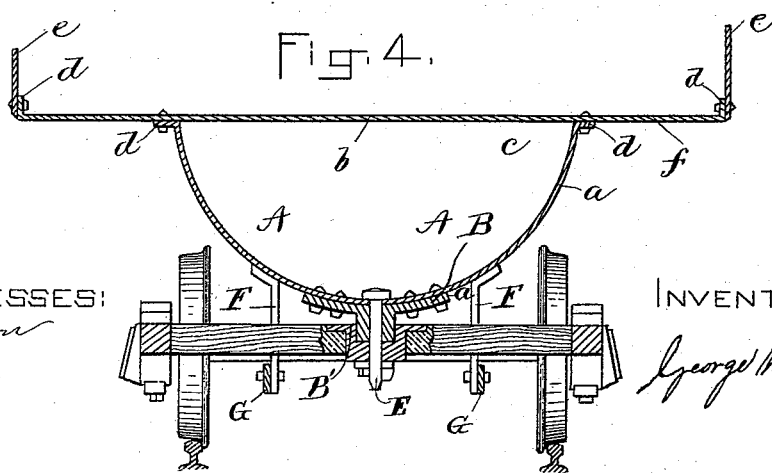
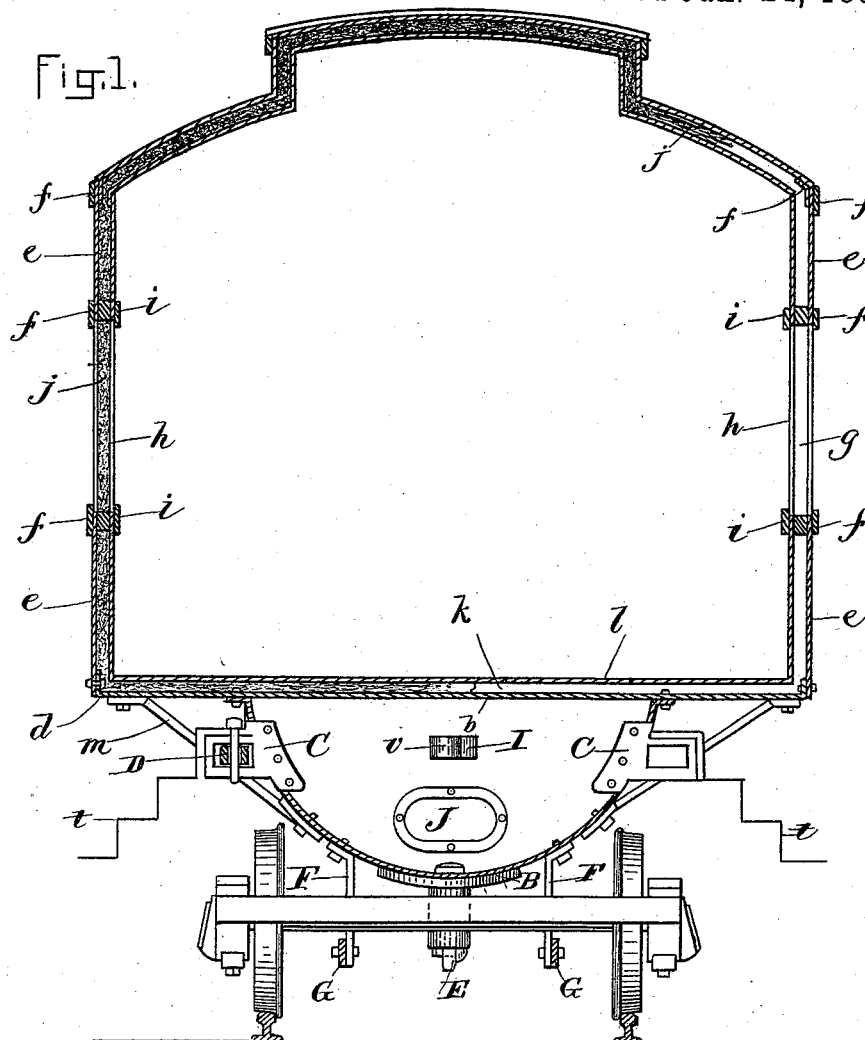


G. M. BIRD.  
METALLIC CAR.

No. 490,469.

Patented Jan. 24, 1893.



WITNESSES:

H. Brown  
A. O'Leary

INVENTOR:

George M. Bird

(No Model.)

3 Sheets—Sheet 2.

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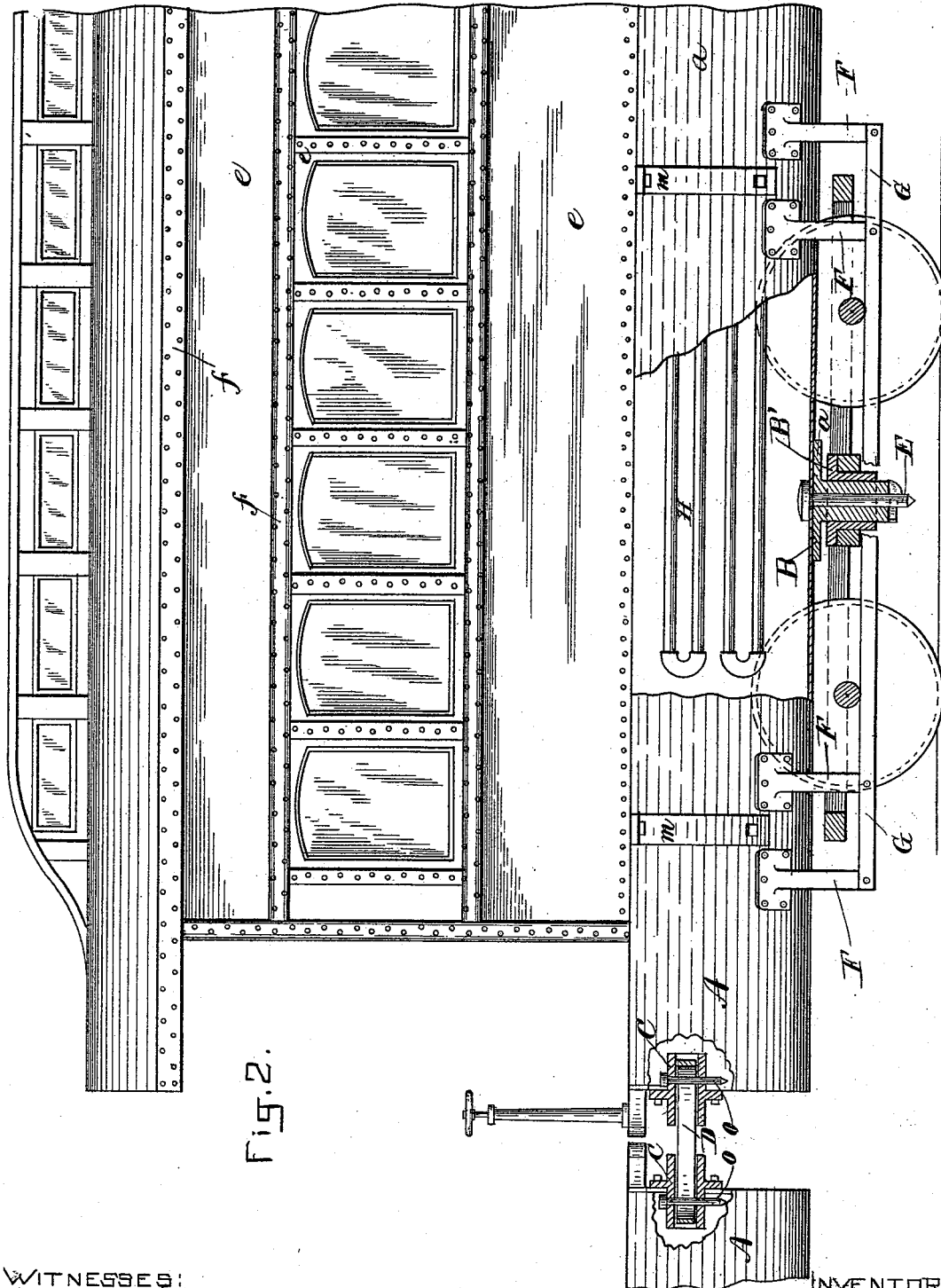


Fig. 2.

WITNESSES:

H. Brown  
J. T. Long

INVENTOR

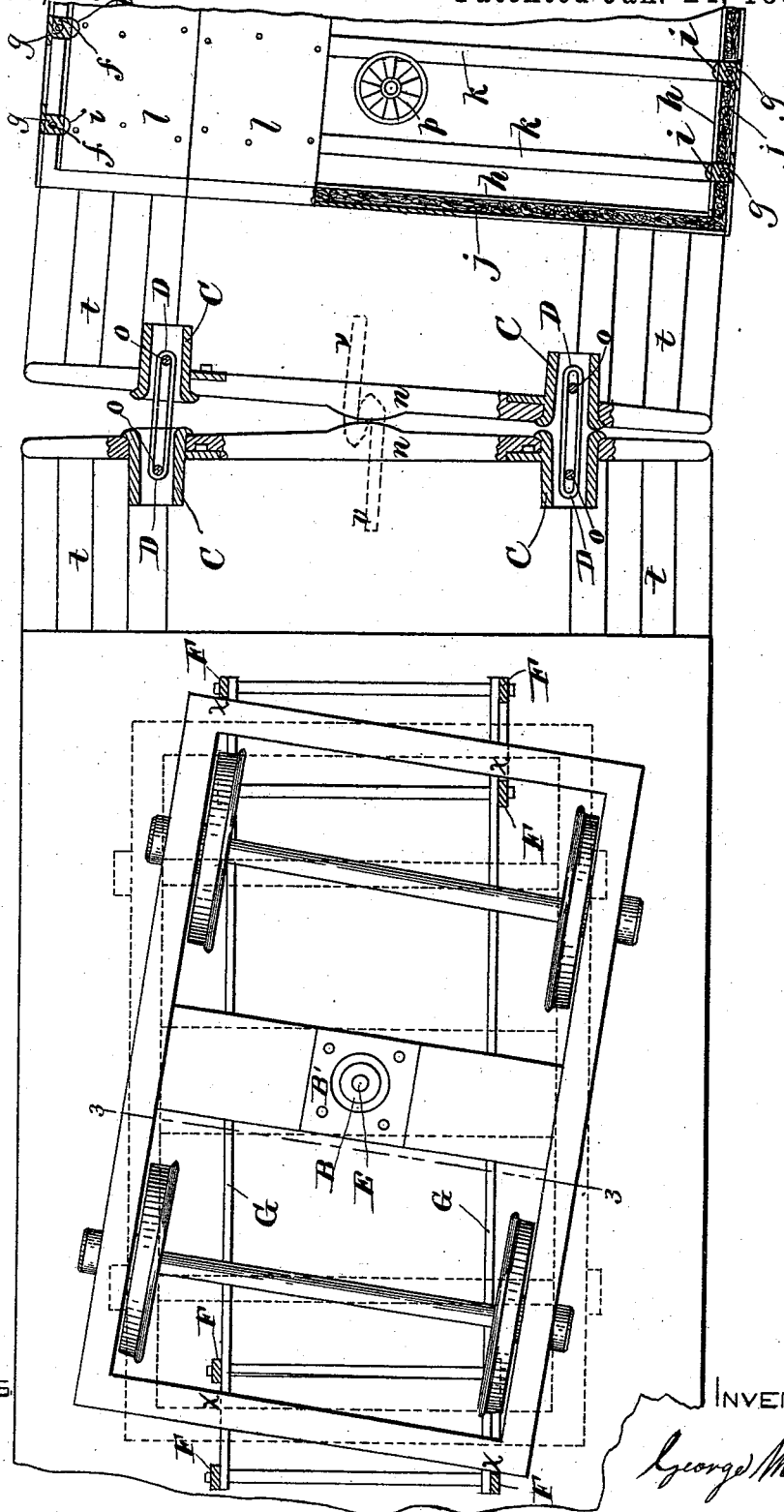
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Fig. 3.



WITNESSES  
H. Brown.  
A. P. Bay.

INVENTOR.

George M. Bird

# UNITED STATES PATENT OFFICE.

GEORGE M. BIRD, OF BOSTON, MASSACHUSETTS.

## METALLIC CAR.

SPECIFICATION forming part of Letters Patent No. 490,469, dated January 24, 1893.

Application filed March 5, 1890. Serial No. 342,798. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE M. BIRD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Fireproof and Metallic Cars, of which the following is a specification.

This invention relates to fire proof and metallic cars, and it has for its object, first, to provide a car of great strength to resist force, and protect the passengers from injury by fire, or by steam from the heating pipes; second, to connect and hold the car platforms so they cannot telescope or drop to the ground, or be thrown apart away from the road bed in case of collision, or from other causes; third, to secure the trucks to the car frame so they will not be detached by derailment, or other causes and that their weight may add great resistance in checking a train when derailed and prevent the cars from rolling over. Passenger cars are usually made of wood having the frame and sills under and level with the car floor; to this frame the cross frame and center castings are bolted that the truck is secured to. The platforms are a continuation of the car frame. I have noticed in accidents caused by broken wheels, axles, rails, and by collision, the bolts that go into the wood work split it in pieces; the trucks are broken away from the body of the car, the platforms are crushed, the cars fall to the ground and are often forced away from the road bed; sometimes fire adds terror to the disaster. The weakness of wooden cars is the particular cause of the fatalities attending accidents on rail roads. The principal object of the metallic car is to reduce the loss of life and property following accidents on rail roads. I attain these objects by the mechanism illustrated in the accompanying drawings in which

Figure 1 is a vertical section, showing the body of the car through center, between windows, the end of frame with safety sockets, the back end of truck and truck center castings. Fig. 2 is a side view, shows section of car body and frame, and the truck through the center lengthwise of car; a part of the frame is removed, shows heating pipes H. Fig. 3 is a top view, showing the position of platforms, sockets and links, when the ends of buffer

beams come together, and shows the position of the truck with car body removed when the ends come in contact with the hangers. Fig. 4 shows a sectional view of the truck frame and a portion of the body of the car on the line 3 3 of Fig. 3.

Similar letters refer to similar parts throughout the several views.

The car to be made chiefly of iron or steel, having a frame in form of a semi-circular tube the length of car body and platforms, with a diameter the width of the platforms on their top, the floor plates *b b* make the flat side of the tube and are riveted to the angle flanges *d d*, on the circular shell *a*, of the frame A; the floor plates are the same width as the car body and platforms and have right angle flanges *d d*, on their outer edges. In each end of the frame are flanged heads *c c* having man-holes J. The semi-circular shell *a*, floor plates *b b*, and heads *c c*, make the car frame A. The iron plates *e e* that form the top or body of the car, are riveted to flange angles *d d* on floor plates *b b*. Under, over and on the sides of the windows, and on top of the side plates *e e*, are flat iron bars *f f*, to which the plates *e e* are riveted; the plates *e e* may be matched inside the bars, *f f*, to prevent laps; the rivet holes may be countersunk outside of the bars *f f* to make smooth work. The bars *g g* on the inside of plates *e e* make the side and roof frames, and are inside frames for windows. The bars *f f* extend outside the window frames for the sashes to rest against. The window sashes may be made of metal and packed around their outsides with rubber. On the inside of bars, *g g*, are plates of thin metal *h h*, held in place by metal moldings *i i* covering laps and joints, asbestos or other light cement *j*, is filled in the space each side of posts *g g*. Across the car on the upper side of floor plates, are floor frame bars *k k*, which are fastened to the lower car floor and attached at their ends to bars *g g*; between the floor bars is a cement *j*. Cast metal floors *l l* are laid on the cement and fastened to bars *k k*. Car seats may be fastened to floor *l l*. To support and strengthen the lower car floor, at intervals on each side of the car, are fastened diagonal braces *m m*.

For holding the platforms together and

keeping them from dropping to the ground, are link sockets C C, and safety link bars D D, the sockets have flanges on the sides and ends, and are fastened at the end of the frame A, each side of the platforms about in line with the center draw bar *v*, they are open through lengthwise, and wide enough to allow for the lateral motion of the links, they extend beyond the end of frame A, at such a distance that they will not come in contact until the buffer beams *n n* come together on the inside of a curve. The safety link bars D D should nearly fill the sockets up and down, and be such a length that when on a curve the outside links will fetch up on pins *o o*, when the buffer beams *n n* come together on the inside of the curve.

To keep the truck secured to the frame A, the male center casting B, having flanges around its hub, is fastened on the bottom plates of frame A, and goes through truck center plate B'. The king bolt E goes through frame A, and castings B B', and has a nut on the lower end of it. To better secure the truck and prevent its being forced away at too great an angle from the line of the car, and to keep it from dropping to the ground. The hangers F F are fastened to frame A, and go down below the top of truck frame, and are connected to bars G G which are fastened at the lower ends of hangers and go under the truck and axles, keeping them from dropping away from the frame A, and if the truck is forced too far away from the line of the car, the hangers will chock and hold it at four points *x x x x*, on the top ends of the truck frame chocks may be secured on frame A. that the inside flanges of the truck wheels will come in contact with, if the trucks are forced too far out of line with the car.

I have designed no particular kind of truck, but prefer one of iron or steel. The general construction of the car roof will be like the sides.

In a car fifty five feet long there will be an apartment in frame A, with about five hundred cubic feet capacity, which is entered through man-holes J, within which are placed heating pipes H, electricity and gas can be stored therein, the heat to be admitted to the car body through registers *p*; the inside surface of this apartment is lined with felting or cement, to protect the apartment from cold air. The draw bars *v*, can be secured in the apartment; safes with money and valuables may be secured in the apartment from train robbers.

In the construction of the car the frame A should be made of metal plates about No. 2, the lower side plates No. 4, the plates above the windows No. 10, and the roof of thinner plates, the part of the roof over the platforms should be lighter plates than elsewhere, that in case the ends of the cars come together, that part of the roof would give way without

much injury to the car body. The plates where the center and socket casting are fastened should be thicker than the other parts of the frame, these castings should be of steel, and have large flanges, that they may receive rivets enough to stand as much strain as the plates to which the castings are attached; to add additional strength to the frame, bolts and braces can be placed inside the frame, but I think them unnecessary with this sort of frame, as it will not collapse and break apart like a round or square tube, with this frame the plates must break apart before it can collapse. I think it will resist a force of many hundred tons.

To more securely hold the car platforms together, there may be an additional set of sockets, with bars fastened on the bottom ends of frame A, directly under the center of the platform.

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

1. A car made chiefly of metal, having a frame the length of the car body and platforms, in the form of a semi-circular tube. The circular plates, *a a*, the floor plates *b b*, the semi-circular head *c*, all having angle flanges *d d*, constituting the frame A, as specified for the purpose set forth.

2. In a metal car in combination with frame A, the side plates *e e*, the bars *f f*, frame posts *g g*, inside plates *h h*, moldings *i i*, cement *j*, floor frames *k k*, inside floor plates *l l*, diagonal braces *m m*, as specified and described.

3. In a metal car in combination with frame A, the sockets C C secured by flanges on the outside ends of frame A, each side of platform, extending beyond the ends of same such a distance as will allow the cars to move around curves without the buffer beams coming in contact at either end. The link bars D D made to nearly fill the sockets up and down, and of such a length that they cannot come in contact with pins O O, unless the buffer beams are forced together on their inside ends.

4. In a metal car, in combination with a car truck, the male center casting B secured to frame A, going through truck center plate B', the king bolt E, going through frame A, and center castings B B', the hangers F F, the bar G, as specified for the purposes set forth.

5. In a metal car, the frame A, having an apartment for storing heating pipes H, and other material, the registers *p*, opening out of the apartment, the man-holes J, as specified for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 6th day of February, A. D. 1890.

GEORGE M. BIRD.

Witnesses:

KATHERINE E. BROWN,  
ARTHUR F. CARY.