewith. This object I secure by means of the novel construction and combinations of parts, as hereinafter set forth in detail and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a front elevation of a double trolley pole or arm having a trolley-wheel supported in connection therewith in accordance with my invention. Fig. 2 is an enlarged detail sectional view showing the connections between the trolley-wheel and the trolley-pole. Fig. 3 is a detail view showing the invention applied to a single trolley-pole. Fig. 4 is a detail view similar to that of Fig. 2, showing another feature of my invention; and Fig. 5 is a bottom view of the construction shown in Fig. 4, showing different positions that may be assumed by the trolley-wheel.

In said drawings, 1 indicates a double trolley-pole, which is of ordinary construction and adapted to be mounted upon the top of a car in the usual manner. This pole is provided at the top of each of its arms 2 2 with a tubular cross-head 3, in which the opposite

ends of the wheel-carrying shaft 4 are supported to be capable of a longitudinal sliding movement, the distance between the inner or adjacent ends of the tubular heads being sufficient to permit of a considerable lateral movement of the trolley-wheel between the same.

The shaft 4 in the present instance shown is formed in two parts or sections 4' 4', each of which is provided at its inner end with a vertical arm 5, which arms are connected at their upper ends by a bolt or spindle 6, on which the trolley-wheel (indicated at 7) is mounted to rotate. This construction serves to support the trolley-wheel in a position with its upper edges sufficiently high above the tubular cross-heads 3 as to prevent liability of the latter striking against the overhead cross-wires or supporting-brackets in the event of any of the parts being bent or out of their normal position.

In order to prevent turning of the shaft 4 in its bearings, so as to retain the arms 5 in their upright position, I provide said shaft at its outer ends with a head or disk 8, having transverse grooves 9 therein, which are entered by longitudinally-arranged ribs 10 on the inner walls of the tubular cross-heads 3. This construction serves to hold the shaft against turning or rotary movement and at the same time permits longitudinal or endwise sliding movement of the same with the supported trolley-wheel.

As a means to yieldingly hold the trolley-wheel in its normal central position between the cross-heads 3 3 I have located coiled springs 11 11 in said cross-heads, with one end bearing against one of the end walls of the latter and their opposite ends bearing against the heads 8 on the shaft. Being thus laterally supported in central position, the trolley-wheel will readily adapt itself to any lateral irregularities in the feed-wire and be returned to its normal position by the action of the springs.

The lateral adjustment of the trolley-wheel, as above referred to, while desirable under all circumstances, is especially effective on a straight track where the bends and irregularities in the feed-wire are not particularly acute; but in passing on curves where the

line of the feed-wire contains more or less sharp angles and varies considerably from the central line of the track it is desirable that a further adjustment of the trolley-wheel
 5 be permitted to conform to such more pronounced angles and irregularities. Such further adjustment I secure by the construction illustrated in Figs. 4 and 5, in which the trolley-wheel is shown as being supported by a
 10 frame or bracket 12, which is connected with the adjacent ends of the shaft-sections 4' 4' through the medium of pivoted links 14 14. With this construction, when the trolley-wheel is in its normal position the links 14
 15 14 are held in a straight line central with the shaft-sections by the action of the springs 11 11; but when the wheel passes on a curve in a feed-wire it will adapt itself to the angle thereof, as indicated by dotted lines in Fig.
 20 5, the springs 11 11 being of such tension as to readily yield under slight pressure and permit of a turning movement of the trolley-wheel and its supporting-bracket, as shown.

Referring to Fig. 3, I have shown the application of my invention to a single trolley pole or arm. In this instance the pole
 25 (indicated at 15) is provided with a U-shaped bracket 16, upon the opposite arms of which are mounted the tubular cross-heads 3 3, in which latter the ends of the shaft 4 are supported in the manner as before described.

Having thus set forth my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

35 1. The combination, of a trolley-pole provided with two tubular cross-heads, a trolley-wheel, and a shaft carrying said wheel and being supported to have a longitudinal movement in said cross-heads.

40 2. The combination, of a trolley-pole provided with two tubular cross-heads, a trolley-wheel, a shaft carrying said wheel and being supported to have a longitudinal movement in said cross-heads, and means for yieldingly
 45 holding said shaft with the trolley-wheel in a normal position relative to the cross-heads.

3. The combination, of a trolley-pole provided with two tubular cross-heads, a trolley-wheel, a shaft carrying said wheel and being supported to have a longitudinal sliding
 50 movement in said cross-heads, and springs located in the latter and engaging with a connected part of the shaft to yieldingly hold the latter with the supported wheel in a certain normal position.

55 4. The combination, of a trolley-pole provided with a tubular cross-head, a shaft supported to have a longitudinal movement in said cross-head and being provided with a spindle carried thereby in a position above
 60 its axis, the said shaft and cross-head being provided with cooperating means for preventing turning or rotary movement of the shaft in the cross-head, and a trolley-wheel mounted on said spindle.

65 5. The combination, of a trolley-pole provided with two bearing supports or heads, a trolley-wheel and a supporting-bracket therefor, and two shaft-sections having a pivotal link connection at their inner or adjacent
 70 ends with said wheel-supporting bracket and at their outer ends being supported in the bearing-heads to have a longitudinal movement therein, for the purpose set forth.

75 6. The combination, of a trolley-pole provided with two bearing supports or heads, a trolley-wheel and a supporting-bracket therefor, two shaft-sections having a pivotal link connection at their inner or adjacent
 80 ends with said wheel-supporting bracket and at their outer ends being supported in the bearing-heads to have a longitudinal movement therein, and means for acting upon the shaft-sections and yieldingly holding the trolley-wheel in a normal position with its axis cen-
 85 tral with the axis of the shaft-sections, for the purpose set forth.

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Witnesses:

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