(No Model.) 3 Sheets—Sheet 1.

# S. D. KING.

## CAR TRUCK.

No. 491,263. Patented Feb. 7, 1893.

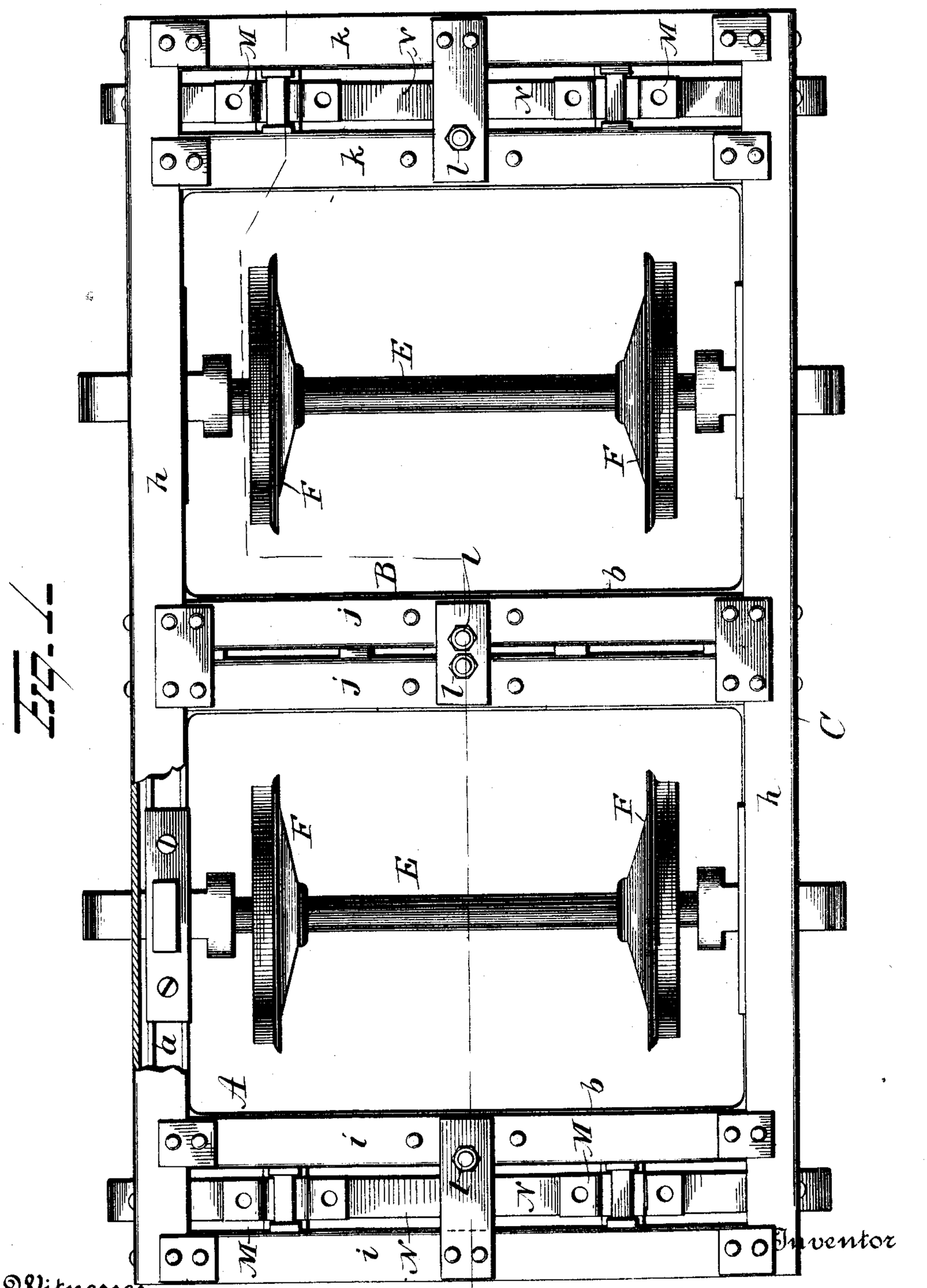


Fig. 1.

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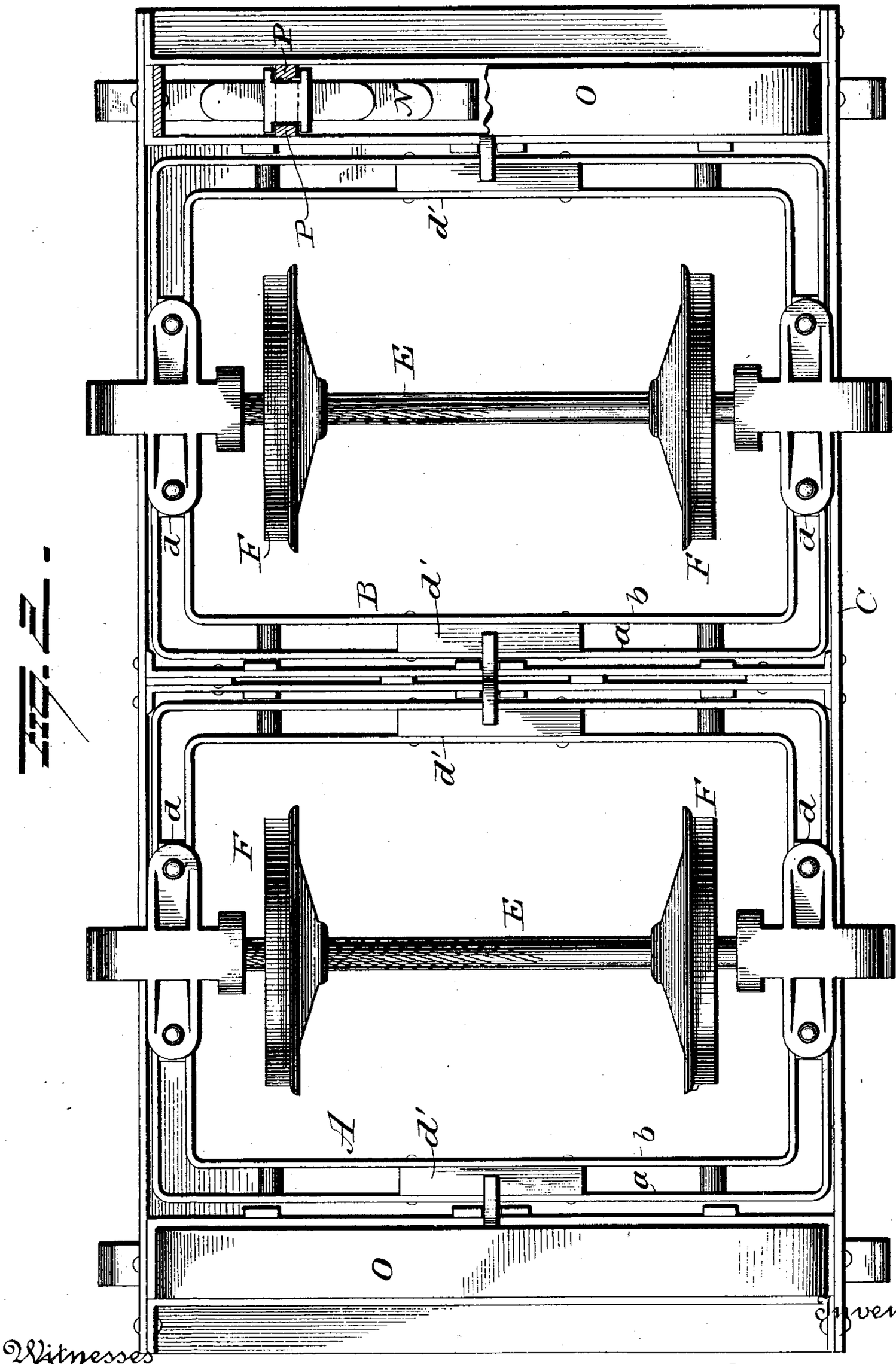


Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

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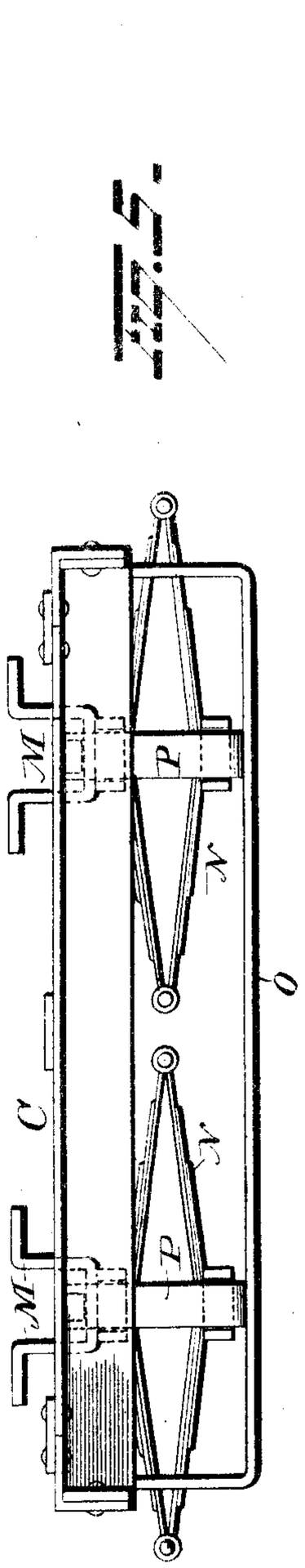


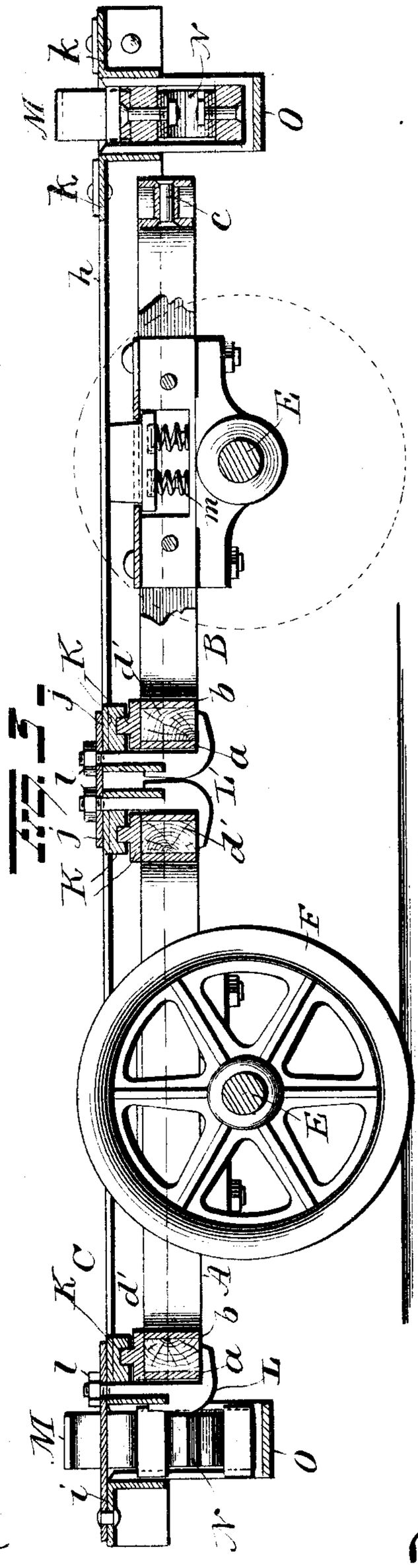


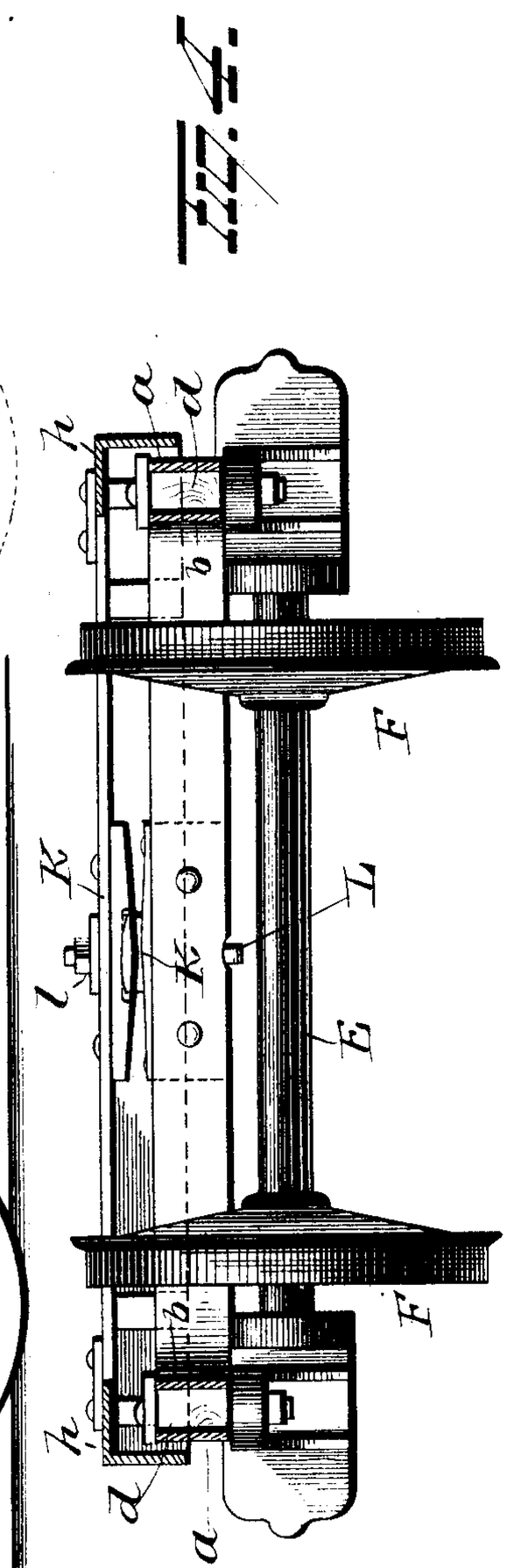


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# UNITED STATES PATENT OFFICE.

SIDNEY D. KING, OF PITTSTON, PENNSYLVANIA.

## CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 491,263, dated February 7, 1893.

Application filed October 14, 1892. Serial No. 448,836. (No model.)

*To all whom it may concern:*

Be it known that I, SIDNEY D. KING, of Pittston, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Car-Trucks; and I do hereby 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.

My invention relates to an improvement in car trucks such as are adapted for street cars and more particularly motor or grip cars, the object being to equalize the pressure of the wheels upon the rails at all times; to provide a truck which will not jump the track whether loaded or empty; and to provide one particularly adapted for new and unballasted roads.

A further object is to increase the life of the car by supporting the car body by the centers of the trucks whether upon straight or curved track to the end that the load or weight is equally distributed over wheels, journals, carrying springs &c.

A further object is to provide a truck of such construction that it will not only accommodate itself to the inequalities and unevenness of the track, but also one which will do less damage to joints, frogs, and switch rails, and one which will prevent the rocking motion caused by the overhang of the cars.

A further object is to afford more ease, by the greater smoothness of motion attained, for passengers making the riding much more comfortable than heretofore; and a still further object is to provide a car of great durability, light draft and involving less expense than cars of ordinary construction.

With these ends in view my invention consists in certain novel features of construction and combinations of parts as will be hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of the truck showing a portion thereof broken away. Fig. 2 is bottom plan with a portion broken away. Fig. 3 is a longitudinal section. Fig. 4 is a transverse section and Fig. 5 is an end elevation.

A and B are a pair of frames upon which the main truck frame C is supported. The frames A and B are alike and while they may be variously constructed, a preferred form is as follows:—Two strips *a*, *b* of steel or other metal extend parallel with each other and they are bent rectangular in shape to form sides and ends. These strips *a*, *b* are held apart by bolts *c*, and by spacing blocks *d* and *d'* at their ends and sides respectively. The frames A and B might be differently constructed if desired, for instance of wood but when the metal strips *a b* are employed they are arranged to sustain the weight and strain edgewise, upon the axles E E, of the wheel F, F.

From the foregoing it will be seen that the two frames A and B are independent of each other, so that any jarring which may affect one does not necessarily affect the other unless the cause remains until both sets of wheels have been affected by it, and then the frames are successively affected and not simultaneously. The result is that a body supported centrally on the frames is accommodated to the variations which would otherwise cause a jarring and wrenching action. To fully insure against these slight jars being felt by the body supported on the frames A and B, a main truck frame C is provided. This frame like the other frames A and B may be variously constructed but I prefer the construction shown in which the frame is composed of strips of angle irons rigidly secured together in a manner to brace and make solid the entire structure. The sides of longitudinal strips *h*, *h* are connected together by three sets of cross strips *i*, *j* and *k* located at the ends and middle of the frame and the several strips are so placed that the vertical leaves of the longitudinal strips *h*, *h* are outside and the corresponding leaves of the cross strips of each pair are on the adjacent edges of the horizontal portion of the strips. Also these parts are so connected that the horizontal leaves are flush with each other and the ends of the cross strips are bent laterally at right angles and secured to the inner faces of the longitudinal strips. Also these strips are so spaced apart that the frames A and B inclose them leaving ample clearance at the edges and so that the horizontal portion of the strips overlap and substantially cover the sides and ends of the frames A and B as shown in Fig. 1. In this way the weight of the truck

frame is supported directly upon the frames A and B and any tendency to lateral or longitudinal motion of the truck frame upon frames A and B would be practically prevented by the lower leaves of the longitudinal and transverse strips *h* and *i*, *j* and *k*, respectively striking the ends and sides of frames A and B.

The connection between the truck frame and frames A and B is such that jarring and tilting of the latter are not felt by the truck frame. This is done by placing rockers K, K upon the frames A and B and the truck frame respectively at their longitudinal centers at points where the truck frame rests upon the frames A and B, and to hold the truck frame in place and prevent any dislodgment thereof the hooks L, L, are employed. Said hooks engage the lower faces of the frames A and B at their longitudinal centers and are held in place by nuts *l*, *l* screwed to their upper ends. The sides of the truck frame are yieldingly supported or cushioned on the ends of the frames A and B by means of springs *m*, *m*, supported in the frames A and B and bearing upward against the truck frame. In this way, a sudden jar may be given the frames A and B or to the wheels without visibly changing the position of the truck frame and also in this way when such jar takes place instead of the wheels on one side springing from the track more or less caused by a jolting of the entire car, they are kept constantly upon the track and in this way power is gained by the increased and constant friction or traction upon the rails. In short the gist of the invention is that the weight is practically supported at the longitudinal centers of the frames A and B whereby the up and down motion caused by roughness and irregularities is reduced to a minimum. Then all the yielding and up and down motion which takes place at the sides is absorbed and equalized by the springs.

To yet further cushion the car body, instead of securing it directly to the truck frame, it is secured to the brackets M, M, which in turn are supported on springs N N in the ends of the truck frame. These springs may be variously supported but preferably they held on depending strap plates O, O, and the brackets are confined in their up and down movements by guides P, P. In this manner the car body is thoroughly cushioned and independent of the jarring of the wheels or in other words the jarring of the wheels is entirely absorbed.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention and hence I do not wish to limit myself to the exact construction herein set forth, but,

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

1. The combination with a pair of frames having rockers at their longitudinal centers, one frame supported upon the other and the rockers of one upon the rockers of the other, of a bolt or equivalent device extending from one frame to the other for connecting the frames together at the longitudinal centers, substantially as set forth.

2. The combination with a pair of frames, and axles upon which said frames are supported, of a truck frame, composed of longitudinal and transverse strips secured together and spanning or overlapping the sides of the frames whereby lateral and longitudinal movement of the truck frame relative to the other frames is prevented, substantially as set forth.

3. The combination with a pair of frames having rockers at their longitudinal centers, of a truck frame provided with rockers adapted to bear and rock upon the rockers of the frames, and hooks for holding the truck frame on the other frames, substantially as set forth.

4. A truck frame composed of longitudinal and transverse angle iron strips secured together, and frames upon which the truck frame is supported, said frames so constructed and located that they are overlapped and covered by the horizontal leaves of the angle iron strips, substantially as set forth.

5. A wheel frame comprising two endless strips of metal placed edgewise and parallel and forming the sides and ends of the frame, and spacing devices located between these strips, substantially as set forth.

6. The combination with a truck frame, and rockers for supporting it at its longitudinal center, of brackets yieldingly supported or cushioned on the truck frame and to which the car body is secured substantially as set forth.

7. The combination with a truck frame having depending strap plates, of brackets yieldingly supported on the plates and to which the car body is secured, and guides between which these brackets operate, substantially as set forth.

8. The combination with axle frames, of a truck frame pivotally supported on the axle frames at its longitudinal center, springs interposed between the outer sides of the axle frames and main frame, and springs connected with the main frame for supporting the car body, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

SIDNEY D. KING.

Witnesses:
E. B. LONG,
J. N. ANDERSON.