S. SKILLMAN.

CAR TRUCK.

No. 79,267. Patented June 23, 1868.

Fig 1

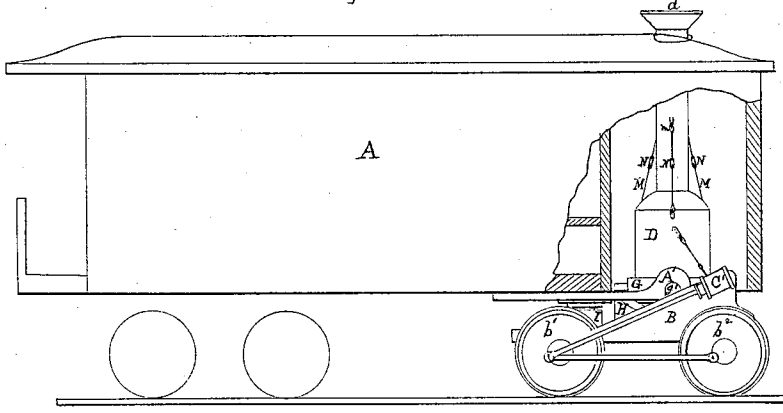


Fig 2

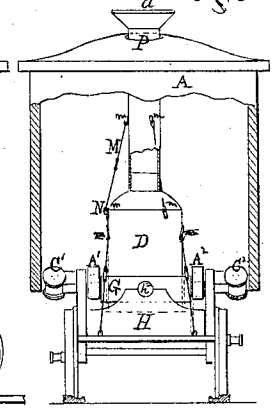


Fig 3

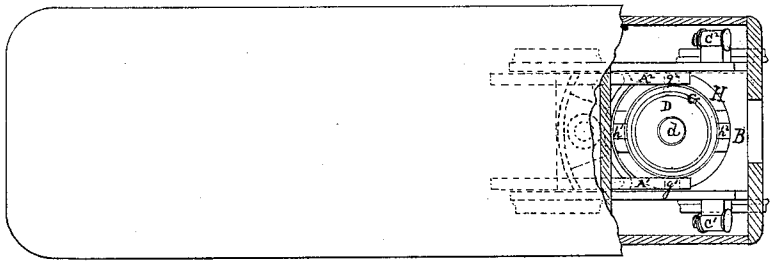
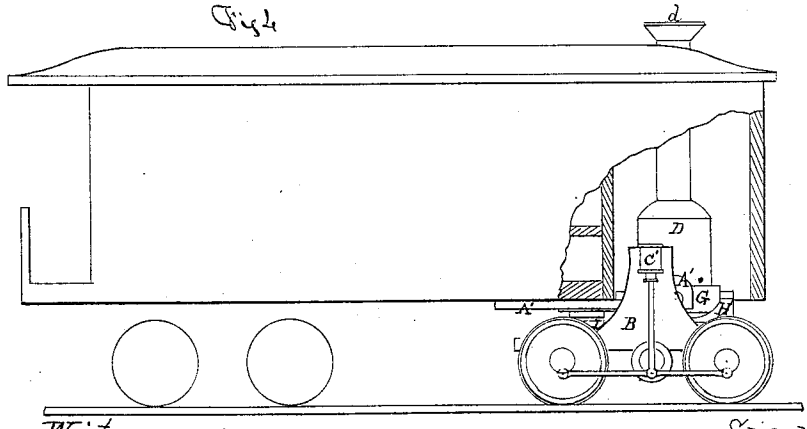


Fig 4



Witnesses.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

United States Patent Office.

SIDNEY SKILLMAN, OF JERSEY CITY, NEW JERSEY.

Letters Patent No. 79,267, *dated June* 23, 1868; *antedated June* 16, 1868.

IMPROVEMENT IN CAR-TRUCKS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, SIDNEY SKILLMAN, of Jersey City, in the county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Steam-Cars, for Metropolitan and other railroads; and I do hereby declare that the following is a full and exact description thereof.

I will first describe what I consider the best means of carrying out my invention, and will afterwards designate the points which I believe to be new. The accompanying drawings form a part of this specification.

Figure 1 is a side view, partly in section.

Figure 2 is a cross-section, and

Figure 3 is a plan view, parly in section.

Figure 4 is a view of a modification.

Similar letters of reference indicate corresponding parts in all the figures, where they occur.

The drawings represent the novel parts, with so much of the other parts as is necessary to indicate their relation thereto.

A is the body of the car. The end in which the passengers are carried is supported by a truck, or otherwise, in any of the approved styles. The end which carries the engine and boiler rests upon a truck, B, having two pairs of wheels, b^1 b^2, with two engines, C^1 C^2, acting on cranks at right angles to each other, so as to give a continuous rotatory motion to the wheels of the truck, which thus perform the functions of driving-wheels for the entire structure. The boiler D stands near the centre of the truck B, and its smoke-pipe, *d*, extends up through the roof of the car A. So far as has been yet described, my improved dummy agrees with those which have been before known.

G is a stout ring surrounding the boiler, and having trunnions g^1 g^2, which receive correspondingly recessed arms A^1 A^2 extending out from the body, A, of the car. The weight of this end of the body is transmitted to the ring G by means of these arms resting on these trunnions. H is another ring, also surrounding the boiler, and adapted to turn or swivel around on its annular bearing, on the surface of the truck B. There are trunnions, h^1 h^2, which fit in corresponding recesses on the upper side of the ring H, before described. These recesses are at right angles to the trunnions g^1 g^2.

By this arrangement the truck is allowed to swivel on its centre, the centre of motion coinciding with the centre of the boiler, so that both are in the centre of the truck. Any reasonable amount of oscillation in every direction is also allowed. In case the truck rises on one side in passing over an uneven part of the road, a rocking is performed on the trunnions h^1 h^2. In case the truck rocks forward and backward, in pitching over obstacles or uneven places, the rocking is performed on the trunnions h^1 h^2. Irregular oscillations of all kinds may be performed by the joint action of this apparatus. I is a bearing-piece, supported on the truck B, in a position nearer the centre of the car-body, A, than the boiler D. This supports a portion of the weight of the car-body. That portion is transmitted through the pin J, and bears, or is ready to bear, at all times on this piece I. When the truck swivels around on the ring H, it is necessary that this bearing-piece I shall move sidewise on the truck. This is provided for by the ways or guides K^1 K^2, which prevent the bearing-piece I from moving forward or backward to any great extent, and allow it to move laterally as far as is ever necessary. Then the ways may be curved or straight. In case they are curved, they should be struck from the centre of the boiler. But it is somewhat cheaper to make them straight, and in most cases I propose to so construct them, and to provide for the necessarily curvilinear motion of the bearing-piece I by simply placing the guides K^1 K^2 farther apart than would be otherwise necessary, so as to allow some play forward and backward.

In locomotive-cars heretofore constructed, it has been common to provide a floor for the engineer, which floor is a part of the car-body, A, and not a part of the truck B. In my improved construction, no such floor is introduced. The engineer stands directly upon the truck B. The fuel, water, &c., may be also supported directly upon the truck.

Boilers and engines of dummies or locomotive-cars are peculiarly subject to be racked and strained, and many failures have resulted from this cause. I deem it a very important matter, the result of much experience and reflection, to fix the cylinders C^1 C^2, not, as heretofore, directly upon the boiler, but upon the framing L, which receives all the contractile and distending force due to the action of the engines, and leaves the boiler free to expand and contract with heat, or spring and work in any direction, as desired. The framing is analogous in effect to that employed in locomotives.

I arrange the cylinders C over the wheels, instead of forward of them. This reduces the length of the dummy. The increase in the bulk of the mechanism above the wheels induces no considerable evil.

The connection of my stack to the other parts is peculiar. The hole P is formed in the roof of the car, a little larger than the stack *d*. The stack *d* is fixed to the boiler at the junction, and is sustained by braces M, which radiate obliquely from the sides of the stack, below the roof of the car, and hook into eyes N, provided in the top of the boiler. The hooks *m*, by which these connections are formed, are made intentionally very slight. They are sufficiently strong to support the stack *d* against all ordinary agitations and concussions; but when, in consequence of running off the track, of any other derangement, the stack is struck with violence against the roof of the car, so as to strongly deflect it to one side, these hooks may break or straighten, and the stack will be allowed to be deflected to any extent desired without further injury. On righting the work again, new hooks may be applied at an expense of a few cents, and all is again restored.

It will be readily understood that the positions of the two bearings, to wit, the bearing on the ring H and the bearing on the bearing-piece I, will cause the load to be divided unequally between the two at intervals, when the dummy is traversing over uneven parts of the road. In passing through a hollow part of the road, for example, the truck will tilt forward, so as to take the greater portion of the load on the ring H. In passing over a ridge, the forward edge of the truck will tilt downward, and the greater portion of the load will be received on the bearing-piece I. This evil may be reduced by making the arms A^1 A^2 highly elastic, and I propose in some instances to make the connections of the body, A, to both the bearings elastic, that is to say, using a half-elliptic spring, or other convenient form of spring, in place of each of the arms A^1 A^2, and a rubber spring or other suitable device in place of the rigid connection of the pin J.

I do not consider it vitally important to the success of other portions of my invention to employ two bearings, H and I. I propose in some instances to support that portion of the car-body effectually upon the ring H, and in others to support it effectually upon the bearing-piece I. In the latter case I can keep the boiler in the centre of the truck, as now represented, or can move it forward somewhat, but in either case the bearing I will be considerably out of the centre and toward the rear of the truck B, but it will be forward of the rear axle.

In order to disconnect my car-body from the truck, I construct all the parts, so that it may be lifted by jack-screws or other convenient power to such a height as to move the truck, with its connections, directly out from under it.

In order to remove the truck for repairs, or any other purpose, I disconnect the braces M by unhooking the hooks *m*, and carefully lifting the stack out of connection with the boiler. I raise the body A either bodily or by tilting it up so as to raise the end which encloses the boiler and upper works of the truck. The object is then readily effected.

I attach a high degree of importance to the location of the bearing I when it is used alone, that is to say, without the bearing around the boiler. It must, as before remarked, be over or a little forward of the rear axle, in order to be properly supported, but it must be considerably in the rear of the centre of the truck B, in order both to equalize the load on the wheels, the boiler being forward, and to get a sufficient load upon the rear wheels to prevent their mounting the rails, and thus running off the track in running backwards.

Having now fully described my invention, what I claim as new in steam-cars and desire to secure by Letters Patent, is as follows:

1. I claim the swivelling of the truck on a centre coincident with the centre of the boiler, by means of the swivelling-ring H, arranged substantially as herein described.

2. I claim, in connection with the above, the tilting-ring G, turning on the centres g^1 g^2 and h^1 h^2, arranged substantially as and for the purpose herein specified.

3. I claim, in combination with the boiler D, located at or forward of the centre of the truck, the employment of a bearing, I, in rear of the centre of the truck, so arranged as to support or aid in supporting the weight of the car in such manner as to throw more of its weight upon the rear than upon the front axle of the truck, substantially as and for the purposes herein set forth.

4. I claim the within-described arrangement of the hole P, stack *d*, boiler D, and weak braces M or their equivalents, adapted to operate together in the manner herein specified.

SIDNEY SKILLMAN.

Witnesses:

W. C. DEY,

F. A. HADICKE.