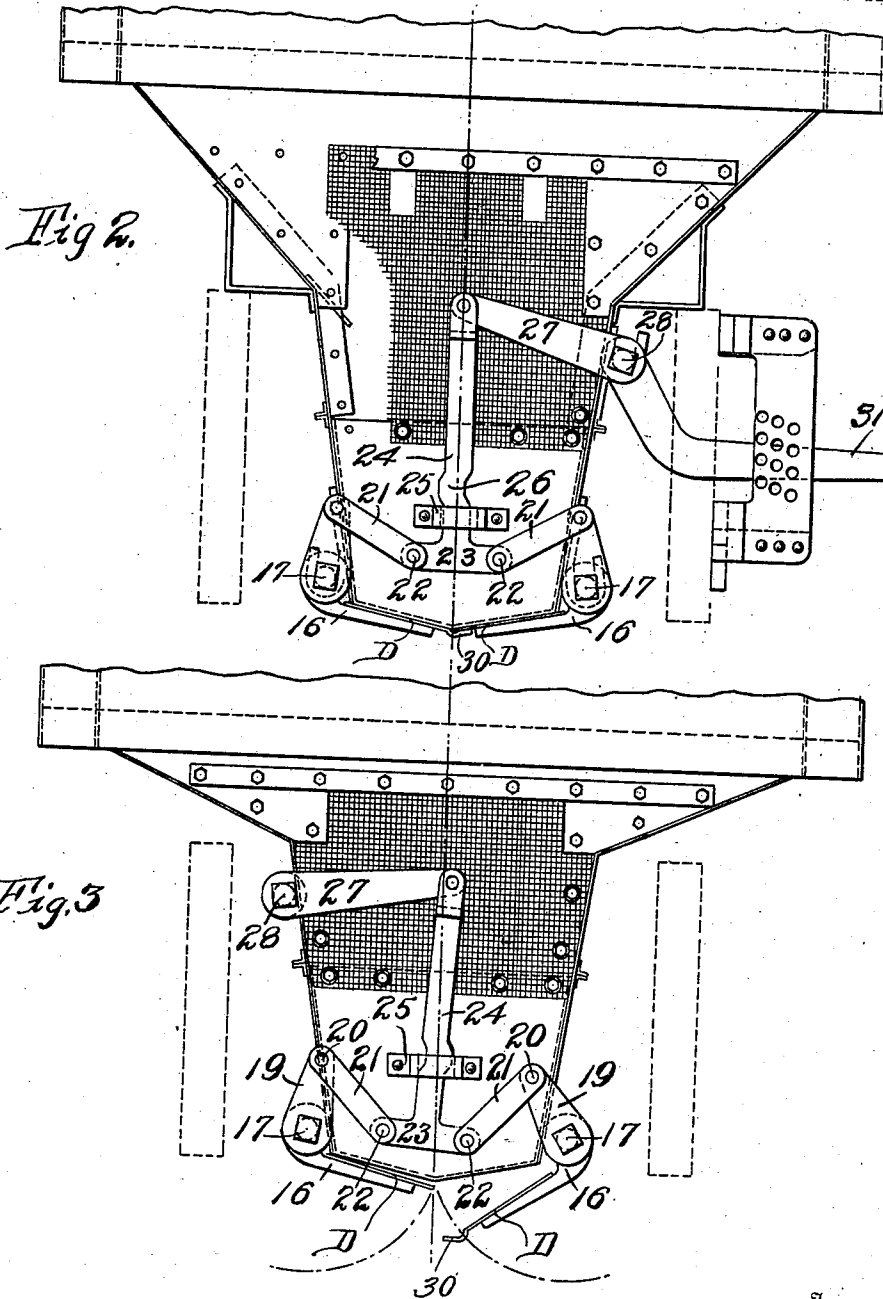


H. A. HOKE.
LOCOMOTIVE ASH PAN.
APPLICATION FILED JAN. 27, 1910.

980,870.

Patented Jan. 3, 1911.

2 SHEETS-SHEET 2.



Witnesses

Walter Kelly

Emory L. Groff

Inventor

Harry A. Hoke

By

N. E. Gee

Attorney

UNITED STATES PATENT OFFICE.

HARRY A. HOKE, OF ALTOONA, PENNSYLVANIA.

LOCOMOTIVE ASH-PAN.

980,870.

Specification of Letters Patent.

Patented Jan. 3, 1911.

Application filed January 27, 1910. Serial No. 540,445.

To all whom it may concern:

Be it known that I, HARRY A. HOKE, a citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Locomotive Ash-Pans, of which the following is a specification.

This invention relates to the subject of locomotive ash pans, and particularly to certain novel and practical improvements in pans of the self-cleaning type, wherein the cleaning operation is easily accomplished by one man without the necessity of going below the locomotive in the ash pit, thus reducing the danger to workmen, as well as reducing the time necessary to clean the pans.

To this end the invention primarily contemplates certain improvements in the ash pan construction and operating mechanism therefor disclosed in my former and related application, filed December 31, 1908, Serial No. 470,193.

The present invention has the same general objects in view as the invention set forth in the said former application, particularly with reference to the feature of providing an effective combination of articulated or jointed lever elements which cause the force applied to be so shifted as to provide for starting the opening of a door which has become temporarily stuck or otherwise restrained.

In addition to that general object, the present invention particularly has in view a modification of the operating mechanism of said former application, which modification will allow the use of lapping drop doors, and which provides means for causing one door to close slightly in advance of the other.

Also, the present invention provides a construction which allows the door offering the least resistance to start first.

With these and many other objects in view, which will readily appear to those familiar with the art as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated and claimed.

The essential features of the invention are necessarily susceptible to structural modification, but a practical embodiment thereof is shown in the accompanying drawings, in which:—

Figure 1 is a side elevation of a locomotive ash pan embodying the present invention. Fig. 2 is a rear end elevation of the parts shown in Fig. 1, and clearly showing the operating mechanism. Fig. 3 is a front elevation of the parts shown in Fig. 1 and illustrating the action of the articulated element in the opening and closing of the drop doors.

Like references designate corresponding parts in the several figures of the drawings.

In the drawings, the number 10 designates the usual locomotive furnace to which is fitted the ash pan supports 11 and the auxiliary supports 12.

The ash pan proper is designated in its entirety by the number 13 and is preferably made in sections 14 and 15, as well understood by those familiar with the art. The oppositely movable drop doors D for the bottom of each pocket are carried by means of the usual hinge members 16 upon the hinge rods 17 journaled in suitable bearings 18 at the sides of the ash pan. These hinge rods or axles 17 of the doors have fitted thereto the upwardly extending rock arms 19, to the upper ends of which are pivotally connected, as at 20, the upper ends of the toggle forming links 21, the lower ends of which links are articulated, as at 22, respectively to the opposite terminals of the cross head 23 of a vertically and laterally movable T-bar 24. This T-bar has a loose play within a fixed guide yoke or keeper 25 fastened to the outside of the ash pan body, and at a point intermediate its ends the said T-bar is provided with a laterally offset strike projection or bend 26 which works through and also engages the fixed guide 25. The upper end of the T-bar 24 is pivoted to the inner end of a vertically swinging connecting lever 27, the outer end of which lever is fast to a main operating shaft 28. This main operating shaft 28 is journaled in suitable bearings 29 at the sides of the ash pan body and extends longitudinally of the body, the full length of the latter. The same lever equipment is associated with both ends of the single main operating shaft 28, that is to say, each end of the said main operating shaft has the same lever connections above described with the set of drop doors at that end of the ash pan. The one shaft 28 therefore serves to operate the several pairs of drop doors which are associated with the several discharge openings of the ash pan.

According to the present invention, one of the drop doors is wider than the other and has an overlap lip 30 at its free edge which laps over the free edge of the opposite door, 5 when both doors are closed.

The usual operating handle 31 is connected with the main operating shaft 28 for turning the same.

From the construction described, it will be 10 observed that the operation of closing the doors is the same as the operation described in my former application aforesaid, until the strike projection 26 comes into contact with the guide 25. When this occurs the 15 head 23 of the T-bar is caused to move to one side, thereby causing the door on that side opposite the said projection, to close first. As the T-bar continues to move upwardly, the strike projection or bend 26 passes 20 through the guide and the other door closes against the edge of the one already closed (or nearly so) and holds both doors tightly closed. In the closed position of the doors, there is clearance on both sides of the T-bar 25 so that equal load is applied to both doors to hold them shut.

In opening the doors, the opening force is applied equally to the doors until the strike projection 26 on the T-bar comes in contact 30 with the guide 25. During this movement, if the inside lapped door works harder than the outside lapped door, the said outside lapped door will partially open, and thereby allow the T-bar to come in contact with the 35 guide 25 on the side farthest from the operating lever. All of the force will then be exerted on the inside lapped door. If instead the outside lapped door works harder than the inside lapped door, the force on the 40 T-bar will be divided between the lever arms of the two doors. That part of the force which is exerted on the lever arm of the inside lapped door will be transmitted from the inside lapped door to the end of the out- 45 side lapped door and together with the part of the force which is exerted on the lever arm of the outside lapped door will cause the said outside door to partially open. Furthermore when the strike projection 26 on 50 the T-bar comes in contact with the guide 25, the said bar is forced to one side, causing the outside lapped door to open more rapidly than the other door so as to avoid any interference between the two. After the 55 strike projection 26 on the T-bar has passed

through the guide 25, the bar may, if the resistance to opening is equal on the two doors, return to its central position. In case either door works harder than the other, the bar will move against the guide 25 and 60 thereby cause more force to be applied to the harder working door.

I claim:

1. In a locomotive ash pan provided with an ash discharge opening, the combination 65 of two oppositely movable doors for closing the opening, one of said doors having its free edge overlapping the free edge of the other door when in closed position, means for receiving motion from a source of power, a 70 movable element having an articulated lever connection with said source of power and also having articulated connections with both of said doors, and means coöperating with said movable element and its articulated con- 75 nections for automatically shifting, in the opening operation, the greater part of the force applied to the door offering the greater resistance, and in the closing operation to close one of the said doors in advance of the 80 other.

2. In a locomotive ash pan provided with a discharge opening, the combination with oppositely movable doors, and means for receiving motion from a source of power, of a 85 fixed guide, a vertically movable bar articulated with said means and loosely operated through said guide, said bar being provided with a laterally offset projection, also operated through and against said guide, and 90 lever connections between said bar and said doors.

3. In a locomotive ash pan provided with a discharge opening, the combination with oppositely movable doors, and means for receiving motion from a source of power, of a 95 fixed guide, a vertically movable T-bar articulated with said means and loosely operated through said guide, said T-bar being provided with a laterally offset projection, also 100 operated through and against said guide, and lever connections between said door and said bars.

In testimony whereof I hereunto affix my signature in the presence of two witnesses. 105

HARRY A. HOKE.

Witnesses:

N. E. GEE,
ADAM LEAKE.