

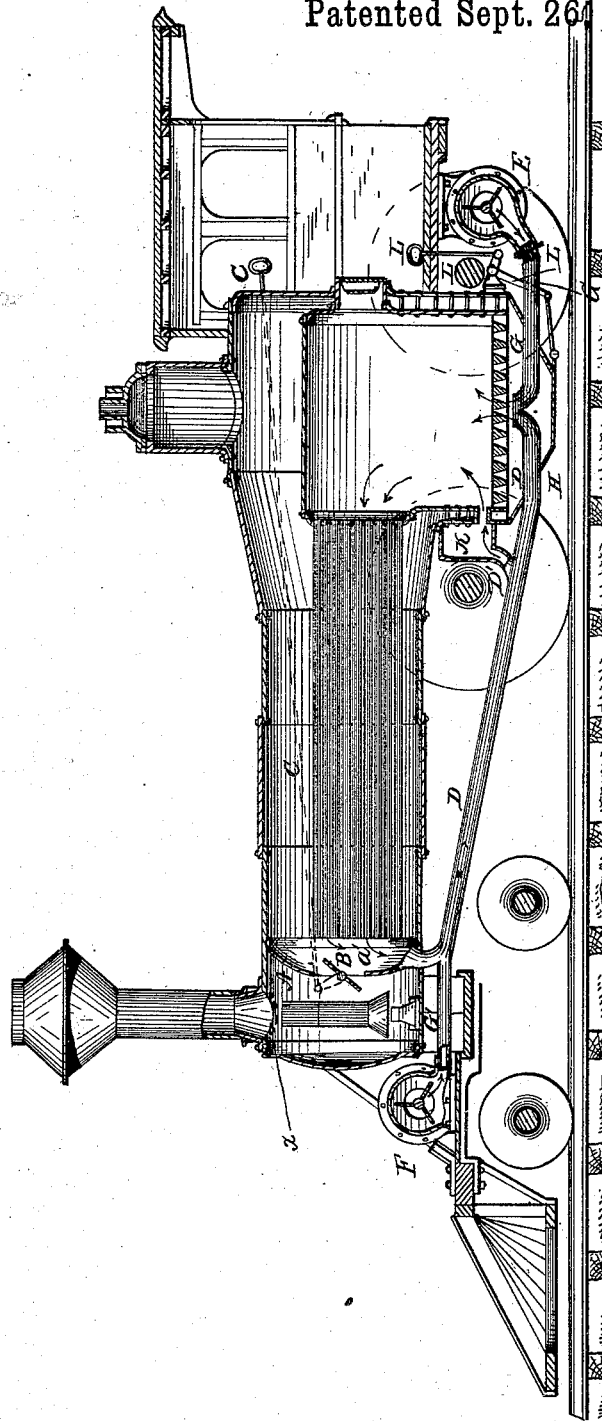
(No Model.)

H. A. SPEAR & A. P. WIGHT, Jr.

SMOKE CONSUMER FOR LOCOMOTIVES.

No. 264,905.

Patented Sept. 26 1882.



WITNESSES
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UNITED STATES PATENT OFFICE.

HENRY A. SPEAR, OF CHARLESTOWN, AND ALBION P. WIGHT, JR., OF NORTH ADAMS, ASSIGNORS OF ONE-HALF TO FRANK BROWNELL, OF BOSTON, MASSACHUSETTS.

SMOKE-CONSUMER FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 264,905, dated September 26, 1882.

Application filed August 14, 1882. (No model.)

To all whom it may concern:

Be it known that we, HENRY A. SPEAR, of Charlestown, Middlesex county, Massachusetts, and ALBION P. WIGHT, Jr., of North Adams, Berkshire county, in the same State, have invented certain new and useful Improvements in Smoke-Consumers for Locomotives; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to letters of reference marked thereon, which forms a part of this specification.

Our invention consists in a special construction and arrangement of parts, which will now be particularly described, in connection with the drawing, which represents in part section a locomotive with our improvements applied thereto.

On the forward or upper end of the boiler we fasten a convex, arched, or bell-shaped front or cover, A, standing off from the end of the boiler enough to leave a space or chamber, *a'*, between them, substantially as shown; and this chamber is a closed one, except when the damper B, placed in it, is opened, as hereinafter stated. C is a rod connected by an arm or lever to this damper for convenience of opening and closing it, and it extends to any desirable point where the engineer or attendant may operate it. The object of the arched front A is to stop the smoke and prevent its passing out into the air, and to assist in confining it and guiding it to be consumed. For this purpose a pipe, D, connects the chamber *a'* with either the ash-pan I, beneath the grate, or with a chamber or box, K, which communicates with the fire-pot above the grate; or it may connect with both, as shown. E and F are steam fan-blowers run by steam taken from the boiler.

In order to create a draft with the front A on an engine, when the fire is first started, the damper B can be opened, thus making a direct draft; but after the fire is started this damper must be closed, and then the draft for the fire is continued by one or both of the steam-blowers E F. The blower E is connected with a pipe, G, leading to the ash-pan, and the blower F is connected with a pipe, G', which runs into the pipe D, also leading to the ash-pan. From this pipe D a branch pipe, D', is shown

as leading to a box or chamber, K, from which a passage leads into the fire-pot just above the grate. The places where the pipes D and G enter the ash-pan should be air-tight. The outlet of the ash-pan, through which the ashes are dumped, must also be air-tight, and for this purpose the pan has a sliding bottom, H, which is opened or closed, as needed, by a system of levers, L.

The front A may be of cast, wrought, or malleable iron, or of other metal, if desired; and instead of being located as previously described and shown it may be placed directly under the smoke-stack, as shown in the dotted lines at *x*, and its damper can be regulated in a manner similar to that already described.

It will be evident that our improvements can be applied to any stationary engine, and they effect a saving of fuel by confining the smoke, &c., and by consuming all the gases which would otherwise escape; and, because of not being obliged to use the small "tip" or exhaust-steam pipe for exhaust-steam for a blast, a large opening or tip can be used, thus creating less back-pressure in the cylinder. There will also be less heat lost with our improvements by not having a direct draft out of the smoke-stack, the smoke being, with its heat, confined, retained, and returned to the fire-box, and all smoke that usually escapes, giving annoyance to passengers, becomes consumed.

We claim—

1. In combination with a boiler, the convex or bell front A, its damper B, and means for operating the same, and the pipe D, connecting the chamber *a'*, formed by the front, with the fire-box or ash-pan, as and for the purpose described.

2. In combination with the bell-front A, and with its damper B and rod C for operating it, the fan-blowers E and F, and their pipes G' and G D, leading to the ash-pan, all as and for the purposes set forth.

3. In combination with the blowers E F, pipes G' and G D, and the ash-pan, the slide-bottom of such pan arranged to be operated by a system of levers, 1 1 1, as set forth.

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ALBION P. WIGHT, JR.

Witnesses:

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