W. E. WINE.

LOCOMOTIVE ASH PAN.

APPLICATION FILED MAR. 19, 1909.

991,257.

Patented May 2, 1911.

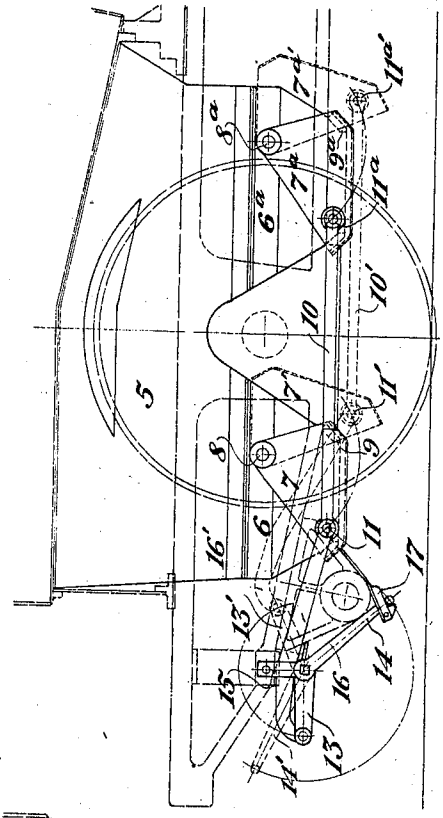

Fig. 1

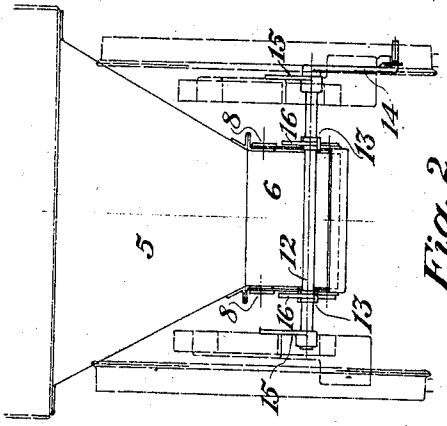

Fig. 2

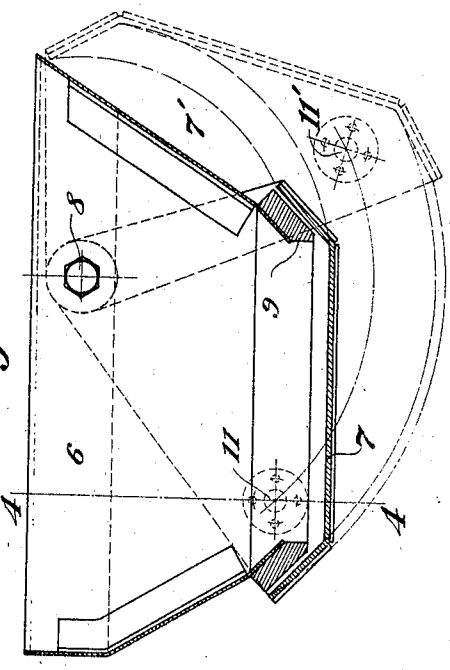

Fig. 3

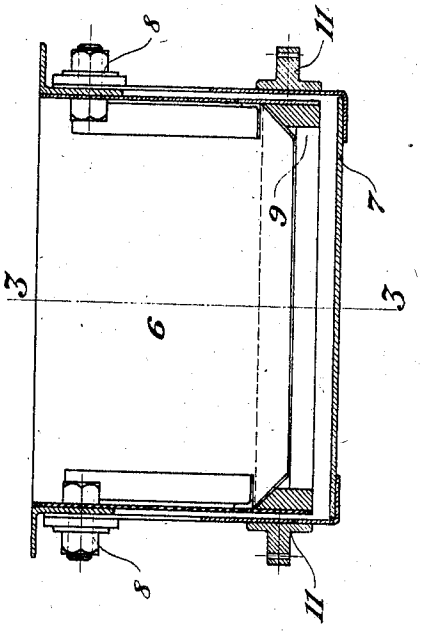

Fig. 4

Witnesses:

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UNITED STATES PATENT OFFICE.

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LOCOMOTIVE ASH-PAN.

991,257. Specification of Letters Patent. Patented May 2, 1911.

Application filed March 19, 1909. Serial No. 484,380.

To all whom it may concern:

Be it known that I, WILLIAM E. WINE, a citizen of the United States, residing at Wilmington, in the county of New Hanover and State of North Carolina, have invented new and useful Improvements in Locomotive Ash-Pans, of which the following is a specification.

My invention relates to locomotive ash pans, and has particular reference to the ash discharge doors therefor.

In ash pans commonly applied to locomotives the ash discharge doors do not completely close the discharge openings when the hoppers or doors become warped, or when the pins or pivoted connections in the supporting and operating mechanisms become worn. As a consequence of this, great damage and loss by fire often occurs from hot cinders loosing out on the right of way, also the pan is often damaged from recombustion of unconsumed coal, caused by the admission of air between the doors and the pan.

The object of my invention is to construct a locomotive ash pan that will eliminate the necessity of accurately machined or adjusted parts, and so that it may be easily opened or dumped and closed in such a manner as not to allow ashes or cinders to loose out along the right of way, even though the pivoted connections become worn and the pan or doors warped.

A further object of my invention is to produce a discharge door that will swing away from the discharge opening by gravity.

A still further object of my invention is to provide means for preventing the entrance of air between the pan and the door.

My invention therefore consists of a door provided with flanges and adapted to close and seal an opening in the bottom of an ash pan hopper.

In the accompanying drawing, which illustrates the preferred embodiment of my invention, Figure 1 is a side elevation showing the ash pan and operating arrangement in full lines, the open position of the doors and corresponding position of the operating arrangement by dotted lines and the other parts of the locomotive by broken lines; Fig. 2 is a rear elevation; Fig. 3 is a section of the door and hopper on line 3—3; Fig. 4 is a section of the door and hopper on line 4—4.

Similar characters designate like parts throughout the several figures of the drawing.

Referring now to the parts by number, 5 represents a locomotive ash pan divided into two hoppers 6 and 6^a in the lower part thereof, to which are pivoted the doors 7 and 7^a on the pivots 8 and 8^a respectively. The revolved or open positions of these doors 7 and 7^a being represented by 7′ and $7^{a\prime}$ respectively. These doors 7 and 7^a revolve about a horizontal axis on the pivots 8 and 8^a, on the sides of the hoppers 6 and 6^a and do not come in contact with said hoppers at any other point, as will be seen from Figs. 3 and 4, thus leaving a space all around between said door and the lower part of said hopper. On account of the space between said door and said hopper, any wear in the pivoted connections, distortion of the door or hopper from heat or other cause, inaccuracies in manufacture, erection or adjustment, will not prevent the proper closing or operating of the door. The edges of the doors being flanged upwardly around the lower ends of the hoppers, the ashes or cinders are prevented from escaping through the space between said door and said hopper.

It has been found in practice that the finer ashes will settle to the bottom and pack in said space sufficiently to prevent the ingress of air, which would cause recombustion in the hopper and thereby damage the pan.

It may be desirable in warm climates to allow the injector overflow to discharge into the ash pan, which by reason of the upward flanges around the lower ends of the hoppers, will effect an air tight seal.

The hoppers 6 and 6^a are provided with cast metal frames 9 and 9^a at the bottom ends thereof to prevent warping or buckling of said hoppers.

The doors 7 and 7^a are connected by parallel rods or links 10 on the pivots 11 and 11^a.

The operating shaft 12, to which are rigidly connected the crank arms 13 and the operating lever 14, is supported by bearings 15 which are rigidly connected to the locomotive frame. Between and connecting the

free ends of the crank arms 13 with pivots 11 are connecting rods 16, so shaped that when the doors 7 and 7ª are closed the dead weight as well as the weight of the ashes thereon tends to hold the operating arrangement in a locked position. This lock is effected by so bending the rods 16 that a straight line drawn through the centers of the two end connections thereof will pass well to the side of the center of the operating shaft 12, opposite to the rods 16.

The latch 17 is only a safety appliance to prevent the operating arrangement from being thrown off of its locked position.

The positions of the parts 10, 11, 11ª, 13, 14, and 16, when the doors 7 and 7ª are open, are represented by 10′, 11′, 11ª′, 13′, 14′, and 16′ respectively.

The doors may, if desired, be operated by any other convenient means, instead of as shown on the accompanying drawing.

My invention has been found in practice to enable the contents of large ash pans to be readily discharged, and the mechanism employed insures the effective closure of the discharge openings, thereby preventing the liability to dropping of hot cinders upon the right of way and eliminating the danger and loss by fire.

Having thus described my invention, I aim in the appended claims to cover all modifications which do not involve a departure from its spirit and scope.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a locomotive ash pan, the combination of an ash receptacle formed with a discharge opening in its lower portion, a dumpable closure for said receptacle adapted to coöperate with the discharge opening of the receptacle, said dumpable closure being adapted to retain an air sealing medium, and to form in connection with said receptacle an air seal, and means for operating said closure.

2. In a locomotive ash pan, the combination of an ash receptacle formed with a discharge opening in its lower portion, a dumpable closure for said receptacle formed with upwardly extending flanges surrounding the lower portion of said receptacle, when said closure is in a closed position, said closure adapted to retain an air sealing medium and to form in connection with said receptacle an air seal, and means for operating said closure, substantially as specified.

3. In a locomotive ash pan, the combination of an ash receptacle formed with a discharge opening in its lower portion, a dumpable closure for said receptacle formed with upwardly extending flanges surrounding the lower portion of said receptacle and spaced therefrom, when said closure is in a closed position, said closure adapted to retain an air sealing medium and to form in connection with said receptacle an air seal, and means for operating said closure, substantially as specified.

4. In a locomotive ash pan, the combination of an ash receptacle formed with a discharge opening in its lower portion, a plurality of dumpable closures for said receptacle formed with upwardly extending flanges surrounding the lower portion of said receptacle when said closures are in a closed position, said closures adapted to retain an air sealing medium and to form in connection with said receptacle an air seal, and means for operating said closures, substantially as specified.

5. In a locomotive ash pan, the combination of an ash receptacle formed with a plurality of discharge openings in its lower portion, a plurality of dumpable closures for said receptacle, one closure for each opening, formed with upwardly extending flanges surrounding the lower portions of said receptacle, when said closures are in a closed position, said closures adapted to retain an air sealing medium and to form in connection with said receptacle an air seal.

6. In a locomotive ash pan, the combination of an ash receptacle formed with a discharge opening in its lower portion, a swinging closure for said receptacle formed with upwardly extending flanges surrounding the lower portion of said receptacle, when said closure is in a closed position, said closure adapted to retain an air sealing medium and to form in connection with said receptacle an air seal, said closure being provided with supporting members in the form of arms rigidly attached thereto, said supporting members being pivoted at their free ends to said receptacle, and means for operating said closure, substantially as specified.

7. In a locomotive ash pan, the combination of an ash receptacle formed with a discharge opening in its lower portion, a dumpable closure for said receptacle formed with upwardly inclined end flanges and vertical side flanges surrounding the lower portion of said receptacle, when said closure is in a closed position, said closure adapted to retain an air sealing medium and to form in connection with said receptacle an air seal, and means for operating said closure, substantially as specified.

8. In a locomotive ash pan, the combination of an ash receptacle formed with a discharge opening in its lower portion, a swinging closure for said receptacle formed with upwardly inclined end flanges and vertical side flanges surrounding the lower portion of said receptacle, when said closure is in a closed position, said closure adapted to retain an air sealing medium and to form in connection with said receptacle an air seal,

said closure being provided with supporting members integral with said side flanges and pivoted at their top ends to said receptacle, the pivotal axis being so located that said closure will swing from said receptacle by gravity, and means for operating said closure, substantially as specified.

In witness whereof I have hereunto set my hand this 15th day of March 1909.

WILLIAM E. WINE.

Witnesses:
GEORGE G. THOMAS, Jr.,
GUY R. DAVIS.