

L. I. GERMAIN.

Car Truck.

No. 1,145.

Patented May. 7, 1839.

Fig. 2.

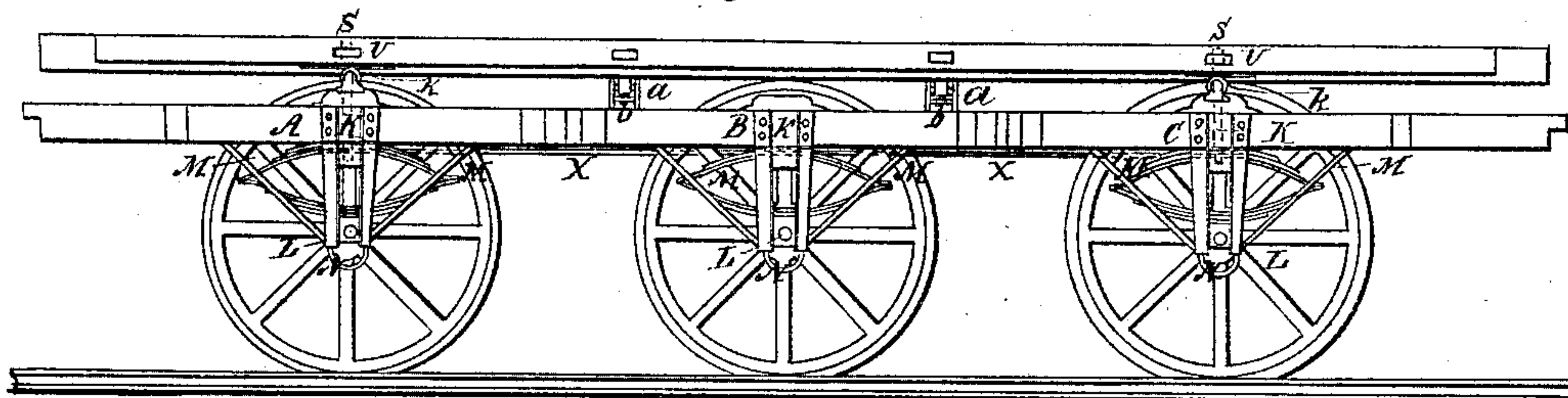


Fig. 3.

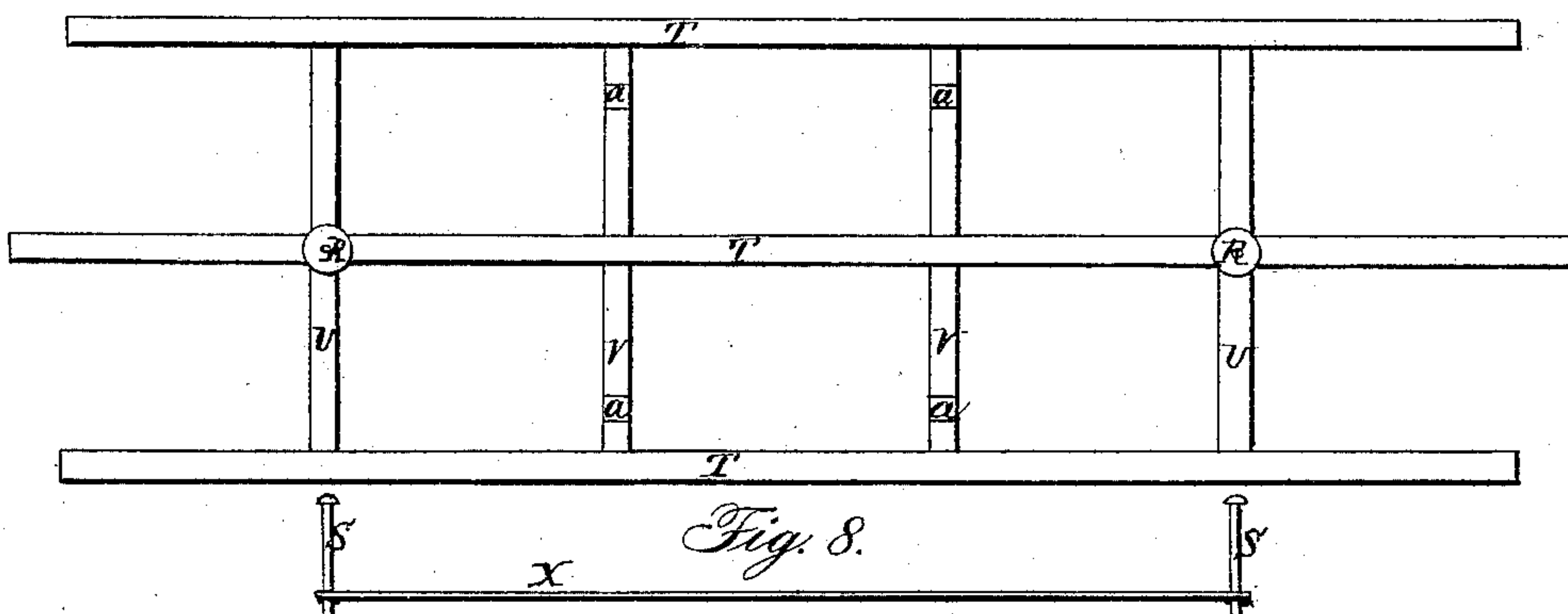


Fig. 8.



Fig. 4.

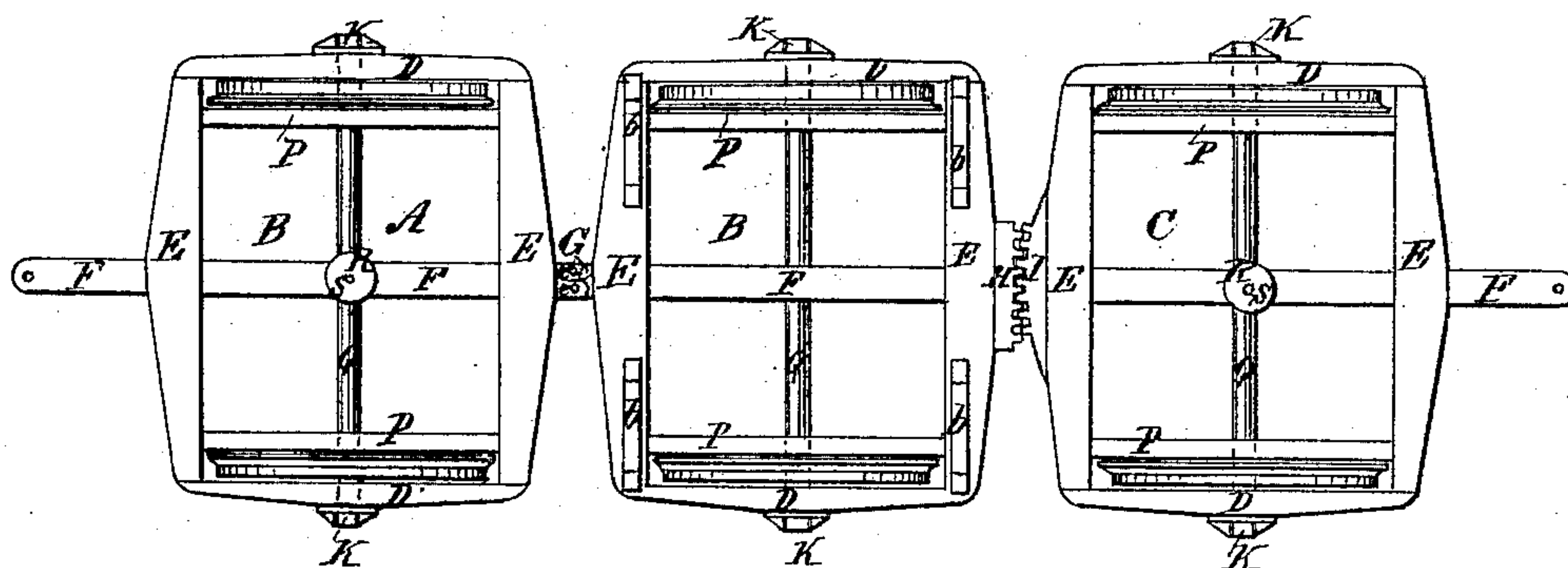


Fig. 6.

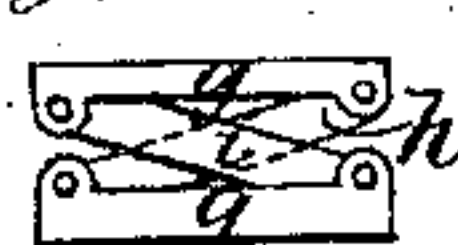


Fig. 5.

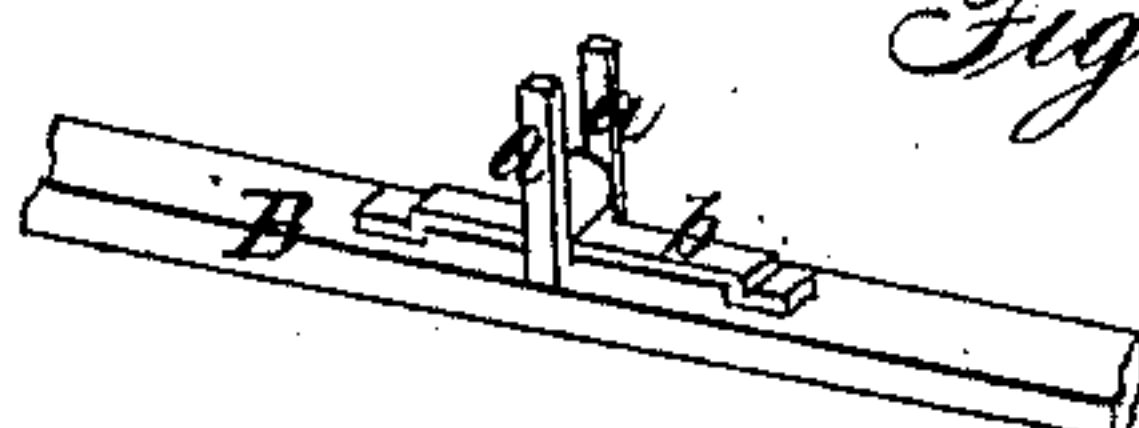
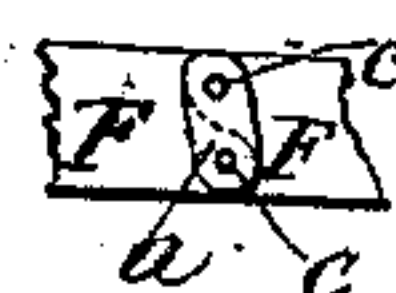


Fig. 7.





# UNITED STATES PATENT OFFICE.

LEWIS J. GERMAIN, OF CATSKILL, NEW YORK.

## MODE OF CONSTRUCTING RAILROAD-CARS.

Specification of Letters Patent No. 1,145, dated May 7, 1839.

*To all whom it may concern:*

Be it known that I, LEWIS J. GERMAIN, of Catskill, in the county of Greene and State of New York, have made and applied  
5 to use a new and useful Improvement in the Construction of Railroad-Cars, and that the following is a full and exact description of the same, reference being had to the accompanying drawings, in which the same  
10 parts are designated by the same letters of reference in each of the different figures.

Figure 2 represents a side view of the lower part of the car, consisting of the wheels and their frames, and the frame on  
15 which the car body rests; Fig. 3, a horizontal projection, of the under side of the upper, or car body frame, and its appendages which connect it to the wheel frames; Fig. 4, a top view of the wheel frames, ex-  
20 hibiting the method of connecting them together, and also the wheels and axles, and the parts which connect the frames to the upper or body frame.

These wheel frames A, B, and C, are three  
25 in number, and their outer form is nearly square. The side or longitudinal pieces D, and the end, or transverse pieces E, of these frames, may have their outer edges straight, and parallel with their inner face, and of a  
30 uniform thickness; or they may be made narrower at their ends, than at their centers, as shown at Fig. 4. The distance between the centers of these frames, is the same as the distance between the centers of the  
35 wheels, being about six feet, but the same may be varied as occasion requires. Through the center of these frames, and parallel with the side pieces D a piece of timber F is framed, and extends beyond the outer  
40 end pieces E, of the two end frames A and C, for the purpose of connecting a train of cars, as seen at Figs. 2 and 4. Between the frames A and B these pieces F, are halved together by a vertical, division, and the ends  
45 *c* of each of these projections are semi-circular, and inserted in a corresponding concavity on the opposite part, as seen at Fig. 4. These projections *c* are of sufficient  
50 length to receive a metallic plate, or metallic plates *d*, transversely within them, or without, if preferred, and the ends of these plates, are confined to these projections *c*, by means of vertical bolts *e* as shown at Figs. 4 and 7.

55 The turning motion of the frame C, is effected by means of a rack and segment

wheel. On the end of the frame B, a rack H is firmly secured, and moves parallel with the frame, and imparts motion to the segment wheel I, equal to the lateral motion  
60 of the rack H. This segment gear has the center of the frame or bolt S, for its center, and the outer surface of this wheel corresponds with a circle formed by the turning of this frame upon the bolt or fulcrum S,  
65 as at Fig. 4. The teeth on the rack H, and wheel I, correspond with each other; and the teeth on the one play between the teeth, or within the spaces, on the other, as shown at Fig. 4.

70 Frames A and B may also be attached together by a double cross joint. The double cross joint Fig. 6, is formed of two strong metallic plates, *g*, firmly attached to end-pieces E of frames A and B, with pro-  
75 tuberances near their ends of sufficient size to receive the ends of the bars *h* and *i*. One end of each of these bars is secured in a protuberance of one of the plates *g*, and passing diagonally across; the other end is  
80 secured in the protuberance on the other end of the other plate *g*. These frames are held together by a bar of metal X, extending from the center of the two end frames, and secured by the bolts S on which the frames  
85 turn, as shown at Figs. 2 and 8.

Transversely at the centers of the frames A, B, C, are placed the axles of the wheels. These wheels are placed within and near to the side pieces D, and their axles running  
90 in suitable boxes L, depressed so much below the frames as to admit the top of the wheels to run beneath the upper, or car body frame. The stands K, in which the boxes L move, are secured to the outer sides  
95 of the pieces D, and receive additional support by the braces M extending from their lower ends upward in an oblique direction, and secured to the under sides of their respective frames. In the center of these  
100 stands a vertical slot is formed from the lower end to near the frame, in which the box L, is inserted, and moves freely therein. The lower end of this slot is prevented from spreading, or opening, by a strap or  
105 rod N, connecting and confining the two ends as shown at Fig. 2. Between these boxes and the frames, elliptic or other springs are inserted and firmly secured in the ordinary way. Within, and near to the  
110 wheels, are placed other longitudinal pieces P, for giving additional strength, and form-



ing the outer supports of the center transverse pieces Q, as shown at Fig. 4. To these last named pieces Q, and the longitudinal pieces F, where they unite in the frames A and C, are attached collars R and washers, forming the center on which they turn; a bolt S being inserted which forms their fulcrum and also connects the upper or body frame, to the wheel frames A and C, as shown in Fig. 4.

The frame Fig. 3, is formed of three longitudinal pieces T extending the whole length of the wheel frames, or such length as is requisite for the body of the car, with two transverse pieces U, so placed as to correspond with the centers of the frames A and C, having a collar R' at their center corresponding with those on the frames A and C. Within these last named pieces U, are placed two other pieces V, and their inner edges are on a line with the inner faces of the pieces E of frame B, and have attached to their under sides four clasps or guide stands *a*, near the outer ends of the transverse pieces V, as seen at Figs. 2 and 3. These guide stands *a*, Fig. 5, are formed of metal and extend from the pieces V to which they are fastened, to near the top of the wheel frame B, and the two sides are united at the lower end; being formed in one piece of the requisite shape, or by an additional connecting piece inserted between them at right angles to the sides, this end piece is placed beneath the slide *b*, on the frame B, and above this slide is placed in the stand, a roller, for connecting it firmly with the guide, and avoiding friction by its downward pressure upon the slide.

The slides *b* are formed of metal of sufficient length for the motion of the stand, having their ends attached to the frames, and being raised between their ends sufficiently for the bottom of the stand to move freely between the slide and the frame, said slides being made as thick as is necessary to give the required support, and of such width as to pass freely within the stands *a*. These slides may be reversed, and attached to the body frame, and the stands to the frame B, if desired.

On the pieces D, of the end frames A and C directly over the ends of the axles, are placed casters *k*, similar to those used in the eight wheeled car, for the side pieces of the body frame to rest upon.

The center wheels, and frame B, of this car, as here employed, support an equal amount of the pressure or burden of the car, and in passing over rough, or uneven roads, afford ease, and equality of motion, far beyond those of the ordinary construction.

The motion of the frame B, from the manner it is attached to the body frame, must necessarily be at right angles to, and parallel with said body frame, and the transverse motion of said frame B, which is formed in turning curves, imparts a corresponding motion to the ends of the frames A and C, at their connection with B, which gives an oblique direction to those frames by their being allowed to turn at their centers, and by this oblique motion, given to the frames A and C, each axle is on a line with the radius of the curve, while the car is passing such curve whether its radius be greater or smaller.

It will be seen that the wheels, and axle of the center frame B, do not of themselves impart directly, the oblique motion to the end wheels of the train, but cause a reciprocating and parallel motion to the center frame, and the manner in which said frames are constructed; (having their axles and wheels at their centers) and the method by which they are connected cause the obliquity given to the outer frames A and C.

What I claim as my invention and desire to secure by Letters Patent is—

1. The stands *a*, and slides *b*, in combination with the middle and top or body frame, in the manner and for the purpose as above described.

2. I also claim the manner of connecting the frames A, B, and C, together, by the single or double cross joint G, rack and segment H, I, and bar X, substantially in the manner herein set forth.

LEWIS J. GERMAIN.

Witnesses:

IRA DUBOIS,  
ALONZO BONERTU.