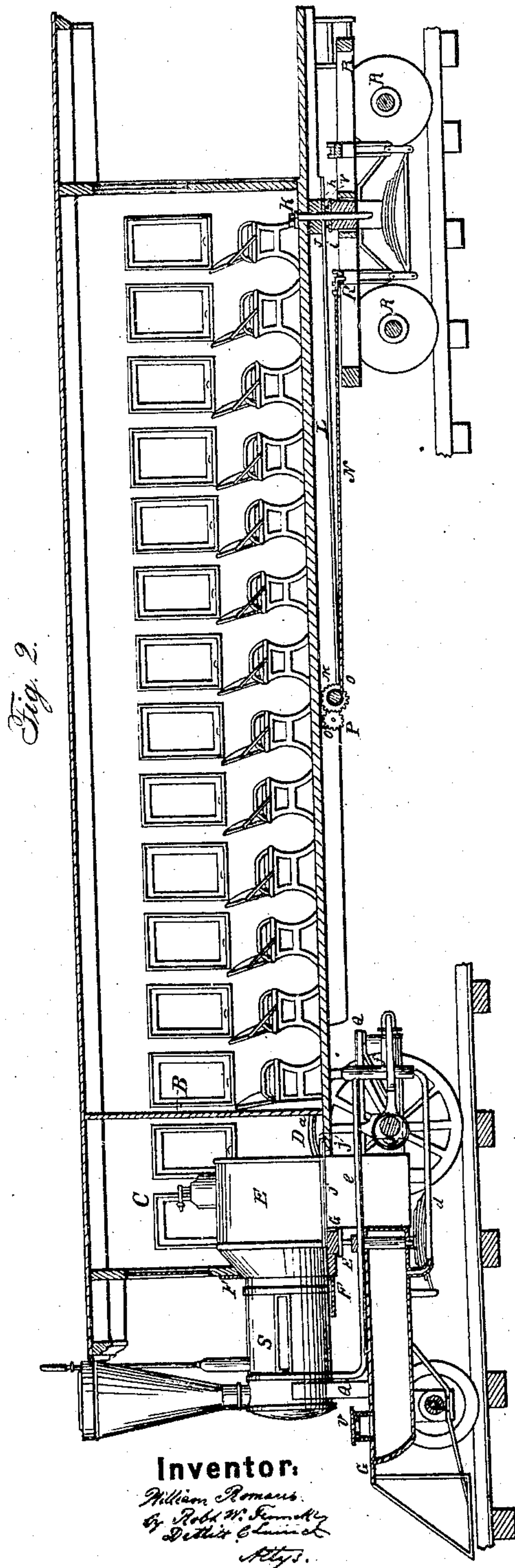
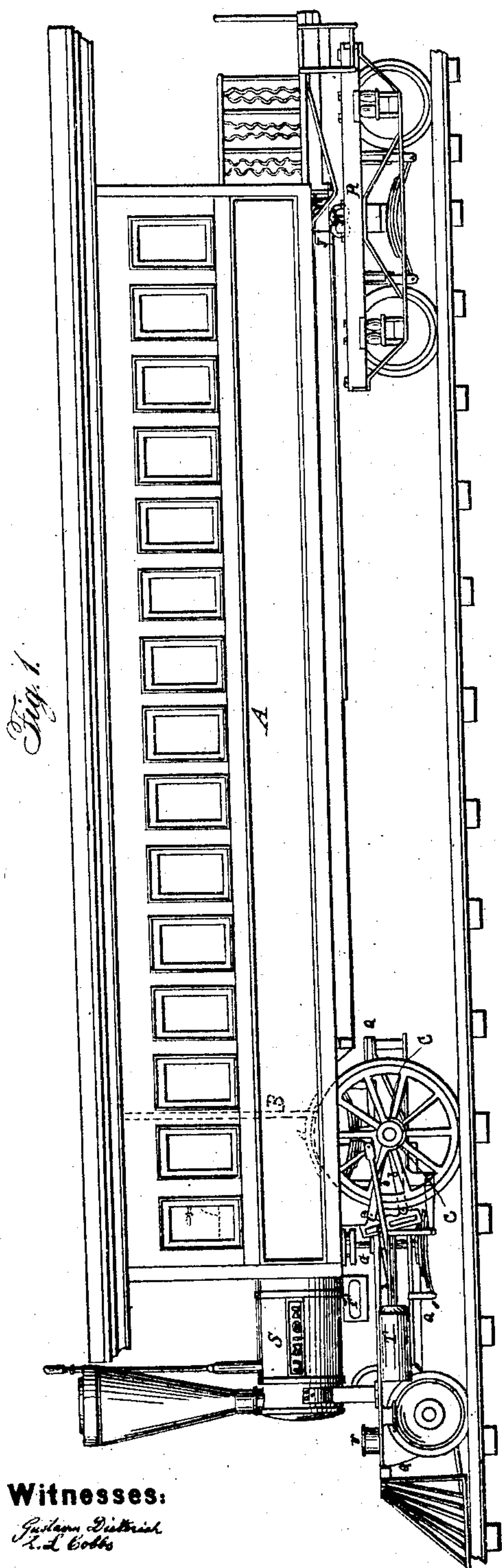


W. ROMANS.
Dummy Engine.

No. 34,270.

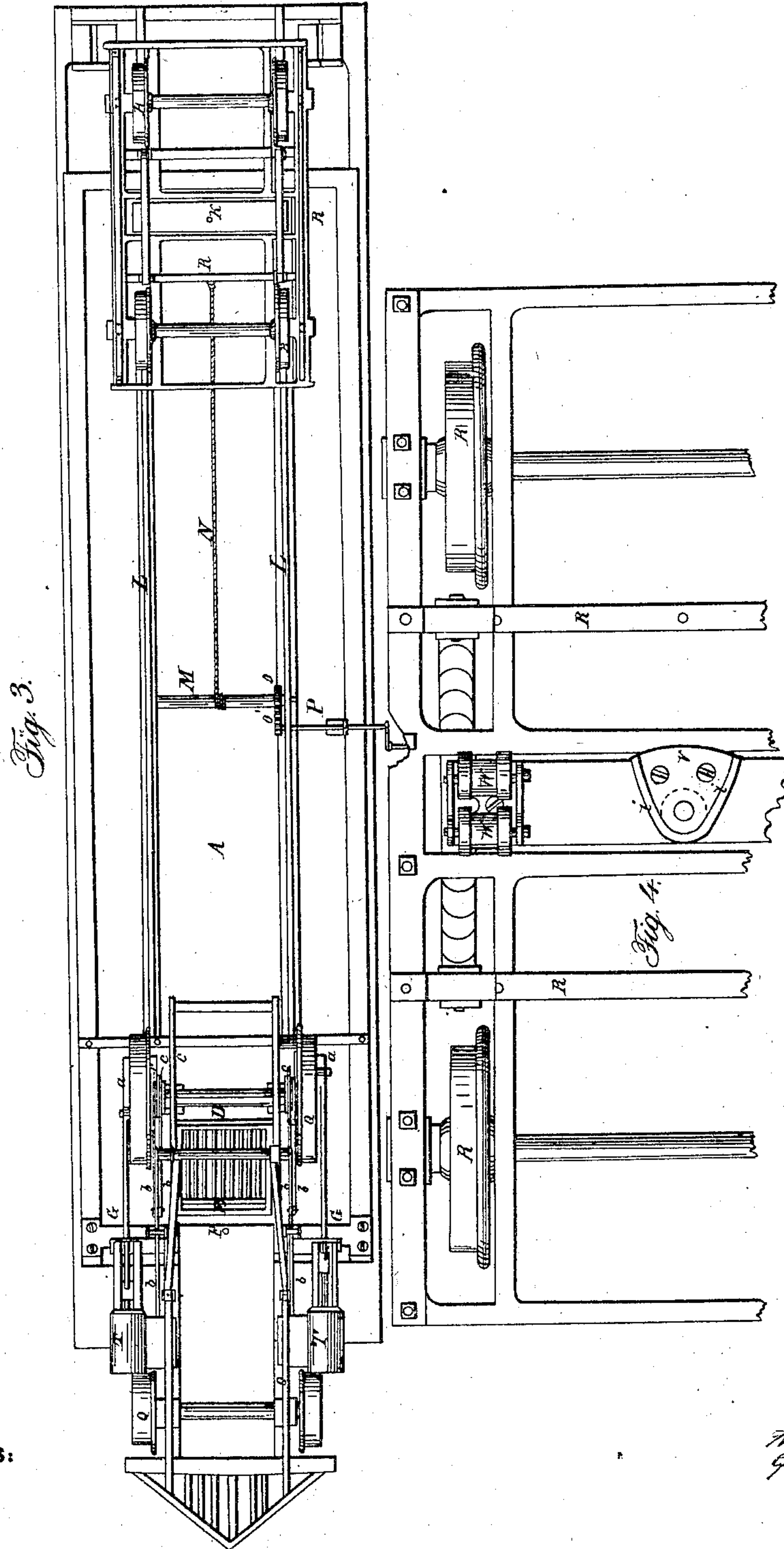
Patented Jan. 28, 1862.



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No. 34,270.

Patented Jan. 28, 1862.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM ROMANS, OF COLUMBUS, OHIO.

IMPROVEMENT IN LOCOMOTIVE-CARS.

Specification forming part of Letters Patent No. 34,270, dated January 28, 1862.

To all whom it may concern:

Be it known that I, WILLIAM ROMANS, of Columbus, in the county of Franklin and State of Ohio, have invented a new and useful Improvement in Locomotive Railroad-Cars; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my improved locomotive-car. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is an inverted plan of the same. Fig. 4 is a broken plan view of the rear truck of my improved locomotive-car.

Similar letters of reference in each of the several figures indicate corresponding parts.

The nature of my invention consists in the adaptation and use of a locomotive-engine which has a horizontal locomotive-boiler and a horizontal water-tank, in combination with long accommodation or long freight cars specially adapted for the said engine in such manner that the front of the car has its support on and at or near the center of the locomotive-truck frame and turns horizontally at said point, and at the same time the boiler, water-tank, locomotive-truck frame, and all other connections of the locomotive are free to move round in the path of a horizontal circle in turning curves of railroad-tracks.

It consists, second, in so arranging the water-tank, locomotive-truck frame, engine-cylinders, and valves of the locomotive adapted for sustaining the front of a long car that the eccentrics, link-motions, and valve-rods are located between the truck-frame and the inner faces of the driving-wheels, and thus a locomotive of great compactness, particularly adapted for the purpose to which I apply it, is obtained.

It consists, third, in so arranging the rear truck on a long car that it is capable of being moved while the car is resting upon it a greater or less distance toward the locomotive, and the long car thus enabled to turn short or sharp curves or corners with great ease and safety, and also adapted for being moved round on the small turn-tables provided for locomotives and short cars in ordinary use.

To enable others skilled in the art to make

and use my invention, I will proceed to describe its construction and operation.

In carrying out my invention I adopt an ordinary long car A, known among railroad men as "long accommodation passenger-cars," and separate about one-seventh of its length, at the front end, from the main portion, by means of a transverse vertical partition B, and thus form a small separate room C for the engineers to operate in and for carrying fuel. In the flooring of this room is cut a longitudinal opening D, which extends to the front edge of the platform, and is large enough to allow the upper portion of the fire-box of the engine hereinafter described to pass through it and also to permit the fire-box every freedom to play in the path of a horizontal circle in turning curves or corners of the railroad-track. The front part of this opening is closed in by a strong angular fender F, which has a curvature corresponding to the circular under portion of the horizontal locomotive-boiler, leaving sufficient room for vibrating and curving. Under the front end of the flooring of the engine-room a strong iron bolster G is screwed so as to be readily removed. This bolster has the head of a king-pin E fastened firmly in it. On each side of the central opening wheel-housings *a a* are provided, said housings being formed by cutting apertures through the flooring of the engineer's room and arranging boxes, which are hollowed in form of a segment, over the same, as shown.

At the rear end of the flooring of the car, on the under side, a strong bolster J is screwed or bolted, and through this bolster and the flooring of the car a king-bolt K passes. From the bolster at the point where the king-bolt passes through it, a cylindrical stop or projection *h* extends downward, for a purpose hereinafter described, and from the bolster toward the front of the car rails L L extend a suitable distance—say, about to the center of the length of the car—said rails being attached firmly to the under side of the flooring of the car, as shown. At the center of the length of the car a transverse windlass-shaft M is placed, the rails serving as its bearings. This shaft has a chain or rope N attached to it, the rope being long enough to

extend from the windlass to the rear truck and attach to the same, as hereinafter described. On the end of the shaft M a cog-wheel O is secured, and into said wheel a pinion o' of a crank-shaft P gears.

The car thus constructed is mounted upon two trucks Q R, which are constructed and applied as follows: The front or locomotive truck carries a horizontal locomotive-boiler S and water-tank F, said parts being arranged upon and firmly fastened to it. The cylindrical portions of the boiler runs horizontally above the frame of the truck and extends back and connects to the dome and arch of the fire-box. The fire-box passes down inside of the truck-frame in front of the hind axle thereof. The water-tank occupies a horizontal position within the truck-frame directly under the boiler and forward of the fire-box. On the locomotive-truck two engine-cylinders T T', with steam-chests on their inner sides, are also arranged. These cylinders are located on the outside of the truck-frame, and the rods b b and eccentrics c c, which actuate the valves of the steam-chests, occupy positions outside of the truck-frame between the inner faces of the driving-wheels and the side bars of said frame, while the piston-rods are arranged outside of the driving-wheels. This arrangement of the parts economizes space and gives the whole space within the truck-frame for tank-room and also places the eccentrics in protected positions and convenient for being manipulated. The tank is supplied with water by means of a man-hole v at its front end, and the water from the tank to the boiler may be conveyed by means such as are commonly used—viz., pipes d e and a pump f—which are to be so arranged as to be capable of being thrown in and out of operation at the will of the engineer. The rear truck R is very similar in construction to the trucks ordinarily used to support cars. Its swinging beam, however, has attached to its top a king-pin plate V with a horseshoe-shaped flange i projecting up round the king-pin hole, which is formed in the plate and swinging beam. On each side of this plate grooved rollers W W are provided, said rollers being so located and arranged that they move longitudinally, while their supports swivel horizontally, and when the truck is applied to the car they receive the rails which are on the bottom of the car.

The car and trucks thus constructed are connected as follows: The removable bolster with king-pin attached and the fender at the front of the car are detached, so as to admit the fire-box and a portion of the boiler of the locomotive-truck into the engineer's room. The locomotive-truck is then backed up under the front end of the car, which at this stage is held elevated for the purpose by a jack-screw or other means. Before the locomotive is backed up the king-bolt is adjusted to its hole in the water-tank or in beams of the locomotive-truck frame, the bolster which car-

ries the pin resting transversely on said frame. The fire-box and dome portion of the boiler enters the engineer's room through the door and the opening in its flooring and is kept in position by means of the king-bolt. Round the fire-box are provided india-rubber aprons j, which overhang the flooring in such manner as to close the openings in the flooring around the fire-box or leg of the boiler and still allow the necessary vibrations and curvings. The removable fender and bolster are now fastened in their original positions to form the connection between the car and the locomotive, and that connection is such that no part of the locomotive is a fixture with the car, but every part is free to move independently of it, except so far as the locomotive and the car are connected by the king-bolt. Thus the locomotive and all its attachments are permitted to move round curves and corners in the path of a horizontal circle without being subjected to any of the strain which is due to the center or king bolt.

By having the fender and bolster removable the locomotive-truck, with all its attachments, can at any moment be run out from under the end of the car, and by using a horizontal locomotive-boiler the water-tank and doctor-pump can be so disposed that an exceedingly small space serves for accommodating them, and, further, no strain which is due to the center-pin comes upon the water-tank, boiler, or any of the parts necessarily used with a locomotive, as all the parts are wholly supported by the truck-frame. The engineer also is comfortably housed and nearly the rear half of the locomotive is covered by the flooring of the engineer's room, and the center of motion on which the engine depends is brought to or near the center of the locomotive-truck frame instead of being located at the extreme rear end thereof, and therefore the locomotive can turn much shorter curves, it only having to sweep the circle with one-half its length. It will also be seen that the rear portion of the engine is brought very compactly under the front part of the car as the hind wheels extend up into the housings a considerable distance, said housings being wide enough to allow the necessary movement in the path of a horizontal circle. The front locomotive-truck having been thus connected to the car, the rear truck is run under the rear end of the car and fastened by the king-bolt. When the connection is thus formed, the horseshoe-flange has its open end in rear of the king-pin, and the windlass-cord is hooked to one of the cross-beams of the truck. The car is now ready for use.

In the use of the car it often becomes necessary, in order to turn it completely round or sweep it round sharp corners or curves, to move the rear truck to the center of the length of the car. To accomplish this, withdraw the king-bolt and wind up the windlass-cord by

means of the crank and windlass shafts. Thus winding up the cord draws the truck under the rails on the bottom of the car to the desired position. When in said position, the longitudinal motion of the rollers and the horizontal swiveling motion of their bearings allows of the truck turning curves, said rollers and the rails maintaining the connection, and the bearings of the rollers serving as the axes of motion to the truck. To get the truck back to its original position, chock its wheels and start the engine slowly, so as to cause the car to move forward over the grooved rollers of the truck until the horseshoe-flange strikes the stop *h*, when the king-pin must again be inserted. Thus it will be seen that a long car is made as easy of management as a short one.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The manner, substantially as herein described, of adapting a locomotive and a car for direct connection with one another in such manner that all the connections of the locomotive are free to turn independently of the car, and that the weight of the front end of the car rests centrally or nearly centrally on the locomotive-truck, and thus is made available for steadying the locomotive on the track, while the center of motion of the locomotive is transferred from the rear end to the center

of the truck, all as and for the purpose set forth.

2. Making the front bolster *G* and also the fender *F* removable, substantially as and for the purpose set forth.

3. In combination with the construction and use of the devices as set forth in the first claim, the manner, substantially as herein described, of arranging the valve-rods, link-motions, and the eccentrics between the inner faces of the locomotive driving-wheels and the outer sides of the locomotive-truck frame, for the purpose set forth.

4. So constructing and arranging the car and the rear truck and connecting the same that the truck while the car is resting upon it may be moved a greater or less distance toward the locomotive, and when thus moved shall be free to turn curves, substantially as and for the purpose set forth.

5. The combination of the flanged plate *V* of the rear truck and the tubular projection *h* of the rear bolster *J* of the car, substantially as and for the purpose herein described.

WM. ROMANS.

Witnesses:

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CHAS. W. SMITH.