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GRICE & LONG.

Car Truck.

No. 30,918.

Patented Dec. 18, 1860.

Fig. 1

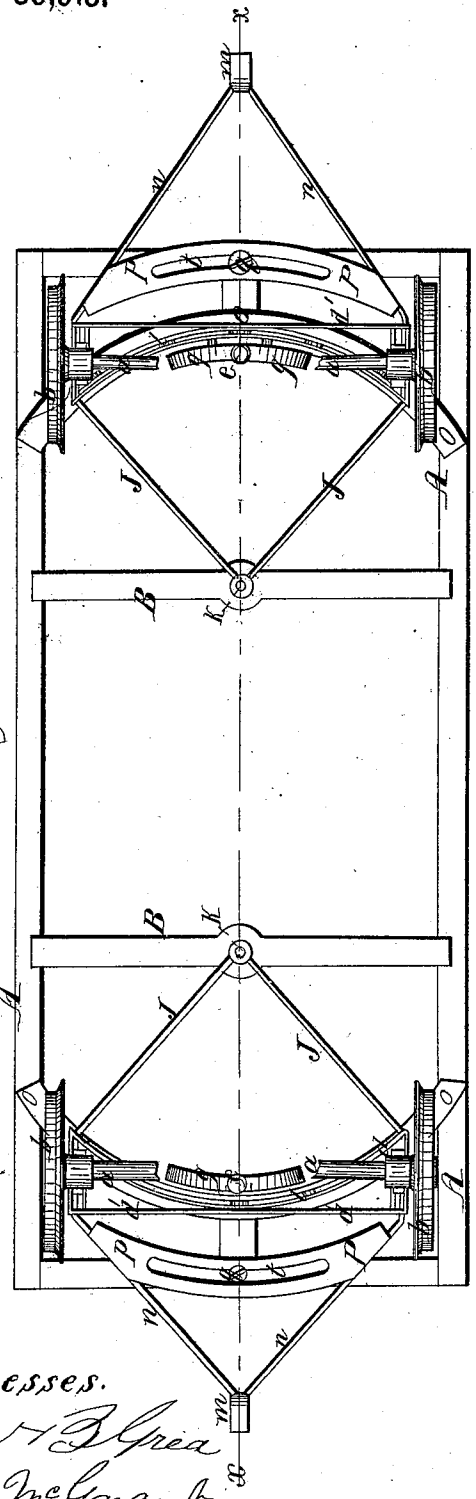
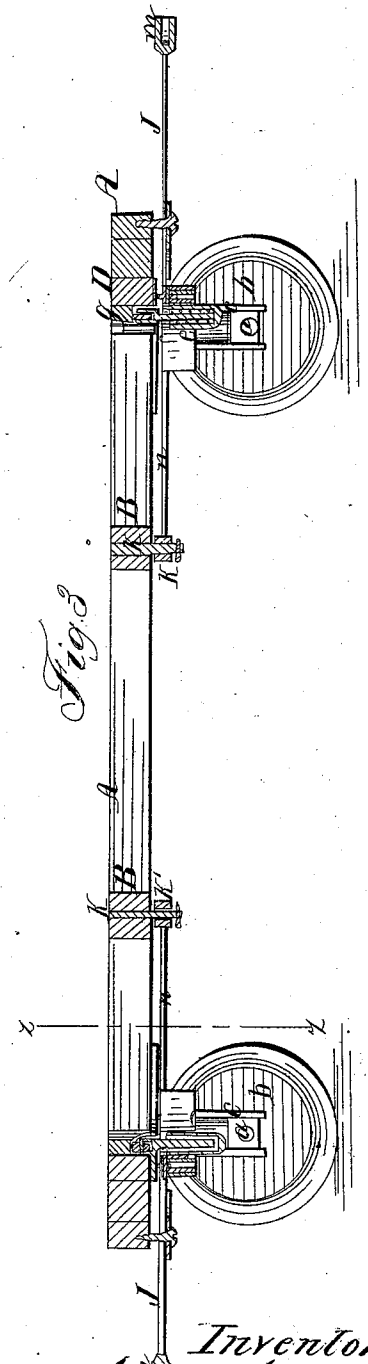


Fig. 2



Witnesses.

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2 Sheets—Sheet 2.

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Fig. 4

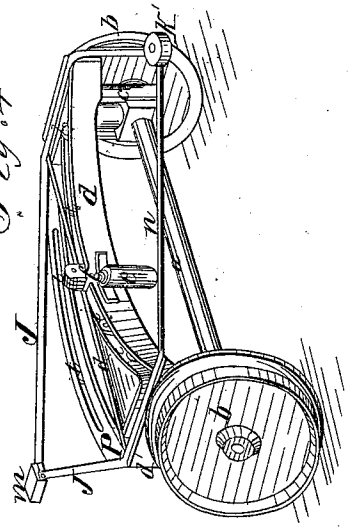


Fig. 2

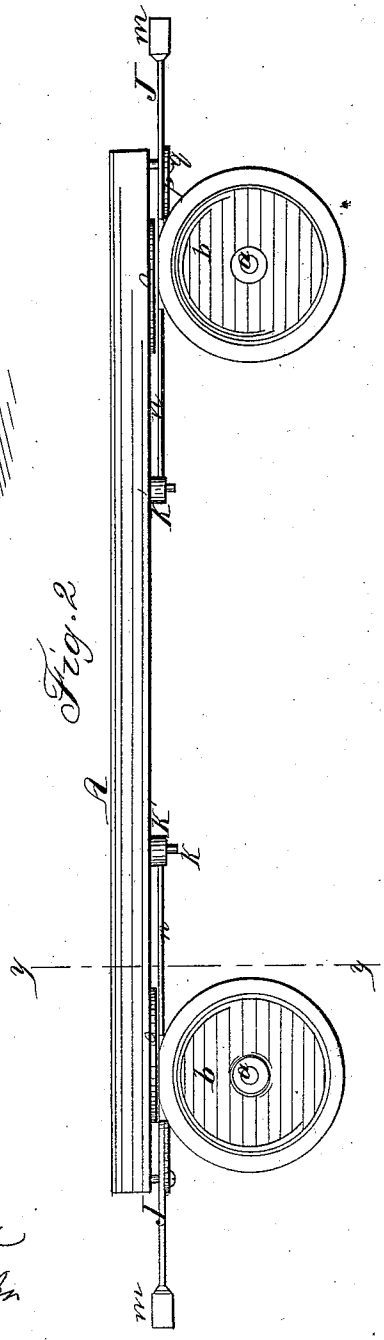


Fig. 6

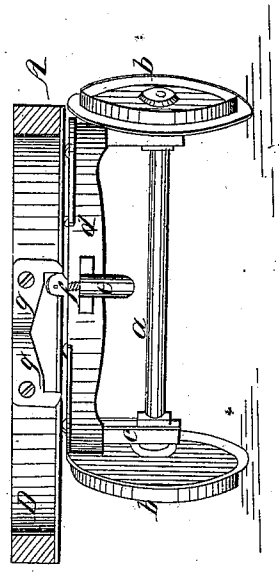


Fig. 7

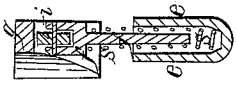
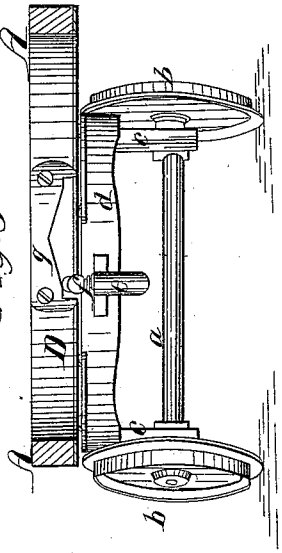


Fig. 5



Witnesses.

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UNITED STATES PATENT OFFICE.

JOS. GRICE, OF NEW YORK, N. Y., AND ROBT. H. LONG, OF PHILADELPHIA, PENNSYLVANIA.

CITY RAILROAD-CAR.

Specification of Letters Patent No. 30,918, dated December 18, 1860.

To all whom it may concern:

Be it known that we, JOSEPH GRICE, of New York, State of New York, and ROBT. H. LONG, of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in City Railroad-Car Trucks; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this application.

Our invention relates to certain novel features of construction in the trucks of cars designed principally to run on city railroads.

Our invention has for its objects to combine the following important features of advantage, in this kind of car trucks, viz: bring the bearings of the car on the trucks, close to the ends of the former, the facilities for turning, or curving the short turns without gripping the rails of the road, and the capacity of self guidance, in swiveling the leading truck, whereby the employment of switches, is rendered almost wholly unnecessary. And our said invention consists in the employment in combination with the rear end of the car frame, or body, of a truck pivoted at a point considerably in advance (in the path of motion) of its axle or axles and provided with a bearing arc, so arranged as to sustain the whole weight put on the truck as will be hereinafter fully described. And our said invention further consists in the employment in combination with the car frame, or body, of two trucks, each so constructed and provided with a bearing arc as to have their pivots, or turning points entirely relieved when the two trucks are pivoted at points both lying between the axles of said trucks as and for purposes hereinafter explained. And our invention further consists of a novel method of centralizing the trucks by means of a stationary double inclined plane and yielding spring stud as will be fully described hereinafter.

To enable those skilled in the art to make and use our invention we will proceed to describe the construction and operation of the same, referring by letters to the accompanying drawings forming part of this specification and in which—

Figure 1 is a bottom view of one of our improved car truck frames. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical longitudinal section at the line x, x, of Fig. 1. Fig. 4 is a perspective view of one of the trucks detached. Fig. 5 is a vertical cross section at y, y, Figs. 2 and 3, illustrating the operation of the centralizing devices, with truck turned off to one side. Fig. 6 is a similar section but showing the truck turned in an opposite direction and Fig. 7 is a sectional view enlarged scale of the centralizing device.

In the several figures the same letters indicate the same parts of the apparatus.

A, is the frame, or bottom of the car body which is provided with cross beams at bars B, in which are hung the pivots on which the trucks turn. The trucks which are placed one at each end of the car body, are each like the other, and are fully illustrated in the drawing (Fig. 4 being a perspective view of one of the trucks detached.) We shall therefore in describing the construction of the trucks, refer to either one, the two being similar and similarly lettered. b, b, are the wheels, and a, is the axle all of which are constructed in the usual manner and the axle a, is hung in the ordinary boxes, in stands c. The frame of the truck, is formed of a curved portion, or arc d, and straight sides d'. As shown at Figs. 1 and 4 the curved portion d, is made double and provided with friction rolls l, (see Figs. 1 and 4,) the peripheries of which project slightly above the upper surface of the plate, or arc d, to take bearing on a bearing plate o, arranged on the under side of the car frame A. From the front and rear of this frame portion d, d', extend converging from either side of the truck two arms or bars J, J, and N, N. The former unite at a mortised block M, which constitutes a pole holder (to be again alluded to), and the latter join together in a hub k', in which fits the pin or pivot k, on which the trucks turn or vibrate. Between the arms J, J, is arranged a plate p, in which is a slot t, to accommodate a pin q. This slot t, and also the arc d, of the truck are formed in the lines of concentric circles, the common center of which is at the center of the pin or pivot k, on which the truck turns. On the concave side of the curved frame piece d, is formed, or arranged a short tube piece or hollow stud c, in which fits and freely works up and down a shaft f, (see Fig. 7,) around which is a spiral spring s, or its equivalent, and in the top end of which is hung a friction roll i. This fixture of the tube e, stud

f, spring s, and friction roll i, is constructed and operates very much the same as inverted spring caster. Immediately over and in contact with the roll i, there is fixed to the curved cross piece D, of the frame A, (to which is also fastened the bearing plate o,) a projecting inverted, double, inclined plane g, (see Figs. 5 and 6,) in which the roll i, works as the truck vibrates on its pivot k. It will be understood that as the truck turns to one side or the other of the frame A, as illustrated at Figs. 5–6, the roll i, follows round on the inclined surfaces of the plate g, the shaft f, being forced down against the pressure of spring s, as the roll descends the inclines in either direction, and it will be seen that the tendency of the spring pressure thus exerted is to centralize the truck or bring it back to its normal position with the roll i, in the highest point of the disk formed in the plate g. The object of the slot t, in piece p, and the screw q, is to form a stop or limit to the extent of vibration of the truck in such manner that no shock, or jar, shall come on the centralizing caster or device. It will be seen that by pivoting the two trucks at the points (as shown) lying between the axles the car can freely curve, or turn, and that by the arrangement of the arc d, over the axles, the turning points are entirely relieved of strain, or weight, while at the same time by arranging each truck to receive the pole to which the team is attached at the point m, the leading truck and following truck will both be guided by the drawing force, in the proper line of direction and both follow, naturally the team. We are aware of trucks being pivoted in advance of their axles, also of trucks being pivoted, both at points lying between the axles, and lay no claim broadly, to such features of construction.

It will be remembered that in lieu of a single axle to each truck two axles may be used, and that other modifications in detail may be adapted without departing from our invention.

Having described the construction and operation of our improvement sufficiently to enable those skilled in the art to make and use our invention, what we claim as new and desire to secure by Letters Patent is—

1. The employment in combination with the rear end of the frame, or car body A, of a truck, pivoted in advance of the axle, or axles, and so constructed and arranged with an arc d, and suitable bearing plate and friction rolls as to have the entire weight supported by the truck brought on the said arc d, substantially as hereinbefore described for the purpose set forth.

2. The employment of two trucks in combination with the frame A, when the two trucks are each constructed with a single arc d, which sustains the entire weight of the car, and both pivoted at points lying between the axles substantially as hereinbefore described for the purpose set forth.

3. The combination of the "spring shaft" device e, f, s, with the double inverted, incline, on frame A, the whole arranged and operating as specified for the purpose set forth.

4. Extending the frame of the truck from the platform, and forming thereon, a pole holder m, as and for the purpose hereinbefore described.

In testimony we have hereunto set our hands this eighth day of November, 1860.

JOSEPH GRICE.
ROBT. H. LONG.

Witnesses:
SAML. B. GRICE,
EDWD. MCGOWAN, JR.