(No Model.)

W. J. BRENNAN & C. A. PITCHER.

ASH PAN AND BOILER CLEANER.

No. 464,272. Patented Dec. 1, 1891.

Fig. 1.

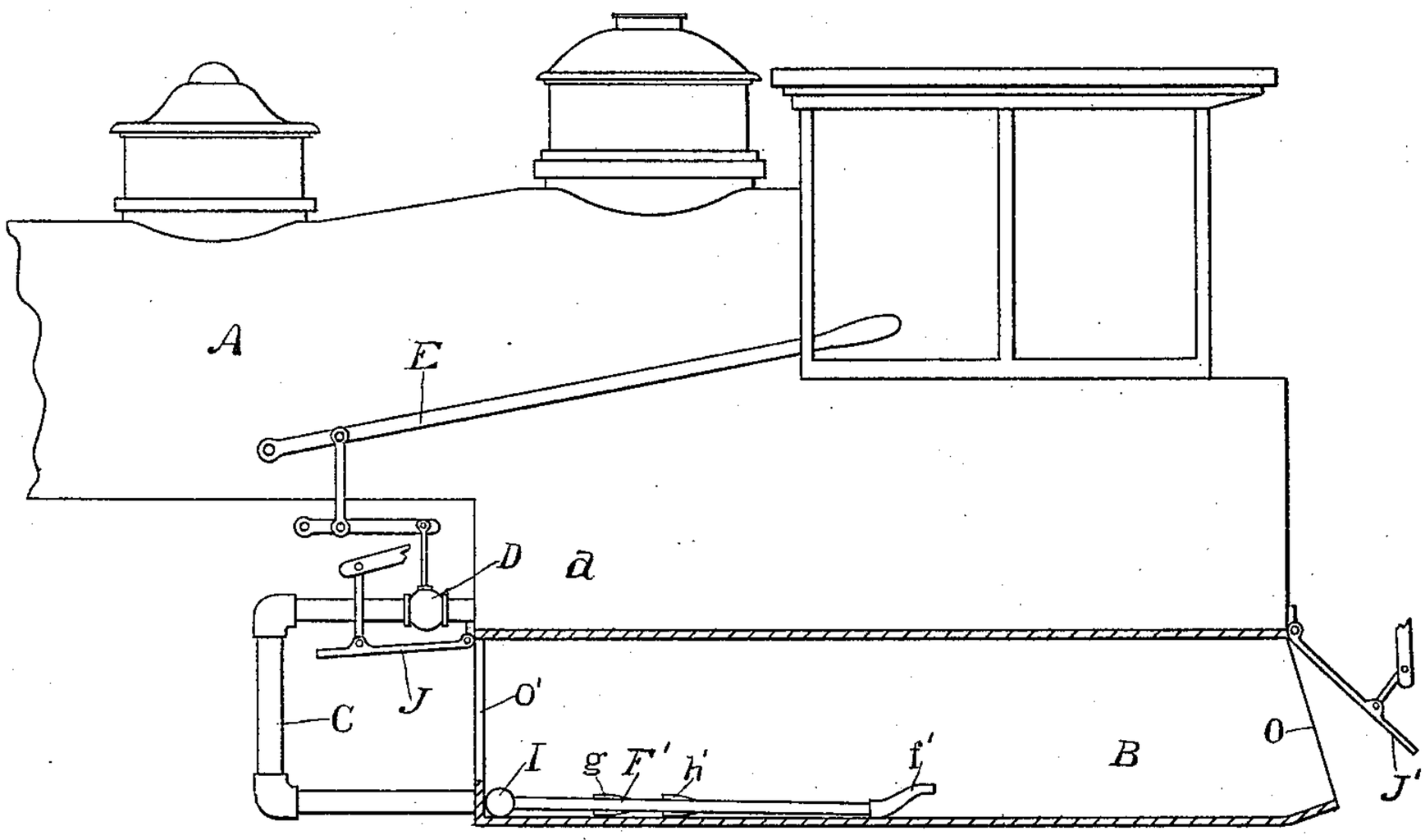
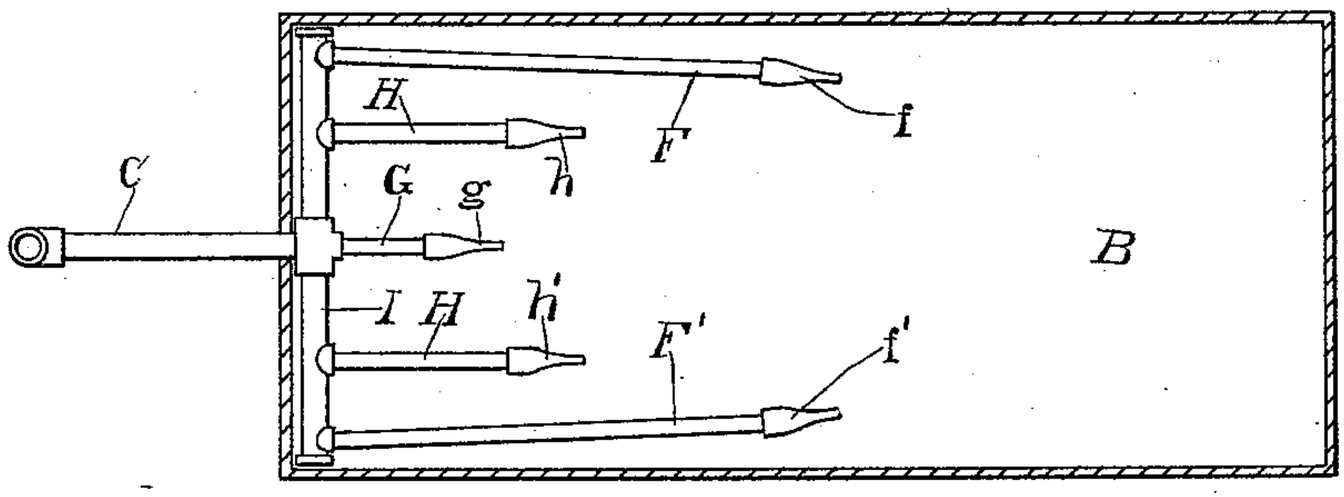


Fig. 2.



Witnesses
M. C. Galer
Alfred L. Townsend

Inventors.
William J. Brennan
Charles A Pitcher
by Hazard & Townsend.
their Attys.

UNITED STATES PATENT OFFICE.

WILLIAM J. BRENNAN, OF COALINGA, AND CHARLES A. PITCHER, OF NEEDLES, CALIFORNIA.

ASH-PAN AND BOILER CLEANER.

SPECIFICATION forming part of Letters Patent No. 464,272, dated December 1, 1891.

Application filed January 14, 1891. Serial No. 377,776. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM J. BRENNAN, of Coalinga, Fresno county, and State of California, and CHARLES A. PITCHER, of Needles, San Bernardino county, and State of California, have invented a new and useful Ash-Pan and Boiler Cleaner, of which the following is a specification.

Our invention relates, specially, to devices for cleaning locomotive ash-pans and boilers. In the devices heretofore employed for this purpose the nozzles of the apparatus have all been directed toward the bottom portion of the ash-pan, and the result is that the ashes and cinders are banked up at the rear end of the ash-pan and require so much water or steam to clean the pan thoroughly as to seriously interfere with the operative power of the engine; also, in all apparatus invented for this purpose the pipe communicating with the water in the boiler has been so placed as to draw off the pure water from the boiler, and so has performed no function, excepting removing the ashes from the ash-pan.

It is found necessary in running freight-locomotives, where the water is not pure, to blow out the boiler every twenty or thirty miles in order to prevent foaming, and on such engines where soft coal is used it is found necessary to draw out the ashes every ten or twenty miles.

The object of our invention is to save the labor of drawing out the ashes from the ash-pan, and also to utilize the water blown out of the boiler and avoid all danger from fire, which is liable to result from hot cinders and coals from the ash-pan; also, to simultaneously perform the operations of blowing off the boiler and cleansing the ash-pan, thereby reducing the labor, time, and attention heretofore employed in performing these offices. We accomplish these objects by means of our invention hereinafter described and claimed.

Our invention, broadly stated, comprises a valved water-pipe communicating with the boiler below the water-line and opening into the ash-pan through a series of rearwardly-directed nozzles arranged to discharge in two or more horizontal planes, so that when the water is blown off to clean the boiler it is utilized to dampen the ashes and drive them out of the ash-pan with the least possible expenditure of water.

The accompanying drawings illustrate the means whereby we carry out our invention.

Figure 1 represents a side elevation of a portion of a locomotive provided with our invention, the side of the ash-pan being removed to disclose the interior. Fig. 2 is a plan view of an ash-pan provided with our invention.

A represents the locomotive-boiler; B, the ash-pan; C, the valved blow-out pipe communicating with the water-leg *a* of the boiler.

D is a valve to control the passage of the blow-off pipe.

E indicates mechanism arranged for the control of the valve from the cab of the locomotive.

The blow-off pipe C, communicating with the boiler at one end, is provided at the other end within the ash-pan with two side arms F F′, having, respectively, the rearwardly and inwardly directed elevated nozzles *f f′* arranged substantially midway of the length of the ash-pan, the middle arm G having the rearwardly-directed nozzle *g* arranged near the front end of the ash-pan, and the two intermediate arms H H′ having, respectively, the rearwardly-directed nozzles *h h′* arranged substantially midway between the side-arm nozzles and the middle-arm nozzle.

In practice we find it desirable to make the blow-off pipe two inches in diameter, and within the ash-pan it is arranged in the form of a T I at the front end of the ash-pan, which has an opening at each end, and is provided with dampers J J′ to close and open such openings, this being the ordinary construction of ash-pans. The T I lies upon the floor of the ash-pan, and the several branches or arms F, F′, G, H, and H′ also lie flat upon the floor throughout, with the exception that the nozzles of the side arms F F′ are elevated about two inches at their rear ends.

When it is desired to clean the ash-pan, the dampers J J′ being open, the valve D is opened and water from the bottom of the boiler is thus allowed to be blown by the steam into the bottom of the ash-pan and out

backward through the open rear end, carrying the ashes with it. The elevated nozzles of the side arms which are directed inwardly toward the middle of the rear opening O direct two streams of water to loosen and drive out the ashes at the rear of the pan, and thus make way for the free operation of the middle and intermediate nozzles which complete the work by blowing out the ashes from the front of the pan. By elevating the two side nozzles to direct the water discharged therefrom above the plane in which the rear nozzles discharge their stream banking of the ashes at the rear of the ash-pan is absolutely prevented and the ashes are discharged from the ash-pan with the expenditure of about one-half the quantity of water which is required when the nozzles all discharge in the same horizontal plane. The water during this operation dampens the ashes and extinguishes the live coals or cinders which are now a source of danger to railways.

The whole operation is performed without interfering with the engine, the amount of water required to clean the ash-pan being about a half-inch in the gage-glass.

Now having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the boiler, the ash-pan having an opening at each end, and the valved blow-off pipe communicating with the boiler near the bottom thereof and provided at the other end within the ash-pan with a series of rearwardly-directed nozzles arranged to simultaneously discharge in two or more different horizontal planes, all so arranged that the water used to clean the ash-pan is taken from the bottom of the boiler and is adapted to remove the sediment therefrom when the ash-pan is cleaned.

2. The combination of the boiler, the ash-pan having an opening at each end, and the valved blow-off pipe communicating with the boiler at one end below the water-line and provided at the other end within the ash-pan with the two side arms having, respectively, the rearwardly and inwardly directed elevated nozzles arranged substantially midway of the length of the ash-pan, the middle arm having the rearwardly-directed nozzle arranged near the front end of the ash-pan and the two intermediate arms having, respectively, the rearwardly-directed nozzles arranged substantially midway between the side-arm nozzles and the middle-arm nozzle.

WILLIAM J. BRENNAN.
C. A. PITCHER.

Witnesses:
JAMES R. TOWNSEND,
ALFRED I. TOWNSEND.