

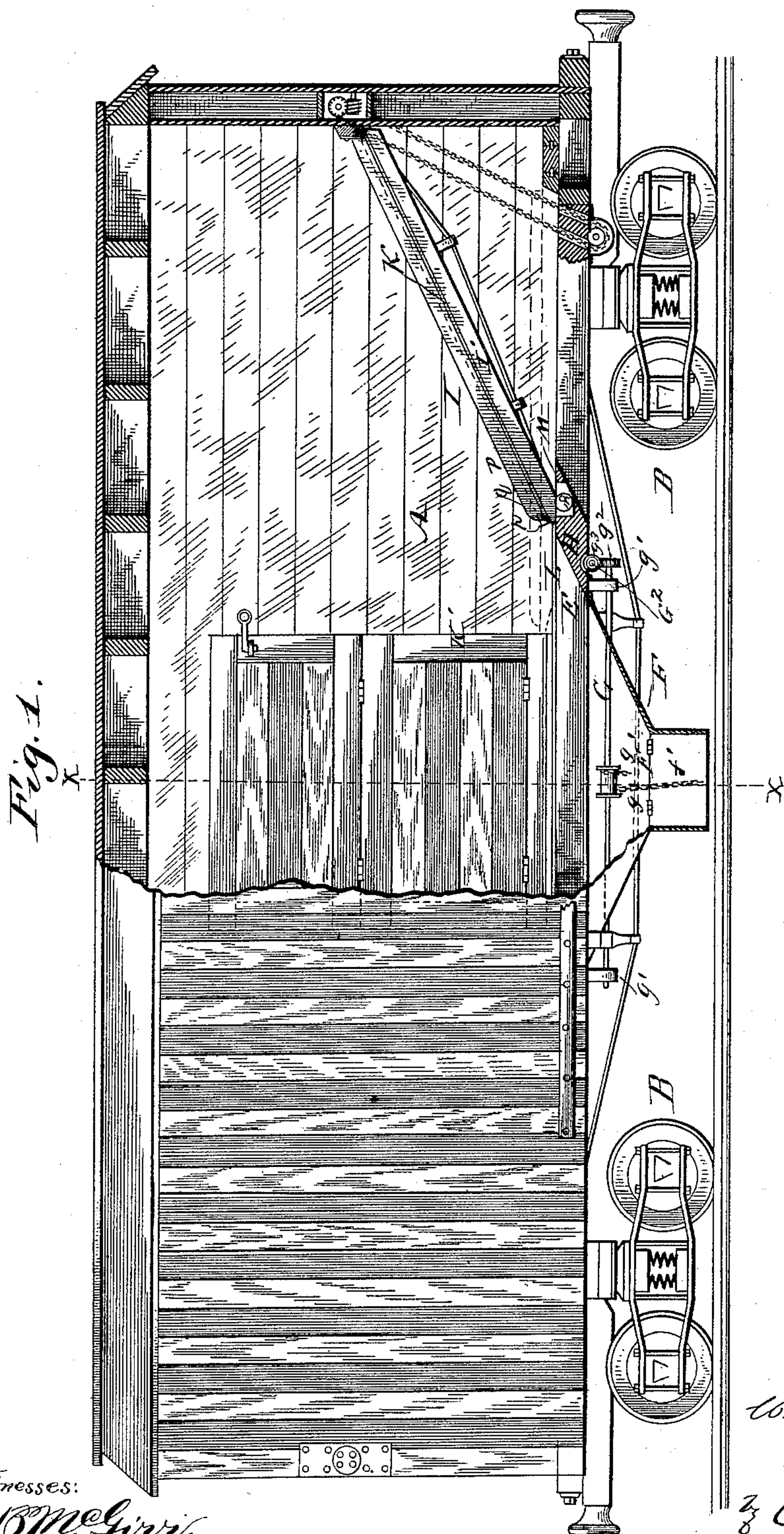
(No Model.)

2 Sheets—Sheet 1.

W. F. MOSSOP.  
CONVERTIBLE FREIGHT CAR.

No. 432,890.

Patented July 22, 1890.



Witnesses:

J. B. McGivvi.  
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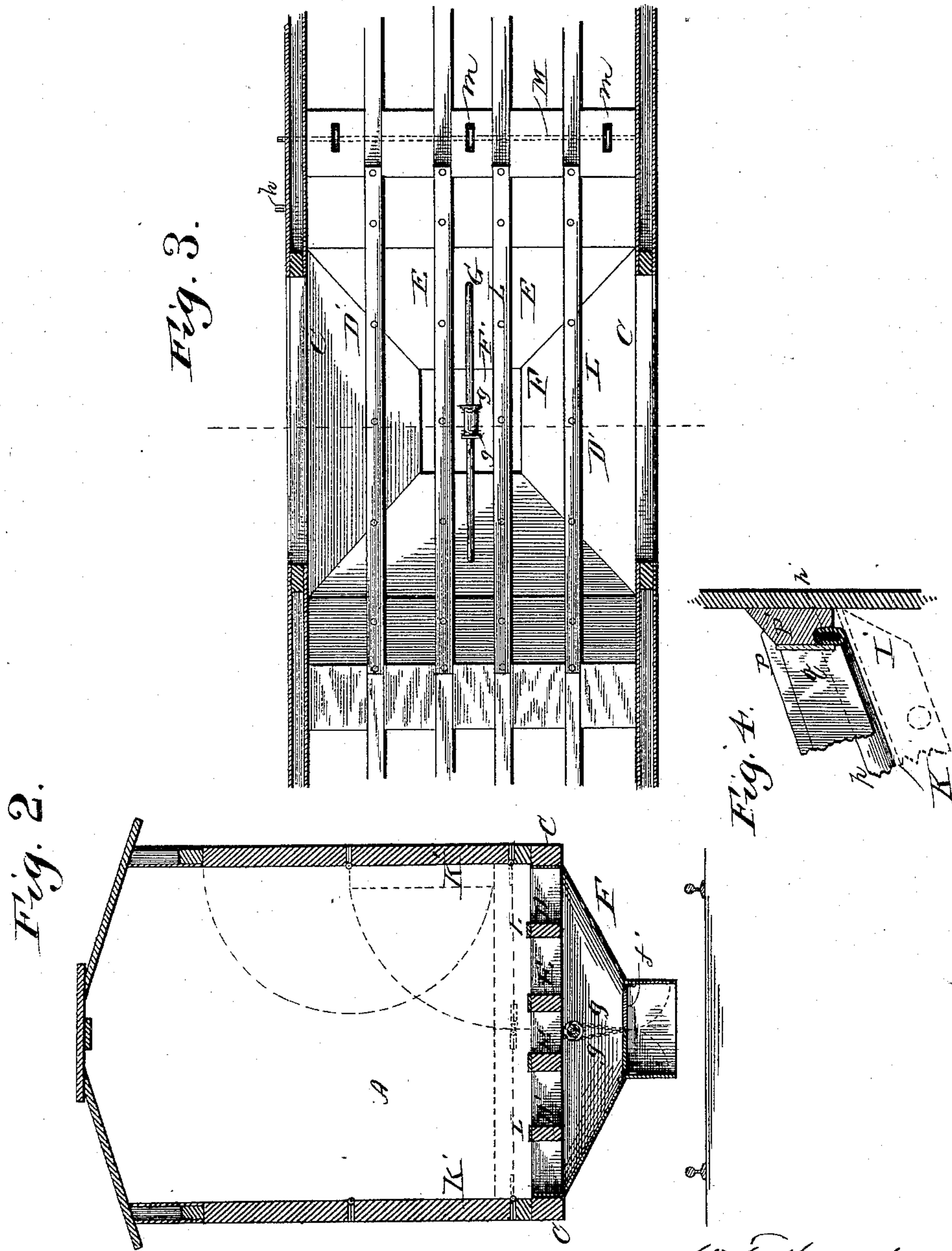
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# UNITED STATES PATENT OFFICE.

WILLIAM F. MOSSOP, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF  
ONE-HALF TO MORRIS M. HIRSH, OF CHICAGO, ILLINOIS.

## CONVERTIBLE FREIGHT-CAR.

SPECIFICATION forming part of Letters Patent No. 432,890, dated July 22, 1890.

Application filed January 31, 1890. Serial No. 338,723. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM F. MOSSOP, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Convertible Freight-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification.

My invention has relation to convertible freight-cars of the class to which pertains the cars constituting the subjects of Letters Patent of the United States granted to me the 15th day of February, 1887, No. 357,937, and the 17th day of April, 1888, No. 381,410, the prominent feature whereof is a sectional and adjustable floor which lies horizontally for the reception of ordinary freight, and which may be raised so as to form inclined planes leading to a central hopper when the car is to be used for grain or coal.

My present improvements have reference particularly to the sectional floor, and have for their object the provision of an adjustable floor constructed in four sections instead of two, as shown in the patents referred to, two of the sections being capable of being raised so as to form inclined planes, while the other two sections when lowered cover the middle space of the floor above the hopper, and are so hinged as to be raised laterally or toward the doorways of the car when the main sections are inclined.

My improvements consist in the novel construction, combination, and arrangement of parts, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation and partial vertical longitudinal section of a convertible car embodying my improvements. Fig. 2 is a transverse vertical section of the same on the line  $x x$  of Fig. 1. Fig. 3 is a horizontal section showing the middle part of the car and the hopper in plan view. Fig. 4 is a detail view.

A designates the body of the car mounted on trucks B B.

C C are the side sills, and D' D' and E the intermediate sills on which the floor-sections are mainly supported. These sills extend the

whole length of the car and hence avoid the weakening of the floor support or body of the car incident to dividing the sills or framing, as in my first-named patent.

F designates the hopper, which consists of a metallic structure of rectangular shape in horizontal section or plan, provided with a discharge-opening F', within which are hinged the two gates  $f f'$ , adapted to open downwardly for the escape of the contents of the car discharged by way of the hopper and to come together and close the discharge-opening when they are raised. For the purpose of operating the said gates they are each connected by means of a chain  $g$  to a shaft G, which runs through the upper part of the hopper lengthwise of the car and is journaled to brackets depending from the bottom of the car, as shown at  $g'$ . On one end of this shaft is keyed a worm-wheel  $g^2$ , gearing with a worm  $g^3$  on the inner end of a shaft G', which projects out at one side of the car and is journaled in suitable brackets. One end of this shaft is squared to receive a key or handle  $h$ , by which the shaft is turned to raise or lower the gates  $f'$ . The worm and worm-wheel gearing prevent the gates from lowering accidentally or by reason of superimposed weight. The mouth of the hopper is flanged and bolted to the under sides of the car-sills.

H H designate transverse beams having their inner faces or sides beveled to coincide with the inclination of the walls of the hopper and the adjustable floor-sections of which the beams form continuations toward the hopper when the floor-sections are raised. These beams are constructed either of wood or iron, or they may be of wood faced with iron. They fill the spaces between the sills where they are located and thus prevent the escape of material around the edges of the hopper.

I I designate the main adjustable floor-sections, constructed preferably as shown, entirely of iron, and consisting of iron T-beams I' running lengthwise of the car and connected at their ends by transverse beams I<sup>2</sup>, which are castings with cored holes to accommodate bridge-rods  $i$ .

K K designate the floor-plates secured to



the T-irons. These floor-sections are shorter than those shown in the patents referred to, and when in horizontal position terminate at or near the sides or sills of the doorways, the intervening space being occupied by the hinged iron sections  $K' K'$ , which, when raised, close the lower half of the doorways, or if made in two sections, each hinged together and folding one over the other, may be raised and unfolded so as to entirely close the doorways. When the car is to be used as an ordinary freight-car, the doorways will be closed by the ordinary sliding doors.

For raising and lowering the main floor-sections the appliances shown in my patents already referred to may be employed, and the same need not be herein particularly described.

$L L L L$  are metallic cleats secured to the upper edges of the car-sills directly above the hopper and extending on either side of the doorways, terminating at the points to which the inner ends of the main floor-sections come when said sections are raised to their inclined positions, the sections then abutting against the ends of the cleats which form stops to prevent the sections from sliding forward. These cleats serve to protect the sills from wear and injury occasioned in freight-cars by the loading and unloading of freight through the doorways, and also serve as wearing-surfaces for the main sections to slide upon in being raised and lowered.

$M M$  are transverse shafts carrying cams  $m m$ , operated by suitable handles or keys for the purpose of slightly lifting the inner ends of the floor-sections above the ends of the metallic cleats when it is desired to lower said sections.

My object in constructing the floor in four sections instead of in two is, briefly, to admit of the main sections being made lighter and easier to handle, and to provide for obtaining

a more abrupt or steeper inclination of the same without necessitating a higher elevation of their rear ends.

$P P$  are inclined bars or cleats on the inner side walls of the car, and  $p p$  are sections of rubber tubing just below said cleats and held in place by overhanging strips  $q$ . These rubber tubes are used to form tight joints with the floor-sections when the latter are elevated and to prevent leakage of grain.

A transverse cleat  $P'$ , with tubing and overhanging strip, may be applied to the end of the car, as shown in Fig. 4.

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

1. In a convertible freight-car, the combination, with the floor sills or girders extending lengthwise of the car and traversing the hopper, of the sliding adjustable main floor-sections  $I I$ , and intermediate hinged floor-sections  $K' K'$ , the latter being supported by the sills and serving when raised to close or partly close the doorways of the car, the adjustable sections  $I I$  being short enough to terminate at the sides of the sections  $K' K'$  when the latter are lowered, substantially as described.

2. In a convertible freight-car, the combination, with the movable floor-sections and the sills of the car, of the metallic cleats  $L L$ , substantially as described.

3. In a convertible freight-car, the combination, with the adjustable sections  $I I$ , of the transverse shafts  $M M$ , and the cams  $m m$ , substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 11th day of January, 1890.

WILLIAM F. MOSSOP.

Witnesses:

JAMES F. CAULFIELD,  
JAMES MCCAULEY.