

J. J. SAFELY.

Methods of Transferring Grain, &c., in Transitu.

No. 150,894.

Patented May 12, 1874.

Fig. 1.

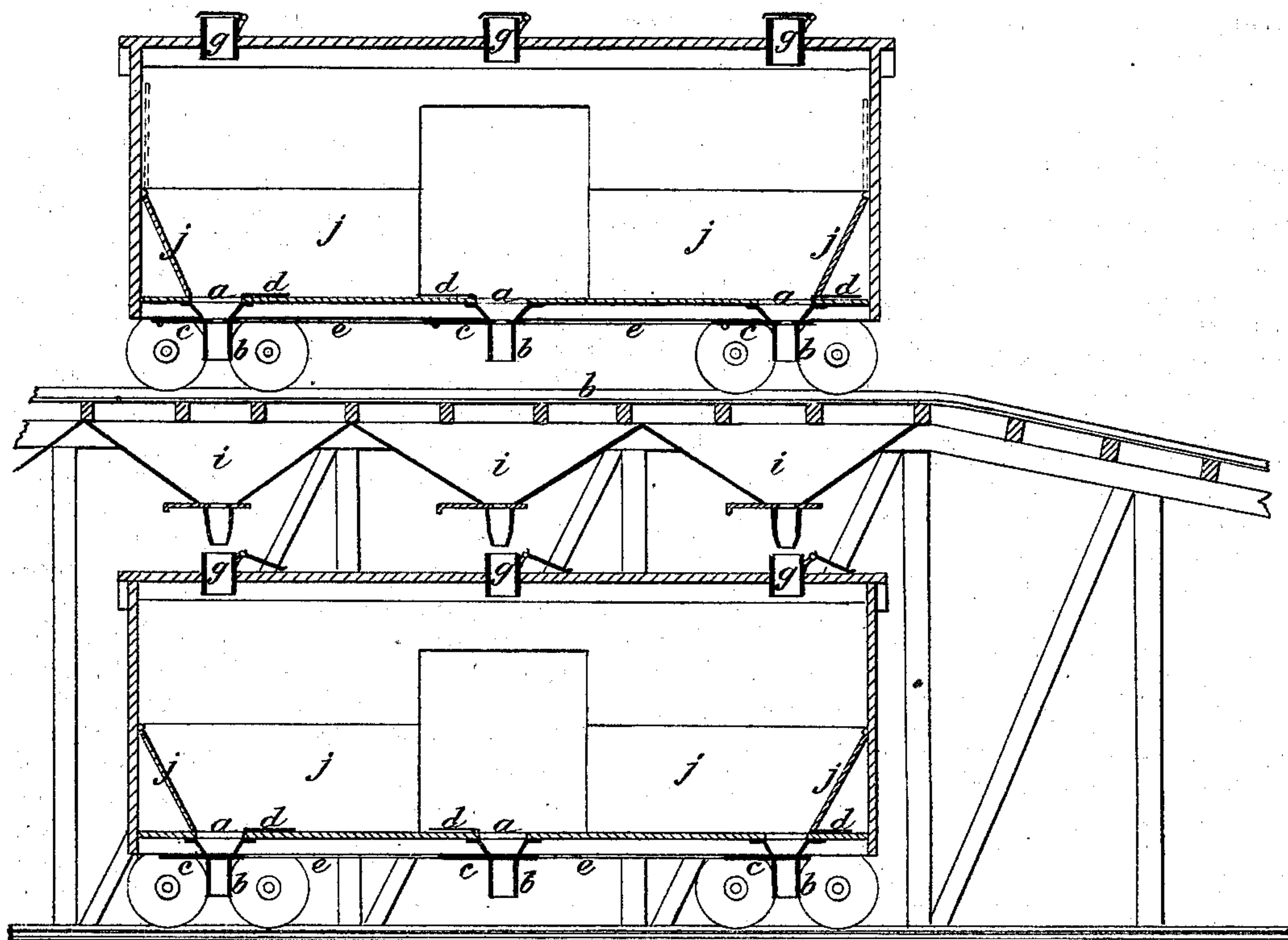


Fig. 2.

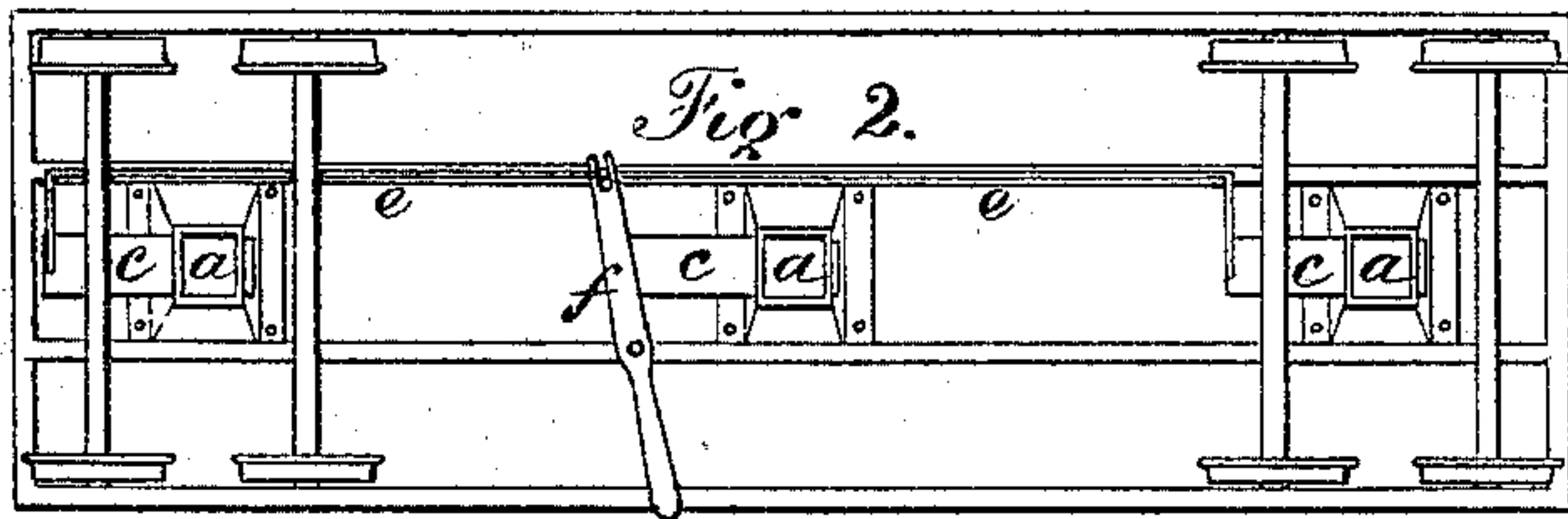


Fig. 3.

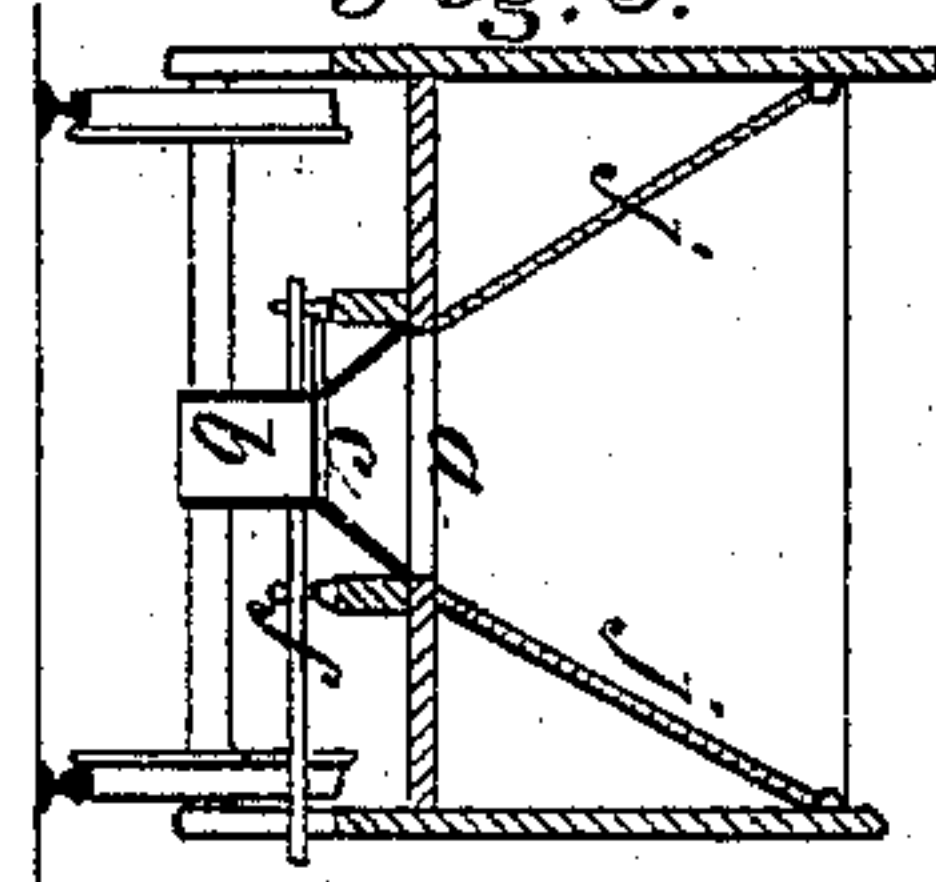
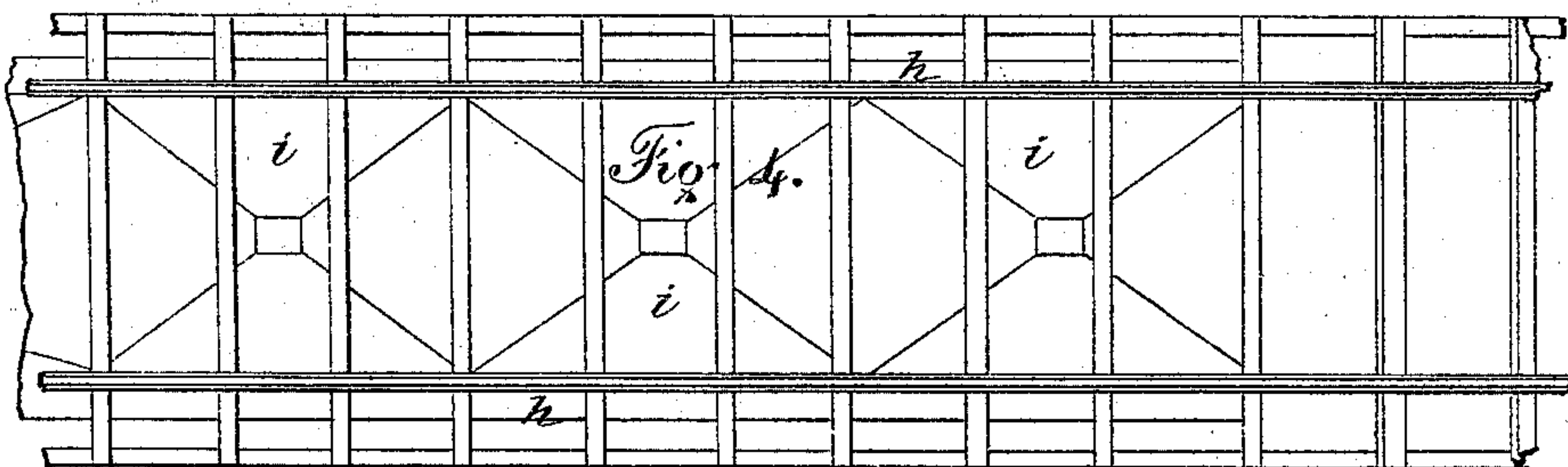


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN J. SAFELY, OF OTTUMWA, IOWA.

IMPROVEMENT IN THE METHODS OF TRANSFERRING GRAIN, &c., IN TRANSITU.

Specification forming part of Letters Patent No. **150,894**, dated May 12, 1874; application filed April 14, 1874.

To all whom it may concern:

Be it known that I, JNO. J. SAFELY, of Ottumwa, in the county of Wapello and State of Iowa, have invented a new and improved means and method for transferring grain and other material from one car to another and from cars into vessels; and that the following is an exact and full description of the construction and operation of the same, reference being had to the accompanying drawings.

My invention is intended to effect and facilitate the transfer of grain and other material, as coal, lime, salt, gravel, and the like from one car to another, or from a car to a vessel, in such a manner that one or more cars may be unloaded and loaded at the same time at a great saving of time, labor, and expense over that usually incurred by the ordinary elevators and otherwise, or that the unloaded grain from a car or cars may be stored in the transferring elevated bins. The essential feature of my invention, however, consists in the method by which grain is transferred from a loaded car, or train of cars, to an empty car or train, or into track-bins for storage, said method being the construction of an elevated railway track or tracks directly over a base track or tracks, and the employment below the elevated track or tracks of bins open at their tops, and provided with sliding gates at their bottoms, and running the loaded car or cars by an inclined track or tracks upon the elevated track or tracks over the receiving bins or conduits, wherein the grain or other material is emptied from the loaded car or train, from which bins or conduits the grain or the like is discharged into an empty car or train of cars standing in position upon the lower track or tracks and ready to move off with the material thus transferred from the elevated car or cars, each car being provided with inlet-top openings to receive the grain or the like, and outlet-bottom openings for the discharge of the same, said openings being suitably guarded with doors and slides to be opened and closed, as required, and these being the only requirements to convert the ordinary freight-cars into cars adapted to carry out my new method. In this way an entire train can be unloaded of grain or the like into another train which may be ready, or into the

elevated bins for storage until a train is ready to carry the material off. The discharging-spouts of the elevated bins may be provided with hose to lead to the receiving-openings of the lower train, so as to render it unnecessary for the receiving-openings to be at any time directly under the bin-tubes.

By this method of transfer an entire train may be unloaded into another train in a very short time and at comparatively little expense, dispensing altogether with the ponderous and expensive machinery of elevators now used for the purpose, and avoiding the enormous expense incident thereto; for my elevated bins not only serve to transfer, but to store the material in readiness to be transferred. The elevated track-bins must, of course, be covered in by a roof to protect the stored grain from the weather. Vessels may, in like manner, be filled directly from loaded cars by means of chutes leading from the bins to the vessels. I have shown trough-boards hinged to the inner sides and ends of each car, so as to be let down to contract the bottom of the car to facilitate the discharge of the grain or material therefrom, and to be turned up and fastened, or removed in using the cars for other traffic. These trough-boards, however, are not absolutely necessary, as the grain remaining on the flat bottoms can be shoveled to the center openings to get it all out.

Figure 1 is a longitudinal vertical section of car-tracks and bins embracing the method of transferring grain or other material. Fig. 2 is a bottom view of one car. Fig. 3 is a transverse vertical section of the same. Fig. 4 is a plan of the elevated track, showing the combined bins and railway.

Openings in the bottom of the car are represented at *a*, one in the center and one in each end thereof, about equally distant from each other and in line in the middle of the car with a pipe, *b*, extending below the bed of the car. *c* represents the slides or valves to open and close the mouth of the pipe. *d*, doors that can be shut or thrown back at will, to open or close the openings *a*. When wheat or like material is loaded in bulk, the doors *d* are thrown back and shut when loaded with material not to be unloaded through the pipes. The slides or valves *c* are operated with one bar, *e*, and

lever *f*, and open and shut at one and the same time, as shown in Fig. 2. When the valves are shut the lever *f* is locked in place, and can only be released with a key. This is to prevent the slides from being maliciously opened. On the top of the car there are other openings, *g*, with doors to admit the grain or other material from above, as shown in Fig. 1. The loaded car or cars being run upon an elevated railway, *h*, the empty car or cars being beneath on a lower track and on the same vertical and longitudinal line, the lever or levers *f* being unlocked, and the valves *c* of the upper car or cars opened with one motion of the bar, the wheat or other material is discharged into bins *i* or conduits beneath the elevated track *h* under the loaded car and above the unloaded car or cars. The bins are represented in Figs. 1 and 4. In this method of transfer the valves *c* of the lower cars must be closed, as shown in Fig. 1. The grain or other material in the bins *i* is discharged into the cars beneath by a similar method to that of unloading the upper cars into the bins beneath, thus transferring grain or other material from one car to another without the ordinary delay.

This construction forms the means for a complete and immediate transfer of grain or like material from one car or train of cars to another, or from cars to vessels, as may be desired. Any number of elevated tracks with bins for holding the material may be used for unloading cars and for storing grain, and the whole may be covered by a suitable roof.

J are boards hinged to the inner sides of the cars, to be let down to form a troughed bottom for grain and the like, and to be turned and fastened or removed, to use the cars for ordinary traffic.

Cars have been adapted to carry grain by means of detachable sections to form a hopper-shaped floor in connection with a spout through which the grain is discharged; and removable bottoms have been employed and turned up against the sides of the car when used for grain with the hoppers underneath, serving as an extra bottom, from which the grain is removed; and slide-valves have been used to open and close the bottom outlets, in connection with top openings, for the ingress of the grain; but none of these plans involved a system of transfer with elevated track-bins, in which one or a series of cars to be unloaded are employed with a car or a series of cars to be loaded with the track-bins arranged between the elevated and base track cars.

What I claim is—

1. An elevated bin or conduit, in combination with an elevated railroad-track, as and for the purpose set forth.

2. A bin having a discharge-opening and a device for closing the same, placed beneath and combined with a railroad-track, as and for the purpose set forth.

3. A car having one or more openings and corresponding slides in the bottom and top thereof, in combination with elevated track-bins, as and for the purpose set forth.

4. The method of transferring grain or other material from a loaded car or train of cars into elevated track-bins for storage, or from or through said track-bins or conduits for transportation, substantially as set forth.

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Witnesses:

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