No. 816,051. PATENTED MAR. 27, 1906.

W. G. WALLACE.

SMOKE STACK.

APPLICATION FILED NOV. 18, 1904.

FIG. 1.

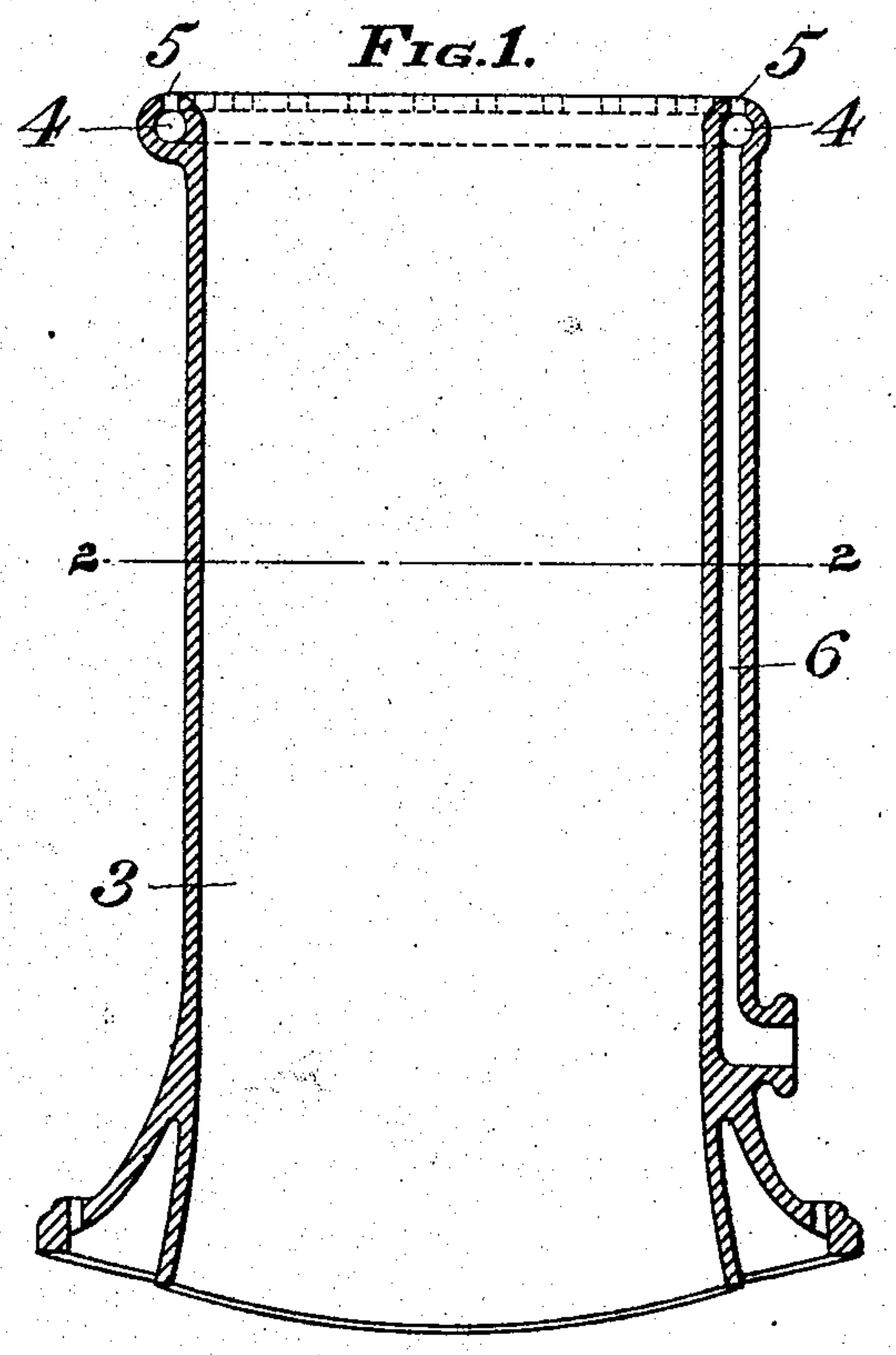
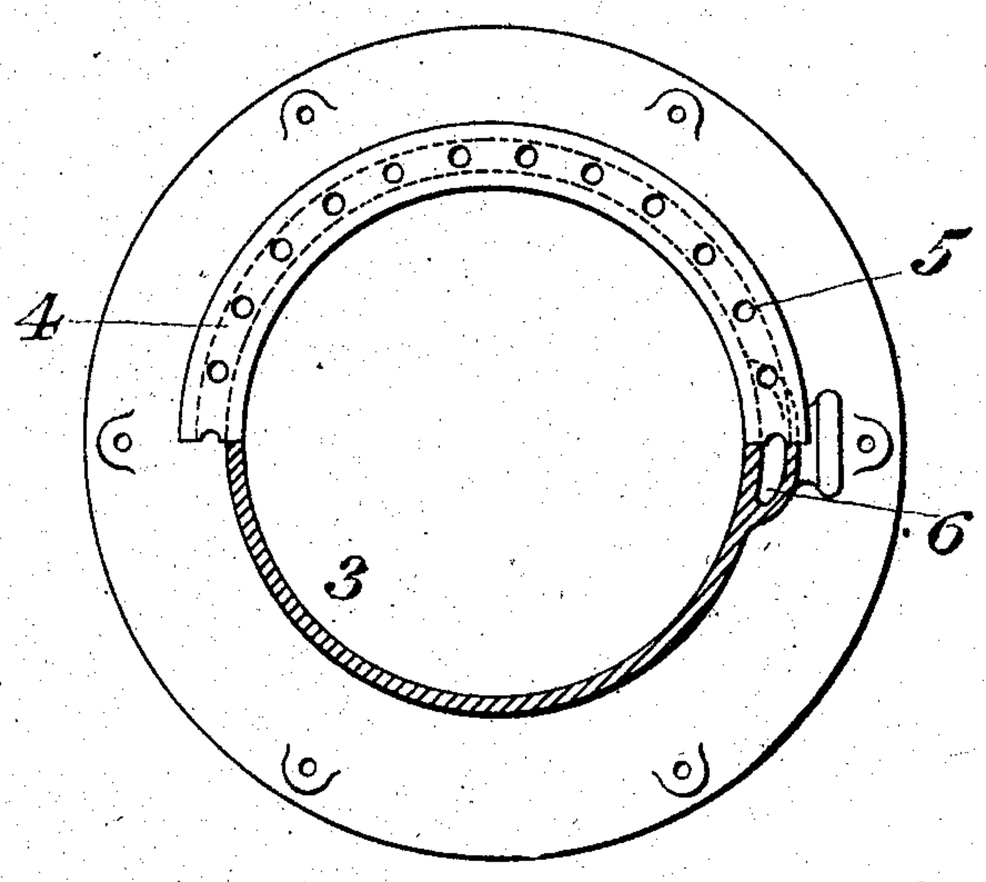


FIG. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

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SMOKE-STACK.

No. 816,051. Specification of Letters Patent. Patented March 27, 1906.

Application filed November 18, 1904. Serial No. 233,362.

To all whom it may concern:

Be it known that I, WILLIAM GIBSON WALLACE, a citizen of the United States, residing at Proctorknott, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Smoke-Stacks, of which the following is a specification.

My invention relates to improvements in smoke stacks and its object is to provide a stack having in addition to the usual main opening, for the passage of exhaust steam from cylinders smoke, gases etc., an independent opening through which steam or air may be freely exhausted at any time, with comparatively little noise and without affecting the draft in the main opening.

While my improvements may be applied to smoke stacks of any general description they are particularly applicable to stacks designed for use on locomotives and I have illustrated such application of my improvements in the accompanying drawings in which—

Figure 1 is a longitudinal vertical section through a locomotive stack embodying my invention, and

Figure 2 is a plan view of the same, partly in section, the plane of section being indicated by the line (2) of Fig. 1.

In locomotives as heretofore constructed it has been the practice to lead the exhaust pipes from the air pumps or steam turbines into the smoke box, in such a manner as to direct the exhaust therefrom directly through the stack. Such construction tends to produce an undesirable draft on the fire, especially when the locomotive is at rest or drifting, thereby causing an increase of coal consumption and a wasteful generation of steam in the boiler.

Furthermore such an arrangement of pipes makes it exceedingly difficult to gain access to them for the purposes of repairs and adjustment and tends to interfere with the adjustment of the other smoke box appliances. It also necessitates the making of holes in the spark netting thereby increasing the liability of the locomotive to emit sparks.

In order to overcome these objectionable features I provide a stack of any preferred construction, having a main central opening 3 extending from the base to the top, through which the exhaust steam from the cylinders and smoke and gases from the furnace pass in the usual manner. Surrounding said opening at or near its top is a small chamber 4, provided with a series of upwardly opening exhaust ports 5, and a passage 6, extends downwardly therefrom, alongside the main opening to a point near the base of the stack, where it may be readily connected to the exhaust pipes leading from the air pumps or steam turbines.

The exhaust ports should be of sufficient capacity to prevent material back pressure.

From the foregoing it will be seen that in a stack constructed in accordance with my invention the noise caused by the exhaust from the pumps or turbines will be reduced to a minimum, by reason of the chamber 4, and openings 5; and also by reason of the location and direction of said openings such exhaust will in nowise affect the draft in the main opening 3. The chamber 4, also serves to prevent condensed steam, oil, or dirty water being thrown from the stack when the pumps are started.

The location of the end of the passage 6, at a point near the base of the stack and outside of the smoke box, permits of a ready connection to the exhaust pipes as above described and obviates the liability of the pipes leaking or getting out of line with the stack.

In locomotive construction it has been found by actual experience that it is highly desirable to have the exhaust steam, smoke, gases, etc., emitted by the various parts of the apparatus, discharged into the atmosphere at one point *i. e.* the top of the smoke stack as such a construction in addition to adding greatly to the appearance of the locomotive permits the waste products accompanying the exhausts to be freely discharged in such a manner that they will be carried away by the blast from the stack when the locomotive engines are in action, and will not settle upon the locomotive and accompanying cars.

In order to accomplish such a result it will be noted that applicant has embodied in a single structure two independent means for conveying the different exhausts, which would have a deleterious influence upon each other, to the top of the stack from which they can be discharged into the atmosphere in the most efficacious manner. In other words he provides a combination stack capable of handling two exhausts independently. It will also be noted that applicant's device conforms in appearance very closely to the present standard form of stack, which owing to its being constructed of a light material is

provided with a strengthening bead around its upper edge. In applicant's device advantage is taken of this bead in order to form the chamber 4, previously referred to.

Having thus described my invention and illustrated its use, what I claim as new and useful, and desire to secure by Letters Patent, is the following:

1.—A locomotive stack provided at its top with a chamber surrounding and lying wholly without the main passage of the stack, and with a vertical passage having an inlet near the base of the stack adapted to receive the exhaust from auxiliary motors and communicating at its upper end with said chamber, said chamber being provided with upwardly directed outlet means extending around its circumference.

2.—A locomotive stack provided at its top with a chamber surrounding and lying wholly without the main passage of the stack and with a vertical passage having an inlet near the base of the stack adapted to receive the exhaust from auxiliary motors, and communicating at its upper end with said chamber, such parts being integrally formed, and the chamber being provided with outlet openings directed so that the draft from said chamber will not in any substantial degree augment that from the stack.

In testimony whereof I have hereunder signed my name in the presence of the two subscribed witnesses.

WILLIAM GIBSON WALLACE.

Witnesses:
A. A. BECHTELL,
D. A. KLUMPH.