

No. 878,180.

PATENTED FEB. 4, 1908.

E. A. BARBER.
CAR.

APPLICATION FILED JULY 18, 1907.

FIG. 1.

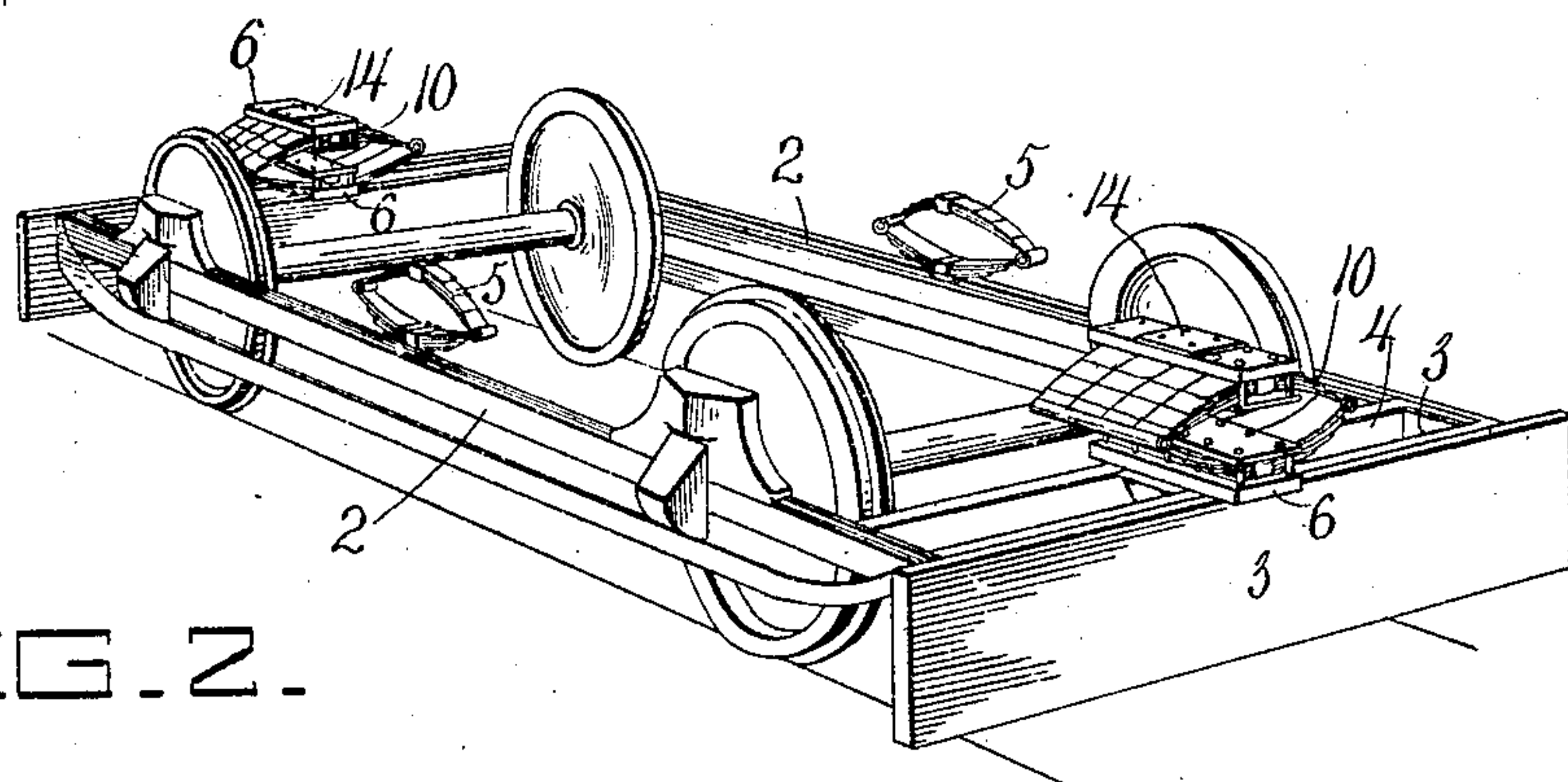


FIG. 2.

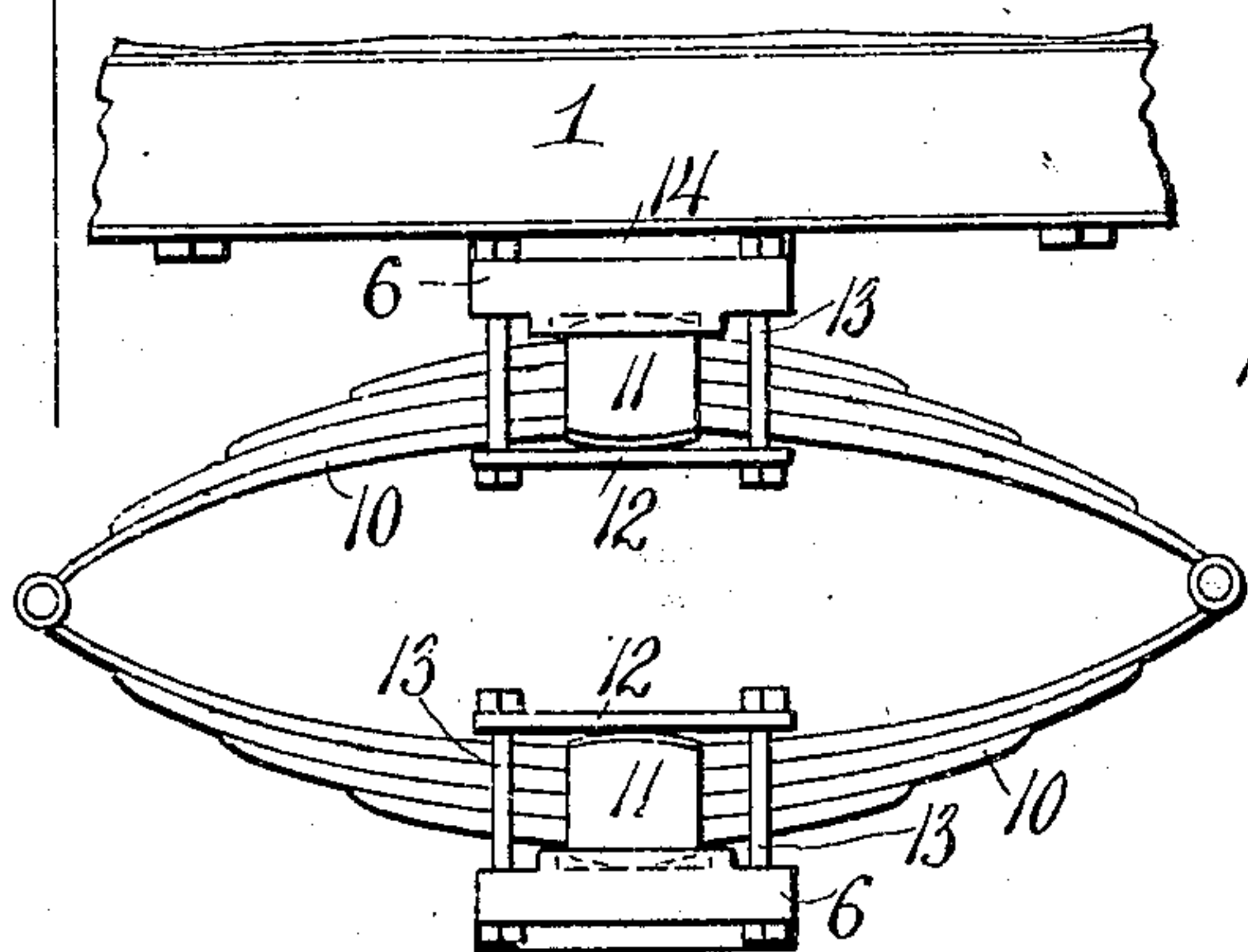


FIG. 3.

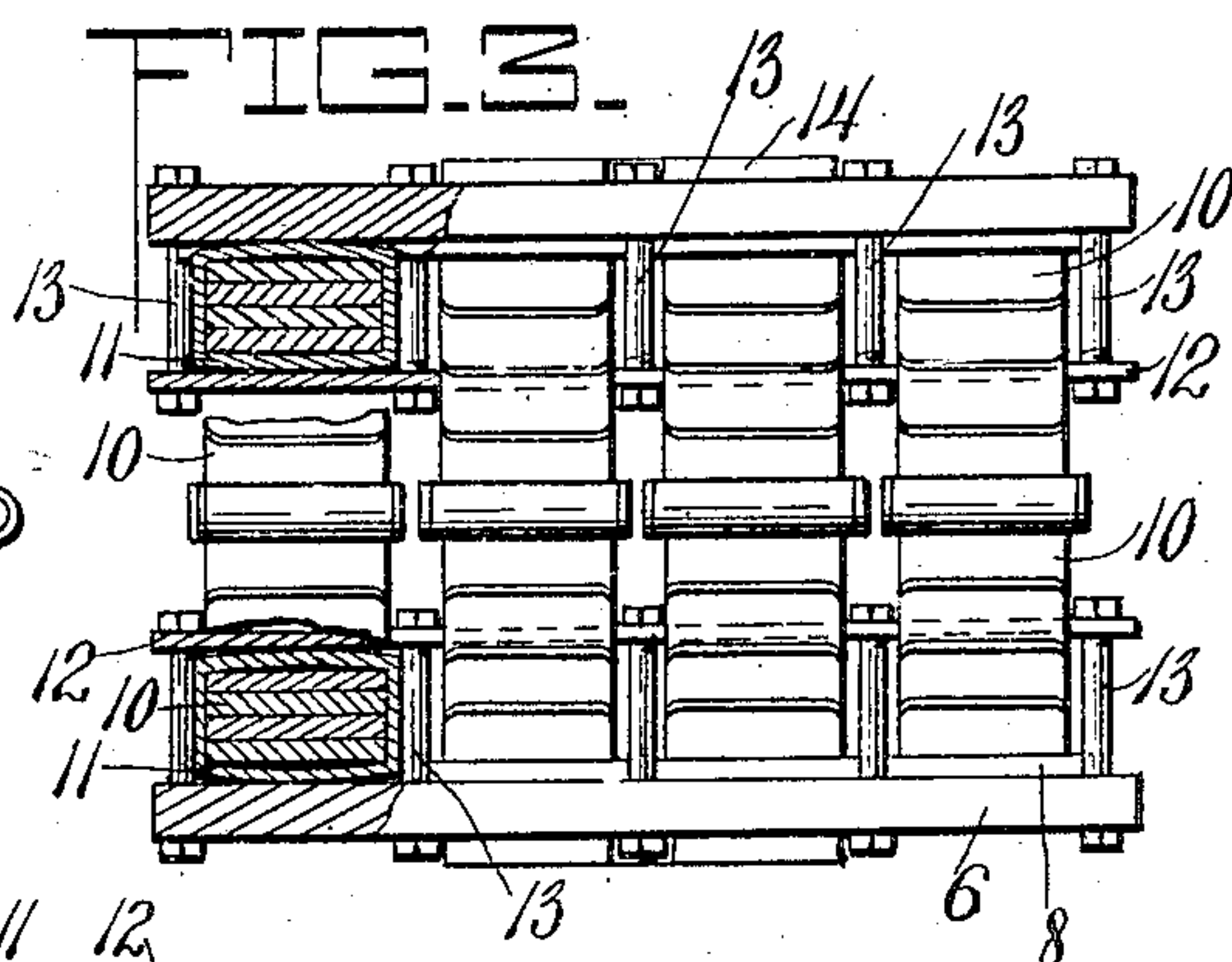
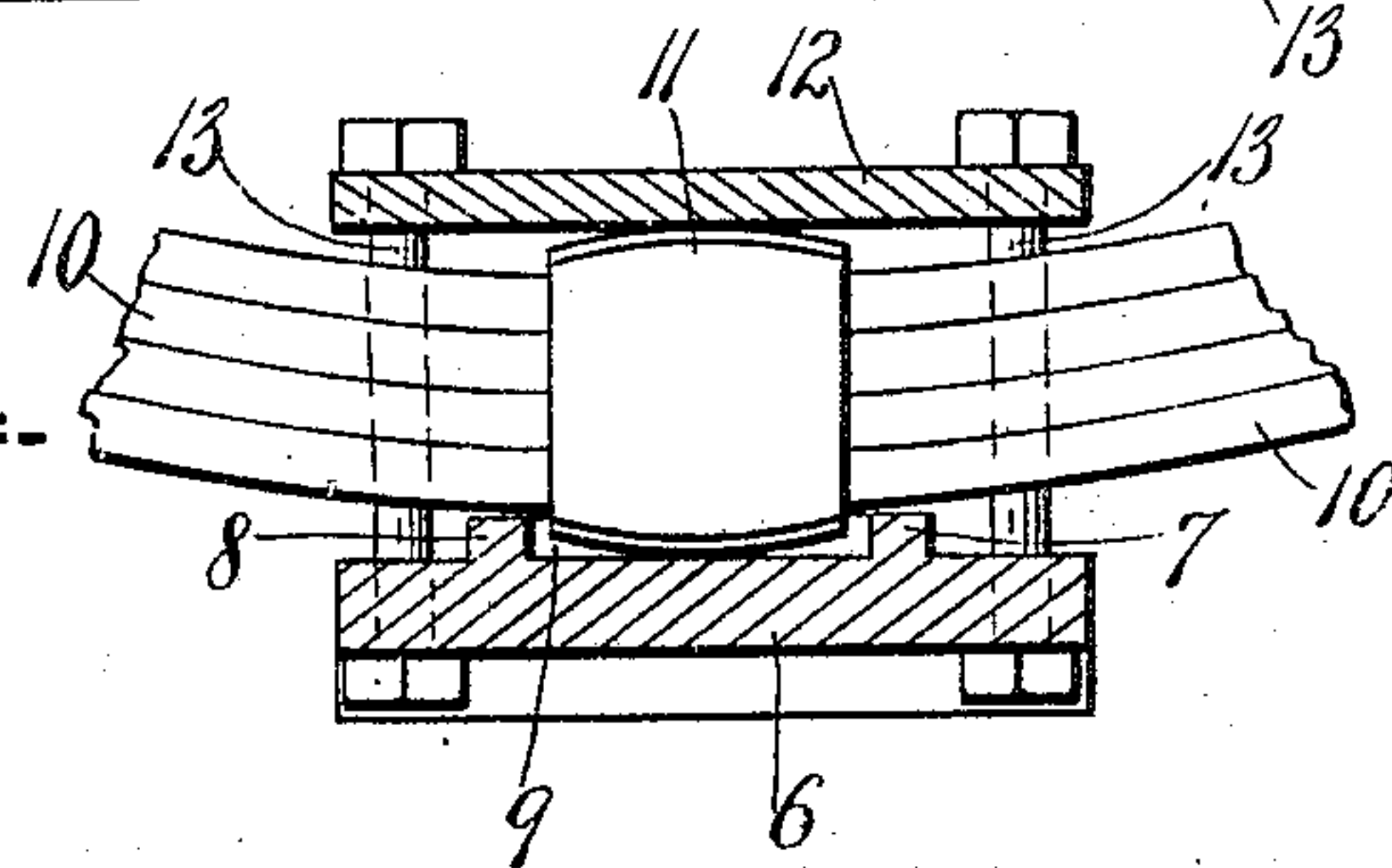


FIG. 4.



Witnesses

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWARD A. BARBER, a citizen of the United States, residing at Watertown, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Cars, of which the following is a specification.

Difficulty has been experienced in the use of single truck cars on street railway lines, because of the rocking motion caused by the rise and fall of one wheel or a pair of wheels, independently of the others, when passing over unevennesses in the rails.

The object of my invention is to overcome this difficulty and to produce a single truck car, the body of which will be free from rocking, and will not follow the sudden rise and fall of the individual wheels while running and will therefore not be influenced by irregularities in the rails. Incidentally my improved structure permits jacking up any corner of the truck, without imparting strain to the car body. These ends are attained by so supporting the car body upon a single truck, that the truck has no immediate connection with the body in the vicinity of any of the four wheels and therefore no constraining influence at any one of the four truck corners, so that when one wheel passes an irregularity in the track and rises or falls independently of the rest, its motion, if transmitted at all, is only transmitted through remote connections, where the amplitude of the motion is too far reduced to be capable of overcoming the inertia of the car-body in the short space of time consumed in passing the irregularity; moreover, since irregularities in the track result mainly from defective rail joints, and joints in the rails are usually alternated in position on the respective sides of the track, it is found that with only moderate speeds, rocking tendency momentarily transmitted from any one corner is usually neutralized by a like influence communicated immediately thereafter from a diagonally opposite corner.

In carrying out my invention, I overcome the end rocking by mounting the car body upon the truck through the medium of springs located at the ends of the truck, and to overcome the side rocking, I so locate the end springs that they balance the car-body over middle points in the ends of the truck, and I avoid the introduction between the truck and the body at any points outside of such middle bearing points, of any connec-

tions that would enable a corner of the truck to directly influence the car body either downward, as by drawing downward through the connection or lowering the seat of some spring other than that upon which the body balances, or upward as by raising the seat of a spring other than those upon which the body balances. The bearings of the end supporting springs upon the truck are preferably rocking bearings in order to still further eliminate any tilting influence from changes in the level of one wheel independently of the rest. I also preferably provide between the sides of the body and the sides of the truck, steadying or limiting springs, but these are located at middle points on the sides of the truck and cannot serve to transmit appreciable motion from the independent movement of any one corner of the truck.

My invention will be more fully understood upon reference to the accompanying drawing, in which,

Figure 1 is a perspective view of a car truck embodying my invention; Fig. 2 is a detail elevation of one of the springs and the associated parts of the truck; Fig. 3 is an end elevation of the springs, parts being in section; and Fig. 4 is a detail view showing the seat for the springs.

1 (Fig. 2) represents a transverse member of a car body of any approved type, to be mounted on a single truck, comprising the side frames 2, and the end pieces 3. To facilitate mounting the body in accordance with my invention, truss rods 4 are secured between the side frames 2 and spaced a short distance within the end pieces 3.

5 are limiting or steadying springs secured upon the side frames 2 and positioned midway between the two ends of the truck. At each end, are provided plates or castings 6, 6, one of which is secured to and bridges the space between the truss rod 4 and end piece 3, and the other receives the transverse member 1, and these plates or castings are provided with parallel ribs 7 and 8 forming seats 9 between which the main supporting and balancing springs 10 are seated. The leaves of the springs 10 are firmly bound together by means of straps 11, preferably welded around said leaves, and having convex outer faces (see Figs. 3 and 4) which provide rocking bearings for the upper and lower members of each spring 10 in the seats 9.

12 are clamping plates suitably secured, as

by means of the bolts 13, to the plates or castings 6, and provided with wearing plates 14, of which the one on the upper plate 6 receives the transverse member 1 of the car body, while that on the lower plate 6 fits between the members 3 and 4 of the truck. I have shown in the drawing a group of four elliptical springs 10 at each end of the truck, but it is to be understood that I may employ a greater or less number of such springs, and may also employ a different type of spring without departing from the spirit of my invention. The upper bearing faces of springs 5 are to be attached to the car body, as will be understood.

In a number of cities, it is impractical to use a double truck car, and the type of single truck car generally used is objectionable, in that it is not an easy riding car. I have found, by practical experiment and actual use on a number of cars that by balancing the car body over main supporting springs at central points on the end members of the truck rocking of the car body is eliminated, and an easy riding car is produced. The construction of the plates 6, gives rocking seats for the springs 10, and compensates for angular movements of the end members of the truck, thus compensating for independent movement of the wheels in passing over irregularities in the track, while the side springs 5 avoid undue side-rocking. In assembling the springs 10 with their seats 9, the associated parts are so adjusted that there is slight freedom of lateral movement of the springs, which may be tested by hand.

It is to be understood that my invention may be measurably realized even though the rocking seats 9 be eliminated and this and other changes may be made in the details, without departing from the spirit of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a single truck street railway car the combination of the truck-frame suitably mounted upon the wheels, the car body, and the main supporting springs connecting the car body to the truck frame; the car body being balanced over the springs, and said springs being mounted upon middle points in the ends of the truck frame, and said body and truck being free from vertically restraining connections at the corners of the truck.

2. In a single truck street railway car the combination of the truck-frame suitably mounted upon the wheels, the car body, and the main supporting springs connecting the car body to the truck frame; the car body being balanced over the springs, and said

springs being mounted upon middle points in the ends of the truck frame through the medium of rocking bearings, and said body and truck being free from vertically restraining connections at the corners of the truck.

3. In a single truck street railway car, the combination of the truck-frame suitably mounted upon the wheels, the car body, and main supporting springs connecting the car body to the truck frame; said springs being mounted upon the ends of the truck frame and connected to both the truck frame and the car body through the medium of rocking bearings in the middle longitudinal line of the car and said truck and body being free from vertically restraining connections at the corners thereof.

4. In a single truck street railway car the combination of the single truck-frame suitably mounted upon the wheels, the car-body, and main supporting springs connecting the car-body to the truck frame; said springs being mounted upon the ends of the truck frame and connected to the truck frame in the middle longitudinal line of the car and said truck and body being free from vertically restraining connections at the corners thereof, but having yielding limiting connections at intermediate points on the sides.

5. A truck for single truck street-railway cars comprising a truck-frame having suitable mountings for pairs of wheels near its ends, and supporting springs through which the body is to be supported upon the truck, adapted for connection with the car body, and secured to the ends of the truck-frame at points midway between the sides thereof; said truck being free at its corners from connections which would restrain relative vertical movement between the truck and body.

6. A truck for single truck street-railway cars comprising a truck-frame having suitable mountings for pairs of wheels near its ends, and supporting springs through which the body is to be supported upon the truck, adapted for connection with the car body, and secured to the ends of the truck-frame at points midway between the sides thereof; said truck being free at its corners from connections which would restrain relative vertical movement between the truck and body, but having limiting springs on its sides at intermediate points between its ends.

The foregoing specification signed at Watertown, N. Y., this sixth day of June, 1907.

EDWARD A. BARBER.

In presence of witnesses—

ALBERT H. LEFEBVRE,
WILLIAM R. CLARK.