(No Model.)

E. S. HART.

ASH PAN FOR LOCOMOTIVES.

No. 296,749. Patented Apr. 15, 1884.

Fig 1.

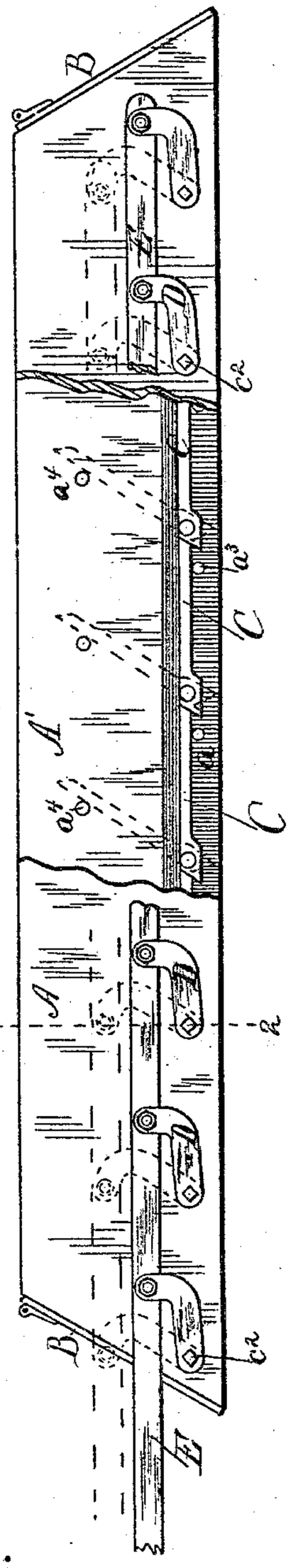

Fig 2.

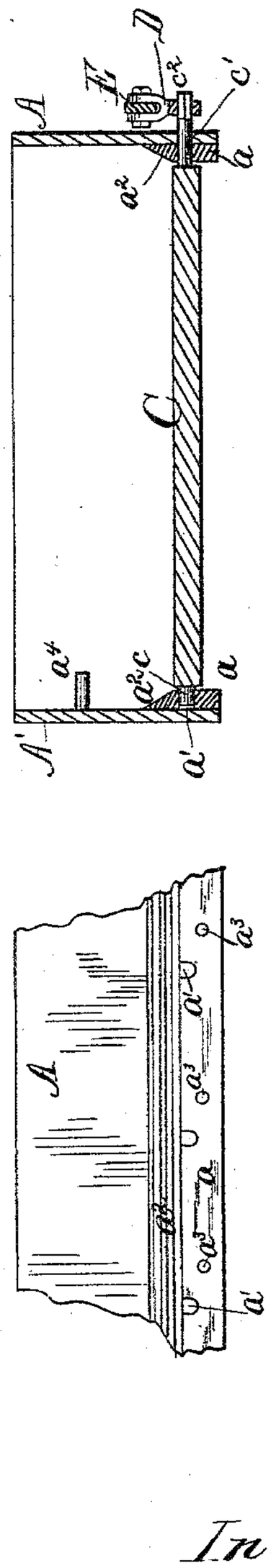

Fig 3.

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UNITED STATES PATENT OFFICE.

ELI S. HART, OF CLINTON, IOWA.

ASH-PAN FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 296,749, dated April 15, 1884.

Application filed December 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, ELI S. HART, a citizen of the United States, residing in Clinton, in the county of Clinton and State of Iowa, have invented a new and useful Improvement in Ash-Pans for Locomotives, of which the following is a specification.

My invention relates to certain new and useful improvements in the construction of ash-pans for locomotives, by means of which the ashes therein may be readily dumped at will from the cab.

Certain difficulties have heretofore existed in the practical use and operation of locomotive ash-pans with slat bottoms, which have prevented their general adoption. In ash-pans where the slats open downward, the slats, when open, are liable to be struck by snow, ice, or any obstruction between the rails, and broken or injured. Such slats must also, when closed, be held in place by some mechanical device, which is constantly liable to disarrangement or breakage, thereby permitting the slats to drop down, thus leaving the pan open and practically without a bottom. In other pans where the slats are pivoted or hung at their centers, like difficulty occurs. The side of the slat opening downward is liable to be caught and broken by snow, ice, or other obstructions, or its connection with the operating-rod may be broken by the same agency, in which case the slat is thrown or sometimes falls backward in the direction opposite from that in which the other slats close, frequently catching the other slats and holding them partially open, and thus preventing a perfect bottom being formed to the pan. In those pans where a slat is opened and becomes disconnected from the operating rod or device, or when, the slats being opened, the operating-rod becomes broken or disconnected, reliance is placed upon the current of air (caused by the motion of the locomotive) to close them. If the locomotive is running slowly, this current of air is often insufficient for this purpose, and if it is running backward it sometimes closes them the wrong way, and they do not close down or form a close, tight bottom. In other ash-pans with slat bottoms the slats extend lengthwise of the pan. This construction involves the necessity of solid ends or strong, substantial supports across the ends of the pans at the bottom, upon which the slats can be hung or pivoted. These solid end supports are, in practical use, a serious objection to these pans. Whenever the operating or connecting rod is disarranged so the slats cannot be turned by its use, the pan must be cleared of ashes, cinders, &c., from the ends. If solid, this cannot be done. If made with doors and supporting cross-pieces to carry the ends of the slats underneath them, the doors cannot (on account of the necessarily limited height of the pan) be made of sufficient size to permit rapid cleaning out of the pan, and great labor and delay are frequently caused by this manner of construction. In all these forms it should not be overlooked that a greater or less portion of the slats depend below the pan when in the open position, thereby exposing them to danger from obstructions lying between the tracks. My improvement overcomes the above and other objections to ash-pans having slat bottoms, which have prevented their general adoption and use.

The invention consists of the peculiar construction and combination of the parts hereinafter more fully described.

The accompanying drawings show, at Figure 1, a side elevation of my improved ash-pan, partly broken away to show the interior construction. Fig. 2 is a cross vertical section, and Fig. 3 is an inside elevation of one of the side walls.

In said drawings, A and A′ represent the side walls of my improved ash-pan, which may be provided with front and rear doors, B B, if desired. The bottom of the pan is composed of a series of slats, C C, each of which is hinged at the ends to the side walls of the pan, as explained below. One of the side walls I provide with a ledge, *a*, in which are sockets *a′* for the pivots *c* upon one end of the slats, and said pivots are retained in these sockets by the beveled or inclined surfaced retaining-piece a^2. The wall A may be provided with a similar ledge, *a*, and retaining-piece a^2; but in this case the pivot-openings extend clear through said wall, and the pivots *c′* at this end of the slats are made long enough to project to the outside of the pan and allow the attachment of the cranks D upon their squared ends

c^2. The slats are inserted with the pivots c' first entering their openings, and the opposite pivots will then readily enter their sockets a' if one or both retaining-pieces a^2 be not applied until after the slats are in place. The cranks D are forked at their upper ends, and are all attached to the operating-bar E, by which they are actuated from the cab of the locomotive.

The chief peculiarity of my slats lies in the fact that in opening no part of them is made to project below the bottom of the surrounding walls of the pan, and this is due to the fact that they are hinged near one of their longitudinal edges. I prefer to locate the pivots at the rear edge, so they open at their forward edge, as shown in the drawings, as in that case the motion of the engine tends to draw the ashes out, and the slats do not act to catch the air and force it up into the pan and retard the exit of the ashes as they would if they opened so as to incline in the opposite direction. By thus making them to swing entirely within the pan, the danger from obstructions on the road-bed is done away with.

Another advantageous feature attending the locating the pivots at the edge of the slats is that the weight of the slats acts to render them self-closing, and this tendency may be increased by weighting them upon the swinging edge or weighting the cranks by which they are operated, or both ways may be employed. In the view shown in Fig. 1, I have illustrated an appropriate form of the slat without any added weight. The crank shown is so constructed that it will assist the closing of the slats. Care should be taken, however, in the construction of the cranks, that they do not swing past the centers upon which they turn, as in that event they would counterbalance the slats to some extent and tend to prevent their closing. The stops a^3 below the slats are intended to prevent the slats from turning downward in case they become detached from the bar E, and stops a^4 above them are intended to prevent them from opening beyond the desired point. The dotted lines in Fig. 1 show approximately the extent of opening desirable. The adjoining edges of the slats are preferably beveled, as illustrated, so that they will form tight joints and a smooth surface.

The operation of the invention will be fully apparent to those skilled in the construction and use of slat-bottomed pans, and needs no further description. Of course it will be understood the slats may be actuated by the devices I have shown or by any other devices now in use for that purpose, and that such devices may be located within instead of outside the pan. However they may be constructed in other respects, they should not project below the pan sufficiently to endanger them, and preferably should be located wholly above the bottom of the pan, as shown.

It will be noticed that the slats in my pan are so shaped at their adjoining edges as to prevent interference by any one which may become detached from the operating devices with the opening of the others. This is not true of slats which overlap at their edges, except where their edges are beveled, as shown, or equivalent forms are employed to obviate such interference. The overlapping feature is otherwise objectionable, in that it prevents the forming of a flat bottom which cannot be perfectly cleansed, and causes serious trouble, especially where the ashes are liable to freeze to the slats.

I claim—

1. The ash-pan for locomotives, having a bottom composed of slats hinged by end pivots located near their longitudinal edges, and swinging upward within the pan, and devices for operating said slats, located in a plane above the bottom of the pan, substantially as specified.

2. In a locomotive ash-pan, a series of slats forming a close flat bottom when closed, swinging upward within the pan, and hinged by end pivots located near their longitudinal edge, in combination with operative devices located above the bottom of the pan, substantially as specified.

3. In an ash-pan, the combination, with the slats and means for operating the same, of the stops a^3, substantially as specified.

4. In an ash-pan, the combination, with the slats and means for operating the same, of the stops a^4, substantially as specified.

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