

(No Model.)

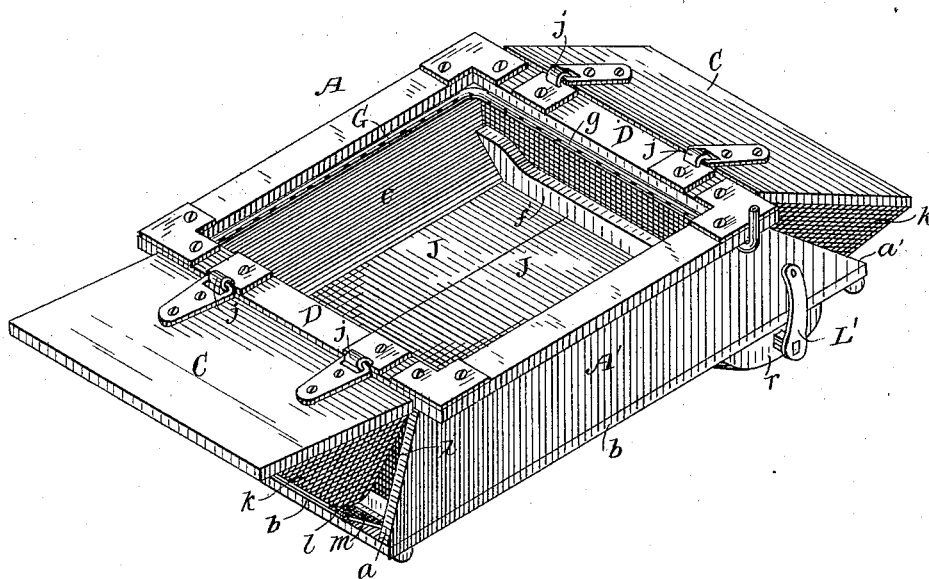
2 Sheets—Sheet 1.

E. F. VAUGHN.  
LOCOMOTIVE ASH PAN.

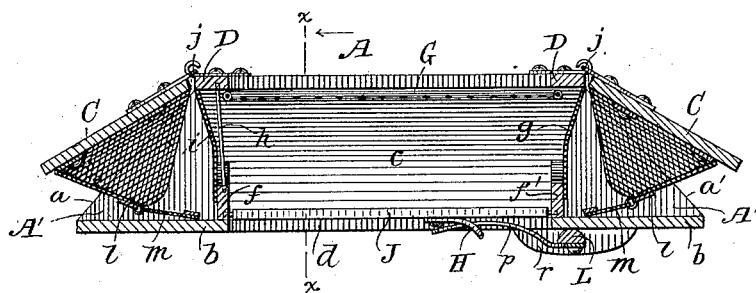
No. 344,608.

Patented June 29, 1886.

*Fig. 1.*



*Fig. 2.*



Witnesses  
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By his Attorney  
*Frank Sheehy*

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Fig. 3.

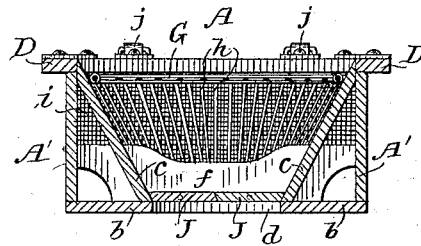
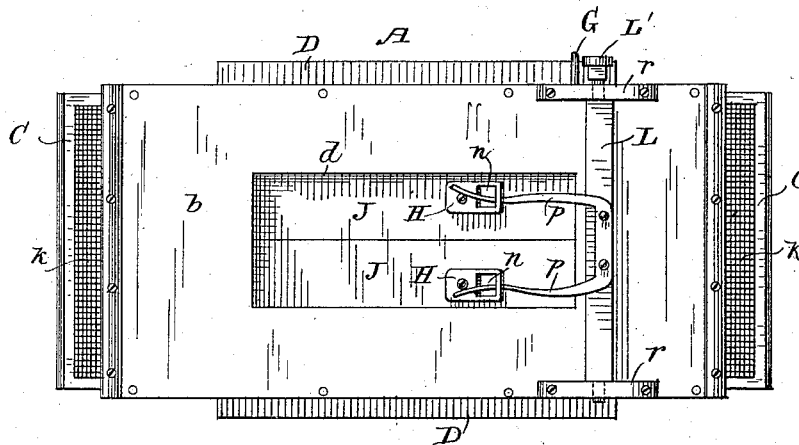


Fig. 4.



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# UNITED STATES PATENT OFFICE.

EDGAR F. VAUGHN, OF TOPEKA, KANSAS, ASSIGNOR TO PIERCE B. VAUGHN,  
OF SAME PLACE.

## LOCOMOTIVE ASH-PAN.

SPECIFICATION forming part of Letters Patent No. 344,608, dated June 29, 1886.

Application filed March 29, 1886. Serial No. 196,934. (No model.)

### *To all whom it may concern:*

Be it known that I, EDGAR F. VAUGHN, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Locomotive Ash-Pans; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a perspective view of my improved ash-pan, showing the front damper or hood partly open and the rear damper fully open. Fig. 2 is a longitudinal section taken in a vertical plane through the center of my improved ash-pan. Fig. 3 is a transverse vertical section through the pan, taken in the line indicated by *xx* on Fig. 2. Fig. 4 is a bottom view.

This invention has relation to ash pits or pans for locomotives and stationary furnaces; and it consists in the following-described devices, which will be hereinafter specified.

My objects are, first, to prevent setting fire on lines of railways by coals and sparks from ash-pans of locomotives, and to accomplish the same result in stationary engine-boilers; also, to afford means whereby the incandescent coals shall fall between rails; also, to provide means whereby the ashes can be readily dumped between the rails, the fire in the ashes being extinguished before so dumping. These objects I accomplish in the following manner, reference being had to the annexed drawings.

A designates an ash-pan, which is provided with a frame, *A'*, forming a rectangular flange bolted to the "mud-ring" section of a locomotive engine-boiler, or a stationary engine-boiler. This frame may be formed entire, or it may be formed of separate parts united by angle-irons, or in any other suitable manner.

The general form of my removable ash-pan or ash-bottom is this: Its sides *a a* are tapered at their ends, as indicated at *a' a'*, and suitably secured to a horizontal bottom, *b*. The said rectangular flange forms the binding-cap for the frame *A*, and it is, preferably as above described, so that it will form a binder.

It will be observed by reference to the drawings that the ends of this ash box or pan are inclined in opposite directions, and that I employ inside of the box a sub-bottom consisting of two inclined planes or chutes, *c c*, starting above from the said rectangular frame and terminating at the longitudinal edges of an opening, *d*, through the bottom *b* of the frame. These inclined chutes leave beneath them a longitudinal passage which extends from the front to the rear of the ash-box, and below the said frame I suitably unite to the said inclined chutes, and to the bottom of the ash-box end-divisions, *f f'*, which are preferably in practice, inverted arches, which not only serve as lateral braces, but they also serve as end guards.

At the rear end of the ash-box I employ a strong reticulated diaphragm, *g*, which may be made of wire-netting, my object being to break up the live cinders under any strong blast. At the opposite or front end of this ash-box, which is removable, I employ breaker-bars *h*, which may be made of chilled steel or of any other suitable material, and which are secured to the division *f*, and to the front transverse portion of the top frame. In front of and in close relation to these said breakers I use another netting, *i*, which is secured to the division *f*, and also to the transverse division.

It will thus be seen that while I allow a free escape of ashes and cinders from the ash-box, when I disintegrate the same, on their outward passage, and that I may employ the said cinder-breakers at the rear end as well as at the front end of the ash-box.

In addition to and as supplementary for preventing the forward and backward escape of incandescent cinders, I employ hinged dampers or hoods *C C* at both ends of my improved ash-box. These dampers consist of imperforate plates, which are hinged at *j* to the ends of the flanged frame *D*, and provided with reticulated hooding portions *k k*, a transverse re-enforcing-bar, *l*, and a hinged reticulated apron, *m*. The reticulated fixed parts of the hoods form in cross-section a *V* with the ends closed, and to the free edge of each hood the reticulated apron is hinged to said bar *l*. This apron performs an important office in my improved ash-pan or removable

box, to wit: its lower edge impinges upon the bottom of the box beyond the breakers and the netting above described, and wipes back the cinders and sparks which may have passed the inner netting.

For the purpose of insuring the extinguishment of the live cinders I employ a perforated pipe, G, which I prefer to connect with the steam-chamber of the boiler below the water-line therein, if my invention is used with a locomotive or portable engine, and to provide this pipe with a suitable valve, readily accessible to the engineer. This pipe is carried around the ash-box, preferably in close relation to the frame D, and from its numerous perforations steam and water will issue downward under pressure, for the purpose above described.

I will now describe the dumping attachment for my ash-pan. I have above stated that the inner sides of the pan are inclined inward, so that the box becomes a chute. Now, in the space between the lower termini of these inclined sides I employ two or more slats or dumps, J J, which are journaled in the transverse end pieces, and have beveled edges adapted to form tight joints when they are closed.

By reference to Fig. 4 it will be seen that I secure downwardly-turned plates H H to the bottoms of the slats, which plates are slotted transversely at *n n*. It will also be seen that I employ a rocking bar, L, having forked arms *p p* secured to it, the ends of which are passed through said slots. This rocking or oscillating bar L is journaled in bearings *r r*, secured to the bottom of the pan, and on one end of this bar is keyed a lever, L', which, by a suitable connecting-rod, can be vibrated by the engineer at his place in the cab. By this means the accumulated cinders which are dead can be dumped and directed toward the center of the track, if the device be used on a locomotive.

It will be observed that the device herein described is reversible, and that I have a hopper which will concentrate the debris that falls from the grate of the furnace. Furthermore, it will be observed that I leave air-circulating passages between the outer side walls of the ash-pan and the chuting-walls, which will keep these walls cool. By these means I can safely dump ashes and cinders while the engine is in motion, and prevent fires.

The breaker-bars *h*, which I have above referred to, protect the wire-netting from being torn out by clinkers falling against this netting when the fire in a furnace is being cleaned of cinders and other incombustible residue, and also when the fire is being "knocked out" of the furnace.

Having described my invention I claim—

1. An ash-pan for a furnace, having a bracing-frame, the longitudinal vertical sides and internal inclined sides forming chutes and leaving air-circulating spaces, substantially as described.

2. An ash-pan for a furnace, having a bracing-frame, chuting sides, air-circulating spaces between these sides and the outer walls, and a dumping or tilting bottom, as described.

3. The combination, in a furnace ash-pan, of the rigid top frame, the vertical side walls inclined at their ends, as described, the chute-boards, a tilting bottom, and the reticulated spark-arresters at the ends of the pan, substantially as described.

4. The combination, with an ash-pan for a furnace, of the means described for dumping the ashes, and hinged reticulated dampers, substantially as and for the purposes specified.

5. The combination of articulating dampers having reticulated angular walls with an ash-pan constructed substantially as described.

6. An ash pan or pit adapted for locomotive or stationary furnaces, provided at one end with cinder-breaking bars, substantially as described.

7. An ash-pan adapted for furnaces, having at one end cinder-breaking bars and a reticulated wall, substantially as described.

8. An ash-pan adapted for locomotive or stationary furnaces, provided at one end with cinder-breaking bars and a reticulated spark-arrester, in combination with spray-pipes inside of the pan, substantially as described.

9. The combination, in an ash-pan, of a spray-pipe for extinguishing incandescent cinders with reticulated spark-arresting walls and hinged dampers, substantially as described.

10. The combination, in an ash box or pan, of tilting bottoms provided with slotted plates, and the rocking bar provided with forks which enter the slots in said plates, and operate by oscillating the bar to open and shut said bottoms, substantially as described.

11. An ash-pan having the exterior vertical sides, the inclined or chute interior sides, the tilting bottom, reticulated ends, and hinged dampers provided with articulating-aprons, substantially as described.

12. The combination, in an ash-pan, of the side walls beveled at their ends, the rectangular frame, the internal inclined walls, leaving air-circulating spaces, a tilting bottom, a cinder-breaker at the end of the pan, and a hinged damper, substantially as described.

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

EDGAR F. VAUGHN.

Witnesses:

B. M. CURTIS,  
C. F. McCABE.