(No Model.)

2 Sheets—Sheet 1.

F. KLIER.

FREIGHT CAR.

No: 244.622. Patented July 19, 1881.

Fig. 1

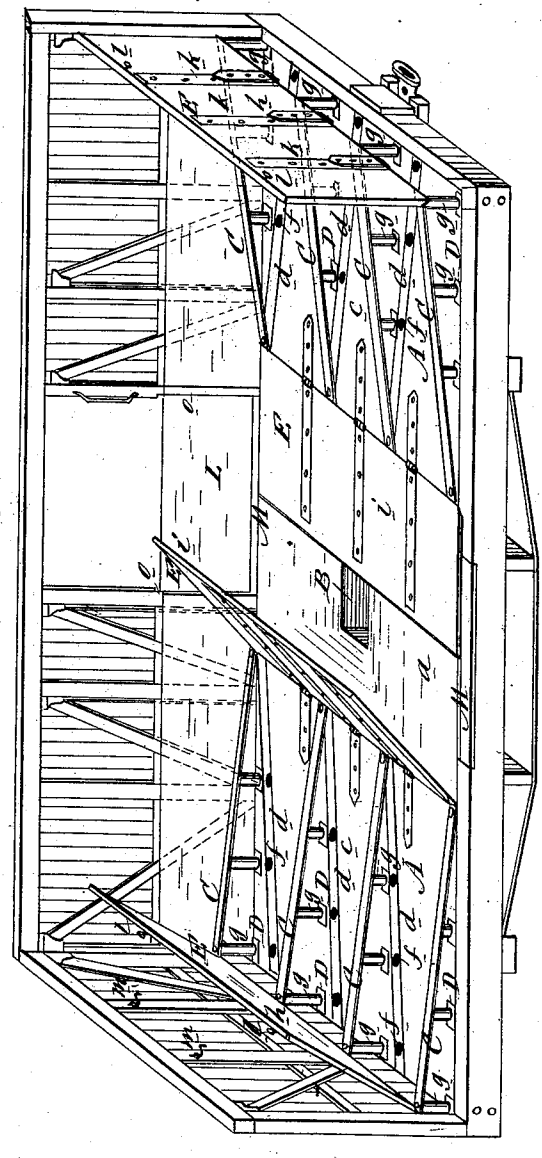
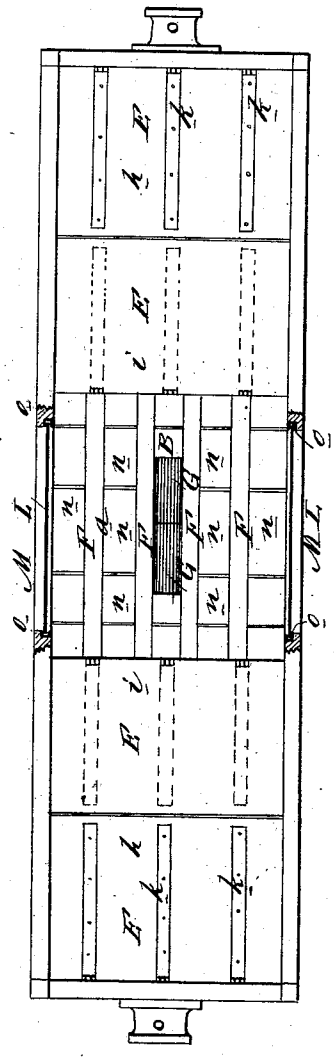


Fig. 2



WITNESSES:

C. Neveux

A. Sedgwick

INVENTOR:

F. Klier

BY Munn & Co

ATTORNEYS.

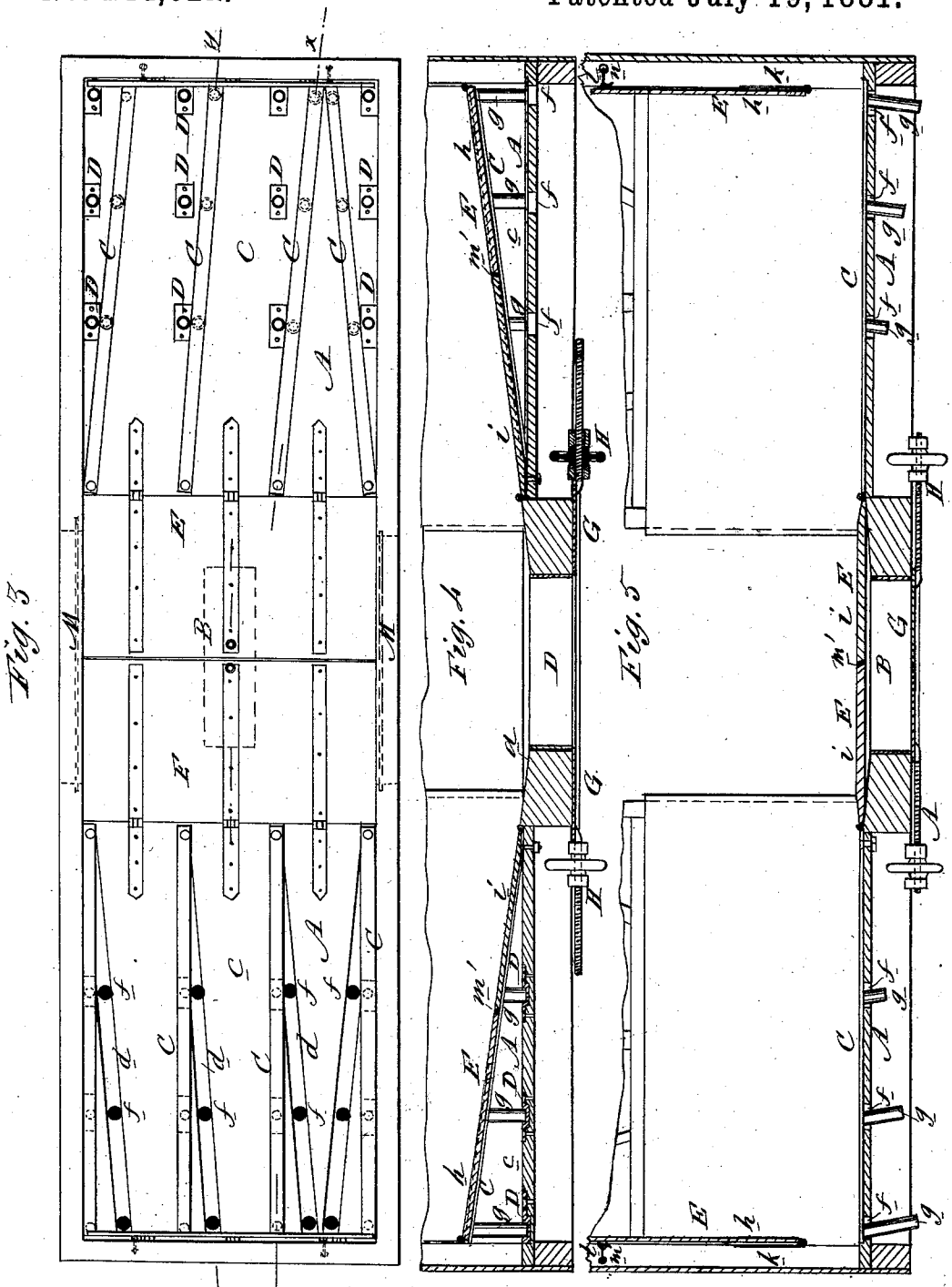
N. PETERS. Photo-Lithographer. Washington. D. C.

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UNITED STATES PATENT OFFICE.

FRANCIS KLIER, OF CAIRO, ILLINOIS.

FREIGHT-CAR.

SPECIFICATION forming part of Letters Patent No. 244,622, dated July 19, 1881.

Application filed November 26, 1880. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS KLIER, of Cairo, in the county of Alexander and State of Illinois, have invented a new and Improved Convertible Grain and Freight Car, of which the following is a specification.

The object of this invention is to so construct and arrange a car that it can readily be converted from a box freight-car into a bottom-discharging grain-car and vice versa, whereby, when used as a grain-car, the grain can be discharged from it much more rapidly than from the ordinary grain-car, thus preventing in a great measure the frequent blockades on roads that arise from the comparatively slow discharging of the enormous quantities of bulk-grain transported by the roads, and whereby, when the season for transporting grain has closed, the cars can be converted into ordinary box freight-cars, thereby obviating the necessity of constructing separate cars for the different traffics.

The invention consists of a box-car having a central bottom opening controlled by suitable doors, and having a sectional hinged false floor that may be adjusted to form a grain-floor, sloping from the ends of the car to the central opening thereof, or may be arranged to form a closed flat floor for receiving ordinary freight; and it consists, further, of adjustable floor-supports arranged and operated as hereinafter described.

Figure 1 is a perspective view, showing the interior of the car with floor sections and supports in various positions. Fig. 2 is a plan of a car-interior as arranged for carrying grain. Fig. 3 is an enlarged plan of a car-interior, showing various positions of parts. Fig. 4 is a longitudinal sectional elevation on line *x x*, Fig. 3. Fig. 5 is a longitudinal sectional elevation on line *y y*, Fig. 3.

Similar letters of reference indicate corresponding parts.

In the accompanying drawings, A represents the solid level floor of the car, depressed at its central section, as shown at *a*, by removal of the floor at that point about the central opening, B, which is designed to be about four feet by one in dimensions, for the ready delivery of grain. The end sections, *c c*, of the floor A have several longitudinal parallel grooves, *d d*, formed in them for the reception of the bars C, which are preferably of iron, and pivoted at one end on the borders of section *a* when the car is to be used for ordinary freight, and down through these grooves *d d* and floor of the car holes *f f* are made for the reception at the same time of the supports *g g* of the bars C, which supports *g g* are preferably pieces of pipe secured on said bars C, so that the said bars C can, when desired, be arranged flush with the surface of the floor A.

Secured in the floor A, flush with its surface, are the socketed plates D, that serve as supports for the bar-supports *g g* when the said bars C are elevated to hold up the false floor E. The false floor E is constructed in two end sections, *h h*, and two central sections, *i i*, the former being hinged by long strap-hinges *k k* to the opposite ends of the car, about twelve inches above the floor A, and being of sufficient size to reach entirely across the car and halfway to the central section, *i*, of the fixed floor A, while the central sections, *i i*, of the false floor are hinged to the floor A, along the edges of its center, *a*, and meet in the center of the car over the central opening, B, and form a portion of the ordinary freight-car floor, or turn up to meet and abut against the sections *h h*, when they are turned down and form a portion of the sloping grain-car floor. The hinges on these sections *i h* extend nearly across them, for the purpose of increasing their strength and durability, and the sections *h h* are provided along their unhinged edges with buttons *l*, that engage in hooks or loops *m* in the ends of the car and hold said sections *h h* up when the car is used as an ordinary freight-car. Suitable hooks or rings may be fastened in these sections *h i*, whereby they may be readily lifted and adjusted, and elastic packing-strips *m*, to make tight joints, may be placed between the sections *h i* when the car is arranged for transporting grain. The floor being removed at the central section, *a*, the floor-timbers F are thereby exposed, as shown in Fig. 2. Consequently a solid filling is made between said floor-timbers F, as shown at *n*, with the exception of at the central opening, B. This opening B is designed to be lined with a

suitable casting, and is closed from beneath by iron slides G, that are operated by means of hand-wheels and screws H, that are suitably arranged for this purpose.

L represents a grain-car door resting on an offset of the iron door-sill M, the sides of said door L being let in the door-jambs, as shown at *o*. The cleats that strengthen door L are on the outside, so that the door L presents a smooth surface on the inside.

When arranging the car, as shown in Figs. 2 and 4, for carrying grain the bars C are raised from their grooves *d d* and moved laterally and adjusted with their supports *g g* resting in the socketed plates D, the sections *h h* of the false floor E are then let down upon the said bars C, and the sections *i i* are raised and turned back on said bars C, whereby is formed a floor sloping from each end toward the center of the car. This floor should now be covered with zinc or sheet-iron, that the grain may readily slide upon it, and all the joints about the floor should be made tight. The grain-door L is then set in place in the cast-iron door-sill M and door-jambs, and held down by iron pins or other suitable fastenings. When ready to unload the car-load of grain one man will open the outlet B by turning the wheels and screws H, and thereby moving the slides G apart, and the grain will then shoot through the outlet B into the conveyer beneath the track or into other suitable receptacle, unloading the car in less time than it would take four or five men to get into a car and begin to work at unloading in the usual manner.

In the ordinary method of unloading grain-cars the grain is scattered about outside the door, the work is very laborious, the workmen are annoyed and injured by the dust from the grain, and the process is comparatively slow and expensive. All these objections are avoided by the device herein described.

In order to transform the grain-car into a car for carrying ordinary merchandise, the grain-doors L are removed and hung up within the car, the end sections, *h*, of the false floor E are raised and fastened back, the sections *i i* are turned on the center *a* of the car-floor, and the bars C are raised to withdraw their supports *g g* from the socketed plates D, and swung so that said supports *g g* shall enter the holes *f f* and permit said bars C to drop into the grooves *d d* flush with the floor A, as shown in Fig. 5. In this manner the car is quickly converted into a box freight-car suitable for common traffic.

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

1. In freight-cars, the false bottom or floor E, having two end sections, *h h*, and two middle sections, *i i*, the former hinged to opposite ends of the car and the latter hinged to the floor A, and turning down over the central opening, B, as shown and described.

2. In a car, the combination, with the floor A and the supporting-bars C, provided with supports *g*, of the socket-plates D, substantially as herein shown and described.

3. In a car, the combination, with the main floor A, provided with grooves *d* and holes *f*, substantially as herein shown and described, of the supporting-bars C, supports *g*, and adjustable floor E, the said grooves and holes permitting the said bars to be laid flush with the main floor, as set forth.

FRANCIS KLIER.

Witnesses:
B. F. PARKER,
A. O. PHELPS.