

(No Model.)

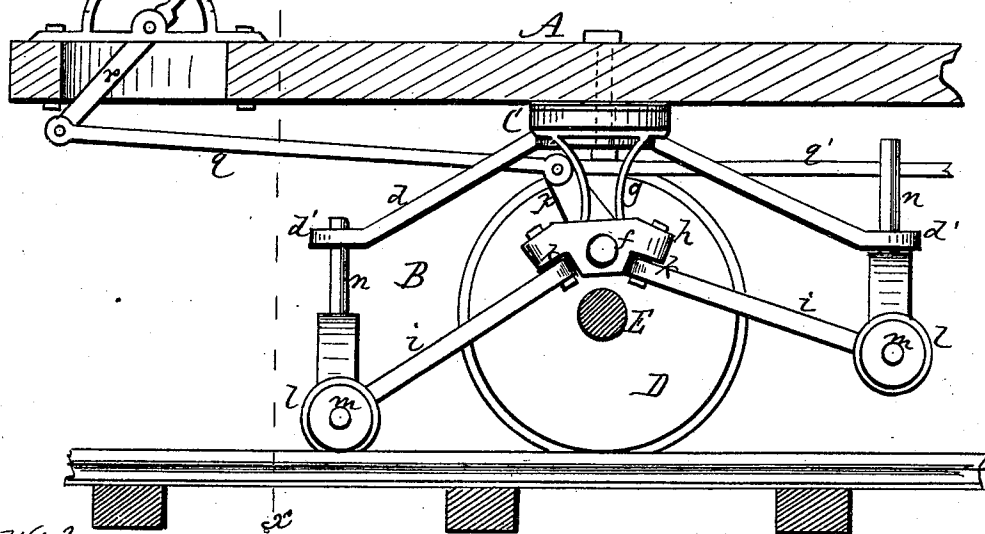
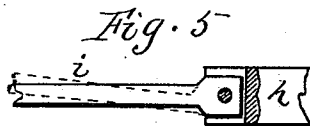
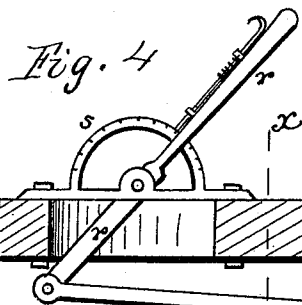
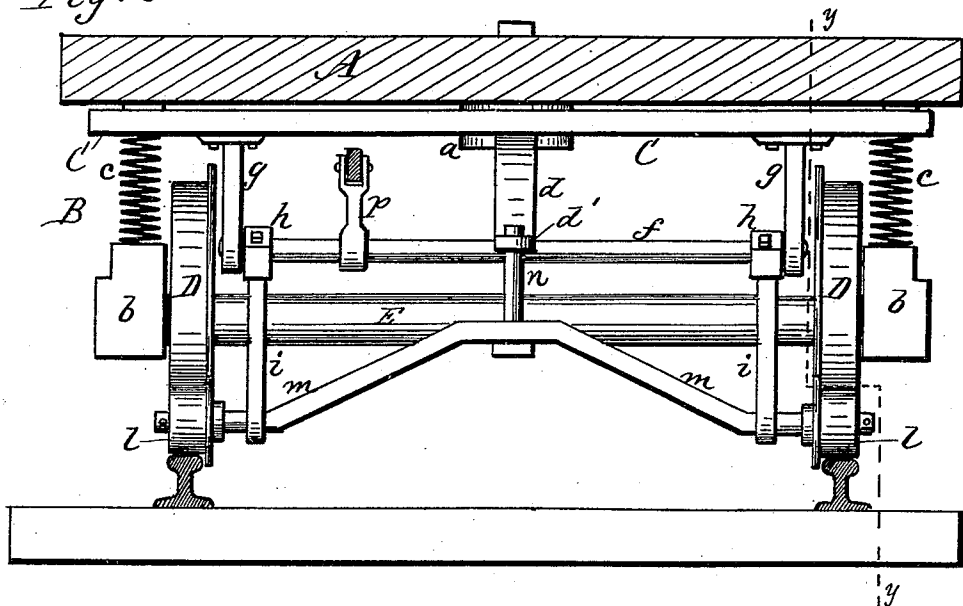
2 Sheets—Sheet 2.

H. B. WILLIAMS.
CAR TRUCK.

No. 461,658.

Patented Oct. 20, 1891.

Fig. 3.



Witnesses.
Chas. A. Sidener.
Austin Smith

Inventor.
Henry B. Williams.
Per R. L. Osgood, Atty.

UNITED STATES PATENT OFFICE.

HENRY B. WILLIAMS, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF
TO LEMUEL A. JEFFREYS, OF SAME PLACE.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 461,658, dated October 20, 1891.

Application filed July 25, 1891. Serial No. 400,753. (No model.)

To all whom it may concern:

Be it known that I, HENRY B. WILLIAMS, of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Car-Trucks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings accompanying this application.

My improvement relates to car-trucks especially adapted to street-cars, and is designed to facilitate the turning of the truck onto a curve and obviate to as great a degree as possible the grinding and friction that usually occur.

To this end the invention consists in the construction and arrangement of parts hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of a car provided with two trucks and showing my improvement attached thereto. Fig. 2 is a plan view of the same with a large part of the top of the car broken away. Fig. 3 is an enlarged cross-section in line *x x* of Fig. 4, and showing an end elevation of one of the trucks. Fig. 4 is a longitudinal vertical section in line *y y* of Fig. 3. Fig. 5 is a plan view of the arm *i*.

A indicates the car, and B B the two trucks. These trucks are constructed and arranged as follows:

C is a bolster or cross-bar provided with a circle-plate *a*, through which passes a king-bolt attached to the bottom of the car. The bolster forms the top of the truck and turns freely on the king-bolt.

D D are the ordinary wheels of the car, and E E the axles, the latter resting and turning in boxes *b b*, as usual.

c c are spiral springs resting on the boxes and supporting the ends of the bolster C.

d is a stiff guide-bar bolted centrally to the bolster and projecting in each direction and provided with perforated ends *d' d'*, through which pass the vertical studs of the supplementary wheel-frame, as will presently be described.

f is a cross-shaft located above the axle E and resting in fixed bearings *g g* on the under side of the bolster. *h h* are boxes on opposite ends of this shaft attached firmly there-

to. *i i* are arms hinged at *k k* to these boxes, so as to have a slight lateral turning motion which is transverse to the road-bed. These arms turn downward and are connected at their outer ends with the shafts of the supplementary guide-wheels.

l l are the guide-wheels, arranged in pairs, two in front and two in the rear of each truck. *m m* are the axles of these wheels, having their bearings in the ends of the arms *i i*, as just described. The guide-wheels are flanged like the main car-wheels, so as to engage with the rails, and they are so arranged that when one pair is thrown down to engage with the track the other pair is elevated above the track, and vice versa. They turn loosely on their axles, and the axles do not revolve.

n n are vertical studs or pins which project upward loosely through the perforated ends *d' d'* of the arm *d*, said studs or pins being attached to the axle *m* of the supplementary wheels. The perforations in the arm *d* are preferably of the triangular form shown in the plan view, Fig. 2, being large enough to allow the slight lateral play to the pins *n* resting therein necessary to allow the movement of the guide-wheels to follow the curve of the road in advance of the main wheels.

p is a crank-arm attached to shaft *f*, and *q* is a connecting-rod extending from said crank-arm to the lower end of a lever *r*, that works over a segment *s*. By throwing said lever the shaft *f* is turned, and with it the arms *i i*, and the guide-wheels are correspondingly raised and lowered. A second rod *q'* extends from crank-arm *p* to the crank-arm *p'* on the other truck, by which means the guide-wheels on both trucks are operated simultaneously.

The operation is as follows: The guide-wheels stand in advance of the main wheels of the car, and when thrown down run on the rails in advance of the main wheels. Their tendency, therefore, is to deflect the main wheels in running on a curve. When the front wheels are down in engagement with the track, the rear wheels are elevated, so as not to interfere with the turning of the curve. The position of the wheels is reversed by throwing the lever *r*—that is, the front wheels are elevated and the rear wheels thrown down,

thus adapting the action to the direction in which the car is running. This tilting motion of the wheels is produced by the swinging of the frame on the shaft *f*.

- 5 The main object of this invention is to preserve the radial or right-angled position of the truck in turning curves. The great difficulty with common trucks is to turn them properly for want of leverage.
- 10 In this invention the guide-wheels running in advance follow the curve, and by reason of the pins or studs *n n* of the frame resting in the stiff bar *d* the bolster *C*, and with it the main axle and wheels, is forced to turn at right
- 15 angles to the curve. The hinges *k k* allow the arms *i i* a slight lateral movement to prevent cramping of the main wheels before they reach the curve; but said arms stiffen with but slight movement.
- 20 Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the car-truck B,

of the two pairs of guide-wheels *l l* on opposite sides, having their bearings on tilting 25 arms which allow them to be swung up and down, and means for operating the tilting arms, as herein shown and described.

2. The combination, with the truck B, of the bolster *C*, the shaft *f*, the crank *p*, connecting-rod *q*, lever *r*, the boxes *h h* on the ends of shaft *f*, the arms *i i*, the guide-wheels *l l*, axles 30 *m m*, guide-pins *n n*, and the stiff arm *d*, arranged to operate in the manner and for the purpose specified.

3. The combination of the guide-wheels *l l*, axles *m m*, shaft *f*, boxes *h h*, and arms *i i*, hinged at one end to the boxes and attached 35 at the other to the axles, as specified.

In witness whereof I have hereunto signed 40 my name in the presence of two subscribing witnesses.

H. B. WILLIAMS.

Witnesses:

R. F. OSGOOD,
CHAS. A. WIDENER.