

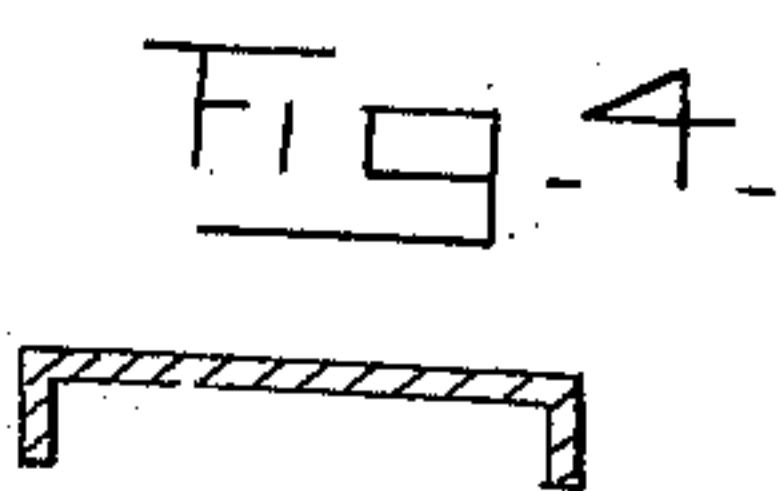
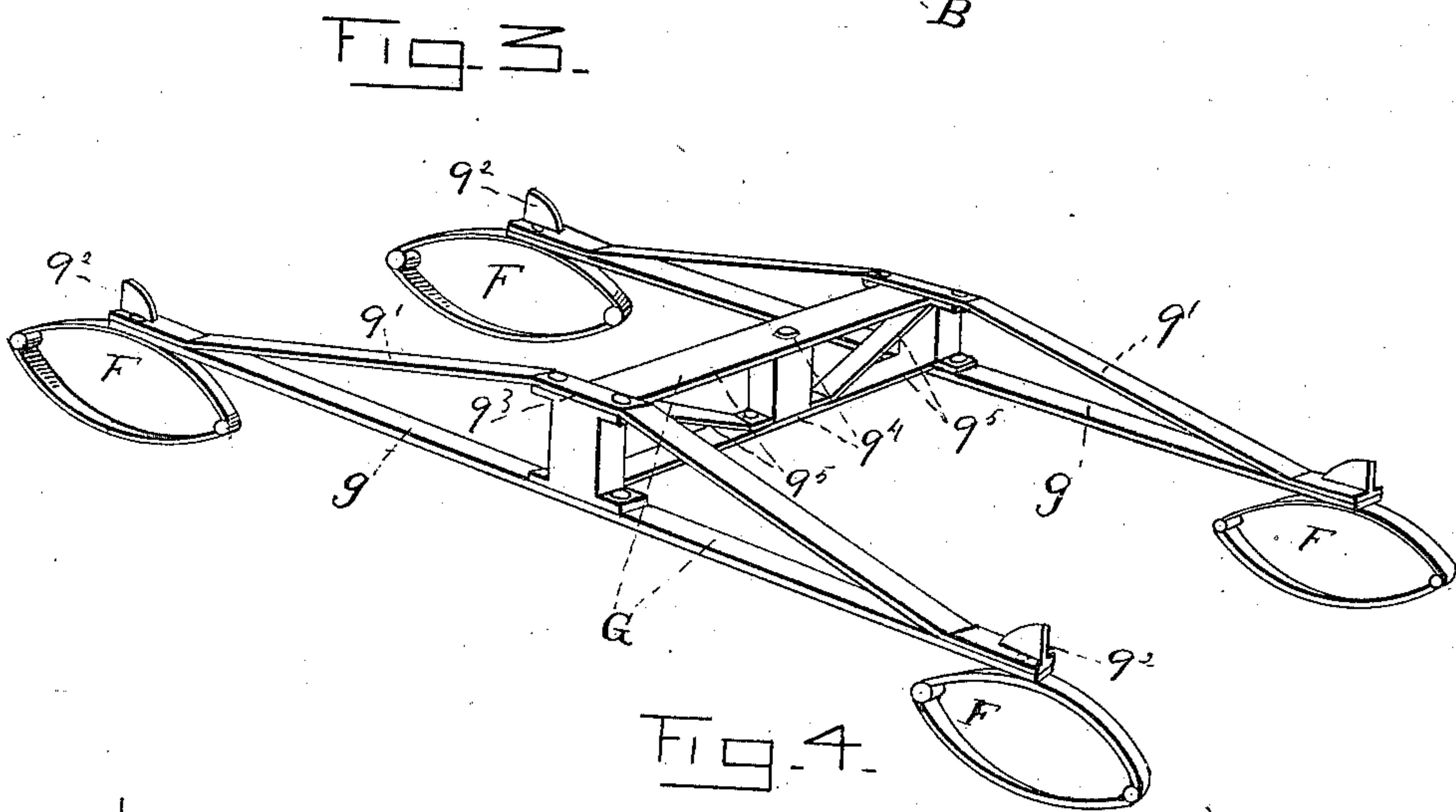
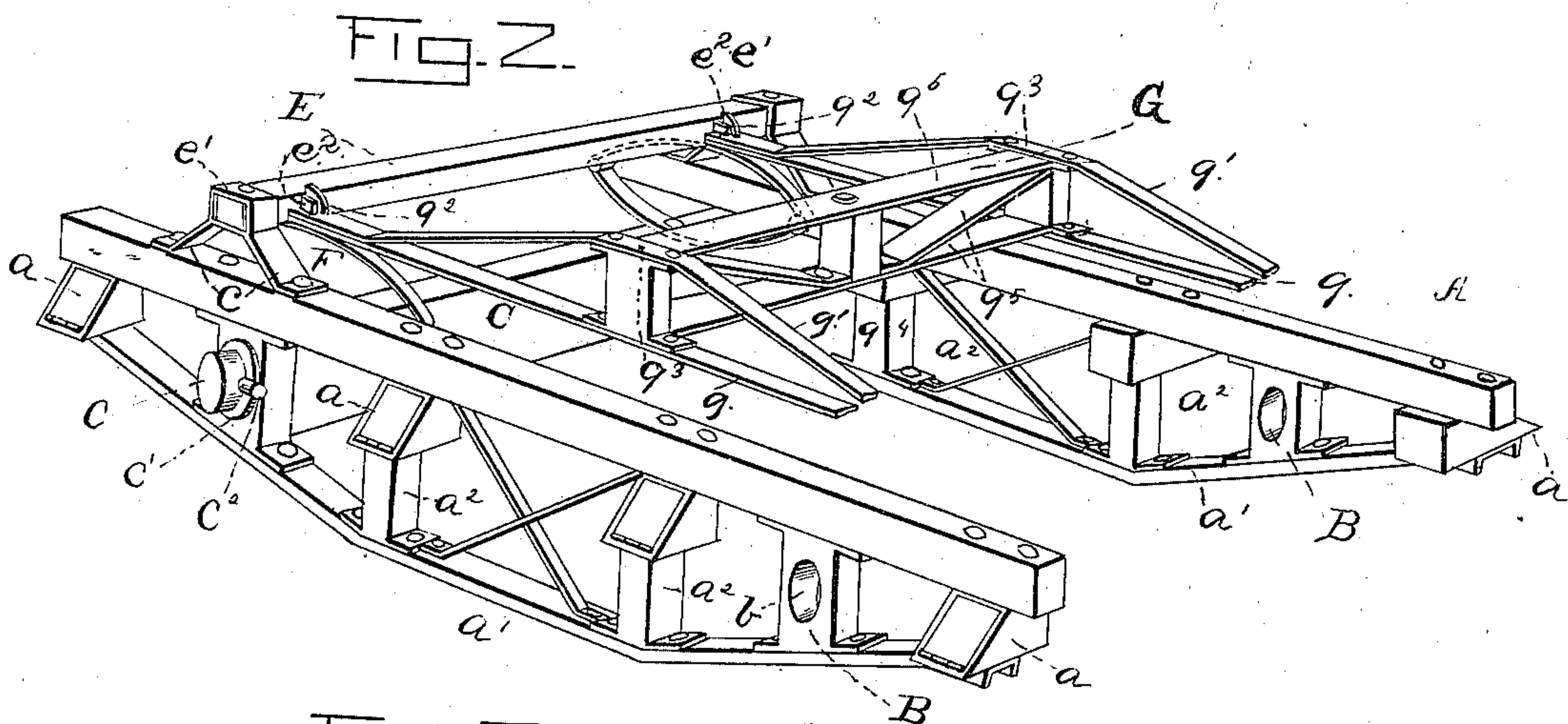
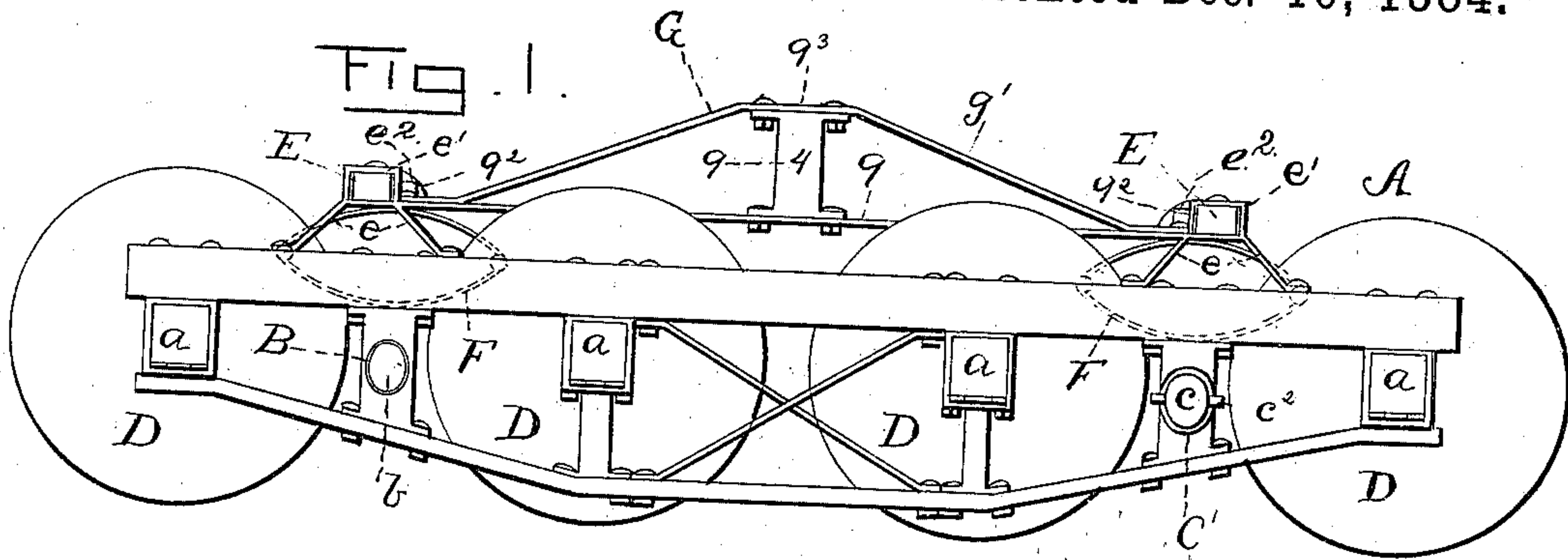
(No Model.)

G. T. WASHBURN.

CAR TRUCK.

No. 309,266.

Patented Dec. 16, 1884.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE T. WASHBURN, OF PLANO, ILLINOIS.

## CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 309,266, dated December 16, 1884.

Application filed June 10, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE T. WASHBURN, a citizen of the United States, residing at Plano, in the county of Kendall and State of Illinois, have invented certain new and useful Improvements in Car-Trucks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates particularly to the mode of construction of the car-truck frame and the manner in which the springs for the car body and wheels are attached to the truck, the object being to so construct and connect the said parts that as the wheel passes over a depression of the rail or a depressed rail-joint it will not be driven into the said depression with a shock, but will pass over without descending with the same, the weight being upheld by the other wheels of the truck. Such construction requires that the car-axles should have their bearings directly connected to the truck, so that the latter is upheld by the tread of the wheels on the rails.

The essential feature of the invention is that the car-axle boxes on each side beam of the truck are fixed immovably to the same in a longitudinal line, the said side beams being held together by front and rear transverse beams so connected to the former as to allow a certain degree of vertical play in the two side beams. The end of the car-body rests upon a truss-frame properly connected to and supported on elliptic springs, which themselves rest upon the cross-beams of the truck. In construction it is better to have eight wheels to the truck, and the length of the latter should be from ten to fifteen feet.

In the drawings accompanying and forming part of this specification, Figure 1 represents a side elevation of my improved truck. Fig. 2 is a perspective view of the same; Fig. 4, a transverse section of the lower truss-bar of the side beam of the truck; Fig. 3, a perspective view of the springs and truss-frame to hold up the car-body.

In the accompanying drawings, A and A

represent the two side beams of my improved truck, each having firmly fixed to its lower surface the four axle-boxes, *aa*, &c., those on one side beam being opposite to those on the other. 55

*a' a'* are proper truss-rods, each of which connects at its ends with the ends of one of the beams A. The said truss-rod is of the usual shape, and supports the under surface of the end boxes, *aa*, directly, and the intervening boxes by proper struts, *a<sup>2</sup> a<sup>2</sup>*, in order to give them strength. These truss-rods have depending flanges in their edges, as shown in Fig. 4.

B B are four proper mortise-blocks, each of which is fixed securely between one of the side beams A and its proper truss-rod, *a'*. The blocks B B are at equal distances from the ends to which they are nearest, and each is provided with an elliptic mortise, *b*, the major axis of which is vertical. 65 70

C' C' are the cross-beams of the truck, each of which has its ends provided with the elliptic tenons *cc*. These tenons fit loosely both in the major and minor axes of the mortises *b b*, and are secured in place by the washers and pins *c'* and *c<sup>2</sup>*, respectively, thus allowing the diagonally-opposite corners of the truck-frame to assume different heights by the tenons *cc* of the cross-beams C C turning in the mortises *b b*, the side beams, A A, attached axle-boxes *aa*, and wheels all the time keeping their vertical position. 75 80

D D are the wheels (usually eight to a truck, four on each side) turning on proper journals in the boxes *aa*; and E E are two transverse stay-beams situated at equal distances on each side of the central transverse plane of the truck, each having its ends bolted loosely in the upper box portion, *e' e'*, of the two equal and similar brackets *ee*, fixed to the upper surface of the beams A A on opposite points of the same. *e<sup>2</sup> e<sup>2</sup>* are horizontal lugs, four of which are projected from the inner surface of each beam. Two of these lugs are arranged close together near each end of the beams, as will be seen in Fig. 2. 85 90 95

F F are four elliptic springs, each of which has its lower leaf bolted to one of the beams C, at equal distances from its ends, within the brackets supporting it; and G is a truss-frame having its four corners supported on 100



the upper leaves of the four springs and bearing against the inner surfaces of the two cross stay-beams E E. The truss-frame G is composed of the two lower horizontal bars,  $g g$ , one  
 5 on each side of the same, and the upper truss-bars,  $g' g'$ , each having its ends bolted to the ends of one of the bars  $g$ , and provided with the lugs  $g^2 g^2$ , the outer vertical edges of which  
 10 bear against the inner surfaces of the beams E E, and the sides of which fit between the lugs  $e^2 e^2$ , to hold the truss-frame in place. The bars  $g' g'$  rise toward their centers, and have secured between their flattened central parts,  $g^3 g^3$ , and the upper central surfaces of the bars  $g g$  the  
 15 proper truss-bolsters  $g^4$ , composed of three struts—one on each side, and one centrally between the bars  $g$  and  $g'$ —secured together by proper transverse and inclined truss-bars,  $g^5 g^5$ , forming a transverse frame which makes  
 20 part of the truss-frame G, and has properly bolted to it the end of the car-body.

In the ordinary construction of car-trucks the wheels are allowed a certain amount of play up and down independently of each  
 25 other, and pass continually upon the rails, which are laid in sections. The rail-joints are, of course, the weakest points in the line of rail, and consequently tend to become depressed. The pressure of the ordinary car-  
 30 wheel will after a time depress the joints, and when they are depressed the continual striking of the car-wheels by their independent up-and-down motion will increase the depression. This will sometimes break a rail or  
 35 wheel or an axle, and may produce derailment.

It is evident, as the car-axle boxes in the invention are firmly fixed to the side beams, and as there is no vertical play of the four boxes on the same side independent of each other, that  
 40 when the first wheel on either side comes over a depression it will not descend into the same, provided that the length of the depression is no greater than the distance between said wheel and the one next following. In case of a  
 45 depression longer than between the said wheels the latter will pass gradually into it, the forward end on the side beam A to which the wheels are attached dropping gradually below the level of its fellow of the otherside. When  
 50 the two rear wheels pass into the depression, the rear end of the beam A will be in turn depressed, the front end being raised. This action will happen because all the wheels are firmly fixed at equal distances below the side  
 55 beams, and because of the vertical play of said beams. It is also evident from the described construction that the weight of the car is supported vertically upon the cross-beams C C by means of the frame G and the elliptic  
 60 springs bolted to said beams.

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

1. In a car-truck, the combination, with the side beams and the axle-boxes fixed thereto 65 in a longitudinal line, of the front and rear transverse beams extended between the opposite side beams and connected thereto, substantially in the manner described, whereby the said beams are permitted a desired amount 70 of independent vertical play, substantially as set forth.

2. In a car-truck, the combination, with the side beams, A A, having fixed thereto the car-axle bearings  $a a$  and the truss-bar  $a'$ , of the 75 mortise-blocks B B, provided with the mortises  $b b$ , and the cross-beams C C, provided with the tenons  $c c$ , washers  $c' c'$ , and pins  $c^2 c^2$ , substantially as specified.

3. In a car-truck, the combination, with the 80 side beams, A A, having fixed thereto the car-axle bearings  $a a$ , the truss-bar  $a'$ , and mortise-blocks B B, provided with the mortises  $b b$ , of the cross-beams C C, provided with the tenons  $c c$ , washers  $c' c'$ , and pins  $c^2 c^2$ , proper springs, 85 F F, beams E E, brackets  $e e$ , and proper truss-frame, G, to support the car, substantially as specified.

4. In a car-truck, the combination, with the side beams, A A, brackets  $e e$ , transverse 90 beams E E, and elliptic springs F F, of the truss-frame G, composed of the truss-bars  $g$  and  $g'$ , held together and stiffened by a proper bolster,  $g^4$ , and provided with the lugs  $g^2$ , constructed and arranged as shown and described, 95 for the purpose specified.

5. In a car-truck, the combination, with the side beams and the beams E E, provided with lugs  $e^2 e^2$ , of the truss-frame having its side bars,  $g g'$ , provided with lugs  $g^2$ , fitted between the 100 lugs  $e^2 e^2$  of beams E, substantially as and for the purposes set forth.

6. The car-truck substantially as herein described, consisting of the beams A A, the boxes  $a$ , and mortised blocks B, secured to 105 said beams, beams C C, extended between beams A A, and having their ends tenoned and fitted into the mortises of blocks B, and movable vertically and laterally therein, and an intermediate frame mounted on said parts 110 and adapted to support the bar, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE T. WASHBURN.

Witnesses:

S. M. HORTON,  
 L. E. ROBINSON.