

(No Model.)

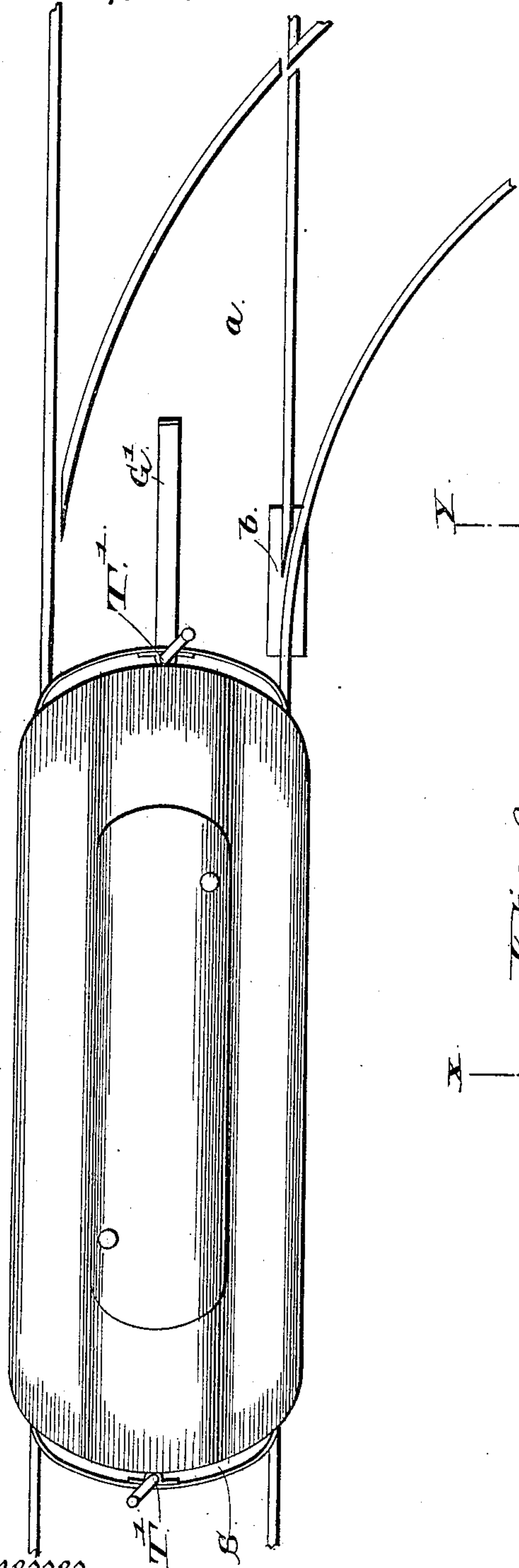
4 Sheets—Sheet 1.

E. E. & W. S. TAYLOR.  
STREET CAR.

No. 397,947.

Patented Feb. 19, 1889.

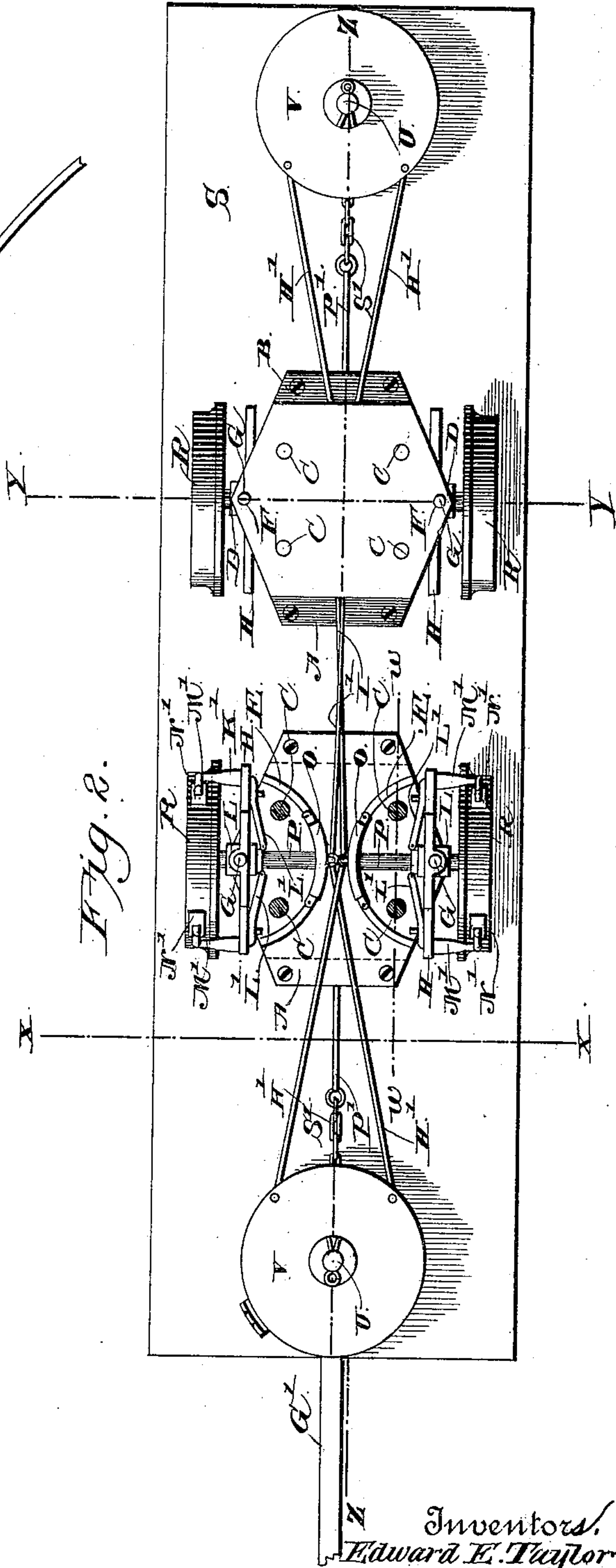
Fig. 1.



Witnesses.

*M. C. Fowler.*  
*E. J. Siggers*

Fig. 2.



Inventors,  
*Edward E. Taylor*  
and *William S. Taylor*

By their Attorneys

*C. H. Snow & Co.*

(No Model.)

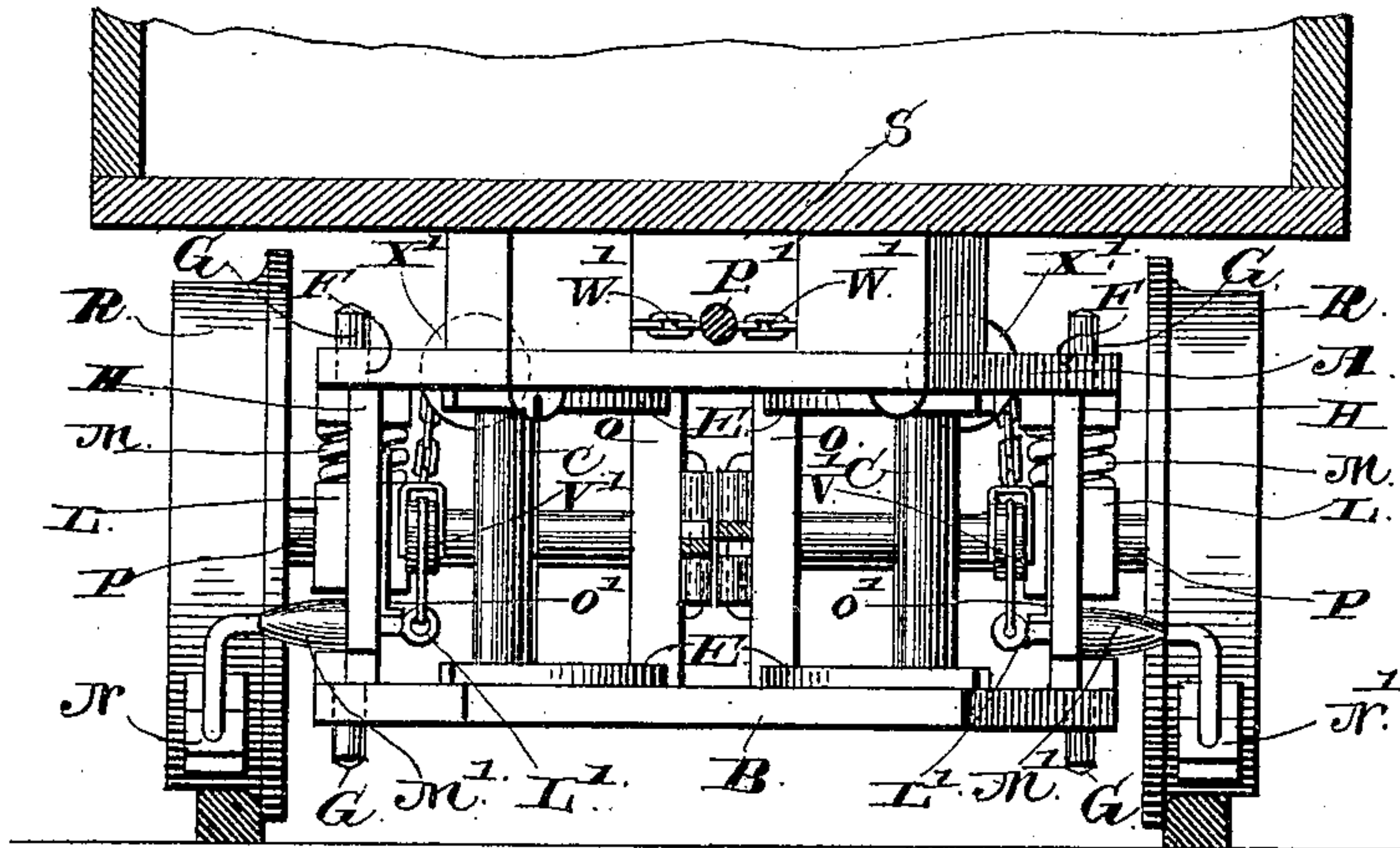
4 Sheets—Sheet 2.

E. E. & W. S. TAYLOR.  
STREET CAR.

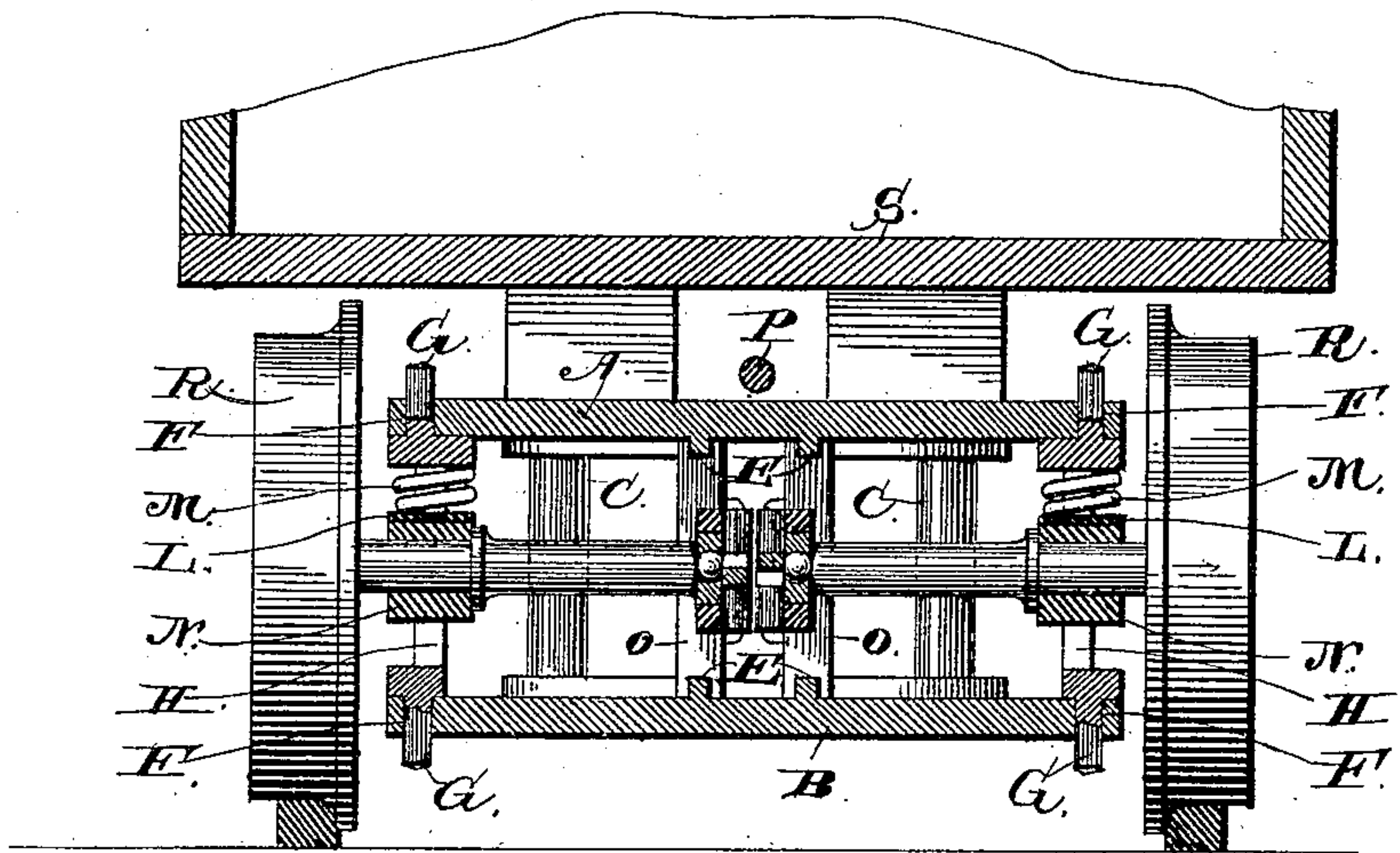
No. 397,947.

Patented Feb. 19, 1889.

*Fig. 3.*



*Fig. 4.*



Witnesses.

*M. C. Taylor*  
*E. G. Siggins*

Inventors,

*Edward E. Taylor*  
*and William S. Taylor*

By their Attorneys

*C. A. Snow & Co*



(No Model.)

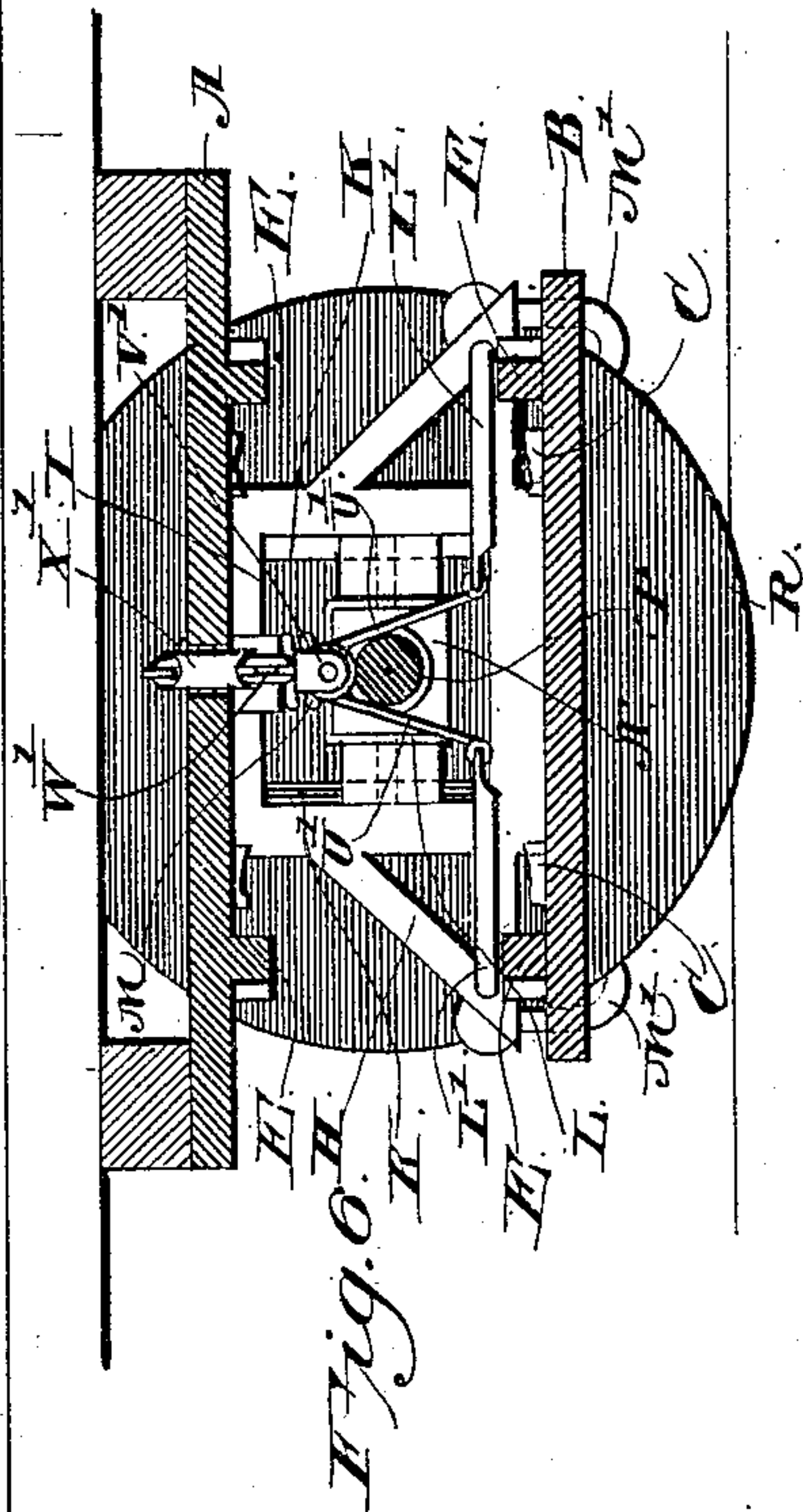
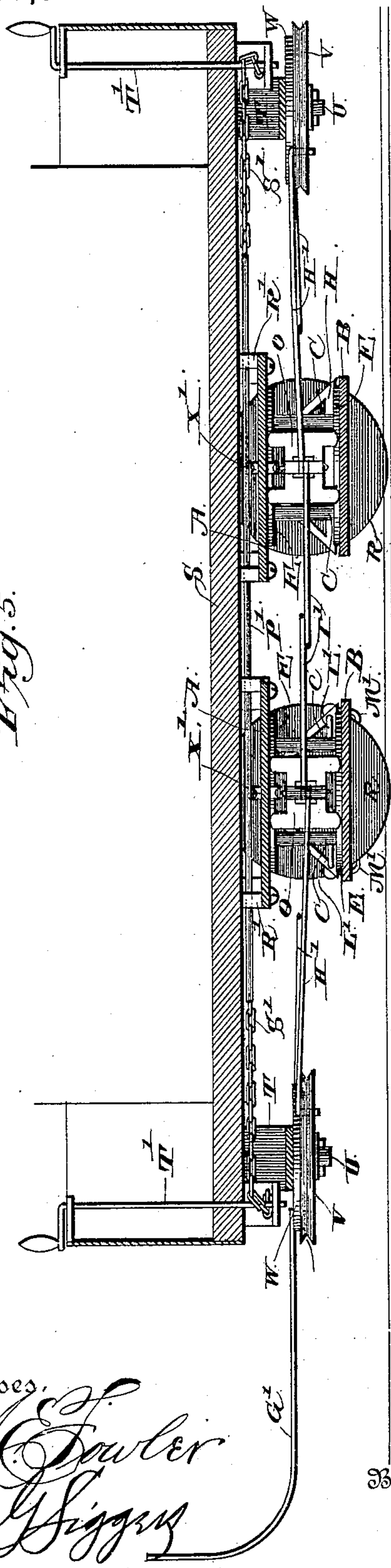
4 Sheets—Sheet 3.

E. E. & W. S. TAYLOR.  
STREET CAR.

No. 397,947.

Patented Feb. 19, 1889.

Fig. 5.



Witnesses,

*M. Fowler*  
*E. Siggers*

Inventors,  
*Edward E. Taylor*  
and *William S. Taylor*

By their Attorneys

*C. Snowdon*

(No Model.)

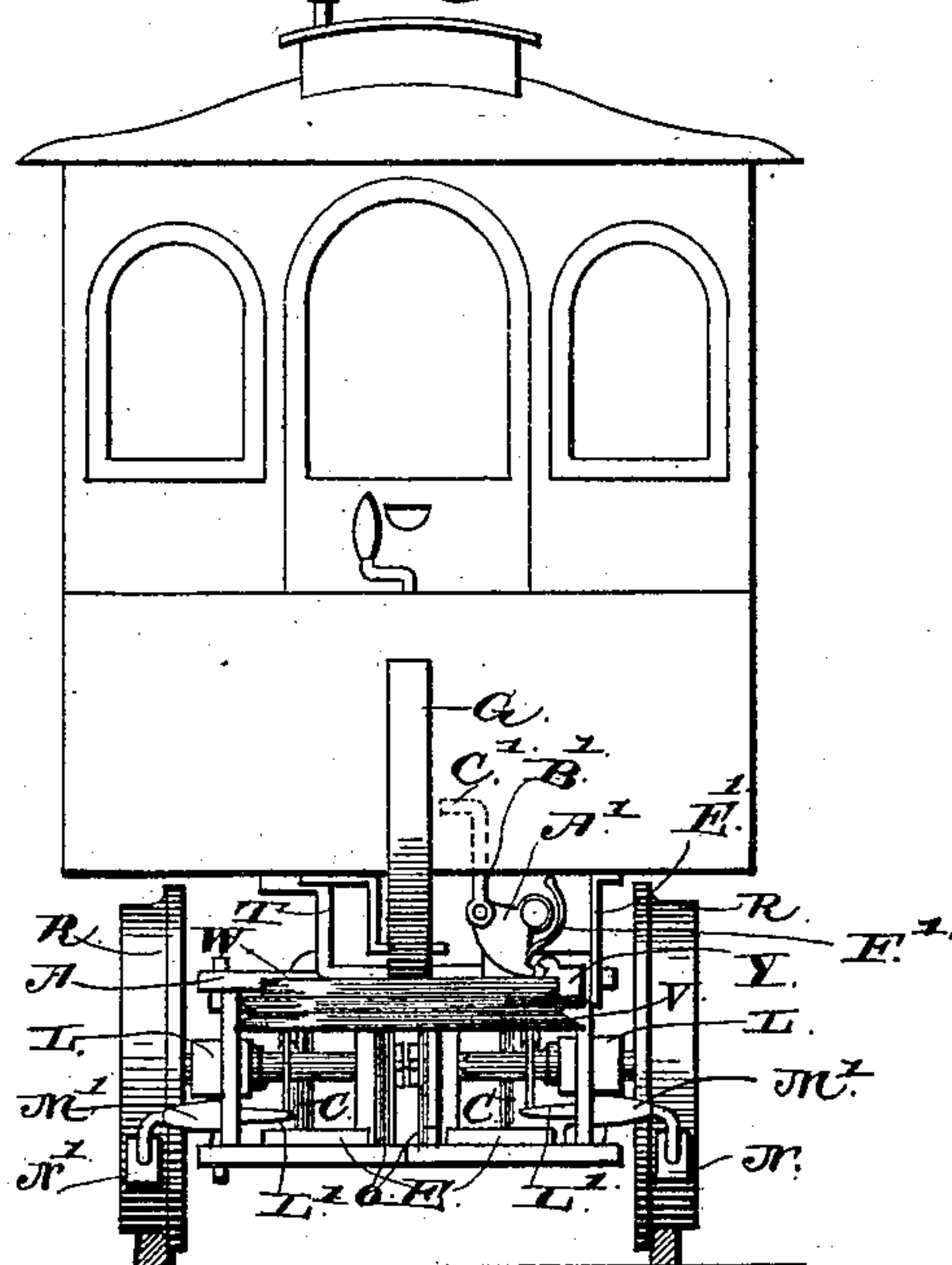
4 Sheets—Sheet 4.

E. E. & W. S. TAYLOR.  
STREET CAR.

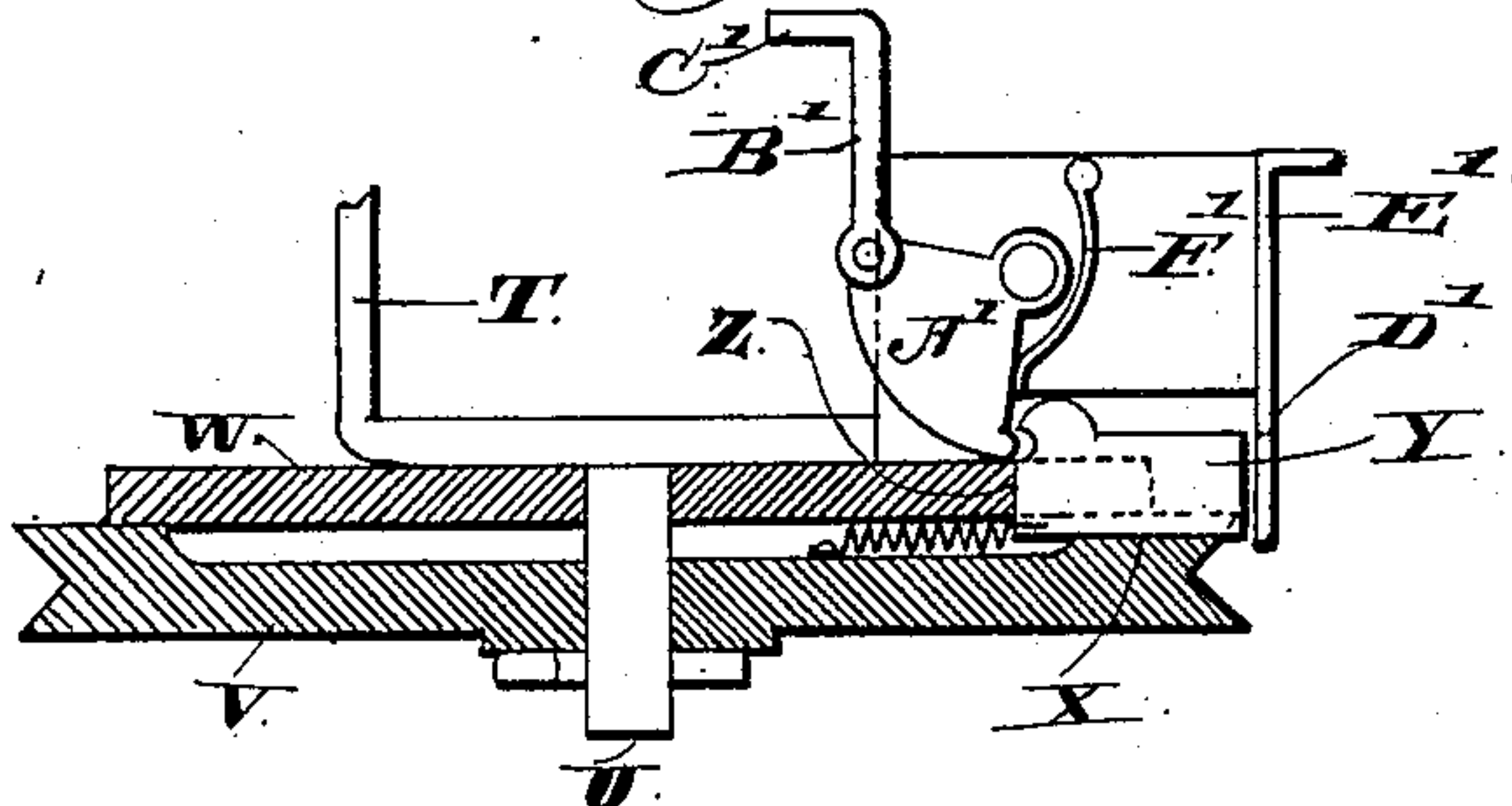
No. 397,947.

Patented Feb. 19, 1889.

*Fig. 7.*



*Fig. 8.*



Witnesses.

Witnesses,  
M. Fowler  
E. H. Rogers.

Inventors

*Edward E. Taylor  
and William S. Taylor*

By *their* Attorneys

Ed Snowden



# UNITED STATES PATENT OFFICE.

EDWARD E. TAYLOR AND WILLIAM S. TAYLOR, OF NEWPORT, RHODE ISLAND.

## STREET-CAR.

SPECIFICATION forming part of Letters Patent No. 397,947, dated February 19, 1889.

Application filed November 22, 1888. Serial No. 291,591. (No model.)

*To all whom it may concern:*

Be it known that we, EDWARD E. TAYLOR and WILLIAM S. TAYLOR, citizens of the United States, residing at Newport, in the county of Newport and State of Rhode Island, have invented a new and useful Improvement in Street-Cars, of which the following is a specification.

Our invention relates to an improvement in street-cars; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

The object of our invention is to provide the trucks of a street-car with independently-pivoted axles and connecting devices between the tongue and the said axles, whereby the latter will be turned simultaneously to adapt the wheels to fit a curved track, and thereby prevent the wheels from grinding and wearing when passing a curve, and enable the car to be drawn as readily on a curved track as on a straight track, and to further enable the car to be switched from one track to another without the use of railroad-switches such as are commonly employed; and a further object of our invention is to provide means whereby brakes may be applied to the wheels of the independently-pivoted axles.

In the accompanying drawings, Figure 1 is a top plan view of a street-car embodying our improvements, showing the same arranged on a curved track and the latter provided with a frog-crossing. Fig. 2 is an inverted plan view, partly in horizontal section, of a street-car embodying our improvements. Fig. 3 is a transverse sectional view taken on the line  $xx$  of Fig. 2. Fig. 4 is a similar view taken on the line  $yy$  of Fig. 2. Fig. 5 is a vertical longitudinal central sectional view taken on the line  $zz$  of Fig. 2. Fig. 6 is a longitudinal sectional view. Fig. 7 is a front elevation of our improved street-car. Fig. 8 is a detailed view.

Each truck has a pair of plates, A B, arranged one above the other and connected by two pairs of vertical posts, C. The sides of the said plates are angular and have their ver-

tices D arranged midway between their front and rear edges. The said plates are provided on their opposing sides with curved guide-flanges E, which are concentric with openings F near the vertices D, and in the said openings are journaled the vertical spindles G of truss-frames H. The said truss-frames are provided with vertical central openings, I, having V-shaped flanges K in their sides.

L represents saddle-frames provided with vertical grooves in their ends, which engage the flanges K, and thereby adapt the saddle-frames to play vertically in the openings I. Coiled springs M bear downward on the side frames, and in the latter are axially-pivoted bearing blocks or boxes N.

O represents bearing-blocks, which have grooves in their upper and lower sides that are engaged by the circular flanges E, and thereby the said bearings are guided by the said flanges. The inner ends of independent axles P are journaled or swiveled in the bearings O, and said axles have their bearings also in the boxes N. To the outer ends of the said axles are secured the usual flange-wheels, R.

From the ends of the car-platform S depend brackets T, which have central depending spindles, U, on which are journaled circular disks V W, the latter being arranged above the former and independent thereof. One of the disks, V, has a dovetailed groove, X, extending to one side, and in the said groove is guided a bolt, Y, the inner end of which is adapted to engage a notch, Z, in the disk W, and thereby lock the said disk to the said disk V.

Pivoted on the front side of one of the brackets T is a quadrant-shaped plate, A', the lower end of which is adapted to engage the bolt Y when the latter is in line therewith, and to the upper corner of the said quadrant-plate is pivoted a rod, B', that extends upward through the platform and has its upper end provided with an arm or pedal, C', by which it may be depressed in order to cause the quadrant-plate to move the bolt Y out of engagement with the notch Z and into en-



gagement with the notch D' of a vertical arm, E', and thereby release the disk W from the disk V and lock the latter to the arm B' and prevent it from turning on the spindle U. A spring, F', bears against the lower outer edge of the quadrant-plate, and thereby normally elevates the rod B'. The tongue G', to which the draft-animals are hitched, is rigidly secured to the disk W, and when the quadrant-plate is in its normal position, so as to release the bolt Y and cause the latter to engage the notch Z, and thereby lock the front disks, V W, together, the said disks may be partly turned on their spindles U by turning the tongue in any direction, as will be readily understood. Each disk V is connected to the bearings O of the proximate truck by link-rods H'.

I' represents a pair of crossed link-rods which connect the bearings O between the trucks.

From the foregoing description it will be understood that when the front disks, V W, are locked together by the bolt Y and the tongue is turned in either direction the link-rod which connects the disks to the bearings O and connects the latter together will cause the said bearings to move on the flanges E, and thereby turn the axles to a position at right angles to the radius of the curve in the track, and thereby adapt the car to be drawn easily around the curve and prevent the wheels from grinding and slipping thereon.

K' represents brake-levers, which are pivoted to the truss-frames H of one or both of the trucks, have inward-extending arms L', and have crank-arms M', to which are attached brake-shoes N'. Springs O' bear against the arms L' and keep the brakes normally out of contact with the wheels.

P' represents an endwise-movable rod, which is guided in loops or keepers R' on the upper sides of plates A, and has chains S' attached to its ends, which chains are secured to windlass-rods T', mounted at the ends of the car in the usual manner. The arms L' of the brake-levers are connected together in pairs by chain-loops U', which are engaged by pulley-blocks V'. Branch chains W' extend from the rod P', are guided on suitable sheaves, X', in one of the plates A and attached to the pulley-block, and thereby serve, when one of the windlass-rods is operated, to draw upon the chain-loops, and thereby apply the brakes to the wheels, as will be readily understood.

The track a, on which the car is adapted to move, is provided with the usual frog-crossing, b, the usual switch-rail being entirely discarded. The horses attached to the tongue, when passing a curve, turn the tongue in the manner before described, and thereby cause the pivoted axles to be turned in such manner as to cause the wheels to correspond with the radius of the track.

When the car is traversing a straight portion of the track, the operator by depressing the rod B' will cause the quadrant-plate A' to

move the bolt Y into engagement with the notched arm E' and out of engagement with the recess Z, thereby locking the disk V against rotation and permitting the disk W, to which the tongue is attached, to play loosely with the lateral swing of the tongue.

Having thus described our invention, we claim—

1. The combination, in a car-truck, of the curved guides E, the pivoted truss-frames H, having the bearings N, the axles journaled in the bearings N and in the bearings O, and means, substantially as set forth, to turn the truss-frames on their pivots, for the purpose set forth, substantially as described.

2. The combination, in a car, of the trucks having the pivoted frames H, the curved guides E, the bearings O, movable on the guides E, the saddle-frames movable vertically in the frames H, the bearings N, pivoted in the saddle-frames, the springs bearing on the saddle-frames, and the independent axles journaled in the bearings N and having their inner ends journaled in the bearings O, substantially as described.

3. The combination, in a railway-car, of the trucks having the pivoted bearings for the axles, the pivoted tongue, the disk V, connections between the latter and the inner ends of the axles, and means, substantially as set forth, to lock the tongue to the disk V, whereby the latter may be operated by the tongue, substantially as described.

4. The combination, in a car, of the trucks having the pivoted axles, the disk V, connections between the same and the inner ends of the axles, whereby the latter may be turned on their pivots, for the purpose set forth, the disk W, having the notch Z, the tongue secured to the said disk, the bolt Y, guided on the disk V and adapted to engage the notch Z, the notched arms D', rigidly secured to the car, the pivoted plate A', adapted to engage and operate the bolt Y, and devices to operate the said plate, substantially as described.

5. The combination, in a car, of the truck having the pivoted axle-bearings, the brake-levers pivoted to the said bearings, the endwise-movable rod, and connections between the latter and the brake-levers, substantially as described.

6. The combination, in a car, of the truck having the pivoted axle-bearings, the brake-levers pivoted to the said bearings, the endwise-movable rod, and the chains connecting the said rod to the brake-levers, and guiding-sheaves for the said chains, substantially as described.

7. In a car, the plates A B, arranged apart and having the guides E, the frames H, pivoted between the plates, the independent axles, and the bearings O for the axles, turning on the guides E, as set forth.

8. In a car, the trucks having the pivoted frames H, the curved guides E, the bearings O, movable on the guides, and the independ-



ent axles journaled in the bearings O and also connected to the frames H, as set forth.

9. In a car, the frames having the guides E, the pivoted frames H, the bearings N in the frames H, the bearings O, turning on the guides E, and the independent pivoted axles journaled in the bearings N O, as set forth.

In testimony that we claim the foregoing as

our own we have hereto affixed our signatures in presence of two witnesses.

EDWARD E. TAYLOR.  
WILLIAM S. TAYLOR.

Witnesses:

CLARENCE A. HAMMETT,  
C. M. COTTRELL.