L. RANSOM.

STEAM CARS.

No. 185,131. Patented Dec. 5, 1876.

Fig. 1.

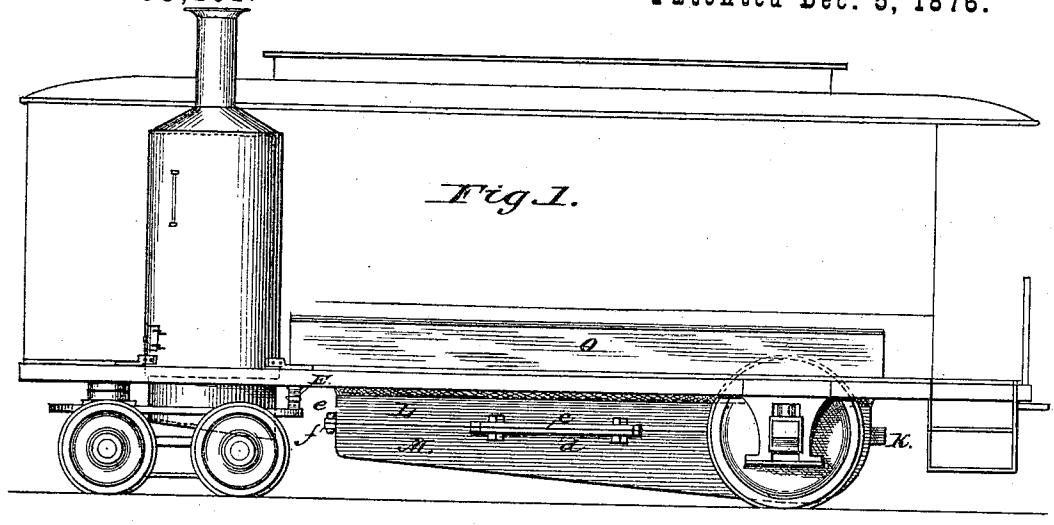


Fig. 2.

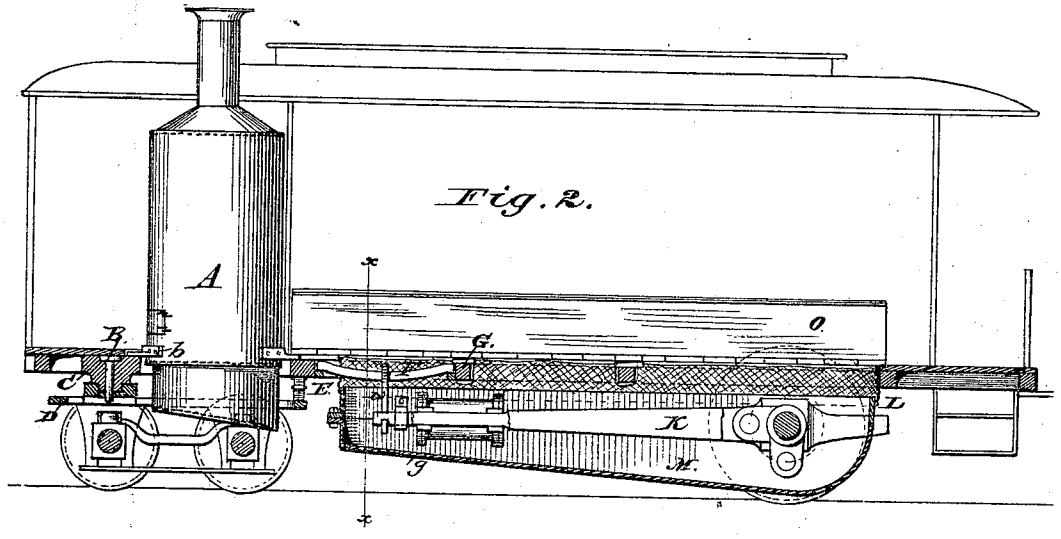
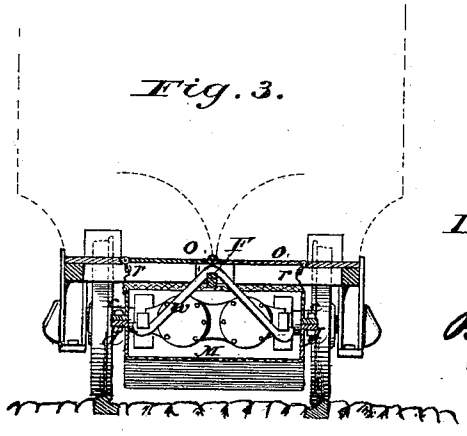


Fig. 3.



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LOUIS RANSOM, OF STRATFORD, NEW YORK.

IMPROVEMENT IN STEAM-CARS.

Specification forming part of Letters Patent No. **185,131**, dated December 5, 1876; application filed November 1, 1876.

To all whom it may concern:

Be it known that I, LOUIS RANSOM, of Stratford, county of Fulton, and State of New York, have invented certain new and useful Improvements in Steam-Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

Figure 1 is a side elevation of a car embodying my improvements; Fig. 2, an axial section; and Fig. 3, a cross-section on the line *x x* of Fig. 2.

Like letters of reference in all the figures refer to corresponding parts.

My improvements relate particularly to that class of cars intended to be propelled by steam; and the invention consists in certain peculiarities of construction and arrangements of parts, to be hereinafter fully described, and then pointed out in the claims.

The drawing represents a six-wheeled car, wherein a boiler, A, is suspended over the forward truck, consisting of four wheels. The king-bolt B is located well forward of the center of the truck for two reasons: first, to permit the boiler or its ash-pan to extend down below the level of the car-floor; and, second, in case of derailment, to cause the truck to be drawn along rather than pushed. This latter feature is very important as a safeguard against accidents in a class of cars so liable to leave the track. As ordinarily constructed, with the king-bolt in the center of the truck, said truck upon leaving the track has a tendency to twist or turn out of line with the axis of the car, and thus cause the car to be overturned.

In the present instance the king-bolt passes through the front boiler-transom, making it the bolster for the forward end of the car, and through the thwart D upon the truck, which is directly beneath, and supports, the transom or bolster, and the boiler attached to it, by the bearing *b*. The back boiler-transom E may be supported by a heavy spring resting upon the truck-frame.

The boiler, which is the most awkward burden to dispose of in designing a steam street-car, is carried easily and securely by a truck whose center is but little removed from the axis of said boiler, and may, if desired, be made to coincide or fall in the same line.

I am aware of certain car-trucks, particularly those invented by Walter Youmans, wherein the king-bolt is located forward of the truck-center as part of an arrangement by which the axles are cramped to a position radial with the curve they are describing, and it may be placed for this purpose indifferently before or behind the center; but I am aware of no truck in which the king-bolt is located forward of the center, as in my invention, for the purpose of keeping the truck in position in the event of derailment, and of supporting the boiler in the strong and secure way described above, where the boiler-weight falls directly upon the truck instead of being transferred to said truck from the car-frame.

The boiler is shown as having a peculiar ash-pan, for which I propose hereafter to apply for Letters Patent covering the same.

The engine, as indicated in Figs. 2 and 3, is located beneath the body of the car, and is intended to be constructed substantially as set forth in a previous application for patent. The cylinder end of said engine is supported by a bail, *w*, similar to that shown in said application; and the second feature of my present invention has relation to the manner of suspending said bail from the car-frame. Between the rear boiler-transom E and a similar transom, G, located at a convenient distance therefrom, I suspend a bar, F, sufficiently large and strong for the purpose, in the axis of the car. This bar may be attached to, or rested upon, the transoms in any suitable way, preferably by providing sockets or seats for the ends thereof, and upon this the bail *w* is swung.

This arrangement affords an effective means of suspending the cylinder end of the engine, and one convenient and desirable for adjusting or loosening said bail.

The engine being suspended beneath the car, it is of the utmost importance that it should be thoroughly incased to prevent dust and dirt from interfering with and cutting out the working parts; and this casing should be substantial and durable, and possess cer-

tain features of removability and convenience, which are the objects of the third feature of my invention.

I am fully aware of previous attempts to exclude dust, &c., from engines in situations similar to mine. These, in my opinion, have failed to accomplish the necessary and desirable ends, mainly from the fact that they have been made rather as housings than casings, which necessitated a bungling and inconvenient protector, and added considerably to the expense of constructing the car. These housings, have never, to my knowledge, more than partially covered the engine, leaving more or less of it exposed to dust and dirt.

I propose to overcome these objections, and secure the desired advantages, by use of a casing constructed substantially as follows: The two parts L and M are attached to each other by flanges *c d e f*, which receive suitable removable bolts, or in any equivalent manner, it being only necessary that the lower section M be capable of being easily detached from the upper section L. The side bars K of the engine-frame extend beyond the line of the end of the casing, and upon these the back end of said casing rests. The forward end is supported upon the same bars, but by means of a lug, *g*, upon the interior of the casing, or equivalent means.

From this construction it will be observed that the casing is bodily supported by the engine-frame, and that its two sections are separable from each other and easily removed or detached (when necessary for cleaning or repairing) from said frame.

Suitable dust-tight doors O O cover the engine, and form a portion or the whole of the car-floor, thus affording access to the working parts from above. The casing being attached to the engine-frame will necessarily vibrate with the same, and a flexible dust-tight joint between it and some portion of the car above will be essential. For this purpose cloth or canvas is believed to be most desirable, and, accordingly, I place a strip of this material between the casing and the car. (Shown in the drawing at *r*.) This strip *r* is shown as attached to the doors O O; but it is obvious that this particular location is more a matter of convenience than an essential feature of the invention.

I prefer that the casing shall be made of metal, but wood will answer the purpose, and the flexible portion may be of leather, as well as of cloth or canvas. The necessary connections between the boiler and the engine are passed through suitable openings in the casing.

When constructed in a thorough and workmanlike manner, and substantially as above indicated, the dust-casing, it is believed, will be found to be cheap, effective, and convenient, and will obviate the heretofore serious objections urged against this class of cars on account of the liability to which their machinery is exposed to be damaged by dust and dirt.

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

1. In a steam-car, the combination, with the forward truck thereof, of the front and rear boiler-transoms B and E, carrying a steam-boiler and connected with said truck, substantially in the manner explained.

2. In combination with a bail which supports the cylinder end of an engine located beneath a car, a bar, F, resting upon the two transoms E and G, substantially as set forth.

3. The combination, with an engine located beneath the body of a car, of a dust-tight casing supported upon and movable with said engine, substantially as described.

4. The dust-tight doors O O, in the bottom of a car, combined with a dust-casing for an engine below, for the purpose of excluding dust and affording access to the engine, as set forth.

5. In combination with a dust-casing for an engine located beneath a car, a flexible joint attached to said casing and to some portion of the bottom of the car, as and for the purposes explained.

6. The combination of the two sections L and M, the flexible joint *r*, and the doors O O, forming a dust-casing for an engine, the whole being constructed and arranged substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

LOUIS RANSOM.

Witnesses:

GEO. A. WATERS,

GEO. CUSHING, Jr.