

H. C. GRANT.

TRUCK.

APPLICATION FILED MAY 27, 1907.

931,413.

Patented Aug. 17, 1909.

Fig. 1.

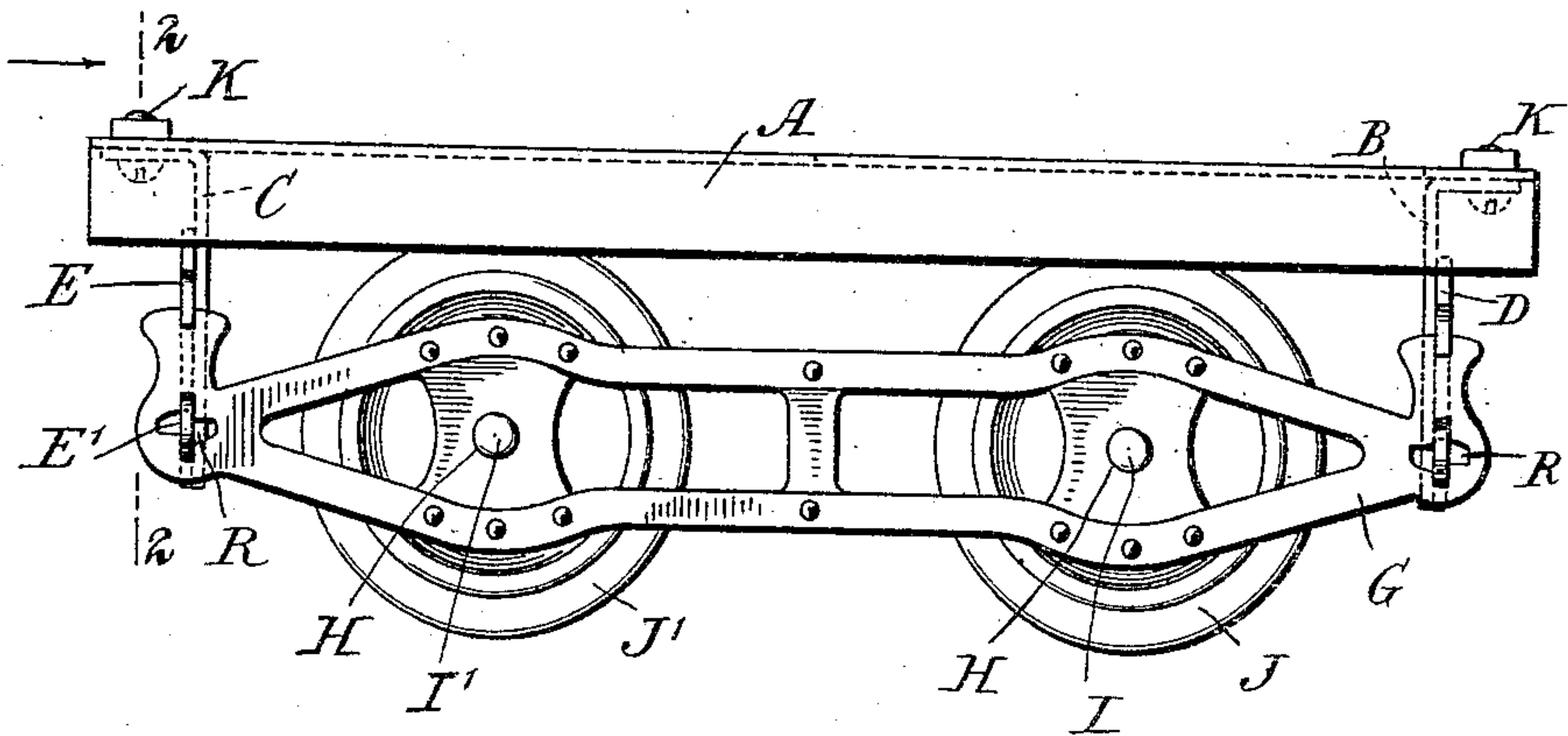


Fig. 2.

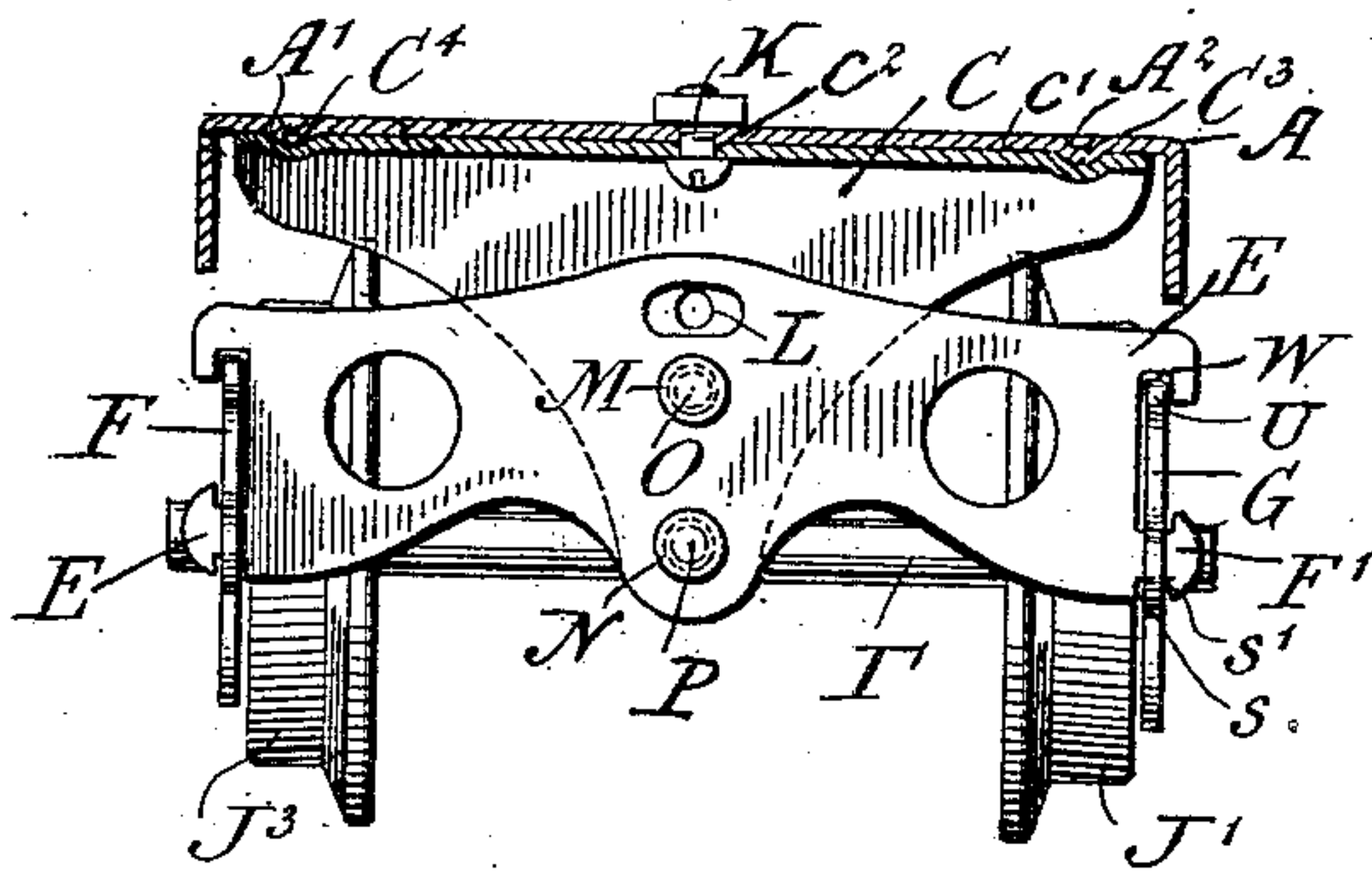


Fig. 3.

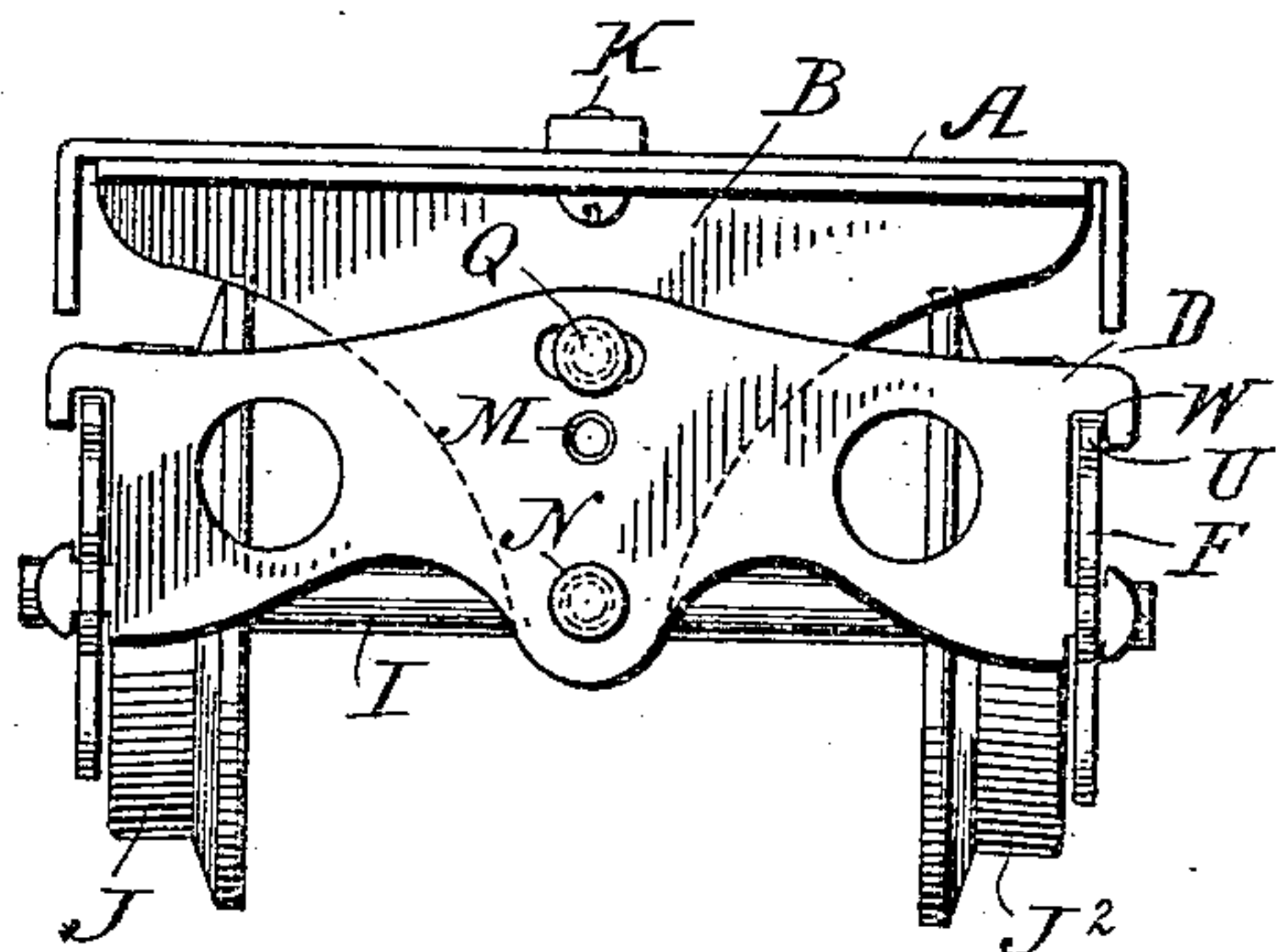
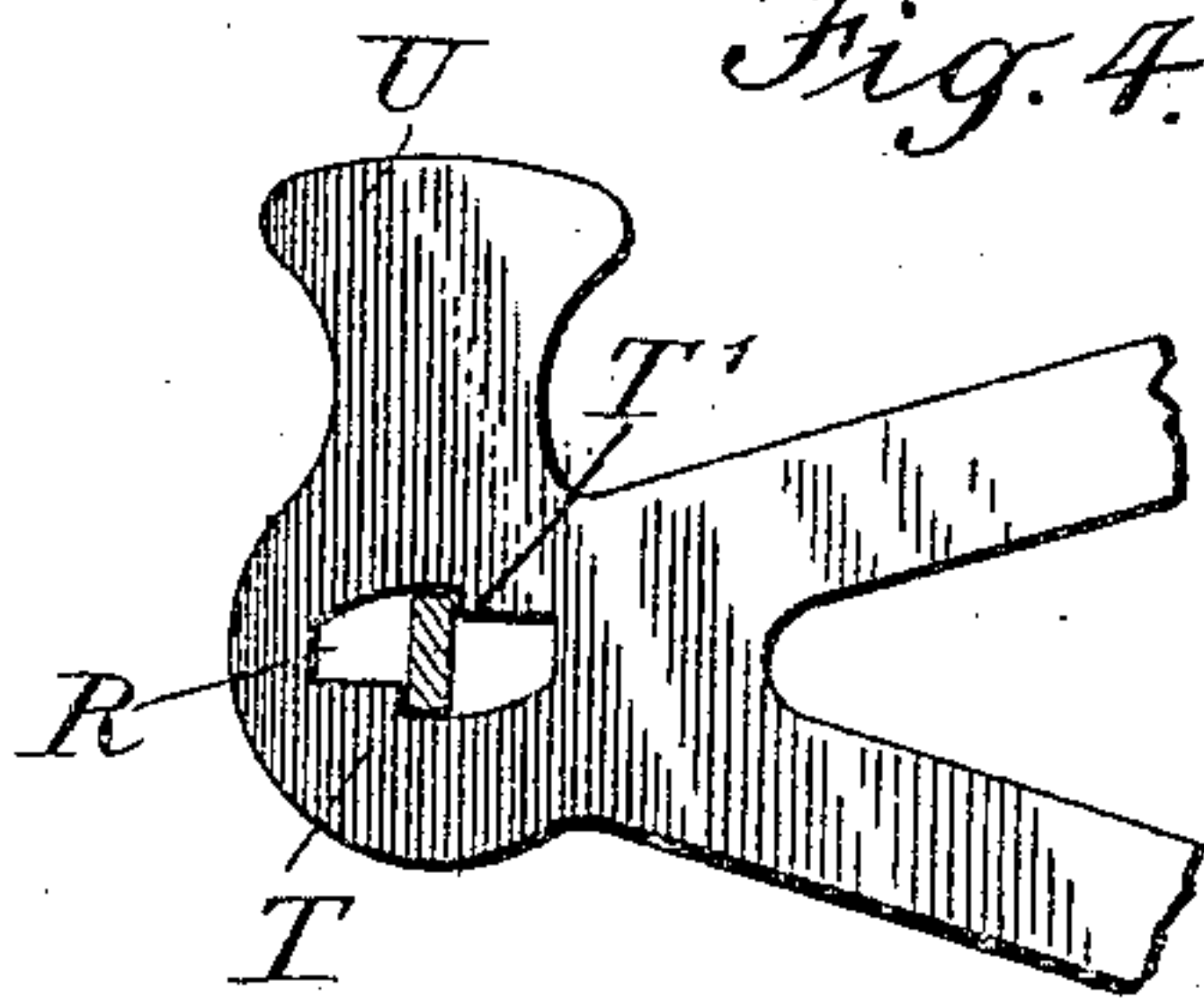


Fig. 4.



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UNITED STATES PATENT OFFICE.

HARRY C. GRANT, OF BAYONNE, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE LIONELL MANUFACTURING COMPANY, A CORPORATION OF CONNECTICUT.

TRUCK.

No. 931,413.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed May 27, 1907. Serial No. 375,779.

To all whom it may concern:

Be it known that I, HARRY C. GRANT, a citizen of the United States, and resident of Bayonne, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Trucks, of which the following is a specification.

My invention relates to trucks and particularly to that type used on rail-roads, and the object of my invention is to provide a truck, the frame of which may be assembled almost entirely without the use of bolts or screws.

A further object of my invention is to provide means whereby the boxes or journals in which the axles turn are formed in the frame, and also to provide means whereby any one of the wheels may be elevated above the level of the track on which the truck is operated, without lifting any other wheel from contact with a rail.

A further object is to make the parts from sheet metal and interchangeable, that is, to make the front cross frame so that it will serve, without any change, as the rear cross frame; the side frames to serve on either side, etc., thereby making a construction which is specially desirable on railroads.

Referring to the drawings, Figure 1, is a side elevation of my improved truck. Fig. 2, is a rear end view. Fig. 3, is a front end view. Fig. 4, is an enlarged view of one side of the end of a side frame, illustrating the means employed to prevent an excess of longitudinal movement of the side frames relative to the end frames.

A, indicates the body of the truck; B, the frame at the front end of the car; C, the frame at the rear end of the car; D, the cross piece at the front end of the car; E, the cross piece at the rear end of the car, and F and G the side frames respectively. The side frames are provided with openings which may be provided with bearing boxes if desired, and which serve as bearings for the axles I, and I', on which are mounted the wheels J, J', J² and J³.

Since the stamped parts are alike in their form and construction, I will describe one of each and then that of their joint use.

The frame C is provided with a right angle flange C' and with a hole C² through which a bolt K is passed to secure the said frame to the car body, and the flange C' is also provided with two depressions C³ and C⁴ into which corresponding projections A' and A² fit to prevent the frame C from swiveling relative to the body. The frame C is further provided with three holes in vertical alinement with each other indicated as L, M and N respectively, the hole L being extended laterally from the center in each direction a predetermined distance to form a slot, the holes M and N in Fig. 2, being indicated by dotted lines and having rivets O and P located therein to hold the frame C and cross piece E firmly together. In Fig. 3, the hole N serves as a bearing on which the cross piece D may swing, and the rivet Q is secured to the frame B but not to the cross piece D, so that in practice, the front cross piece D is free to swing relative to the body A and frame B, but the rear cross piece C must move with the frame C and body A. The object of this arrangement is that while the front frame may swing in case one of the front wheels should pass over an obstruction on the track, the rear wheel following would raise from the track in passing over but would not raise the front wheel, since the body A would swing relative to the frame D, and still, when the rear end of the truck has passed over the obstruction, it will carry the body with the cross piece E into its normal level position. The result is that the body A is supported at three points and that any one of the wheels may pass over an obstruction without lifting any of the other wheels at the same time, but this must be supplemented by another condition, and that is that the side frames shall be capable of a certain amount of free movement where the frames join the cross pieces at each end of the car. This is accomplished by making the cross pieces at the places where they engage with the frame ends, small enough to have a certain amount of play both laterally and longitudinally. The construction at these joints is partly illustrated in Fig. 4, the opening R in the end of the side frame being

almost rectangular in form to permit the arrow-shaped heads E' to be passed through and then turned at right angles to the normal position illustrated in the drawings, the lateral movement being the distance between the length of the bearing between the shoulder S and S', and the thickness of the metal for the frame, see Fig. 2, and the longitudinal movement provided by the difference of the thickness of the cross piece and the distance between the shoulders T and T', see Fig. 4. The ends of the side frames are provided with upturned portions U, which enter recesses W formed in the upper ends of the cross pieces.

In assembling the parts, the wheels are placed on the axles and the side frames are then placed in position on the ends of the axles. The cross pieces and end frames are joined together, and while supported with their plane surfaces in a horizontal position, the side frames are separated far enough to allow the arrow heads of the cross pieces to be inserted in the openings R—R after which the cross pieces are swung into their vertical position, the projections U being guided into the recesses W during the operation. The body A is next placed in position with the projections in proper engagement with the recesses in the top of the end frames and the bolts K are placed in position, which completes the assembling.

It will be understood that the flanges of the wheels are beveled in the usual manner. Having thus described my invention, what I claim as new and desire to secure by Letters Patent is,

1. A truck of the character described having a cross piece at each end which are duplicates of each other and interchangeable as set forth, a frame piece at each end which are duplicates of each other and interchangeable as set forth, and a side frame at each side which are duplicates of each other and interchangeable as set forth, one of said frame pieces being rigidly fastened to one of said cross pieces, and one of said frame pieces being fastened in swinging relation to one of said frame pieces for the purpose set forth.

2. A truck of the character described having two side frame pieces and two cross-pieces, and provision for uniting the cross pieces to the side pieces in movable relation with each other, said provision consisting in providing suitable openings in one pair of said elements and projections on the other pair of said elements adapted to be inserted through said openings, said projections being provided with shoulders to prevent the withdrawal of the same when the parts are united and in their normal working positions relative to each other.

3. A truck of the character described hav-

ing a body portion, an end piece at each end which are duplicates of each other, a cross piece at each end which are duplicates of each other, one of said cross pieces and one of said end pieces being rigidly fastened together, and one of said cross pieces and one of said end pieces being connected together in swinging relation, two side frames which are duplicates of each other and interchangeable, said side frames having suitable openings and said cross pieces having projections adapted to pass through said openings and provided with shoulders adapted to prevent the withdrawal of said projections from the openings when the parts are in their normal operable positions, and wheels mounted on axles, the ends of which rest in said side frames.

4. In a truck of the character described, a side frame and a cross piece, one of said elements having an opening at one end and the other having a projecting part adapted to pass through said opening and having shoulders which prevent the withdrawal of said projection when the parts are in a predetermined position relative to each other.

5. In a truck of the character described, a body portion, two end frames which are duplicates of each other, two cross pieces which are duplicates of each other, two side frames which are duplicates of each other, one of said side frames having an opening at one end and one of said cross pieces having a projection part adapted to pass through said opening and having shoulders which prevent the withdrawal of said projection when the parts are in a predetermined position relative to each other, and wheels mounted on axles, the ends of which rest in said side frame.

6. In a truck of the character described, a body portion, two end frames which are duplicates of each other connected to said body portion two cross pieces which are duplicates of each other, one of said cross pieces and one of said end frames being rigidly connected together, and one of said end frames and one of said cross pieces being connected together in swinging relation, two side frames which are duplicates of each other, each of which are provided with bearings for the axles of the truck and also with an opening at each end presenting shoulders oppositely disposed, said cross pieces having projecting bearing portions adapted to rest in said openings against said shoulders, said projecting bearing portions also having shoulders formed thereon to prevent the withdrawal of the cross piece from the side frame when the parts are in their normal operating position, axles in said bearings, and wheels mounted on said axles.

7. A truck of the character described com-

prising two side frames and two end frames,
the ends of which are formed to directly in-
terlock in movable relation to each other,
said frame consisting of but four pieces, sub-
stantially as set forth.

5 8. A truck of the character described com-
prising two side frames which are duplicates
of each other and two end frames which are
duplicates of each other, the ends of which
10 are formed to directly interlock in movable

relation to each other, and consisting of but
four pieces, substantially as set forth.

Signed at New York city in the county of
New York and State of New York this 7th
day of May A. D. 1907.

HARRY C. GRANT.

Witnesses:

FRANK M. ASHLEY,
A. T. SCHARPS.

It is hereby certified that the name of the assignee in Letters Patent No. 931,413, granted August 17, 1909, upon the application of Harry C. Grant, of Bayonne, New Jersey, for an improvement in "Trucks," was erroneously written and printed "The Lionell Manufacturing Company" whereas said name should have been written and printed *The Lionel Manufacturing Company*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of October, A. D., 1910.

[SEAL.]

E. B. MOORE,
Commissioner of Patents.