F. M. RAY.

Car Truck.

No. 3,962. Patented Mar. 21, 1845.

Fig. 1.

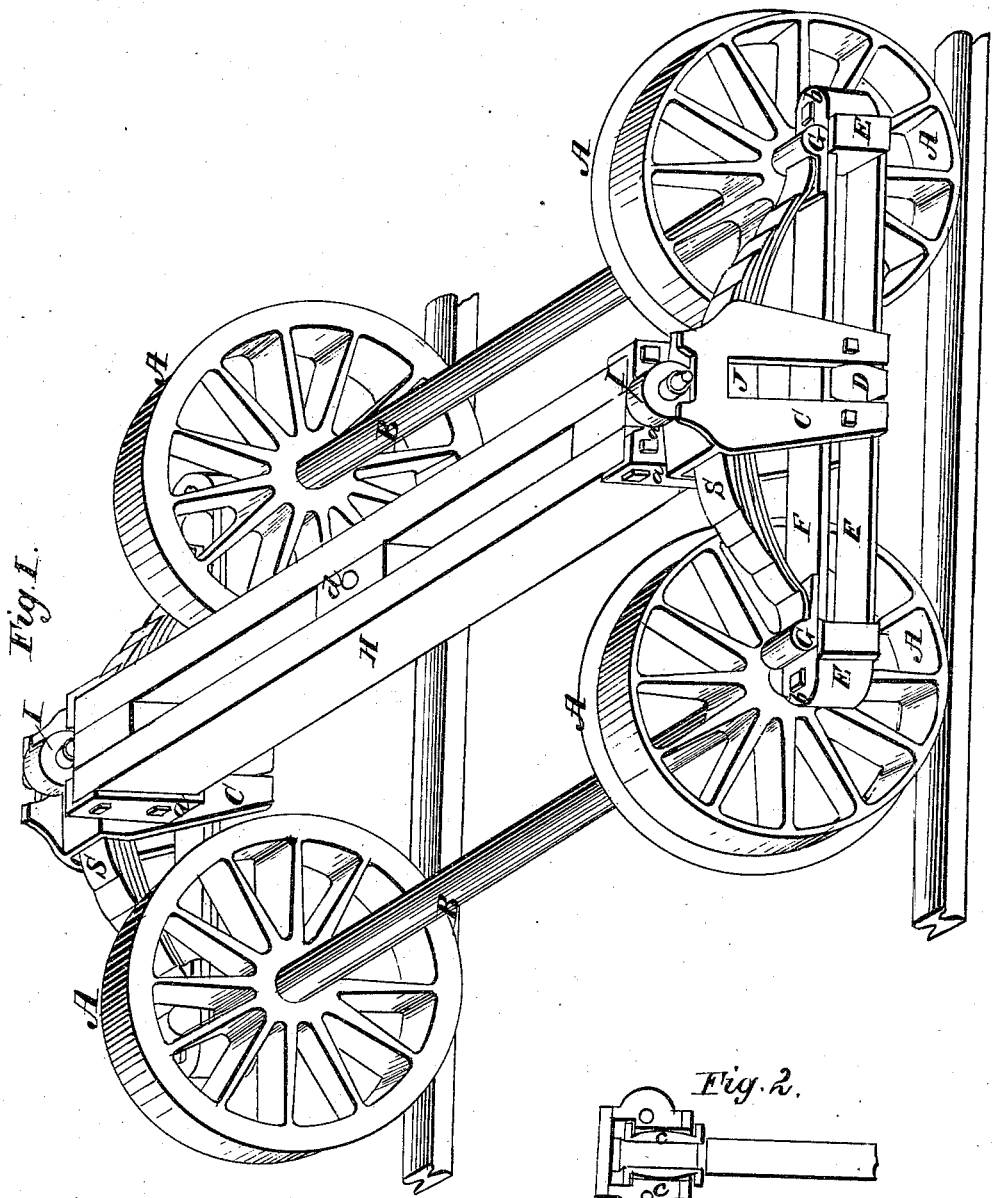


Fig. 2.

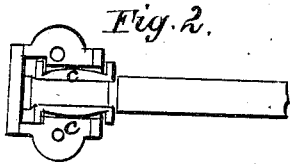


Fig. 3

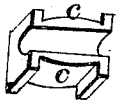


Fig. 4.

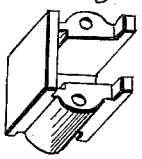


Fig. 5.

Fig. 6

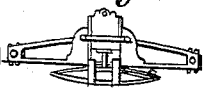
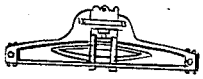


Fig. 7.



UNITED STATES PATENT OFFICE.

FOWLER M. RAY, OF NEW YORK, N. Y.

RAILROAD-TRUCK.

Specification of Letters Patent No. 3,962, dated March 21, 1845.

To all whom it may concern:

Be it known that I, FOWLER M. RAY, of the city and county of New York and State of New York, have invented a new and Improved Mode of Constructing Railroad-Trucks; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view, of the truck. Fig. 2, is a view of the lower or under side of the housing with the upper box and axle placed therein. Fig. 3, is a view of the upper box to the journals of axles. Fig. 4, is a view of a housing separate from any other part. Figs. 5, 6 and 7, are illustrations only.

The nature of my invention consists in substituting a single cross beam of timber, having end bearers of metal for the connecting bars of the axles, furnished with a single spring, and having a pedestal connecting the bearer, spring, and cross beam together at each side of the truck in such a manner as to give to whole frame work or superstructure of the truck a yielding capacity—instead of the usual method of a stiff frame work, and short unyielding springs, two at each side, as heretofore most commonly constructed. By which yielding quality I effect several desirable objects—1st the capability of elevating either of the wheels of the truck to a considerable height without affecting the position of the remaining wheels upon the track, and by which obstructions are passed with greater safety. 2d I give to each axle, independent of the other, a facility to vibrate laterally without changing their parallel position to each other, and by which short curves are made easy. 3d its yielding and elastic quality, rendering vertical, and lateral concussions, less severe than in the ordinary (rigid frame) truck.

A A A A, Fig. 1, the wheels, of any approved model. B B, Fig. 1, the axles; of the ordinary kind. C C, Fig. 1, pedestals at each end of the cross beam H, Fig. 1, and strongly attached thereto by screw bolts at *a a a a* Fig. 1, and resting upon the springs S S, Fig. 1, and being kept in their due position by guides D, Fig. 1, projecting from the lower connecting bar, F, Fig. 1, and J, Fig. 1, the center band of springs S S; which guides are made to slide freely up and down in the slot or jaw of the pedestal. D, Fig. 1, guide to pedestal, strongly fastened to the lower connecting bar F, Fig. 1, the bearing surfaces to the slot of the pedestal being curved, to admit the pedestal to rock upon the same; in case, when one end of the connecting bars are elevated above the other end. E E, Fig. 1, the housing in which are placed the pillar blocks or boxes for the journals of the axles, and to which are attached the connecting bars F F, Fig. 1, and together with the latter, form the end bearers to the axles. F F, Fig. 1, connecting bars, secured to the housings E E, Fig. 1, by screw bolts as shown at *b b*, Fig. 1, by which also, I usually secure with the same bolt the outward end of the step, G G, Fig. 1. G G, Fig. 1, steps to sustain the end of the springs and connect them to the connecting bars F F Fig. 1, by means of screws bolts, those at the inward end passing through the upper connecting bar only. H, Fig. 1, cross beam, formed by two parallel pieces of timber, detached from each other a few inches by short sections of timber placed between them at each end and in the middle, the latter forming a connecting block for the king bolt attaching the truck to the car body at *d*, Fig. 1. I I, Fig. 1, friction rollers, upon which the bed sill, of the car body rest, they traverse back and forward on their journals on planes as shown in the drawings upon the pedestals, to accommodate the changing position of the car body to the axles, in passing curves.

All the dimensions of the above described truck, are given by a scale of inches to the foot, in margin of the drawings.

In order to point out clearly the operation of my improvement, I deem it proper to state that in the ordinary truck a stiff unyielding frame work or superstructure is made to surround the location of the wheels and axles of the truck, and upon which are placed a pedestal and spring to each end of an axle, and it is well known that when one of the wheels passes over an obstacle upon the track greater than the scope of the spring and a slight yielding or springing of the timber of the frame—the wheel upon the opposite end of the axle, and the remaining wheel of the same side, are simultaneously raised from the track, and under which circumstances are easily diverted from the

truck being unsustained by flange at the side of the obstacle, subjecting also, the two bearing axles to great strain.

In my truck, the burden of the car being thrown upon the center of single springs at each side of the truck, and to each spring a single pedestal attached to the crossbeam so formed as to rock upon the spring when one end of an axle is raised higher than the others, and being sustained in due position by the guide D, Fig. 1,—forms a kind of a rolling pivot sufficiently yielding to produce the equalizing effect of throwing the burden of the car upon all of the axles alike under the circumstance of raising the end of one axle independent of its fellow upon the same side, or the end opposite to it, or diagonally opposite, (and hence I denominate my improvement "The equalizing railroad truck";) and this facility in connection with the facility it possesses of vibrating its axles laterally gives to the whole truck a yielding capacity in its action, not dissimilar to the action of a universal joint in other matters.

The lateral vibration of the axles, is effected by the formation of the journal boxes of the same, in which the bearing surfaces of the boxes are curved to allow the same to rock transversely in the housing, as shown at *c c c c*, Figs. 2 and 3.

This improvement is capable of being adapted to springs of various modes of construction; examples of which I have given in Figs. 5, 6, and 7, showing that the form may be changed and varied—the principle of action remaining substantially the same.

Having thereupon set forth the particular action of my improved rail road truck, and described its parts in detail, I proceed to point out what I conceive to be novel in its construction.

What I claim as new and desire to secure in Letters Patent is—

1. The above described cross beam H, combined with the pedestals C C, the springs S, S, the connecting bars F F, and the housings E E, substantially as described, by which a yielding capacity is given to the superstructure or frame part of the truck, allowing a wheel to rise over, an obstacle upon the track, without affecting the condition of the remaining wheels.

2. The formation of the journal boxes as described at Figs. 2 and 3, by which the axles of the truck may vibrate laterally, the one independent of the other, to accommodate their positions upon the track, (and so making curves easy)—which combined with the other yielding qualities of the truck, acting together produce a semi-universal-joint effect.

FOWLER M. RAY.

Witnesses:

FREDK. E. WESTBROOK,

WM. C. WESTERVELT.