

B. C. OBLINGER.
SMOKE CONSUMING DEVICE.
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996,665.

Patented July 4, 1911.

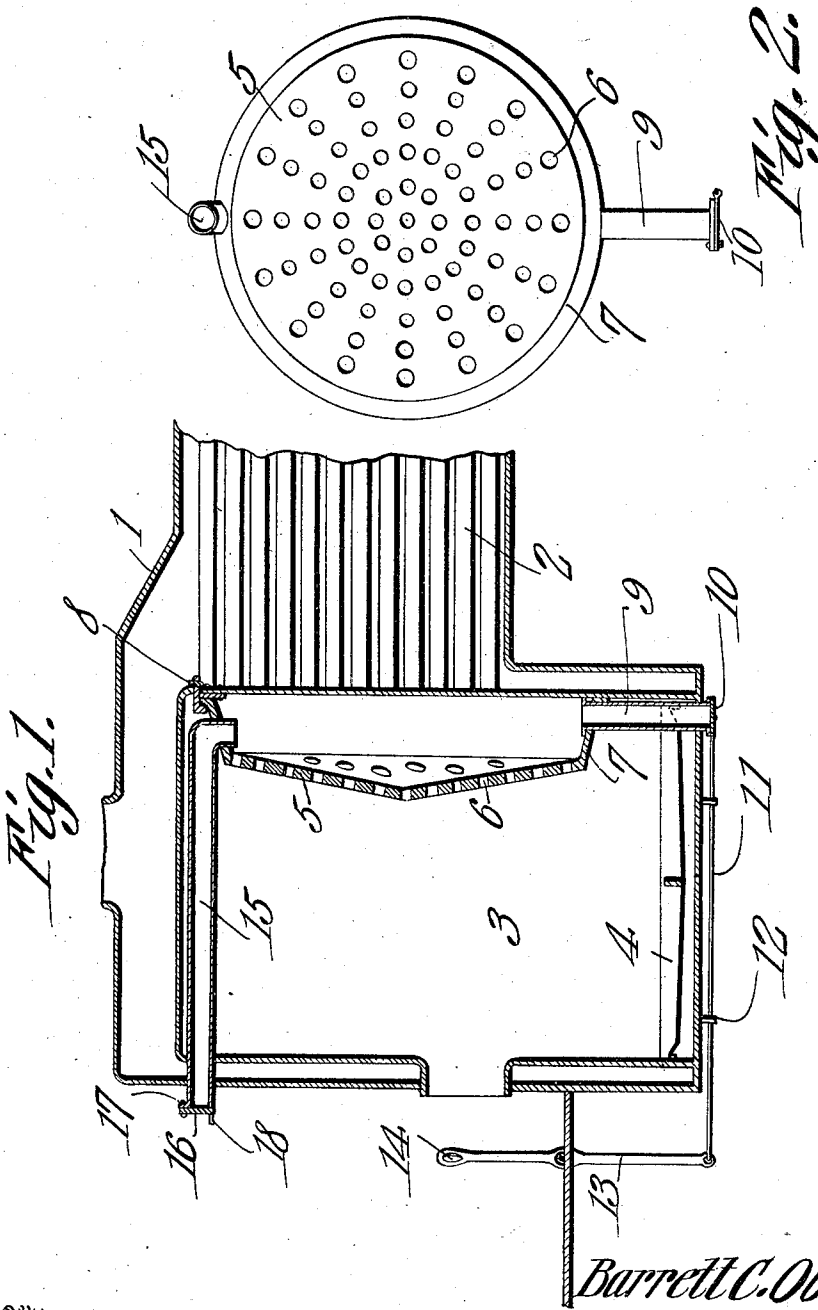


Fig. 1.

Fig. 2.

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BARRETT CLAUD OBLINGER, OF INDEPENDENCE, MISSOURI, ASSIGNOR OF ONE-HALF
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SMOKE-CONSUMING DEVICE.

996,665.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, BARRETT C. OBLINGER, a citizen of the United States, residing at Independence, in the county of Jackson and State of Missouri, have invented a new and useful Smoke-Consuming Device, of which the following is a specification.

This invention relates to smoke consuming devices for locomotives.

The object of the invention is to provide a novel attachment for locomotive or other boilers by which the escape of smoke will practically be overcome, and the loss of heat largely prevented, thereby effecting a pronounced saving of fuel, and in which the highly heated products will be evenly fed to all the tubes, whereby the rapid deterioration of those nearest the center of the boiler will be obviated.

As is well known, the tubes of a locomotive boiler nearest its axis are the first to burn out, this being due to the fact that they are subjected to the greatest degree of heat. This latter is caused by the disposition of the tip of the nozzle of the blower which is generally adjusted to cause it to exert its greatest suction on those tubes disposed nearest the center of the boiler. Various attempts have been made to obviate this serious defect among which may be mentioned the employment of perforated plates arranged in front of the tube sheets, but so far as is known these plates have always been dished or bowed toward the tube sheets, thus producing a result that would be the reverse of that secured by the present invention.

With the above and other objects in view as will appear as the nature of the invention is better understood, the same consists, generally stated, in the combination with the fire box and tubes of a locomotive, of a perforated deflector secured to the fire box and spaced and dished away from the tube sheet, whereby to cause the highly heated gases to be deflected and thus more evenly distributed to the tubes, thereby protecting those nearest the axis of the boiler from rapid deterioration and securing, by the slight retardation of the escape of the gases, a more complete combustion, air supply pipes discharging into the space between the tube sheet and the deflector, and means within the cab of the locomotive to control the passage of air through the pipes.

The invention consists further in the various novel details of construction of a combined smoke consumer and gas deflector for locomotive boilers, as will be hereinafter more fully described and claimed.

In the accompanying drawings forming a part of this specification, and in which like characters of reference indicate corresponding parts:—Figure 1 is a vertical longitudinal section of so much of a locomotive as is necessary to a complete understanding of my invention. Fig. 2 is a view partly in elevation and partly in transverse section showing the deflector more completely.

The locomotive boiler 1 is of the usual or any preferred construction and provided with the ordinary boiler tubes or flues 2 leading from the fire box 3, in the bottom of which are the usual grate bars 4. Within the fire box, I provide a deflector 5 consisting of a circular plate of metal having a number of perforations 6 extending through the same and provided with an annular flange 7 by means of which it may be secured to the front wall of the fire box over the ends of the boiler tubes, hooks 8 having threaded shanks being employed for this purpose, although any other form of fastening which will securely hold the deflector and permit its ready removal for the purpose of cleaning may be used.

It will be noted by reference to Fig. 1 that the deflector is bowed or dished away from the tube sheet, and this arrangement will cause the gases to be deflected and thus retarded in their escape, so that instead of the bulk of them passing through those perforations nearest the center of the deflector, they will be evenly distributed thereover, so that all of the tubes will receive practically the same number of heat units, the result being that the water in the boiler will be more quickly heated, and the conservation of the boiler tubes will be secured.

Extending downward from the lower side of the deflector through the fire box and opening into the air below the ash pit is a pipe 9, the lower end of which is covered by a door 10 pivoted at one side of the pipe and having its edge, at a point diametrically opposite the pivot, engaged by the end of a connecting rod 11 which is mounted in suitable guides 12 on the under side of the fire box so that the door may be swung to cover or uncover the lower end of the air

pipe by moving the rod forward or backward. The rear end of the connecting rod 11 is pivoted to the lower end of a lever 13 which is fulcrumed within the cab of the locomotive and has its upper end formed into a suitable operating handle 14. A second air pipe 15 extends along within the upper portion of the fire box and has its front end terminating between the deflector 5 and the boiler flues 2. The other end of this air pipe 15 extends into the cab and is covered by a door 16 pivotally mounted at 17, and provided with a handle 18 by means of which it may be swung to one side so as to uncover the pipe, as will be readily understood.

The operation of the device will be readily appreciated. When a fire is kindled within the fire box the gases and products of combustion rising therefrom will pass through the deflector 5 to the boiler tubes, the deflector serving to retard the currents and deflect them, so that the gases and other elements rising from the fire will be confined within the fire box for an appreciable period, and, consequently, will be raised to a very high temperature, and further will be distributed evenly to the tubes, thereby preventing their unequal deterioration. The heated products passing through the deflector 5 will be commingled with the air fed into the mixing space behind the latter through the pipes 9 and 15, and as a result of such commingling will be consumed so that the emission from the smoke stack will

be in the form of a light thin vapor. The flow of air into or through the mixing space between the deflector and the boiler tubes may be controlled and entirely cut off by shifting the doors 10 and 16, as will be readily understood.

The device is extremely simple in its construction, may be readily applied to any locomotive now in use, and may be quickly removed for the purpose of repairs or cleaning.

I claim:—

The combination with the fire box and tubes of a locomotive, of a perforated deflector secured to the fire box and spaced and dished away from the tube sheet, whereby to cause the highly heated gases to be deflected and thus more evenly distributed to the tubes, thereby protecting those nearest the axis of the boiler from rapid deterioration and securing, by the slight retardation of the escape of the gases, a more complete combustion, air supply pipes discharging into the space between the tube sheet and the deflector, and means within the cab of the locomotive to control the passage of air through the pipes.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

BARRETT CLAUD OBLINGER.

Witnesses:

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JAMES A. FLANAGAN.