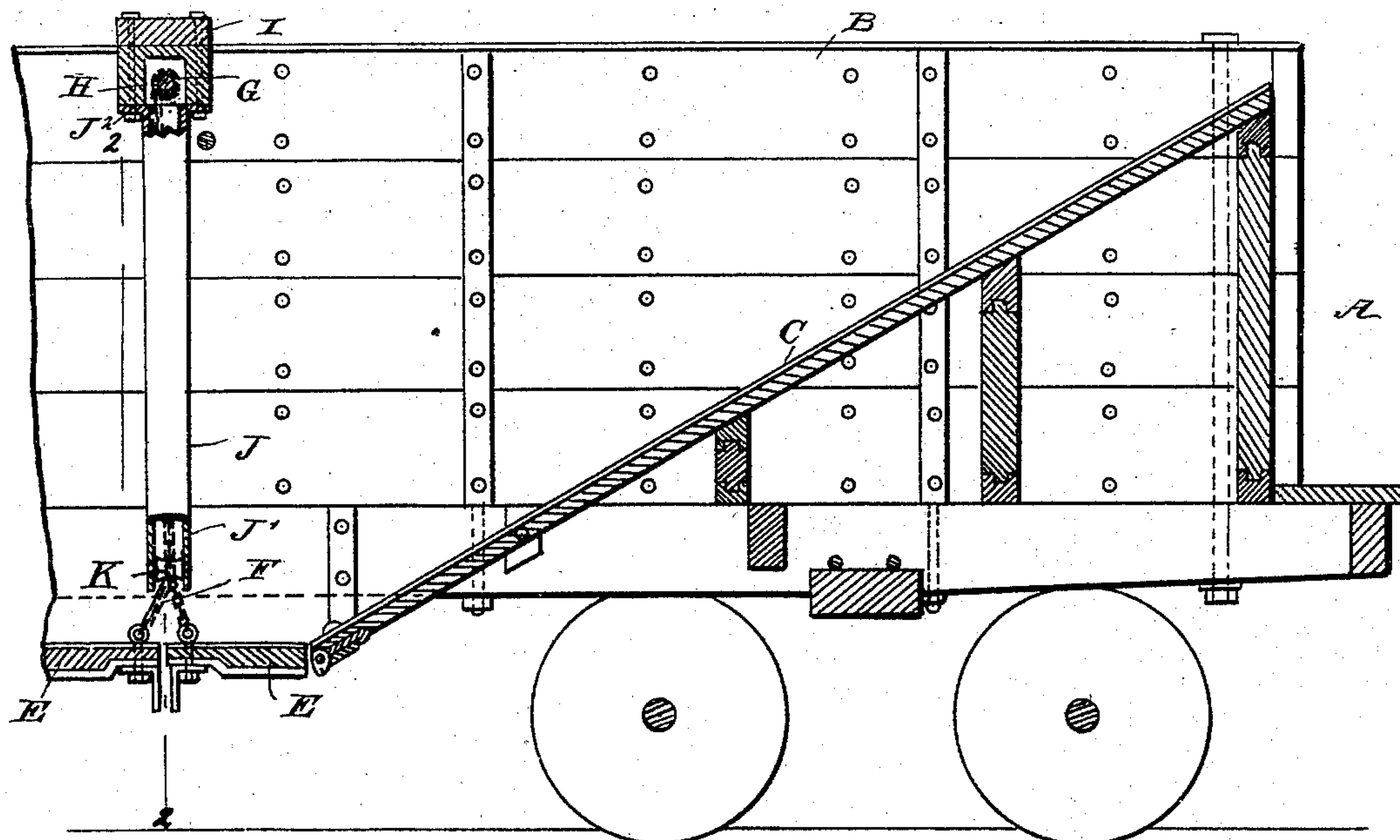
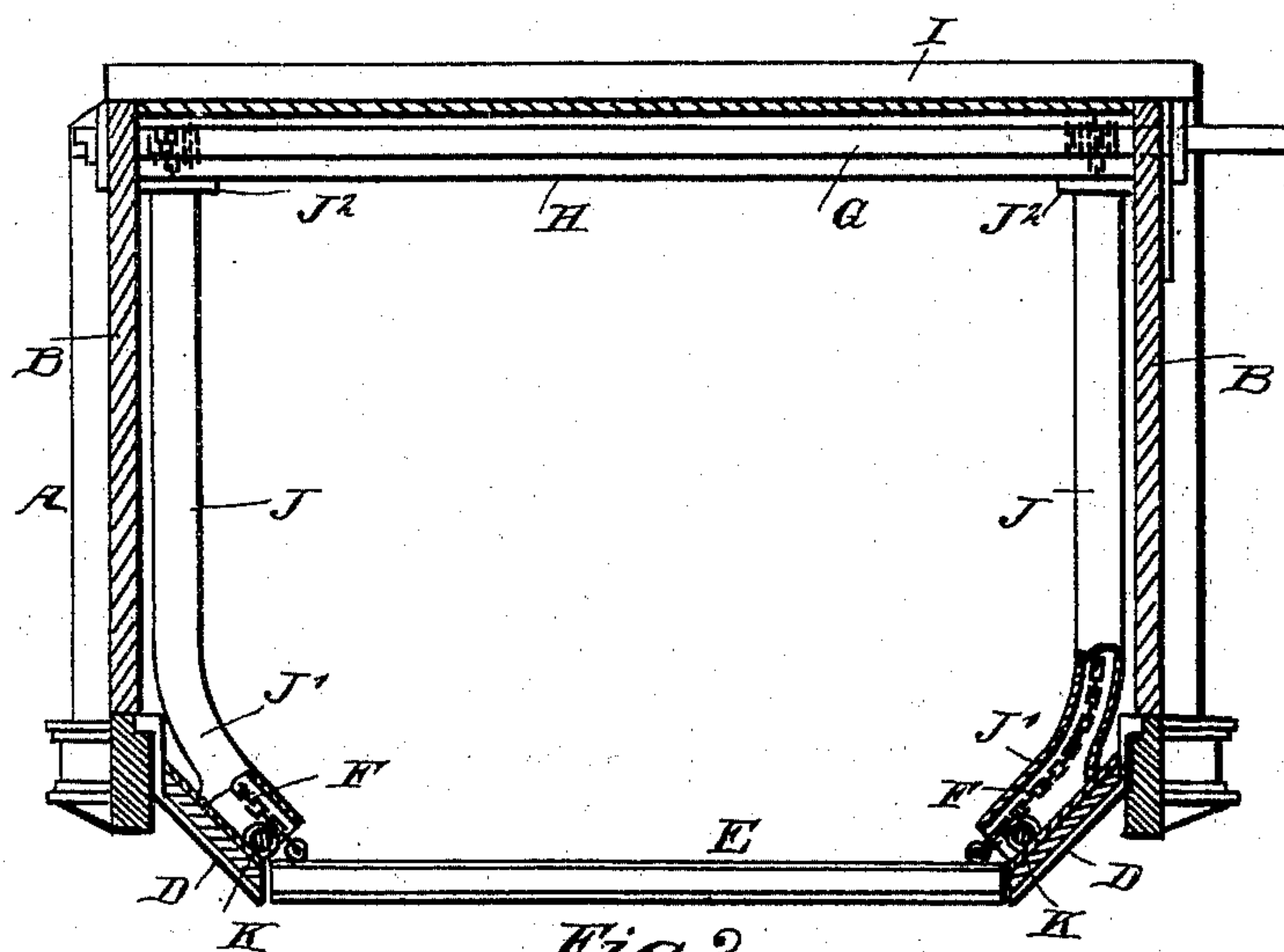


R. BLACKSTONE.  
HOPPER BOTTOM CAR.

Patented July 4, 1893.



*Fig.1.*



*Fig. 2.*

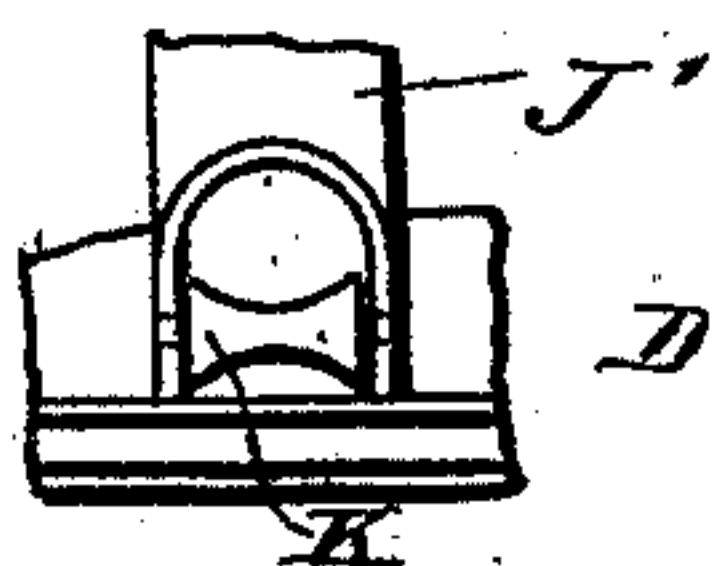


Fig. 3.

**WITNESSES:**

J. M. Ardle,  
C. Sedgewick

**INVENTOR**

INVENTOR  
*A. Blackstone*  
BY *Munn & Co*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

RICHARD BLACKSTONE, OF CENTRAL CITY, SOUTH DAKOTA.

## HOPPER-BOTTOM CAR.

SPECIFICATION forming part of Letters Patent No. 500,846, dated July 4, 1893.

Application filed March 15, 1893. Serial No. 466,027. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD BLACKSTONE, of Central City, in the county of Lawrence and State of South Dakota, have invented new and useful Improvements in Hopper-Bottom Cars, of which the following is a full, clear, and exact description.

The invention relates to drop bottom cars for carrying coal, ore, &c., and its object is to provide certain new and useful improvements in hopper bottom cars, whereby the door suspending chains are protected from the material loaded in the car, thus permitting an easy opening of the drop bottoms.

The invention consists of chain guiding tubes adapted to be secured to the car and forming guideways for the passage of the drop door chains.

The invention also consists of certain parts and details, and combinations of the same, as will be hereinafter described and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of a car provided with my improvement. Fig. 2 is a transverse section of the same on the line 2—2 of Fig. 1; and Fig. 3 is an enlarged side elevation of the lower end of one of the chain guiding tubes.

The hopper bottom car is provided with the usual body A formed with the sides B, B, the inclined end floors C, and the inclined side flooring D, of the usual construction, the said floors C and D leading to the drop doors E, of the usual construction and connected with the drop door chains F winding on the winding shaft G, inclosed in a housing H, attached to the under side of the drop door beams I, as plainly shown in the drawings. The drop door chains F pass through tubes J, extending on the inside of the car body at the sides thereof, the lower ends J' of each tube being curved correspondingly to the side flooring D, as plainly shown in Fig. 2. The upper

end of each tube J is provided with a flange J<sup>2</sup>, bolted or otherwise secured to the under side of the housing H for the shaft G. The extreme lower end of each tube J terminates close to the eye bolts for the chains F and in this lower end is journaled a roller K, over which pass the drop door chains to guide the same and to ease their movement when unwinding the chains from the winding shaft G. It is understood that the tubes J protect and guide the chains, so that the contents of the car do not come in contact with the said chains and consequently do not obstruct the same in their downward passage on turning the shaft G to permit the chains to unwind and open the drop doors.

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

1. A hopper bottom car, provided with chain guiding tubes adapted to be secured to the car body and forming guideways for the passage of the chains, substantially as shown and described.

2. A hopper bottom car, provided with chain guiding tubes, each provided in its lower end with a roller, substantially as shown and described.

3. A hopper bottom car, provided with a chain guiding tube formed at its upper end with a flange for attachment to the housing of the chain beam, the lower end of the tube being bent to conform to the side flooring of the car, substantially as shown and described.

4. A hopper bottom car, provided with a chain guiding tube formed at its upper end with a flange for attachment to the housing of the chain beam, the lower end of the tube being bent to conform to the side flooring of the car, and a roller in the lower end of the said tube for guiding the entrance of the chain to the tube, substantially as shown and described.

RICHARD BLACKSTONE.

Witnesses:

HORACE S. CLARK,  
WALTER E. SMEAD.