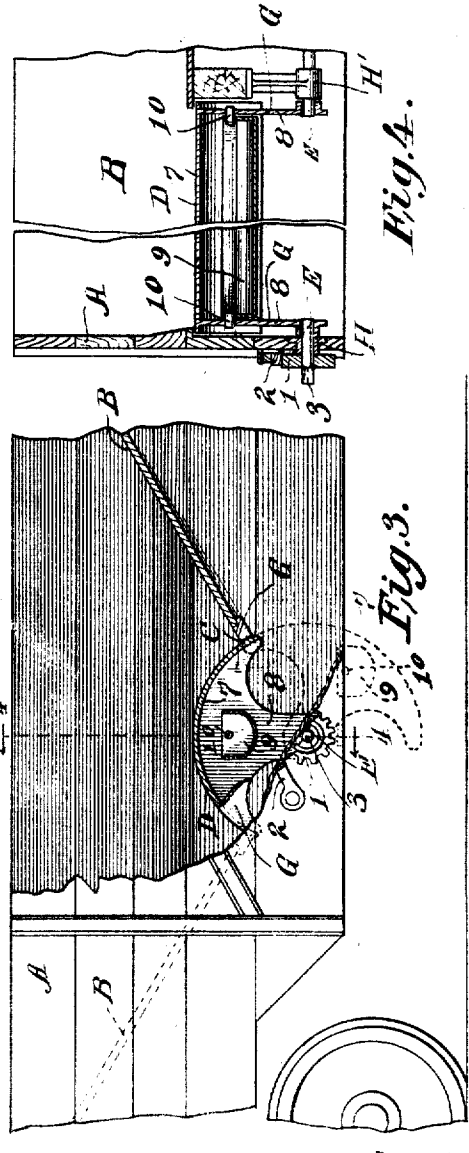


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DOOR FOR HOPPER-BOTTOM CARS.

1,011,008.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE E. BABBITT, a citizen of the United States of America, residing at Albany, in the county of Albany and State of New York, have invented new and useful Improvements in Doors for Hopper-Bottom Cars, of which the following is a specification.

This invention relates to railroad, mining and other cars which are provided with a hopper body, and it has particular reference to an improved door closure for the bottom of such cars. It frequently happens during the winter season that cars of this class which are exposed to the weather when loaded receive an accumulation of moisture which will settle in the bottom of the car and there become congealed or frozen, thus obstructing and seriously interfering with the operation of the door when the car is to be unloaded.

This invention has for one of its objects to provide simple and efficient means whereby the door and the vicinity of the door may be heated sufficiently to thaw the obstructing ice, thus enabling the door to be conveniently manipulated for the discharge of the contents of the car.

A further object of the invention is to provide a door or obstructing valve for hopper cars which shall be simple, easily manipulated and which may be operated in such a manner as to permit a portion of the load to be dumped, after which the door or valve may be restored to an obstructing position, thus permitting the remainder of the load to be moved to a different dumping place.

A further object of the invention is to provide simple and improved means whereby the door or valve may be firmly retained in an obstructing position or in a partly or entirely open position, as may be required.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claim.

In the accompanying drawing has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifica-

tions within the scope of the claim may be resorted to when desired.

In the drawing,—Figure 1 is a sectional elevation showing a portion of a hopper car equipped with a door constructed in accordance with the invention. Fig. 2 is a partial sectional view taken on the line 2—2 in Fig. 1. Fig. 3 is a partial sectional view illustrating a modification of the invention. Fig. 4 is a sectional view taken on the line 4—4 in Fig. 3.

Corresponding parts in the several figures are denoted by like characters of reference.

The car body A is provided with inclined bottom members B, B, said bottom members being inclined toward the bottom aperture C which is adapted to be obstructed by a substantially sector-shaped door or valve D having a curved or arcuate face 4 and end members G. The door or valve D is supported by means of a shaft or shafts E which may be journaled in boxes or bearings H in the sides of the car body and, if desired, in a hanger H' intermediate the sides of the car body. The shaft E is shown as equipped with a toothed wheel 1 engaged by a suitably supported pivot pawl or dog 2 for the purpose of retaining the door in adjusted position, said shaft being also provided with a non-circular portion forming a wrench seat 3 to receive a wrench or handle, whereby the door may be manipulated. When the pivoted pawl or dog 2 is in engagement with the toothed wheel 1 it may be held in engagement therewith by means of a gravity latch 3', thus enabling the door or valve to be securely held either in an obstructing position or in a non-obstructing position with reference to the bottom aperture 3 or, if desired, in a position intermediate the obstructing and the non-obstructing positions, as will be readily understood.

The door or valve, as illustrated in Figs. 1 and 2, consists of a casing, the curved or arcuate face 4 of which is of a radius equal to the distance between the axis of the shaft or shafts E and the lower edges of the inclined bottom members B, B. This casing is provided with an aperture 5 adjacent to which is mounted a coupling device 6 adapted to be connected with a pipe or hose through which live steam may be conducted into the casing from any suitable source of supply. The entire casing constituting the door may consist of a casting, or it may be made of heavy sheet metal or

other suitable heat-conductive material so that when steam is introduced therein it will become quickly heated, thereby heating the adjacent portion of such load as may be contained in the car body and quickly thawing ice which may have formed therein, thus enabling the door to be manipulated more easily and conveniently than if obstructed by ice.

Under the modified construction illustrated in Fig. 3 of the drawing, the door is composed of a segmental plate 7 having end members 8 secured upon the shafts E, the mounting of the door being similar to that already described. Within the shell-like structure constituting the door is arranged a pan or receptacle 9 having trunnions 10 pivotally engaging the end members of the door in such a manner that when the door is swung open, as indicated in dotted lines in Fig. 4, the pan or receptacle will by gravity remain in an upright position. Within this pan suitable combustible material may be placed which may be ignited for the purpose of generating the necessary heat to thaw any ice that may obstruct the adjacent parts, or lime may be placed in said pan to be subsequently slaked by the addition of water for the purpose of generating the necessary heat.

As will be seen from the foregoing description, the necessary heat for thawing ice that may obstruct the movement of the door may be generated and supplied in various ways. It is also obvious that the detailed construction of the door may be modified in various ways within the scope of the claim.

A door or obstructing valve for hopper bottom cars constructed in accordance with the foregoing description may be installed at a very moderate expense, and as it is not

liable to get out of order, the cost of maintenance will be comparatively trifling. A door of this construction may be easily operated by means of a wrench or handle of ordinary construction, and it will be readily seen that the door or valve may be moved to various positions, thus permitting the contents of the car to escape slowly or rapidly, as may be desired. Not only may the escape of the contents be thus regulated, but after a portion has been permitted to escape the door or valve may be readily restored to a completely obstructing position, thus permitting the remainder of the load to be moved to a different point. Hopper car doors of ordinary construction if left open are liable to be interfered with by obstructions upon the track, and such doors are thus frequently injured or destroyed. The chains used to support such doors also frequently become disabled, making it necessary to send the equipment to the repair shop. Accidents of this character are not liable to occur when the improved construction herein described is employed.

Having thus described the invention, what is claimed as new, is:—

A hopper bottom car having inclined bottom members, a pivotally supported sector-shaped door constituting a casing, means for introducing into said casing heated fluid to raise the temperature thereof, and means for moving the door to various obstructing and non-obstructing positions.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE E. BABBITT.

Witnesses:

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