

(No Model.)

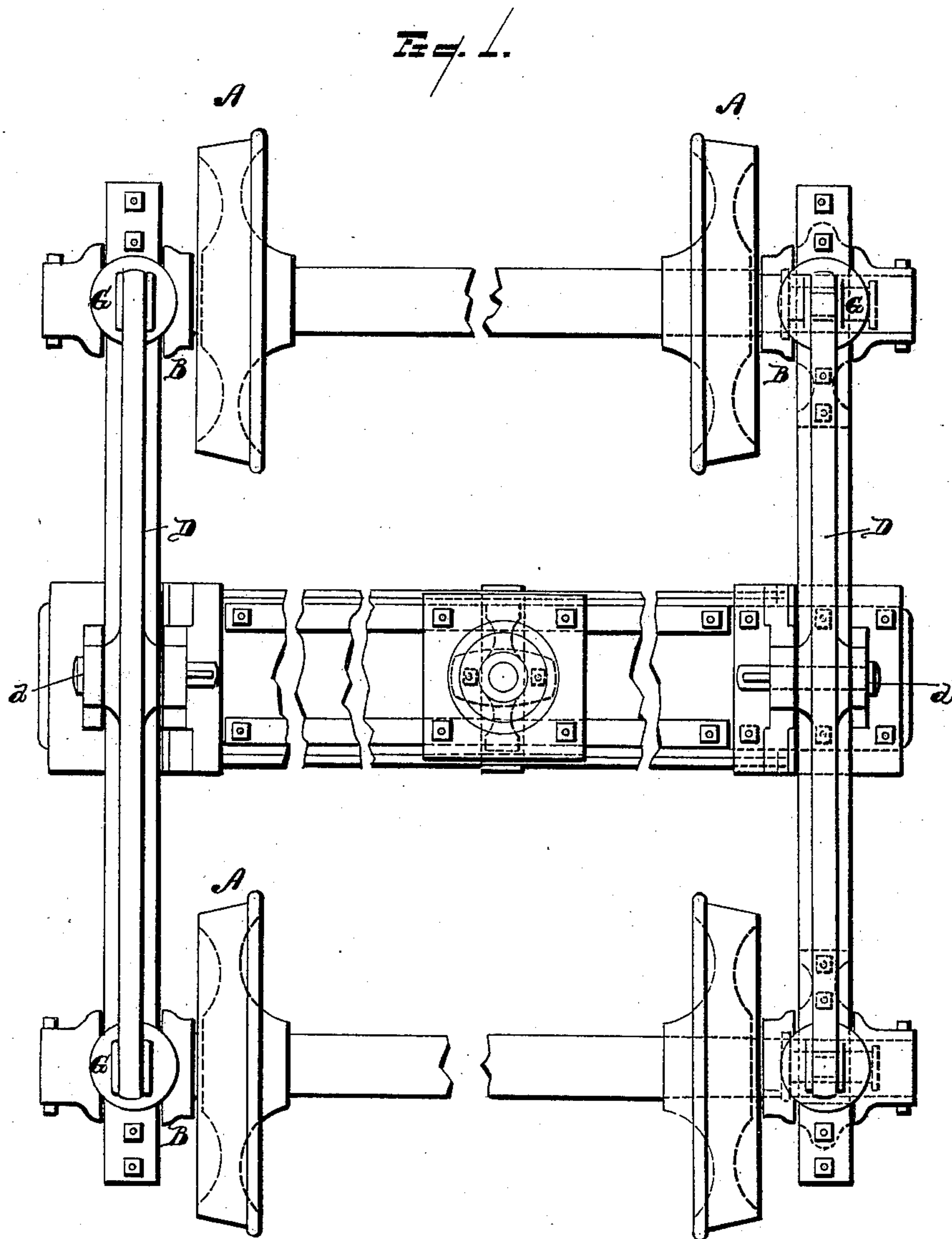
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H. C. HODGES.

CAR TRUCK.

No. 362,446.

Patented May 3, 1887.



WITNESSES

*Samuel C. Thomas*  
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INVENTOR

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2 Sheets—Sheet 2.

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Fig. 2.

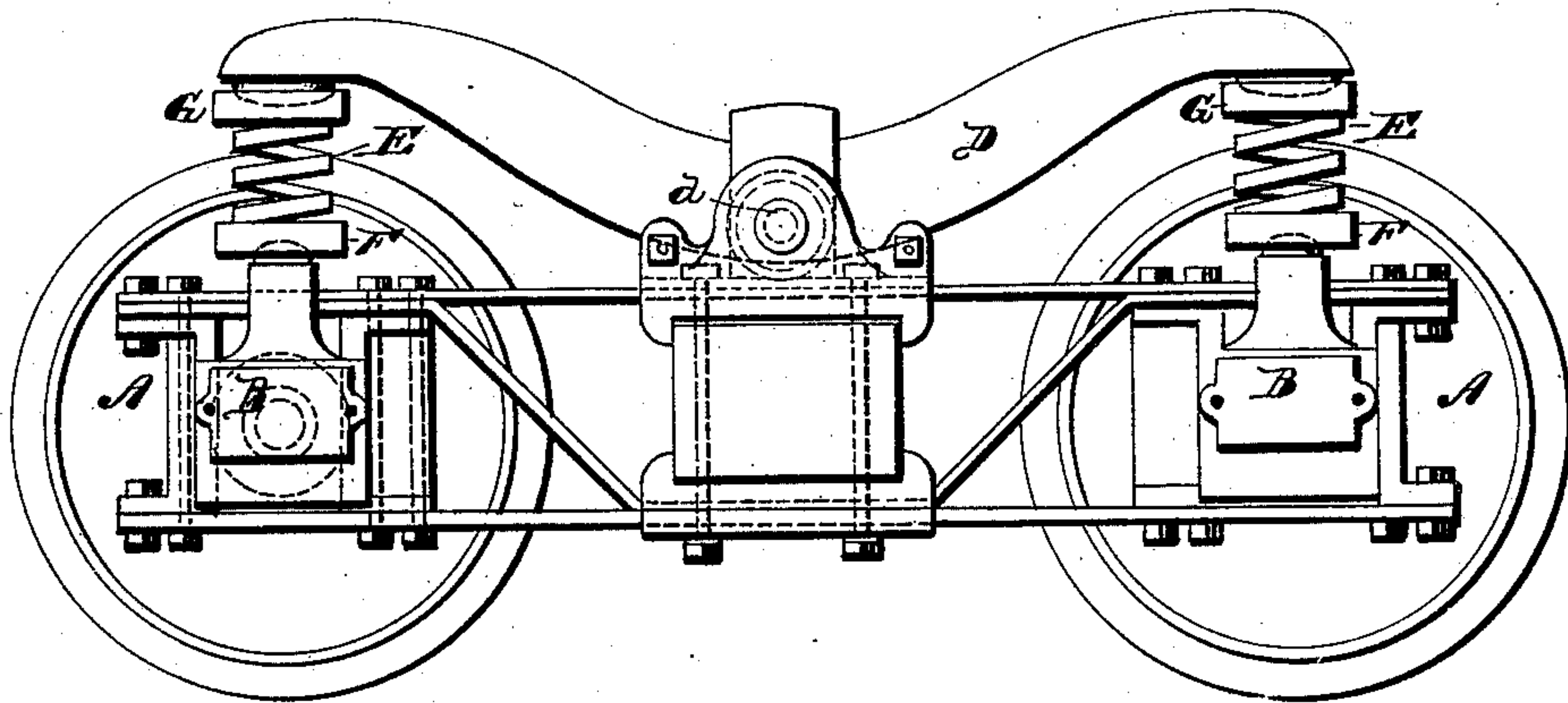
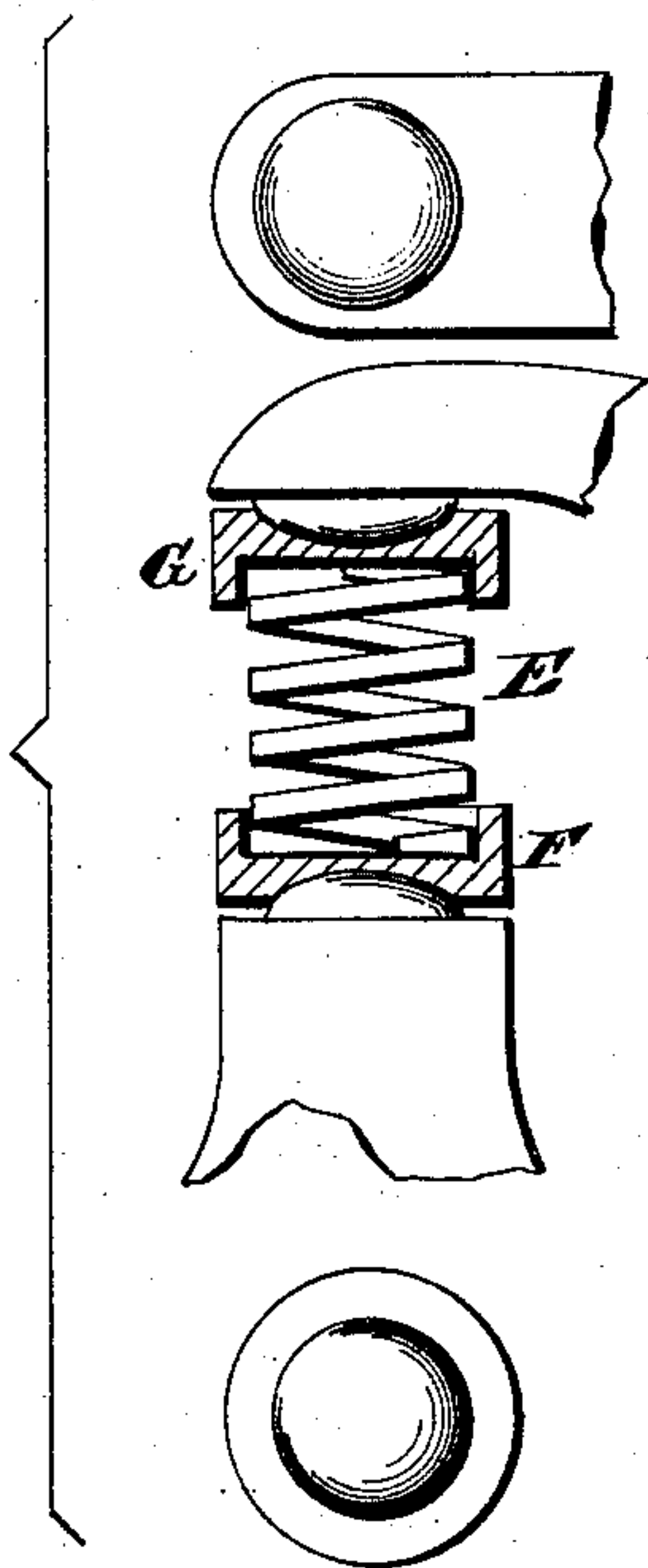


Fig. 3.



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# UNITED STATES PATENT OFFICE.

HENRY C. HODGES, OF DETROIT, MICHIGAN.

## CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 362,446, dated May 3, 1857.

Application filed March 23, 1887. Serial No. 232,126. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY C. HODGES, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in Car-Trucks; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

In the drawings, Figure 1 is a plan view, and Fig. 2 a side elevation, of a car-truck embodying my invention. Fig. 3 is a detail view illustrating a spring and its connection with the axle-bearings and equalizing-bar.

This invention is designed as an improvement upon the car-truck patented to John R. Fish, No. 296,545, of April 8, 1884.

A represents the wheels of a truck; B, their axle-bearings; C, the connecting-frame.

D is an equalizing-bar pivoted at *d* to the connecting-frame.

E are the car-springs. F is the spring plate between the car-spring and the axle-bearing, and G the spring-plate at the top of the spring.

In the said device patented to Fish the spring-plate has no universal motion with respect to the axle-bearing; therefore, as the equalizing-bar was depressed at either end by the lifting of its opposite end, it would, by virtue of the fact that it rotates about a fixed pivot, deflect the spring more or less from its proper vertical line, so that while thus deflected the action of the spring would not be directly down upon the top of the axle-bearing, but would be directly toward one edge of the bearing, thus each time disturbing to a certain extent the relation of the bearing to the axle. It is also apparent that with a very strong stiff spring, such as is used in these localities, should the spring be thus deflected so as to act in a direction other than that of the central or axial line there will be developed a strong lateral tension, which will tend to thrust the wheels suddenly forward or back along the track; or, if the deflection be toward the side of the car, this lateral tension would thrust the wheels lengthwise of the car-axle, so as to bring its flanges against the rail. In either case there would be imparted a dis-

agreeable impulse to the car, and the bolts, nuts, and other fastenings upon the car and its truck would be racked to a corresponding extent. Repeated operations of this kind, which will happen almost every moment while the train is in motion, will create great wear both to the rolling-stock and to the track; will result in the loosening of the rails and their joints, the breaking of bolts, and the loosening of nuts upon the car and its trucks.

It not infrequently happens, by reason of irregularities in the road-bed, and especially at the beginning and end of curves, that one of the wheels of a truck is raised while the others yet remain level, or where all the wheels are for an instant at different levels such warping of the plane of the axles serves to produce deflections of the springs in a direction from one side of the car to the other, and, in fact, deflect them in almost all directions at times, and so multiply, to a great extent, the disagreeable vibrations of the car and the injurious action upon the track and the rolling-stock to a very great degree. I propose to prevent, to a large degree, these vibrations above explained by uniting the lower spring-plate to the top of the axle-bearing by a ball-and-socket joint, so that no matter in what direction the spring may be deflected it will yield about this ball-and-socket joint, so that the spring will move bodily and its action will take place in a line parallel with its axial line. In this way the lateral distortions of the spring will be overcome, so that there will be no action arising from lateral tension of the springs, as above explained.

To this end I provide the spring-plate F either with a projecting spherical or ball surface, F', and provide the top of the axle-bearing with a corresponding cavity, or vice versa. I would also have it understood that the union between the extremity of the equalizing-bar and the upper spring-plate, G, may in like manner be by a ball-and-socket connection, G'; and while I would usually prefer the ball-and-socket joint at both these points, as explained, yet a material benefit will arise from employing it at either point; and my patent, therefore, contemplates its employment at either or both of these locations. So, also, I

would have it understood that instead of the ball-and-socket joints above described there may be employed any of the usual forms of joint which will yield a universal movement, 5 and the term "universal bearings" I would have understood as embracing any bearing which will admit of this universal movement.

What I claim is—

1. The combination, with a car-truck having an equalizing-bar pivoted thereto, of 10 springs beneath the extremities of the equalizing-bar, said springs provided with universal bearings at their upper and lower extremities, substantially as and for the purpose described. 15

2. In a car-truck provided with a pivoted

equalizing-bar, springs located above the axle-bearings and beneath the extremities of the equalizing-bar, said springs seated at their upper and lower ends upon universal bearings, 20 substantially as and for the purpose described.

3. In a car-truck provided with an equalizing-bar, springs located beneath its extremities above the axle-bearings, said springs having universal bearings at one of its ends, substantially as and for the purpose described. 25

In testimony whereof I sign this specification in the presence of two witnesses.

HENRY C. HODGES.

Witnesses:

N. S. WRIGHT,

M. B. O'DOHERTY.