G. E. BABBITT.

HOPPER BOTTOM CAR.

APPLICATION FILED MAY 18, 1912.

1,066,978. Patented July 8, 1913.

Fig. 1.

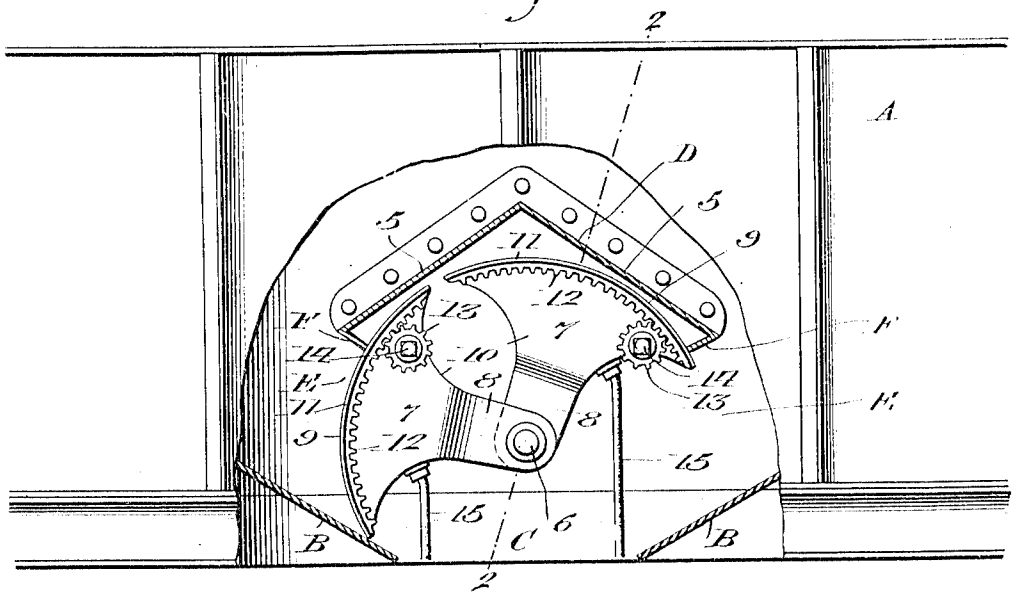
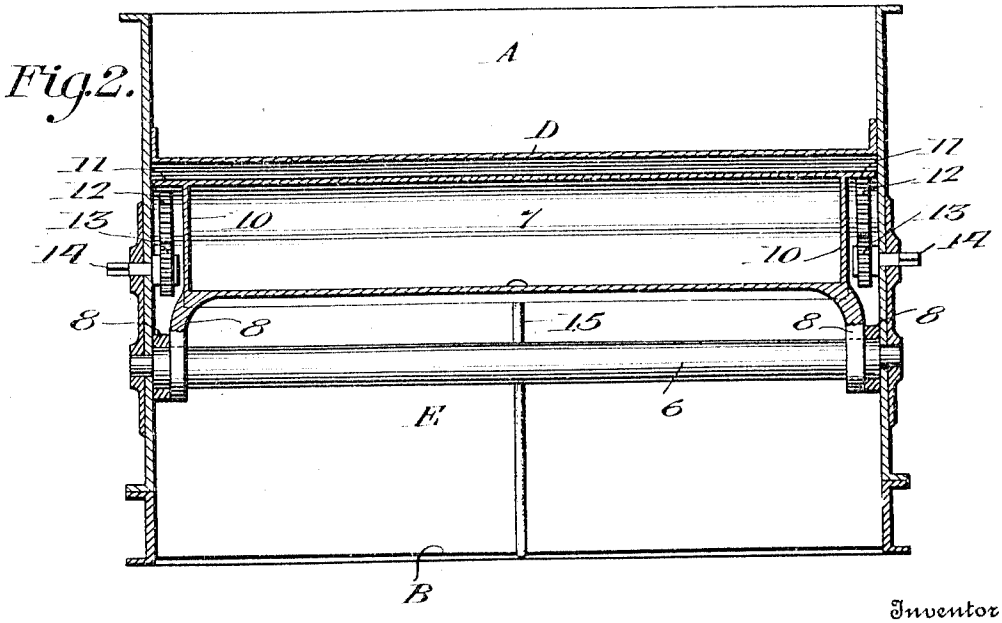


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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HOPPER-BOTTOM CAR.

1,066,978. Specification of Letters Patent. Patented July 8, 1913.

Application filed May 18, 1912. Serial No. 698,210.

To all whom it may concern:

Be it known that I, GEORGE E. BABBITT, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented new and useful Improvements in 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 the door or valve which constitutes the closure for the discharge opening of the hopper.

The present invention may be regarded as an improvement in the device for which Letters-Patent Number 1,011,008 were granted to me on the 5th day of December, 1911. In this patent there is shown a pivotally supported sector-shaped door constituting a casing which is used for obstructing the discharge opening of the hopper, means being provided for introducing into said casing heated fluid to raise the temperature thereof.

The present invention has for its primary object to improve the construction of the door or valve, and the means for mounting and operating the same.

A further object of the present invention is to provide a special construction involving the application of the invention to a hopper car wherein a stationary obstructing member arranged above the discharge opening is provided, thereby providing two separate outlets, each communicating with the main discharge opening.

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 claims.

In the accompanying drawing has been illustrated a simple and preferred form of the invention; it being, of course, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the appended claims may be made when desired.

In the drawing, Figure 1 is a sectional elevation showing a portion of a hopper bottom car equipped with the invention. Fig. 2 is a transverse sectional view taken on the line 2—2 in Fig. 1.

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

The car body A is provided with inclined bottom members B—B which incline toward the bottom aperture C. Supported transversely in the car body above the discharge opening C is an A-shaped obstructing member D the sides of which diverge from the apex thereof in the direction of the bottom members B—B but terminate some distance from the latter so as to form separate outlets E, each of which, however, communicates with the central discharge opening C. The side members of the obstructing member D are provided at their lower edges with flanges F which are disposed at acute angles to the side members which latter are separately designated by 5. Said flanges F are also in approximate parallel relation to the bottom members B with which they cooperate to form the chutes or passages which constitute the outlets E.

Pivoted on a shaft 6 which extends transversely through the car body, are the door members or valves 7 each consisting of a sector-shaped casing having arms or brackets 8 which are pivotally mounted on the shaft 6. The arcuate plates 9 which constitute the face plates of the sector-shaped casings, are extended beyond the end members 10 of said casing so as to form over-hanging flanges 11 on which arcuate racks 12 are mounted. These racks are engaged by pinions 13 mounted for rotation on the car body and adapted to be rotated by means of a crank or wrench for the reception of which for each of the pinions is provided a post or wrench seat 14. It will be observed that whereas the load contained in the car impinges on the convex faces of the valves or casings, the pinions 13 are located between the concave faces of the rack carrying flanges 11 at the ends of said valves or casings and the shaft 6 whereon said valves or casings are supported, thus relieving the shaft 6 from much direct strain, thereby strengthening the construction and facilitating the operation. Connected with each of the arcuate casings is a flexible hose or duct 15 through which steam or other heating fluid may be admitted into the casing.

As will be seen from the foregoing description taken in connection with the drawing, each of the door members or obstructing valves may be moved from an obstructing

position to a non-obstructing position beneath the A-shaped obstructing member D, the arcuate face plates 9 of the door members moving in engagement with the flanges F of the obstructing member. It is obvious that the extent to which the valves are actuated may be accurately gaged, thus permitting the contents of the hopper car to escape slowly or as rapidly as may be desired. It is also obvious that one or both of the doors or valves may be operated to permit material to escape from one or from both ends of the car, as may be desired. Through the tube 15 steam or other fluid may be introduced into the casings for the purpose of thawing ice obstructions when this shall be needed, as set forth in my previous patent to which reference has already been made. By the construction described, the power required to actuate the doors or valves will be applied to the latter at points which are distant from the axis about which they rotate, thereby greatly facilitating the operation of said doors or valves which is obviously important and desirable, especially when the car is heavily loaded with material which exerts considerable frictional energy against the arcuate faces of the doors.

What is claimed as new is:

1. A hopper bottom car having a discharge opening and an outlet communicating therewith, a shaft spaced from the outlet, a valve having arms pivoted on the shaft, said valve consisting of an arcuate casing having a convex load supporting face and provided with flanges at the ends thereof, racks on the concave sides of said flanges, and pinions supported for rotation on the car body in engagement with said racks to support part of the load on the convex face of the valve casing.

2. A hopper bottom car having a discharge opening, an A-shaped obstructing member supported above the opening and having side members provided with flanges arranged substantially parallel to the bottom members of the car to constitute separate outlets, a shaft supported transversely in the car between the outlets, valves consisting of arcuate casings having arms pivoted on the shaft and having convex load supporting faces which are terminally extended to form flanges that project beyond the end walls of the casings, racks on the concave sides of said flanges, and pinions supported for rotation on the car body in engagement with said racks to support part of the load impinging on the convex faces of the casing.

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

GEORGE E. BABBITT.

Witnesses:
JOHN S. SHEDDEN,
FRANK C. AGNEW.