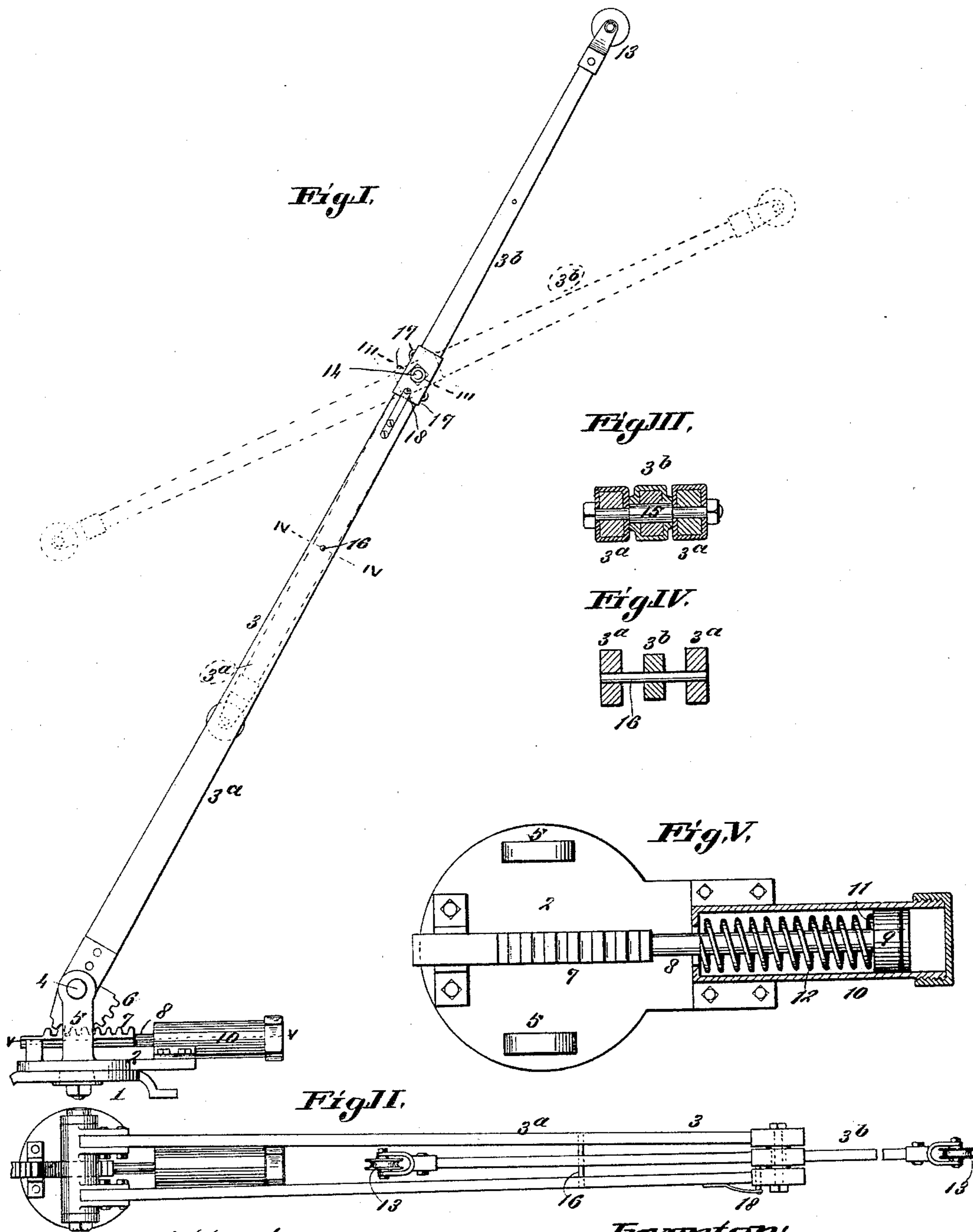


(No Model.)

E. VERSTRAETE.  
TROLLEY FOR RAILWAY CARS.

No. 454,532.

Patented June 23, 1891.



Attest;  
E. Arthur.  
E. L. Knight.

Inventor;  
Edmond Verstraete.  
By *Knight Bros*  
Attys

# UNITED STATES PATENT OFFICE.

EDMOND VERSTRAETE, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF  
TO PETER M. KLING, OF SAME PLACE.

## TROLLEY FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 454,532, dated June 23, 1891.

Application filed July 26, 1890. Serial No. 360,073. (No model.)

*To all whom it may concern:*

Be it known that I, EDMOND VERSTRAETE, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Trolleys for Railway-Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an improved trolley for railway-cars; and my invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a side elevation of my improved trolley. Fig. II is a top view. Fig. III is a transverse section taken on line III III, Fig. I. Fig. IV is a transverse section taken on line IV IV, Fig. I; and Fig. V is an enlarged horizontal section taken on line V V, Fig. I.

Referring to the drawings, 1 represents the base or stand, which is secured to the top of the car and upon which the trolley is supported and turns.

2 represents a table to which the trolley-arm is secured, and which is pivoted to the stand 1, so as to turn thereon.

3 represents the trolley-arm, which is pivoted at 4 to projections 5 on the table 2. In the lower end of the arm 3 is a segment 6, engaged by a rack 7 on the outer end of a rod 8. On the inner end of the rod 8 there is a piston 9, (see Fig. V,) which fits within a cylinder 10, supported by the table 2. When the piston is forced away from the outer end of the cylinder 10, a vacuum is formed in the cylinder back of the piston, and it will be understood that the air-pressure on the outer end or face 11 of the piston will keep the upper end of the arm 3 of the trolley into contact with the wire, and this may be assisted, if desired, by means of a spring 12, placed around the rod 8 between the face 11 of the piston and the inner end of the cylinder. By using the cylinder and piston air-pressure may be utilized to keep the upper end of the trolley-arm in contact with the wire, and this pressure will always exert its force in a direction to raise or elevate the trolley-arm, the force of the piston being communicated to the trolley-arm through means of the rack and segment 7 6.

It sometimes happens that the roller or pulley 13 on the upper end of the trolley-arm jumps the wire, and the arm is then liable to come in contact with the guy or supporting wires, and either be broken itself or break the wires. To avoid incidents of this kind, I form the arm in two parts longitudinally, the lower part being marked 3<sup>a</sup> and the upper part 3<sup>b</sup>. The parts are pivoted together at 14 by means of a bolt or pin 15, (see Figs. I and III,) the lower part of the arm being preferably made in two members, between which the upper part fits. The pivot 14 is in the center of the part 3<sup>b</sup> of the arm, so that this part of the arm extends both downwardly and upwardly from the pivot, as shown in Fig. I.

16 represents a wooden or other comparatively frail pin, which is passed through the parts of the arm beneath the pivot 14, the strength of this pin being sufficient to hold the two parts of the arm in their using position, or in line with each other; but in case the roller or pulley 13 should jump the wire and the upper end of the trolley-arm (taken as a whole) come in contact with a guy-wire the pin 16 would be broken and allow the upper end 3<sup>b</sup> of the trolley-arm to turn on the pivot 14, and thus prevent the breakage either of the trolley-arm or the guy-wire. To prevent the upper end of the arm from falling too far, (say farther than the position shown by dotted lines in Fig. I,) I form perforated lugs 17 on the part 3<sup>b</sup> of the arm, which receive a spring-actuated pin 18, carried by the part 3<sup>a</sup> of the arm. Thus when the pin 16 is broken and the part 3<sup>b</sup> of the arm moves on the pivot 14 the pin 18 will enter one of the perforations 17 and hold the part 3<sup>b</sup> of the arm from swinging farther on the pivot until the car can be stopped and the pin 16 renewed. It will be seen that I have provided a roller 13 on each end of the part 3<sup>b</sup> of the arm, so that either end may be used.

I claim as my invention—

1. In a trolley, the combination of the arm, a cylinder, a piston fitting within the cylinder, and a connection between the piston-rod and the arm, substantially as and for the purpose set forth.

2. In a trolley, the combination of the arm, a cylinder, a piston provided with a rod, and

a segment-and-rack connection between the rod of the piston and the trolley-arm, substantially as and for the purpose set forth.

3. A trolley having an arm made in two  
5 sections pivoted together, and a breakable pin 16, substantially as and for the purpose set forth.

4. A trolley having an arm made in two

sections pivoted together, a breakable pin 16, and a stop-pin 18, substantially as and for the purpose set forth.

EDMOND VERSTRAETE.

In the presence of—

GEO. H. KNIGHT,

E. S. KNIGHT.