

(No Model.)

H. D. CARRYL.
DROP BOTTOM CAR.

No. 539,349.

Patented May 14, 1895.

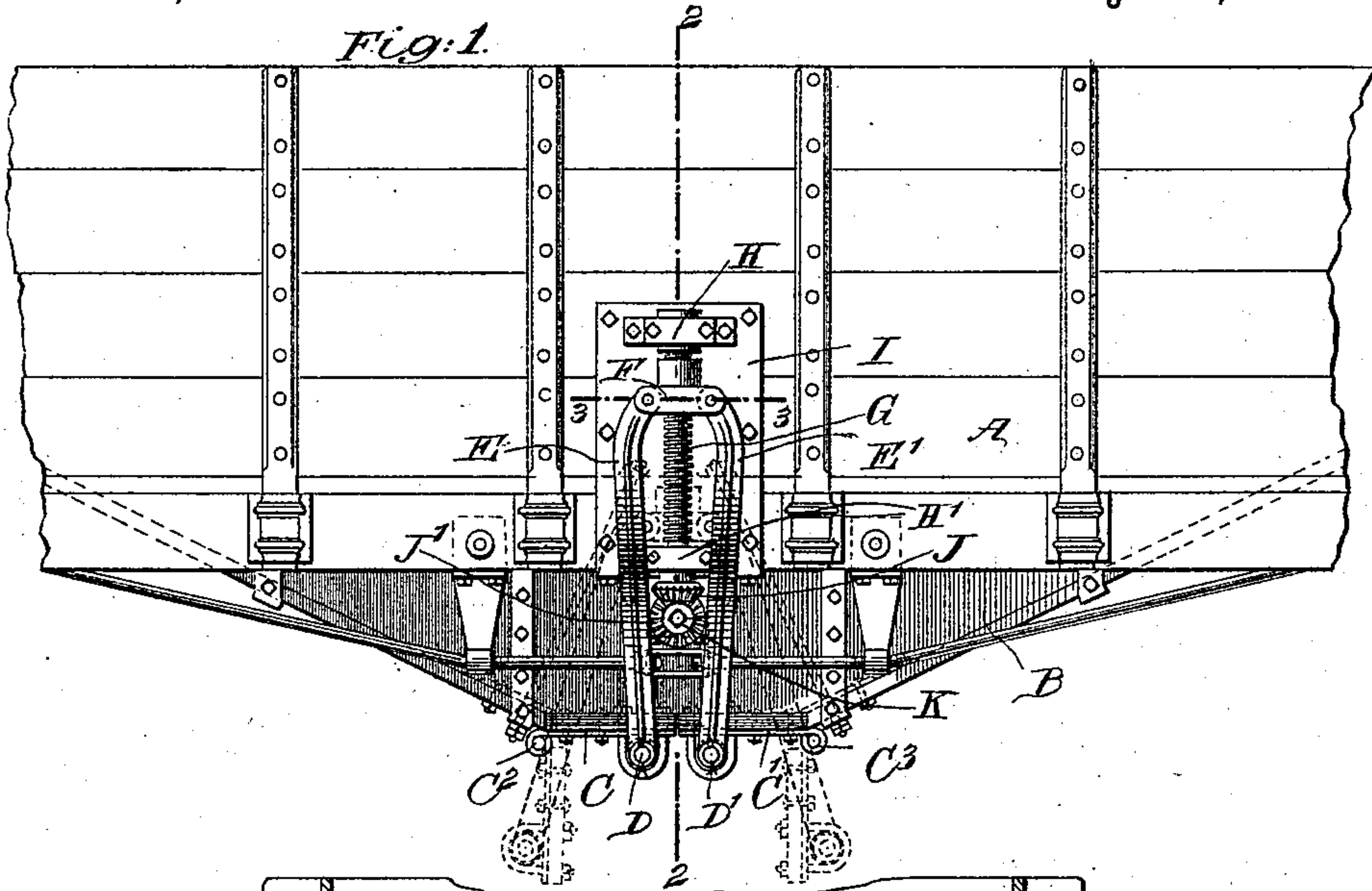


Fig. 2.

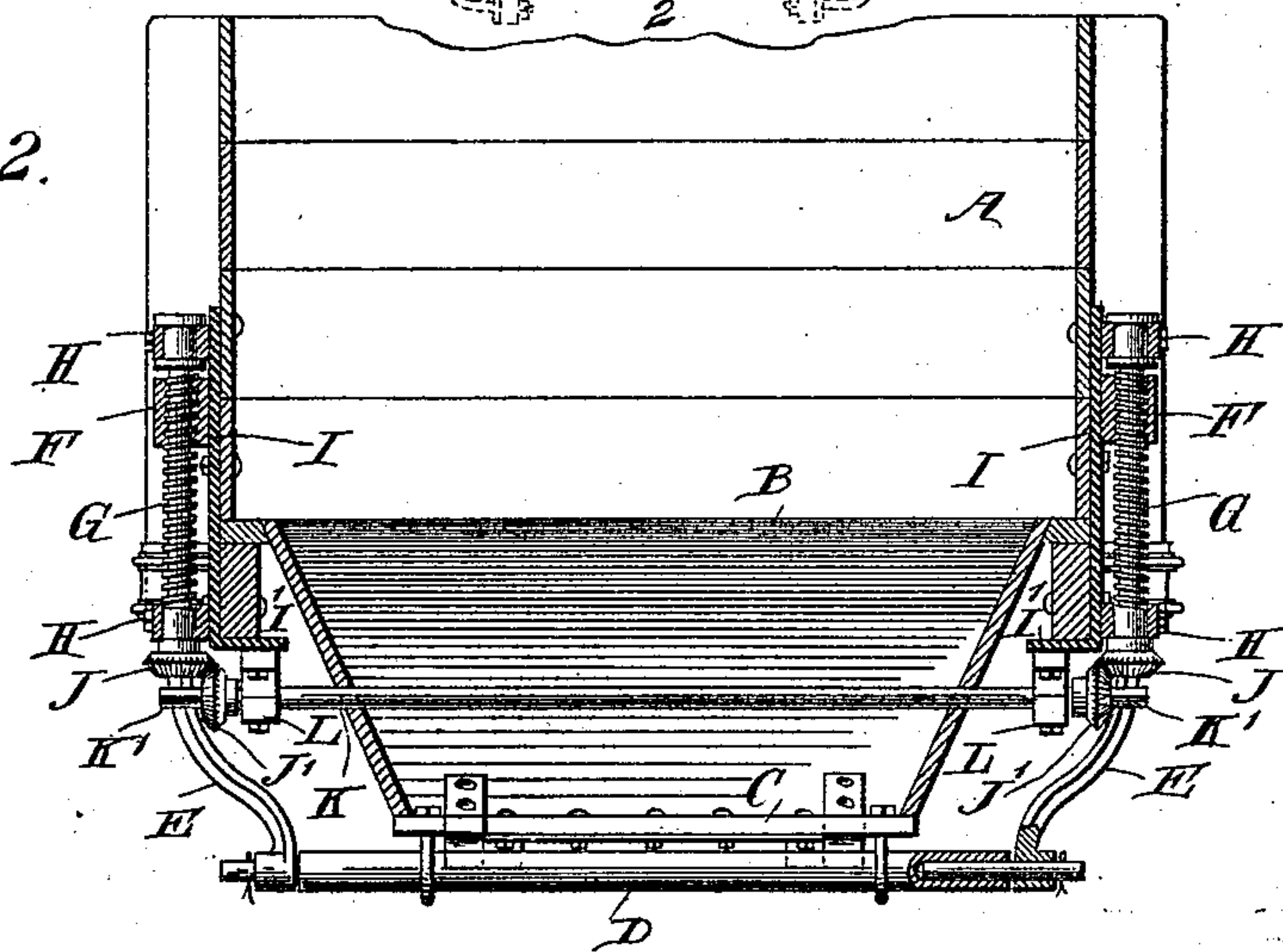
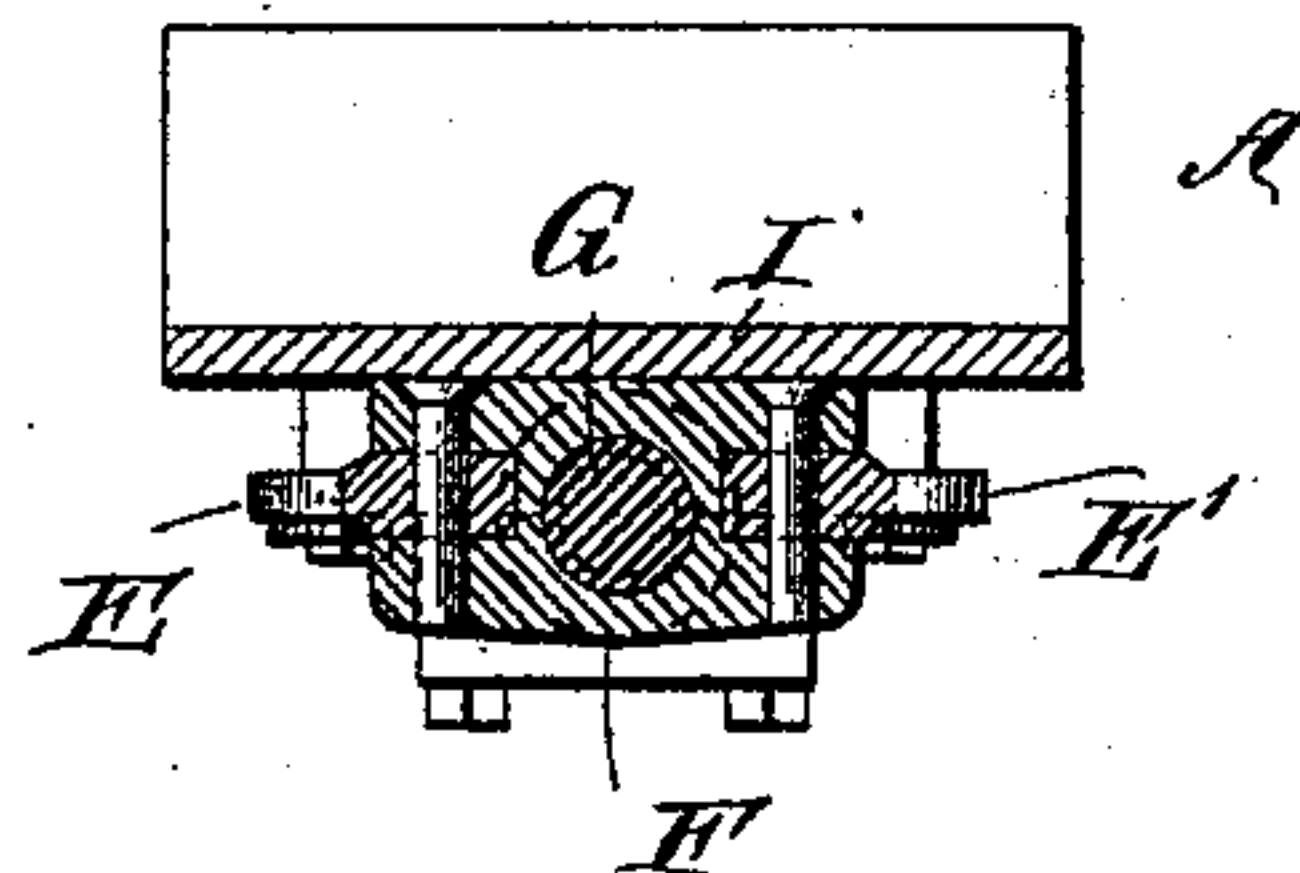


Fig. 3.



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HENRY D. CARRYL, OF NEW YORK, N. Y.

DROP-BOTTOM CAR.

SPECIFICATION forming part of Letters Patent No. 539,349, dated May 14, 1895.

Application filed May 16, 1894. Serial No. 511,426. (No model.)

To all whom it may concern:

Be it known that I, HENRY D. CARRYL, of New York city, in the county and State of New York, have invented new and useful Improvements in Drop-Bottom Cars, of which the following is a full, clear, and exact description.

The object of the invention is to provide certain new and useful improvements in drop bottom cars, whereby the hinged bottoms can be readily and conveniently manipulated for wholly or partly and positively opening or closing the bottoms, and for securely holding the same in any desired position.

The invention consists principally of connecting rods or links adapted to be pivotally connected with the free ends of the hinged bottoms, and a movable head pivotally connected with the said rods or links.

The invention also consists in certain parts and details, and combinations of the same, as will be hereinafter fully 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 views.

Figure 1 is a side elevation of the improvement. Fig. 2 is a transverse section of the same on the line 2 2 of Fig. 1, and Fig. 3 is an enlarged sectional plan view of part of the improvement on the line 3 3 of Fig. 1.

The car A, is provided with the usual hopper bottom B, adapted to be opened and closed by the drop bottoms C and C', pivoted at C² and C³ respectively on the said bottom, so that the free ends of the drop bottoms are adjacent one to the other when in a closed position, as illustrated in Figs. 1 and 2. On the free ends of the said hinged drop bottoms C and C', are held the transversely-extending pivot pins D and D' respectively, pivotally connected at their ends with sets of links or connecting rods E, E', respectively, extending upwardly on the sides of the car, as plainly illustrated in Figs. 1 and 2, the upper ends of each set of links E, E', being pivotally connected with a head F, formed with an interior screw thread screwing on a screw rod G, journaled in suitable bearings H, fastened to a plate I, secured to the corresponding side of the car A. The head F is flat at its inner

face and fits snugly against the front face of the plate I, to prevent the said head F from turning, and to cause the head to move up or down whenever the screw rod G is turned either to the right or to the left as the case may be.

On the lower ends of the two screw rods G on the sides of the car, are secured the bevel gear wheels J, in mesh with bevel gear wheels J' secured on a transversely-extending shaft K, passing through the sides of the hopper bottom B, and journaled in suitable bearings L, attached to the bottom extensions I' of the plate I, as plainly shown in Fig. 2. The outer ends of the shaft K are both squared, as at K', to permit of conveniently applying a crank arm, wrench or other suitable tool to turn the said shaft K and cause the bevel gear wheels J' to turn the bevel wheels J, and consequently the screw rods G on which the said bevel wheels J are attached.

When the several parts are in the position illustrated in Figs. 1 and 2, the drop bottoms C and C' are closed, and the heads F are in an uppermost position on their screw rods G. Now, when the operator desires to partly or wholly open the doors C or C', he then applies a crank arm, wrench, or other tool on either square end of the shaft K, to turn the latter in its bearings L, to cause the screw rods G to turn so as to move the heads F downward. The latter, by their downward movement, impart a downward swinging motion to the doors C C', by the sets of links E E', whereby the said doors swing positively open to any desired degree, either partly or wholly, as illustrated in dotted lines in Fig. 1. It will be seen that as soon as the operator ceases to turn the shaft K, the swinging motion of the doors C C' ceases, and the said doors are held in the desired position by the connection of the links E E', with the heads F held on the vertically disposed screw rods G, near the closed doors C C'. The operator turns the shaft K in an opposite direction so as to impart a turning motion to the screw rods G, to move the heads F upward so that the sets of links E E', pull the doors shut.

It will be seen that by the arrangement described, both doors C C', will move positively and simultaneously into either a partly or wholly open position, and likewise move posi-

tively and simultaneously shut, and they are locked in either position whenever the operator ceases to turn the shaft K.

It will further be seen that all overhead devices now employed in cars of this class, are entirely dispensed with, and the car bottom doors having no interior connections whatever, the material loaded in the car does not interfere in any manner with the operating devices for opening and closing the doors.

By the arrangement described, the doors are held positively shut at all four corners, to prevent the loss of contents of the car at these points, and in case the doors become accidentally locked or jammed by ice or through other causes, then the doors are forced open as soon as the operator turns the shaft K in the manner above described.

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

1. In a drop bottom car the combination with a hopper bottom provided with drop bottoms having transverse pivots and their free ends adjacent one to the other of connecting links pivotally connected at their lower ends with the free ends of the said bottoms and at the under side thereof, heads pivotally connected with the upper ends of the said links,

upright screw rods journaled exteriorly of the car and engaging the said heads, a transverse shaft adapted to be turned and a gearing for connecting the said shaft with the said screw rods so that on turning the shaft a simultaneous rotary motion is given to the said screw rods and a simultaneous up or down movement to the said heads to close or open the said bottom doors, substantially as described.

2. A device for manipulating the hinged bottom doors of cars, comprising sets of links pivotally connected with the free ends of the bottom doors, heads pivotally connected with the said links, screw rods engaging the threaded portions of the said heads, plates secured on the sides of the car and forming a guide for the said heads, to prevent the latter from turning, the said plates also supporting the bearings for the said screw rods, bevel gear wheels on the said screw rods, and a transversely extending shaft journaled in bearings attached to the said plates and carrying bevel gear wheels in mesh with the bevel gear wheels on the screw rods, substantially as shown and described.

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Witnesses:

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