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PATENTED MAR. 6, 1906.

S. OTIS.
DUMP CAR.

APPLICATION FILED FEB. 8, 1904.

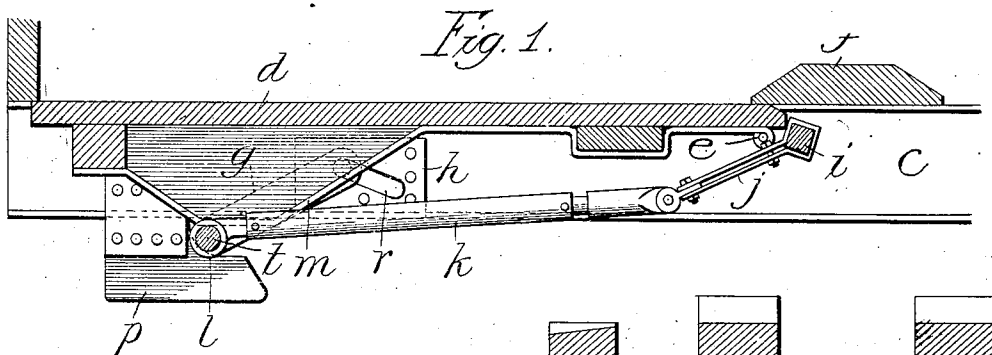


Fig. 2.

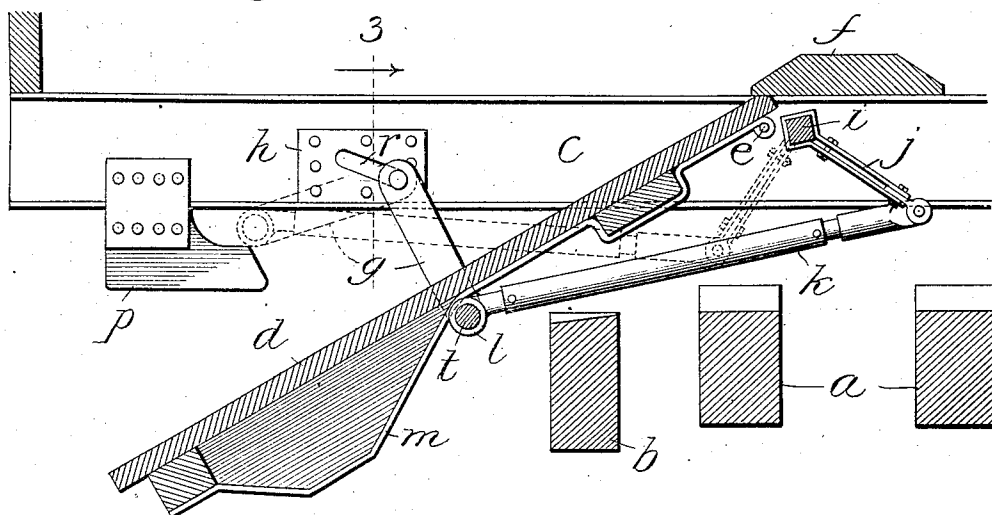
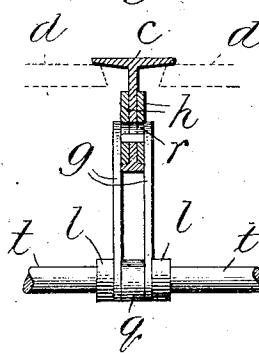


Fig. 3.



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DUMP-CAR.

No. 814,159.

Specification of Letters Patent.

Patented March 6, 1906.

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To all whom it may concern:

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

This invention relates to that class of dump-cars which are provided with drop-bottom portions formed of a plurality of swinging doors, and particularly to the construction and arrangement of the means by which the doors are held in closed position and permitted to open, all of which will be more fully hereinafter set forth.

The principal object of the invention is to provide a drop-bottom dump-car with simple, economical, and efficient mechanism for opening and closing the swinging doors thereof.

Further objects of the invention will appear from an examination of the drawings and the following description and claims.

The invention consists principally in a dump-car in which there are combined a plurality of dumping-doors, which form the drop-bottom thereof and extending longitudinally of the car, a rock-shaft, and compound lever mechanism pivotally secured to the rock-shaft and to the frame of the car for opening and closing said dumping-doors.

The invention consists, further and finally, in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a cross-sectional view of a portion of a car with my vibratable lever mechanism as it appears when constructed in accordance with these improvements and showing the parts in closed position; Fig. 2, a similar view showing the parts in open position, and Fig. 3 a cross-sectional detail taken on line 3 of Fig. 2.

In illustrating and describing these improvements I have only illustrated and will here describe that which I consider to be new, taken in connection with so much as is old as will properly disclose the invention to others and enable those skilled in the art to practice the same, leaving out of consideration other and well-known elements, which if set forth herein would only tend to confusion, prolixity, and ambiguity.

In constructing a dump-car in accordance with these improvements I take a car of any of the usual constructions having a frame portion provided with longitudinal sills *a* and *b* and cross-sills *c*. This car may be provided with the usual side-board mechanisms or not, as circumstances may require or necessity demand. To form a drop-bottom for this car, a plurality of swinging sections *d* is provided and pivotally secured at their inner edges, as at *e*, to the supporting-framework of the car at each side of the longitudinal center *f* thereof, so that said swinging sections may be dropped down to the position shown in Fig. 2 to form discharging-aprons by which the material within the car may be dumped to either or both sides of the track. It becomes important to provide some simple, economical, and efficient mechanism for closing these swinging sections, holding them in their closed positions, and at the same time permitting them to drop to their open positions. To accomplish this, a plurality of vibratable or pivoted door-supporting mechanisms *g* are provided—two for each swinging section—having their pivot portions movably mounted in slotted pivot-plates *h*, which are secured to the framework of the car between the side of the car and the longitudinal center of the doors, in engagement with the doors between their longitudinal centers and outer swinging edges in both opened and closed positions and movable transversely of the doors, so as to support the doors and the weight of the load thereon at or outside of the longitudinal center. The weight of the load thus rests upon these supporting mechanisms and the hinges of the doors, and substantially all upward strain on the hinges or pivotal points of the doors is prevented. To operate these vibratable or pivoted door-supporting mechanisms, rock-shaft mechanism *i* is provided having arms or levers *j* clamped thereto, while connecting-rods *k* are provided and pivotally secured to the vibratable lever and to the arms on the rock-shafts.

From the foregoing it will be seen that as the rock-shaft is vibrated the vibratable lever mechanisms are also vibrated or swung forward, so that the projections *l* at their lower ends will contact the inclined planes *m* on the lower surface of the door, and thus

force the doors to their closed position, or the rock-shaft may be vibrated in the opposite direction and the vibratable lever swung inwardly to release such doors and permit them to drop to open position.

It becomes necessary to hold the doors locked in closed position, and in order so to do a plurality of fixed latches p is provided and secured to the framework of the car, such latches forming inwardly-projecting L-shaped portions upon which the center q of said vibratable lever rides and which prevents all downward movement of said vibratable levers. The angular slot r in said pivot-plates h is provided for the purpose of permitting the fulcrum or pivotal point of said vibratable levers to have an independent movement which permits of the locking and unlocking of said vibratable levers for this purpose only, as it will be seen that the doors are fully closed before said pivot begins to move and cannot be opened until said pivot has stopped all of its lateral movement. In order to hold said vibratable levers against lateral displacement, a rod or rod mechanism t is provided and secured to the projections on the lower ends of said vibratable levers, thereby compelling them to act in pairs when it is so desired and preventing them from having any independent lateral or twisting movements upon their pivots, all of which will be understood and appreciated by those skilled in the art.

I claim—

1. In a dump-car of the class described, the combination of a supporting-frame portion, a drop-bottom therefor composed of a plurality of swinging sections pivotally secured at their inner ends to the frame of the car at each side of the longitudinal center, vibratable door-supporting mechanism provided with a movable pivot by which it is secured to the frame of the car adapted to contact the lower surface of said swinging sections and close and hold them locked in closed position, means for vibrating said door-supporting mechanism, and a fixed latch for holding said door-supporting mechanism in locked position, substantially as described.

2. In a dump-car of the class described, the combination of a supporting-framework, a drop-bottom therefor composed of a plu-

55 rality of swinging sections pivotally secured at their inner edges to the framework of the car at each side of the longitudinal center, a plurality of vibratable door-supporting mechanisms mounted on movable pivots in the framework of the car for closing and supporting said swinging sections, rod mechanism 60 securing a plurality of said vibratable mechanisms together so as to hold them against lateral displacement, a rock-shaft, and a connecting-rod pivotally secured to said rock-shaft and said vibratable door-supporting 65 mechanisms, substantially as described.

3. In a dump-car of the class described, the combination of a supporting-framework, a drop-bottom therefor composed of a plurality of swinging sections pivotally secured 70 at their inner edges to the framework of the car at each side of the longitudinal center, a plurality of vibratable door-supporting mechanisms pivotally secured in slotted plates on the framework of the car for operating said 75 swinging sections, rod mechanism for securing a plurality of said vibratable mechanisms together and holding them against lateral displacement, a rock-shaft, and a connecting-rod pivotally secured to said vibratable 80 mechanisms and rock-shaft, substantially as described.

4. In a dump-car of the class described, the combination of a supporting-framework, a drop-bottom therefor composed of a plurality of swinging sections pivotally secured 85 at their inner edges to the framework of the car at each side of the longitudinal center, a plurality of vibratable door-supporting mechanisms pivotally secured in slotted plates on the framework of the car for closing and opening said swinging sections, rod mechanism for securing a plurality of said vibratable 90 mechanisms together and holding them against lateral displacement, a rock-shaft, a connecting-rod pivotally secured to said vibratable mechanisms and rock-shaft, and a plurality of fixed latches secured to the framework of the car for holding said vibratable 95 mechanisms in their closed position, substantially as described. 100

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