

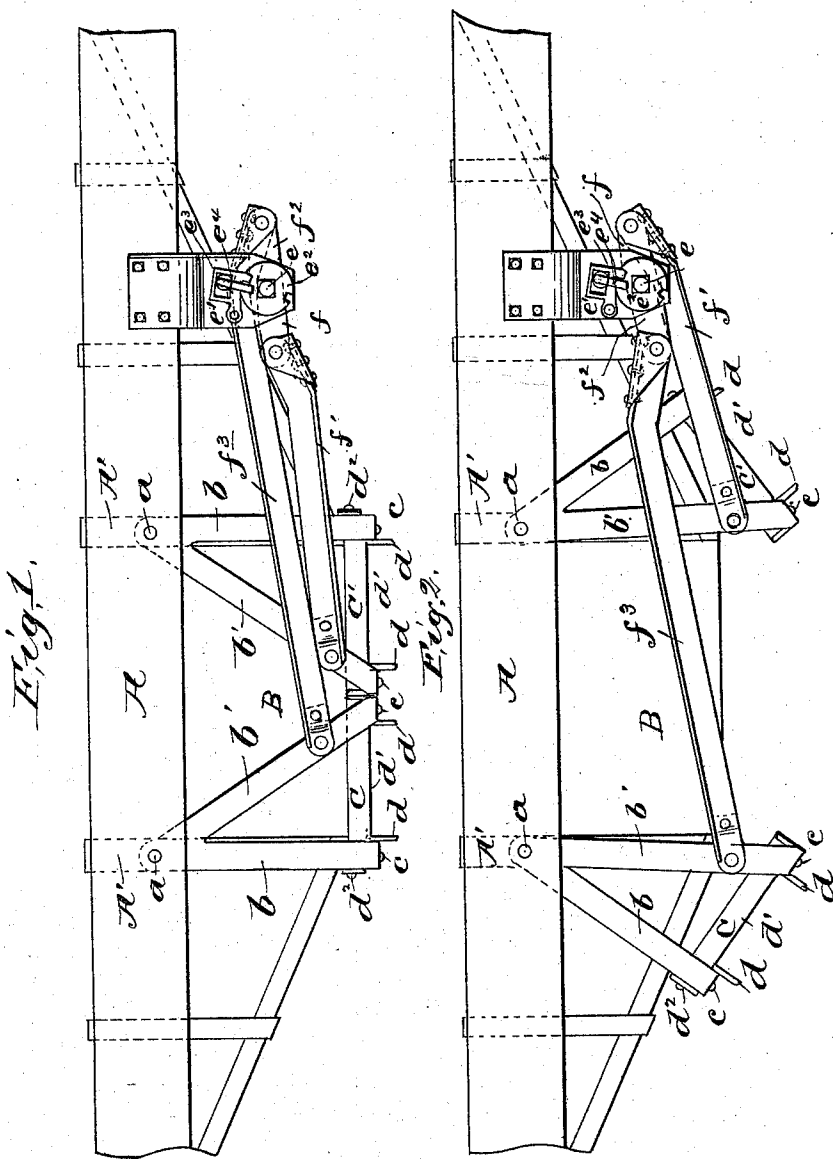
(No Model.)

3 Sheets—Sheet 1.

S. J. JOHNSON.
DUMPING CAR.

No. 571,482.

Patented Nov. 17, 1896.



WITNESSES:

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(No Model.)

3 Sheets—Sheet 2.

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Fig. 3.

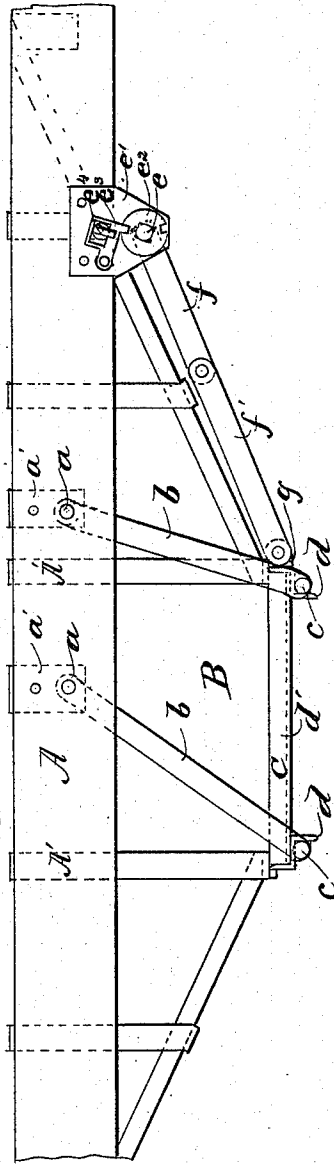
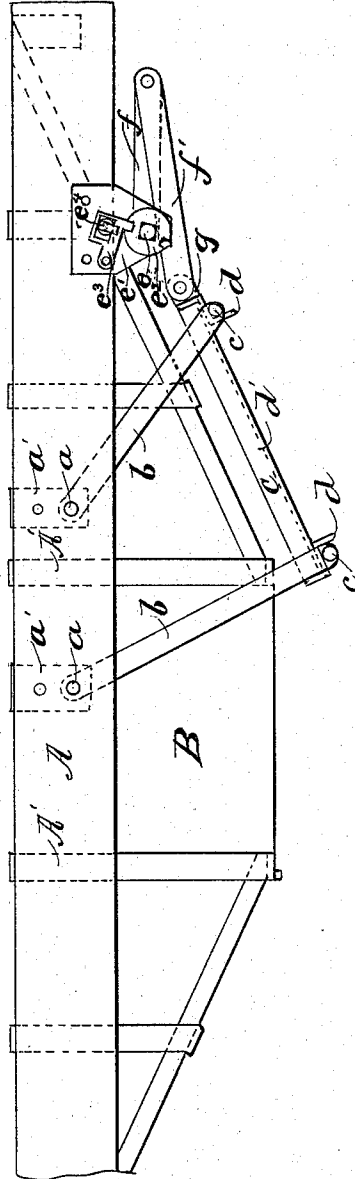


Fig. 4.



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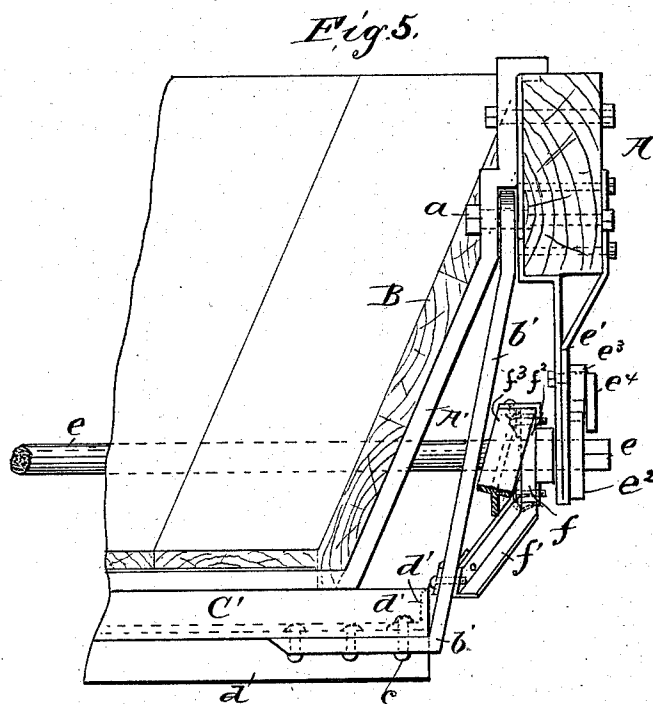
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Patented Nov. 17, 1896.



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DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 571,482, dated November 17, 1896.

Application filed February 24, 1896. Serial No. 580,558. (No model.)

To all whom it may concern:

Be it known that I, SINCLAIR J. JOHNSON, a citizen of the United States, and a resident of the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Dumping Cars, of which the following is such a full, clear, concise, and exact description as will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention is applicable for use upon hopper-bottom gondola cars, ore-cars, and some other styles of dumping-cars. It has for its object the combination with the gate or gates which close the exit for the load, of hangers and mechanism for opening and closing the same, so as to avoid some of the difficulties heretofore experienced and afford a more convenient means for holding the gate or gates open or closed; and the invention consists of the parts and combination hereinafter more fully described, and pointed out in the claims.

The drawings illustrate my invention as applied to a hopper-bottom gondola car provided with oscillating gates suspended from above, as more fully described and claimed in an application made by me on even date herewith, Serial No. 580,556.

Figure 1 of the drawings is a side view or elevation of a portion of a hopper-bottom gondola car, showing one end of two gates which close the exit for the load at the bottom of the hopper, and also shows the hangers by which the two gates are suspended and the lever mechanism for opening and closing them, the gates being shown in this figure as closed. Fig. 2 is a similar view of the same part, but showing the gates as open. Fig. 3 is a similar view showing the hopper closed at the bottom by one gate only, the gate being suspended by two straps, each of which is pivoted at each end, so as to swing both from the points secured to the car and to the gate. In this figure the gate is shown as being operated by a modified form of the mechanism shown in Figs. 1 and 2. Fig. 4 is a similar view of the same, showing the gate open. Fig. 5 is a detail section of a portion of the car and one of the gates of Figs. 1 and

2, looking at the hopper, the gate, and lever connections in the direction of the length of the car.

In the drawings A represents the side sill of the car, and B the hopper of a hopper-bottom gondola car. In such a car the load passes out at the bottom of the hopper, which is either closed or opened by the gate, as the case may be. All dumping-cars are not, however, provided with a "hopper," technically so called, and hence this word is used in a broad sense for the purpose of designating thereby the part of the car which is provided with an exit for the load, and which exit is opened or closed by a gate or gates.

The gates C and C' are shown in the drawings as being suspended from the car, for which purpose they are secured by bolts or pivots *c c* to metallic hangers or straps *b b*, pivoted at their upper ends by bolts *a a*, which pass through the side sill A and through the hopper-iron A' or through the side sill and a plate *a'*. The hangers shown in Figs. 1 and 2 each have one arm *b' b'* extending downward at an angle from the pivot-bolts *a a*, and which arm is rigidly secured to the inner edge of the gate, and the straps *b b* of Figs. 3 and 4 are pivoted above and at the gate.

The gates shown are preferably made of a frame of Z-iron *d* for the outer and inner edges and of angle-iron *d'* for each end, firmly riveted or bolted together, and which frame is floored with suitable plank. At the rear of each end of the gate a flat piece of iron *d²* of sufficient strength is riveted on the Z-iron *d* and extends up above the same, so as to catch against the hopper-iron A' when the gates are closed, and this iron *d²* may be made to work against a guide (not shown) in order to prevent lateral or other motion.

The mechanism for opening and closing the gates consists of a shaft *e*, which may have one end square or otherwise adapted to receive a wrench for turning it, or this shaft may have a crank-arm attached to it for this purpose. The shaft *e* is supported by plate-brackets *e'*, which are secured to the side sill A by suitable bolts. On one end of the shaft *e* a notched disk or a wheel *e²* is secured outside of the supporting-bracket, the notches being adapted to receive a dog or pawl *e³*, pivoted to the bracket and which acts as a lock-

ing device to prevent any turning of the shaft. The pawl e^3 is shown as being operated by an eccentric e^4 , which is also secured to the bracket e' .

5 On the shaft e and inside of the plate-brackets e' an armed crank or equivalent device is rigidly secured, and, as shown in Figs. 1 and 2, one arm, f , of this crank is pivotally secured to one end of a horizontally-moving lever-bar f' , which has its opposite end pivoted to the gate-hanger straps b' of the gate C' .
10 The other arm, f^2 , of the crank is also pivotally secured to one end of a horizontally-moving lever-bar f^3 , and the other end of this bar is likewise secured to the hanger-straps b' of the gate C . In Figs. 3 and 4, where only one gate is shown, the shaft has only one crank-arm f , which is pivotally connected with the bar f' , the other end of which is pivotally connected with a lug g , fixed on the gate C .
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The gates being closed, as in Fig. 1, and a wrench being applied to the end of the shaft e , and the shaft being partially rotated, the crank-arms f and f^2 will by this motion change their position and move the bars f' and f^3 in a horizontal direction, which in turn will push the hanger-straps b' and b' , so as to swing them on the pivots a , thereby causing the gates C C' to open and assume the position shown in Fig. 2. A reverse movement of the shaft e will have the opposite effect and close the gates. In Figs. 3 and 4 the mechanism shown for opening and closing the gate operates, essentially, the same way, but as only one gate is shown the shaft is made to operate a single crank-arm and connections for the same with and to the gate.
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It is obvious that changes may be made in the detail of construction and in the arrangement of the parts without departing either
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from the spirit or substance of my invention, and I do not therefore confine myself to the exact forms shown.

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

1. In a dumping-car, the combination of one or more gates adapted to close the exit for the load, hangers for suspending said gates at each end and at both edges a shaft secured to the car and provided at each of its ends with one or more crank-arms and one or more horizontally-moving lever-bars having connection with said crank-arms and with the hangers for said gate or gates, whereby the same may be opened or closed by a partial rotation of said shaft.
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2. In a dumping-car, the combination of one or more gates for closing the exit for the load, hangers for suspending said gates at each end and both edges a shaft secured to the car and provided at its ends with one or more crank-arms, a ratchet and pawl adapted to retain the said shaft in a fixed position and one or more horizontally-moving lever-bars connected therewith, and with the hangers for said gate or gates for opening and closing the same as said shaft is partially rotated.
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3. In a dumping-car, the combination of two gates for closing the exit for the load, hangers by which said gates are suspended at both ends and at each edge, a shaft secured to the car and provided at its ends with two crank-arms, and horizontally-moving lever-bars connected therewith, and with the hangers for the gates respectively, substantially as described.
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Witnesses:

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