

No. 668,536.

Patented Feb. 19, 1901.

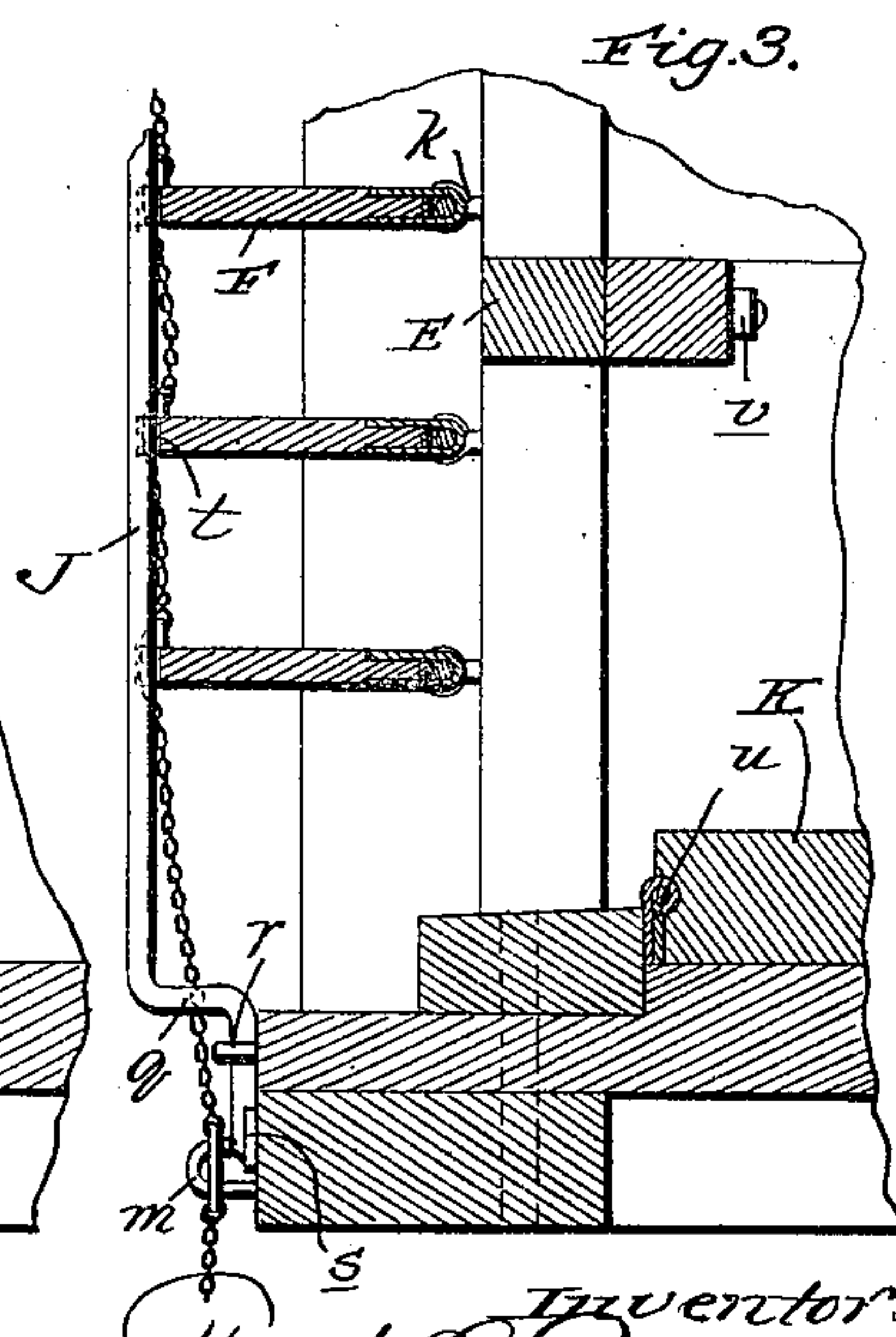
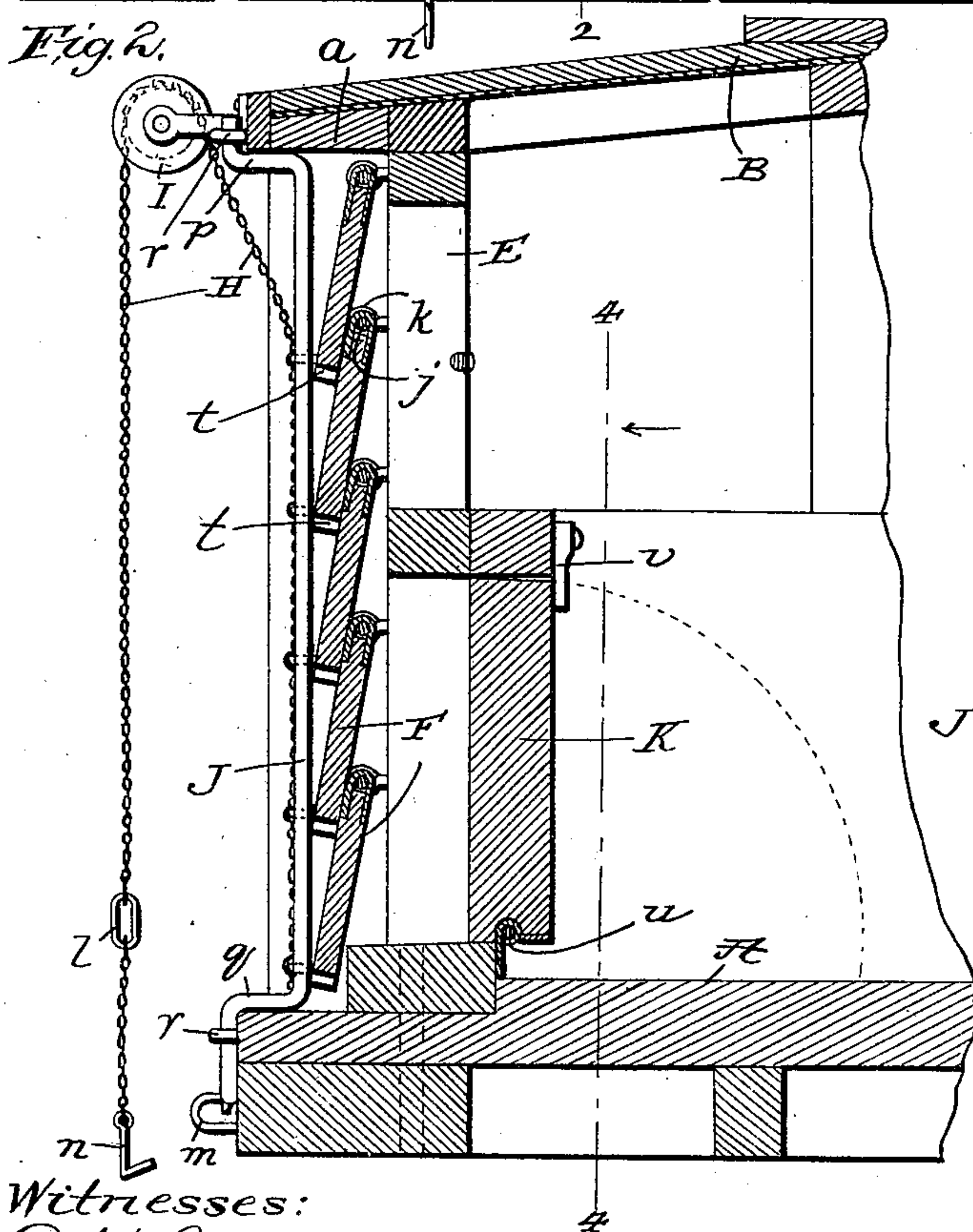
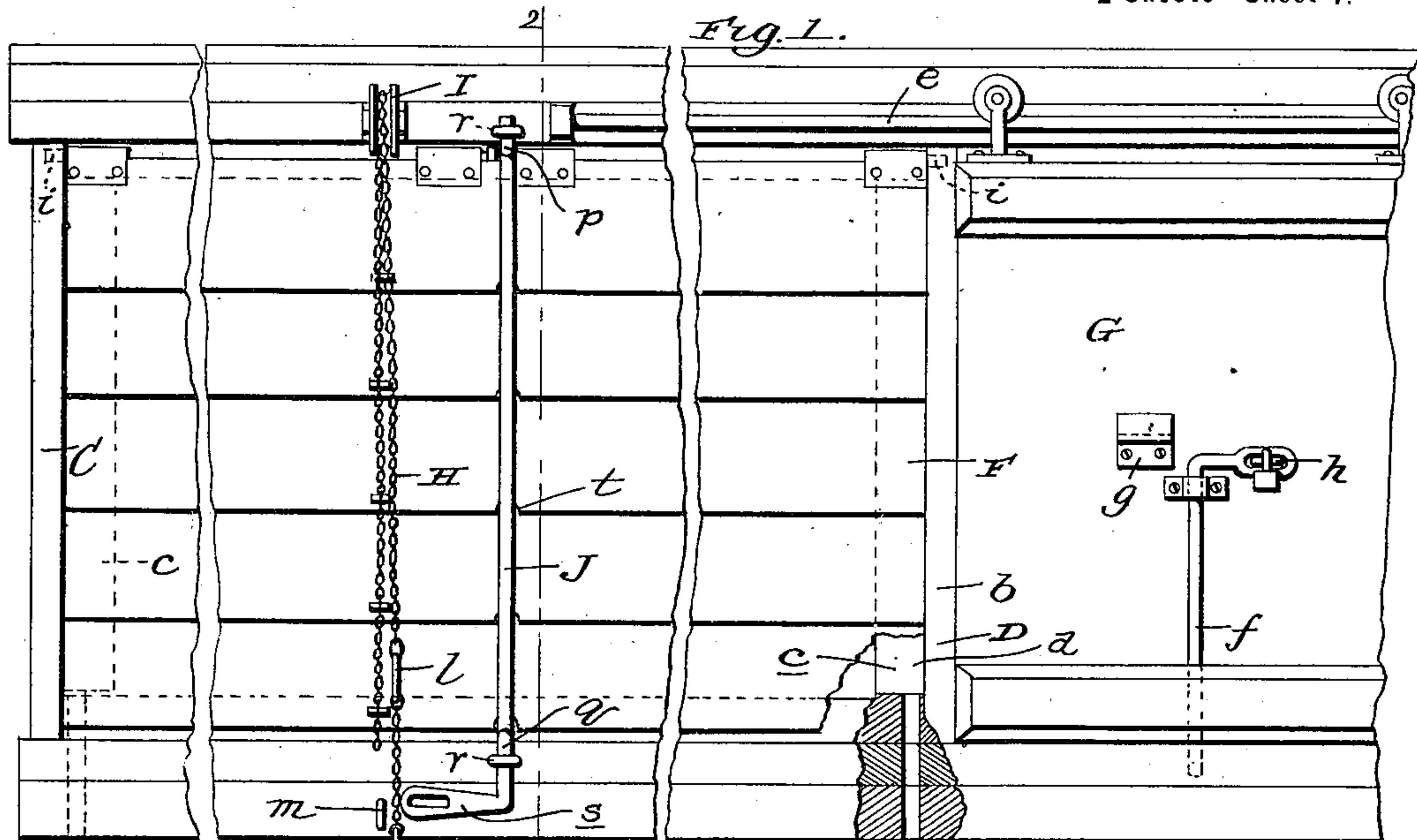
F. C. MILLAR.

COMBINED GRAIN, CATTLE, AND MERCHANDISE RAILWAY CAR.

(Application filed May 14, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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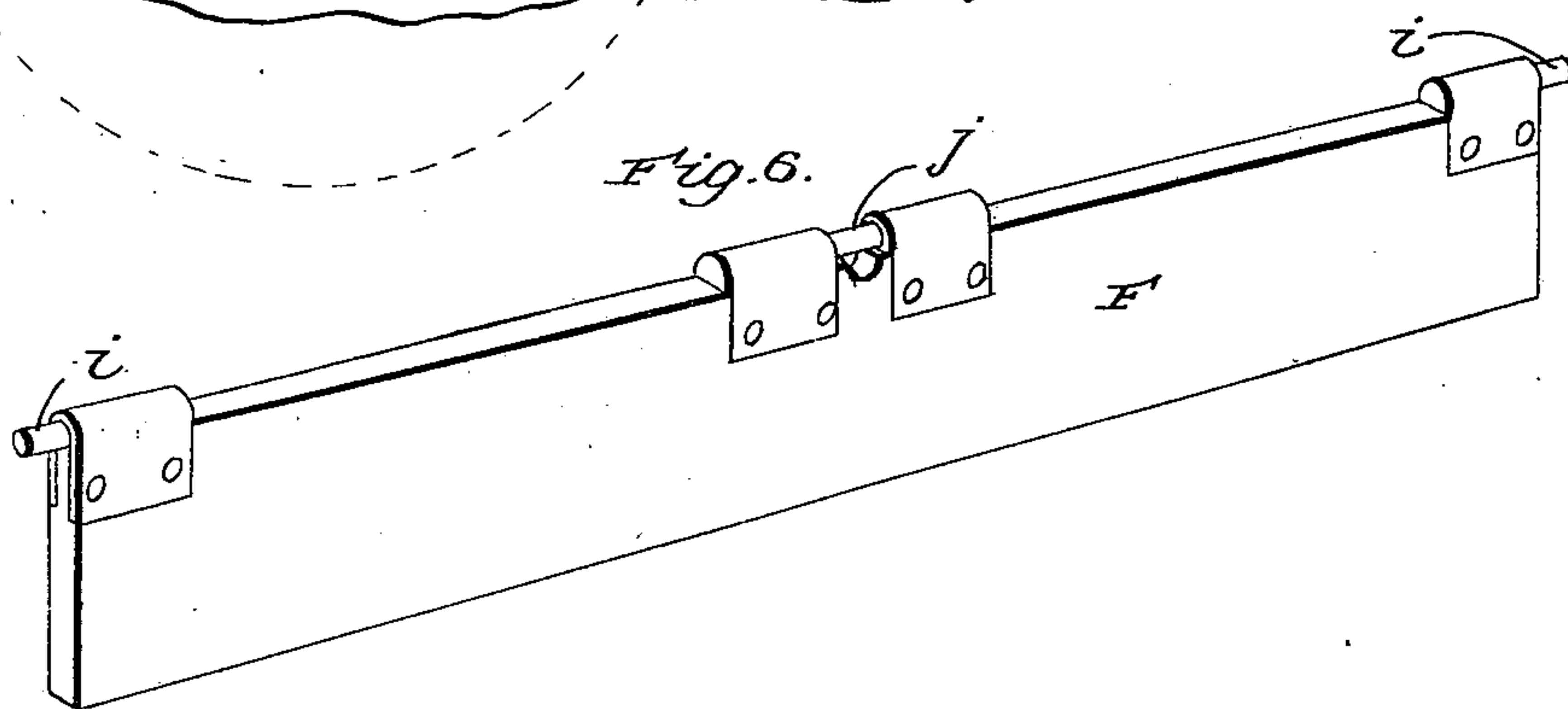
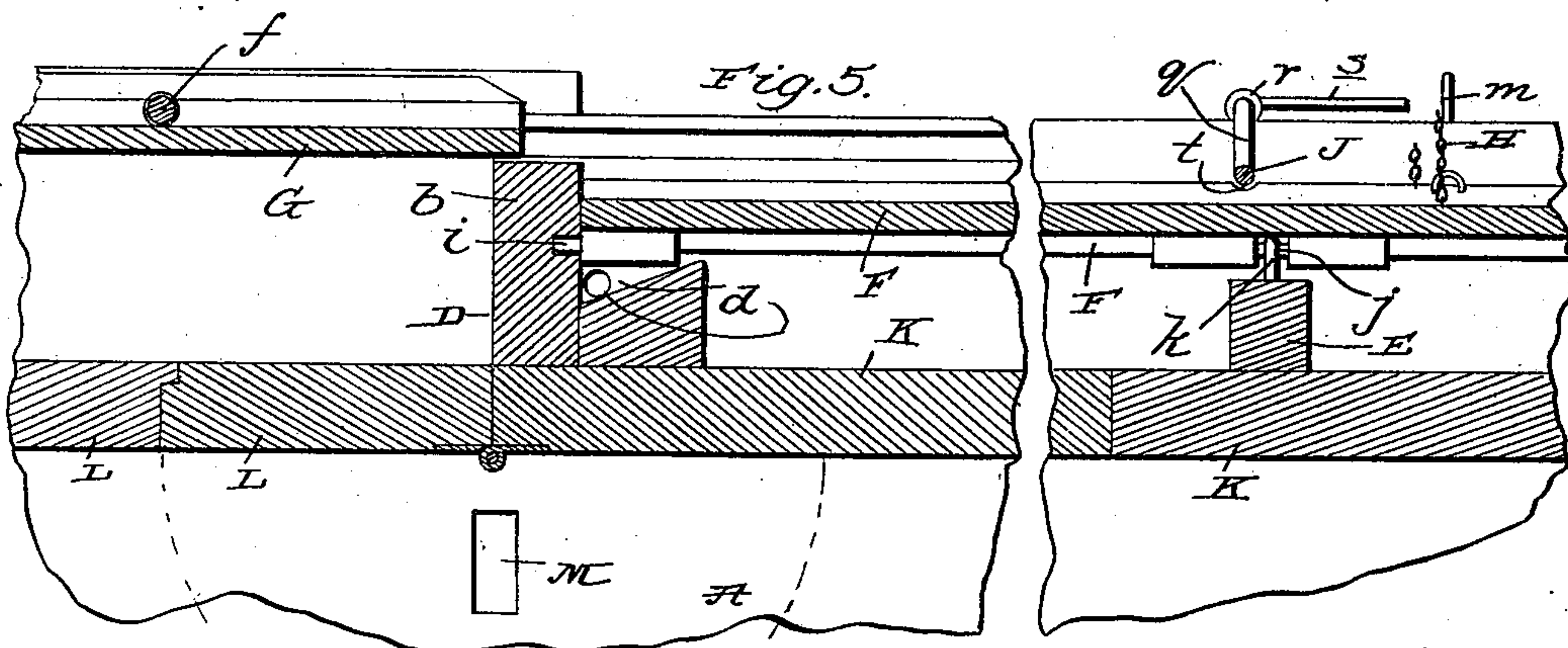
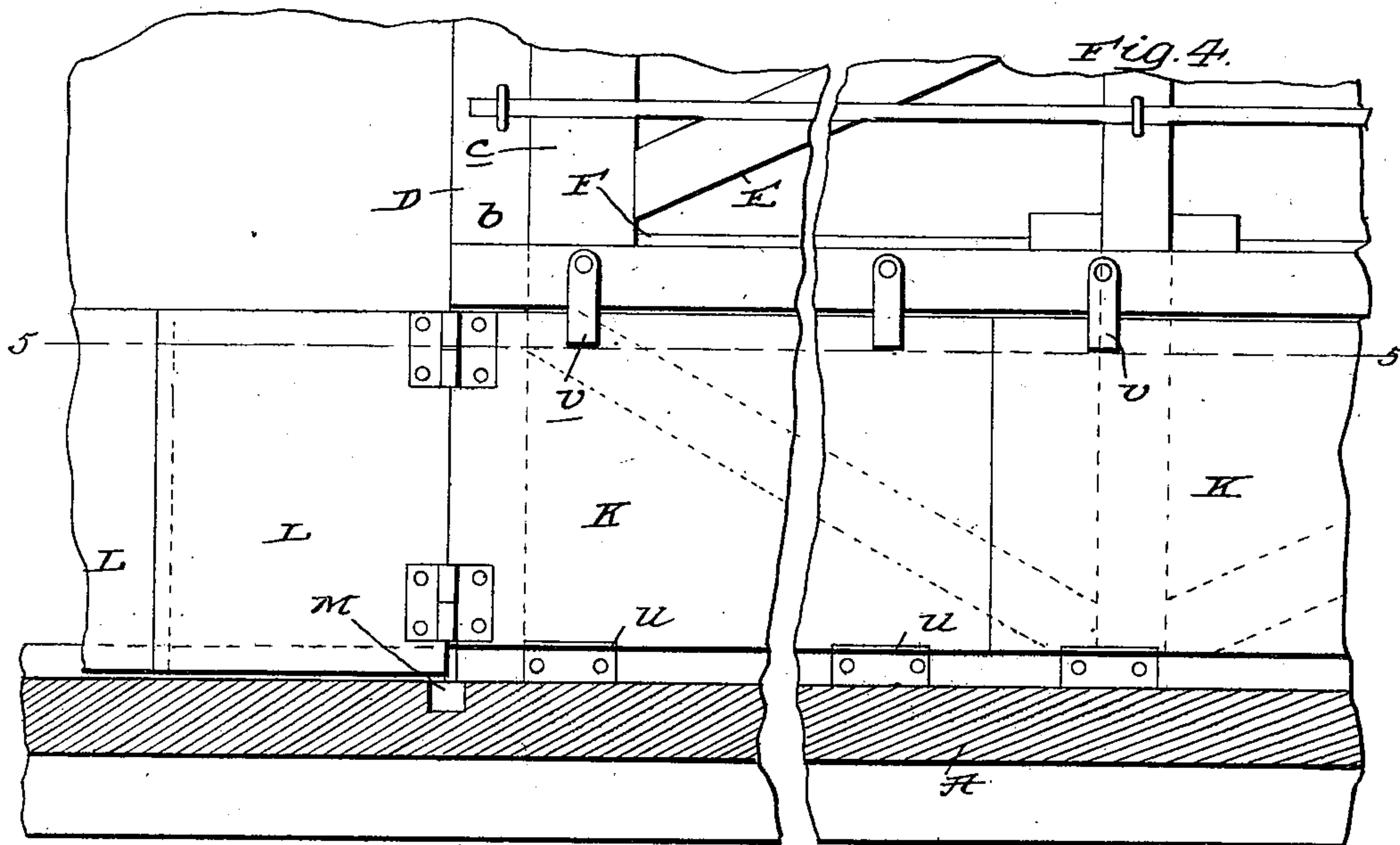
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(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

FRANK CHRISTIAN MILLAR, OF TRACY, CALIFORNIA.

COMBINED GRAIN, CATTLE, AND MERCHANDISE RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 668,536, dated February 19, 1901.

Application filed May 14, 1900. Serial No. 16,705. (No model.)

To all whom it may concern:

Be it known that I, FRANK CHRISTIAN MILLAR, a citizen of the United States, residing at Tracy, in the county of San Joaquin and State of California, have invented new and useful Improvements in Convertible Freight-Cars, of which the following is a specification.

My invention relates to improvements in convertible freight-cars and contemplates the provision of a car susceptible of being readily converted from an open cattle-car into a closed, clean, and safe car for grain and other merchandise, and vice versa.

With the foregoing in mind the invention will be fully understood from the following description and claims when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of a convertible freight-car constructed in accordance with my invention. Fig. 2 is a detail transverse section taken in the plane indicated by the broken line 2 2 of Fig. 1 and illustrating the shutters as closed and the false floor raised to adapt the car to carry grain and other merchandise. Fig. 3 is a detail section taken in the same plane as Fig. 2 and illustrating the shutters as open and the false floor down to adapt the car for cattle-carrying purposes. Fig. 4 is a detail section taken in the plane indicated by the broken line 4 4 of Fig. 2 and looking in the direction of the arrow. Fig. 5 is a horizontal section taken in the plane indicated by the broken line 5 5 of Fig. 4. Fig. 6 is a detail perspective view illustrating one of the shutters and the appurtenances thereof.

In the said drawings similar letters of reference designate corresponding parts in all of the several views.

The end walls of my improved car may be of the ordinary or any suitable construction, as may also the floor A and the roof B, except in the particulars hereinafter noted. The side walls of the car are made up of end posts C, intermediate studdings D, open framework E, interposed between and connected to the corner-posts C and studdings D, and hinged shutters F. The framework E is set in from the extreme outer side of the car after the manner best illustrated in Fig. 2, so as to enable the shutters F to rest be-

neath the cornice or overhang *a* of the roof B. A sheathing of tin overlaps the joint between cornice *a* and framework E and prevents water from passing between the connected edge of the uppermost shutter and the framework and into the car. The corner-posts and the studdings by preference respectively comprise a main portion *b* and a comparatively-reduced portion *c*, the latter being set in a considerable distance from the extreme outer side of the car and having its outer side beveled after the manner best illustrated in Fig. 5. The beveled portions *c* of the corner-posts and studdings are designed to be lapped by the ends of the shutters F, as illustrated, and by virtue of their beveled faces it will be appreciated that they will tend to lead water in a direction away from the joints between them and the shutters, and thereby lessen the liability of water gaining access to the interior of the car. Arranged in a plane immediately in front or outside of the innermost portions of the beveled faces of the portions *c* and in the bottom of the car and through said bottom or the stringer forming part of the same are passages *d*, which have for their purpose to drain water from the beveled faces of the portions *c* of the corner-posts C and studdings D.

G is one of the doors of the car, the same being hung on a track *e*, connected through the cornice or overhang of the roof, and being provided with a vertically-movable locking-bolt *f*, a rest *g* for the same when the door is open, and suitable means *h* whereby the said bolt may be secured in its locked position. When the shutters F are closed after the manner illustrated in Fig. 2, the door G may be moved to its open position, in which position it will obviously rest parallel to and at the outside of the shutters.

The shutters F are arranged one above the other and are about the proportional width illustrated, so as to enable them to lap over each other a considerable distance in order to effectually shed rain and prevent the same gaining access to the interior of the car. Said shutters in the preferred embodiment of the invention are provided at their ends with trunnions *i*, designed to be journaled in suitable bearings in the corner-posts C and studdings D, and at their middles or other suit-

able points intermediate of their ends have journals *j*, designed to be connected to the open framework *E* through the medium of eyes *k* (see Fig. 2) or other suitable means.

5 When my improved car is to be used to transport cattle or other live stock requiring light and air, the shutters *F* are raised to the position shown in Fig. 3 through the medium of a chain or other cable *H*, which is connected
10 to each of the shutters, adjacent to the outer edges thereof, and extends up and over a sheave *I* on the cornice *a* and thence downwardly, as best shown in Fig. 2. The shutters are secured in their open position by
15 placing a hasp *l*, carried by the chain, over a staple *m* on the car and fastening the hasp on the staple through the medium of a pin *n*, also carried by the chain or cable. When it is desired to close the shutters to convert the
20 car into a grain or merchandise car, it is simply necessary to disconnect the chain or the hasp thereof from the staple *m*, when the shutters will fall by gravity into the closed position shown in Fig. 2. The shutters are se-
25 cured in such closed position and against casual opening through the medium of an upright rock-shaft *J*, the said shaft having angular arms *p q* at its upper and lower ends, journaled in suitable bearings *r* on the car,
30 and also having its lower arm *q* provided with a horizontal branch *s*, which when the shutters are closed and the rock-shaft is in the position shown in Fig. 2 is designed to lie against the side of the car and be con-
35 nected thereto by any suitable means, such as a staple and pin, if preferred. The shutters have notches *t* in their edges. These notches receive the main vertical portion of shaft *J* when the shutters are opened and
40 permit of the shutters being opened to their full extent.

It will be appreciated from the foregoing that when the shutters *F* are secured in their open position, as shown in Fig. 3, air and light
45 are enabled to enter the car and the same is rendered as comfortable for cattle and other live stock as the ordinary open car. It will also be appreciated that when the shutters are closed after the manner illustrated in Fig.
50 2 and secured in such closed position air and moisture are as effectually excluded from the interior of the car as when the side wall of the car is made solid in the ordinary manner. It follows from this that my improved car is
55 readily convertible from a cattle into a grain or merchandise car, and vice versa, and that when used for either purpose it is as suitable and desirable as the ordinary cattle and freight cars. It also follows that when a rail-
60 road is equipped with a number of my improved convertible cars they will serve the purpose of a much larger number of ordinary cattle and closed freight cars.

In addition to the floor *A* my improved car
65 comprises a false floor which extends over the whole permanent floor *A* and is best illustrated in Figs. 2, 3, and 4 of the drawings.

The said false floor is made up of sections *K*, which correspond in width to one-half of the width of the car and are hinged, as indicated
70 by *u*, whereby they may be swung down over the floor *A* to receive the dirt and stand the wear when the car is to be used for cattle-carrying purposes, and when the car is to be used to carry grain or other merchandise may
75 be swung up against the side walls thereof and temporarily secured in such position by turn-buttons *v* or other suitable means. The false-floor sections at opposite sides of the door-openings are provided, as best shown in
80 Fig. 4, with hinged leaves *L*, which are designed, when the sections are let down on the floor *A*, to form part of the false floor, and when the sections *K* are raised to afford clean
85 sides for grain and the like are adapted to serve as grain-doors. Recesses *M* in the upper side of the floor *A* serve to receive the hinges connecting sections *L* to sections *K*, and hence enable such sections *K L* to rest
90 flat on the floor *A* when they are let down.

It will be readily appreciated from the foregoing that when the sections of the false floor rest over the floor *A* they will receive the wear and dirt incident to the transportation
95 of cattle and will preserve the said floor *A* in a clean and wholesome state; also, that when the false-floor sections are raised and secured against the side walls of the car they will cover the said side walls and present their
100 under clean sides to the grain or other merchandise to be carried.

Notwithstanding its convertibility as pointed out in the foregoing, it will be appreciated that my improved car may be constructed al-
105 most, if not quite, as cheaply as the ordinary closed car and that it is strong and durable and well calculated to withstand the usage to which freight-cars are ordinarily subjected.

I have entered into a detail description of the construction and relative arrangement of
110 the parts embraced in this the preferred embodiment of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be under-
115 stood as confining myself to such specific construction and arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my claims.

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

1. A convertible freight-car, comprising walls composed of uprights, vertical open frameworks interposed between the uprights,
125 and horizontal hinged shutters disposed one above the other at the outer side of the uprights and open frameworks, and each arranged to swing in a direction transverse of the car, and so that each overlaps the one
130 beneath it when they are closed, a permanent floor, and a false floor of a size to extend over the whole permanent floor; the said false floor being composed of sections, hinged at points

adjacent to the inner sides of the walls, whereby they are adapted in one position to cover the permanent floor, and in another position to rest against the inner sides of the walls of the car, substantially as specified.

2. A convertible car having a floor, and a false floor; the latter being composed of hinged sections which in one position are adapted to rest over the floor, and in another position are adapted to rest against the side walls of the car, and sections L connected in a hinged manner to the hinged sections at opposite sides of the door-openings of the car, and adapted in one position to form part of the false floor, and in another position to serve as grain-doors, substantially as specified.

3. In a convertible freight-car, walls comprising vertical, open frameworks, and horizontal, hinged shutters disposed at the outer sides of the frameworks, and arranged so that each shutter overlaps the one beneath it when they are closed, a roof having cornices or overhangs extending outwardly beyond the vertical planes of the open frameworks and also beyond the vertical planes of the shutters when the same are closed, a permanent floor, and a false floor of a size to cover said permanent floor; the false floor being composed of sections hinged at points adjacent to the inner sides of the walls, and sections L connected in a hinged manner to the hinged sections at opposite sides of the door-openings

of the car, and adapted in one position to form part of the false floor, and in another position to serve as grain-doors, substantially as specified.

4. A convertible freight-car comprising a wall made up of uprights having portions *c* provided with beveled faces, and hinged shutters disposed one above the other and arranged to lap over each other and also over the beveled portions *c* of the uprights, and a roof having a cornice or overhang resting over the shutters and beveled portions of the uprights, substantially as specified.

5. A convertible freight-car comprising a wall made up of a suitable open framework, and hinged shutters disposed one above the other and arranged to lap, a roof having a cornice or overhang resting above the shutters and extending beyond the open framework, a bottom portion also extending beyond the open framework, and an upright shaft having angularly-disposed arms *p q* at its upper and lower ends journaled in suitable bearings on the cornice and lower extended portion of the car; whereby said upright shaft is adapted to engage the shutters to secure the same in their closed position, substantially as specified.

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Witnesses:

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