

No. 821,528.

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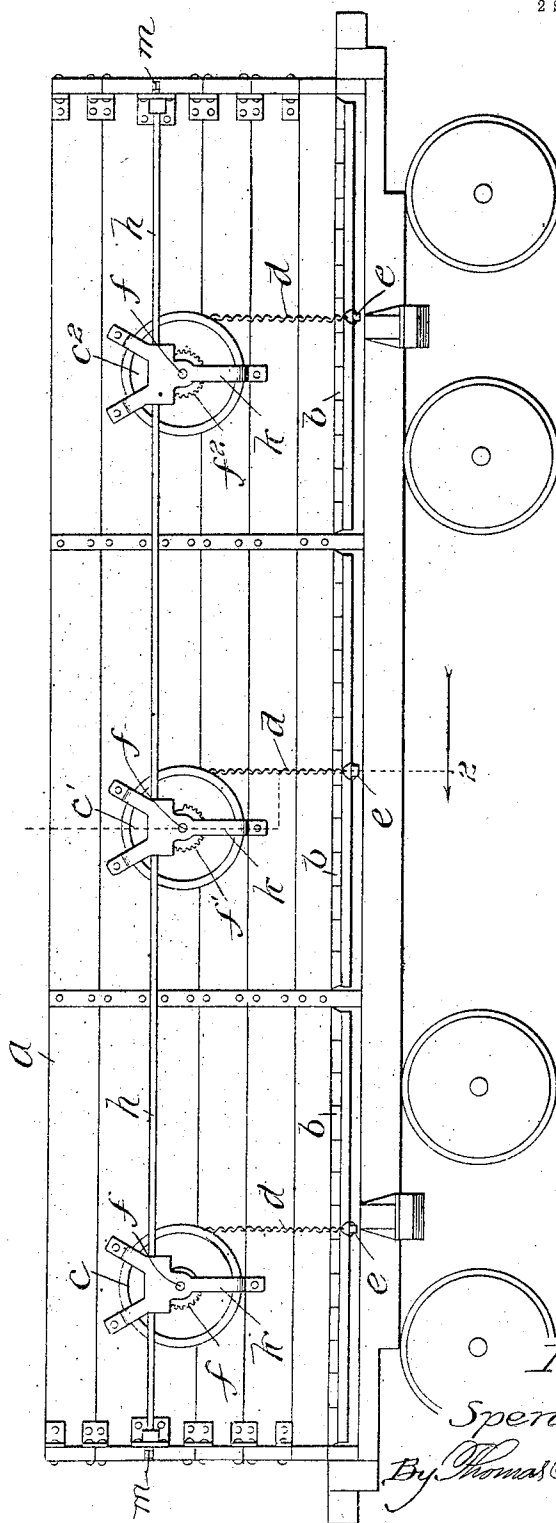
PATENTED MAY 22, 1906.

S. OTIS.
DUMP CAR.

APPLICATION FILED MAR. 3, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
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Inventor:
Spencer Otis,
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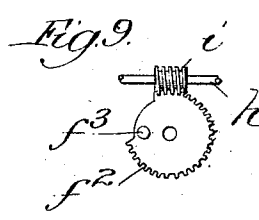
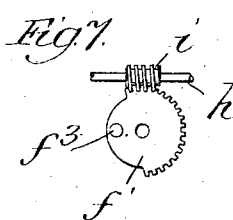
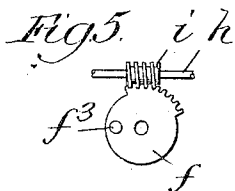
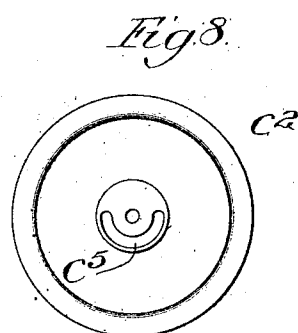
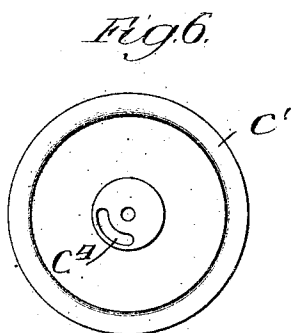
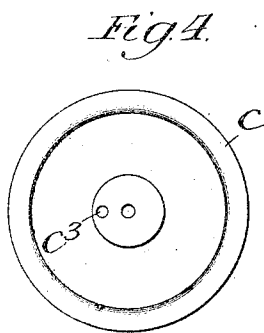
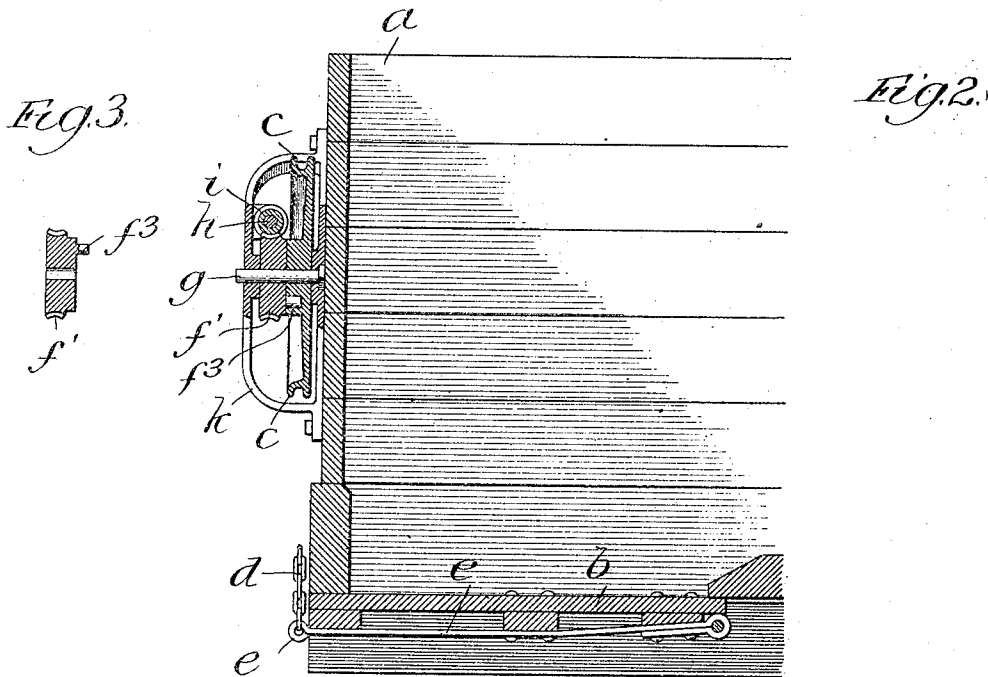
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2 SHEETS—SHEET 2.



Witnesses:
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John Enders

Inventor:
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UNITED STATES PATENT OFFICE.

SPENCER OTIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO NATIONAL DUMP CAR COMPANY, OF AUGUSTA, MAINE, A CORPORATION OF MAINE.

DUMP-CAR.

No. 821,528.

Specification of Letters Patent.

Patented May 22, 1906.

Application filed March 3, 1906. Serial No. 304,057.

To all whom it may concern:

Be it known that I, SPENCER OTIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful improvements in Dump-Cars, of which the following is a specification.

My invention relates to dump-cars having the bottom composed wholly or partially of dumping-doors, and has for its object to provide an improved construction of door-operating mechanism.

My invention consists in the combinations and details hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a dump-car embodying my invention. Fig. 2 is a transverse section on the line 2 of Fig. 1. Fig. 3 is a sectional detail of the worm-wheel. Figs. 4, 5, 6, 7, 8, and 9 are detail views showing the construction of the door-operating mechanisms.

As is well known, dumping-cars are now constructed with bottoms formed of a series of dumping-doors which are opened positively or are permitted to open by gravity when released. It is customary also to provide an operating mechanism whereby the doors may be raised to their closed position.

So far as I am aware it has hitherto been customary to raise all the doors on one side of the car simultaneously. Owing to the number of doors and the weight thereof this places a great strain upon the operating mechanism and increases the labor of closing the doors. I have devised a means whereby the doors may be closed successively one after the other, so that the operating mechanism carries the weight of one door at a time only.

In the drawings, *a* represents the body of the car, having a bottom composed of a series of dumping-doors *b*. There may be as many of these dumping-doors as is desired; but for illustration of my invention I have shown a car having three doors on each side of the center sill. Mounted on the sides of the car is a series of pulleys *c*, *c'*, and *c''*, one for each door, and chains *d* connect these pulleys to lifting-rods *e*, which are rigidly secured to the doors. It will be readily understood that when the pulleys are turned the doors may be raised or lowered, according to the direction of movement of the pulleys. These pulleys are mounted upon short shafts

g, journaled in the bearing-frames *k*, as clearly shown in Fig. 1, the frames *k* being attached to the sides of the car in any suitable manner. Extending longitudinally of the car and suitably journaled on the side thereof is an operating-shaft *h*, and mounted upon the short shafts which carry the pulleys are mutilated gear-wheels *f*, *f'*, and *f''*. These gear-wheels are loosely mounted upon the shafts and are provided with pins *f''*, which enter recesses in the pulley-wheels.

As shown in Fig. 4, the pulley attached to the first door—the one at the left in Fig. 1—is provided with a small perforation of the diameter of the pin *f''*. It will be apparent, therefore, that whenever the mutilated gear-wheel *f'* is rotated the pulley will move therewith. The pulleys *c'* and *c''* are provided with elongated slots for the reception of the pins *f''* on the mutilated gears *f'* and *f''*, so that a lost motion is provided at these points. The shaft *h* is provided with worms *i*, engaging the several mutilated gear-wheels.

It will now be understood that when the doors are in open position the gears are in the position indicated in Figs. 4 to 9, inclusive. When the shaft *h* is turned, the first door at the left will be raised, owing to the engagement of the pin *f''* on the gear-wheel *f* with the recess *c'* in the pulley *c'*. At the same time the pin *f''* in the gear-wheels *f'* and *f''* will travel in their slots *c'* and *c''*, respectively. These slots are so proportioned that when the first door is closed the pin *f''* in the gear-wheel *f'* will contact with the lower end of the slot *c'* in the pulley *c'*, and the second door will begin to close. The slot *c''* in the pulley *c''* is of such length that when the second door has been closed the pin *f''* of the gear *f''* will contact with the end of the slot *c''*, thus closing the third and last door.

The toothed portion of the gear *f* passes beyond the end of the worm *i* when the first door is fully closed, and the last tooth will bear against the end of the worm, thus holding this door in closed position. The same is true of the gear-wheel *f'*. Any suitable means may be used for turning the shaft *h*. I have shown it provided with a squared end *a* for the reception of a wrench; but it will be understood that any other means may be employed.

It will be seen that I have provided a car with a series of dumping-doors which may

be raised one at a time in succession. The advantages of this construction are sufficiently obvious and have, in fact, been mentioned before.

5 I do not desire to be understood as limiting my claims to the exact construction shown. I believe I am the first to provide means for closing the doors of a dump-car successively and intend to be understood as
10 claiming any equivalent means for effecting this result.

I claim—

1. A dump-car having a bottom comprising a series of dumping-doors, and means for
15 successively closing the doors.

2. A dump-car having a bottom comprising a series of dumping-doors, a door-raising device connected to each door, means for operating the door-raising devices, and means

for successively engaging the operating 20 means with the door-raising devices.

3. A dump-car having a bottom comprising a series of dumping-doors, pulleys journaled on the car-body, means connecting the doors with the pulleys, and means for operating the pulleys successively to close the
25 doors.

4. A dump-car having a bottom comprising a series of dumping-doors, a door-raising device connected to each door, a common operating means for the door-raising devices, and means for successively engaging the
30 common operating means with the door-raising devices.

SPENCER OTIS.

Witnesses:

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ANNA L. SAVOIE.