

(No Model.)

2 Sheets—Sheet 1.

J. C. CANBY.

DRAFT REGULATING APPARATUS FOR LOCOMOTIVES.

No. 564,470.

Patented July 21, 1896.

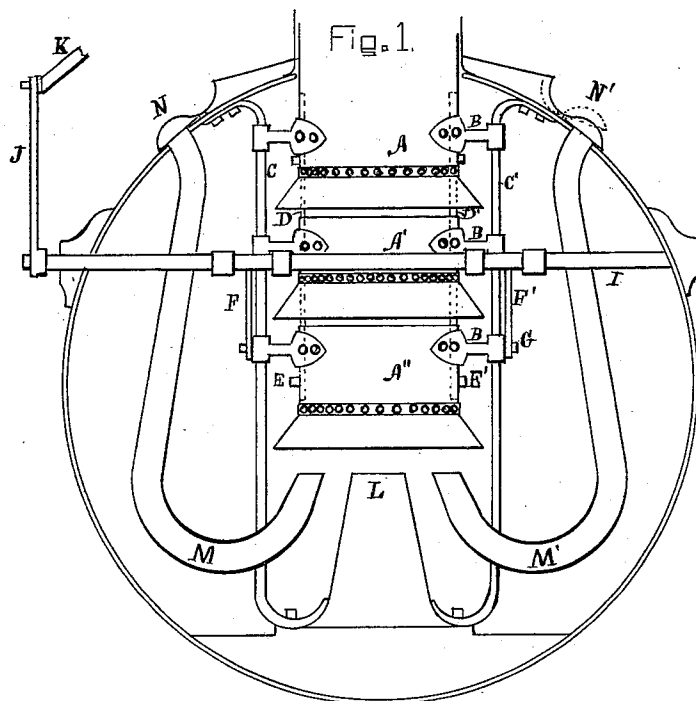
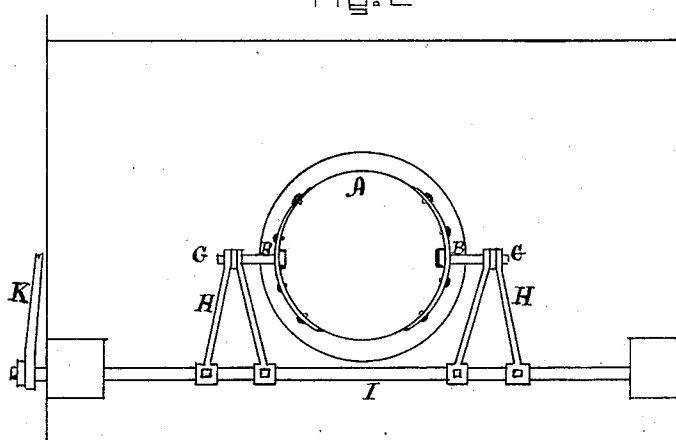


Fig. 2



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(No Model.)

2 Sheets—Sheet 2.

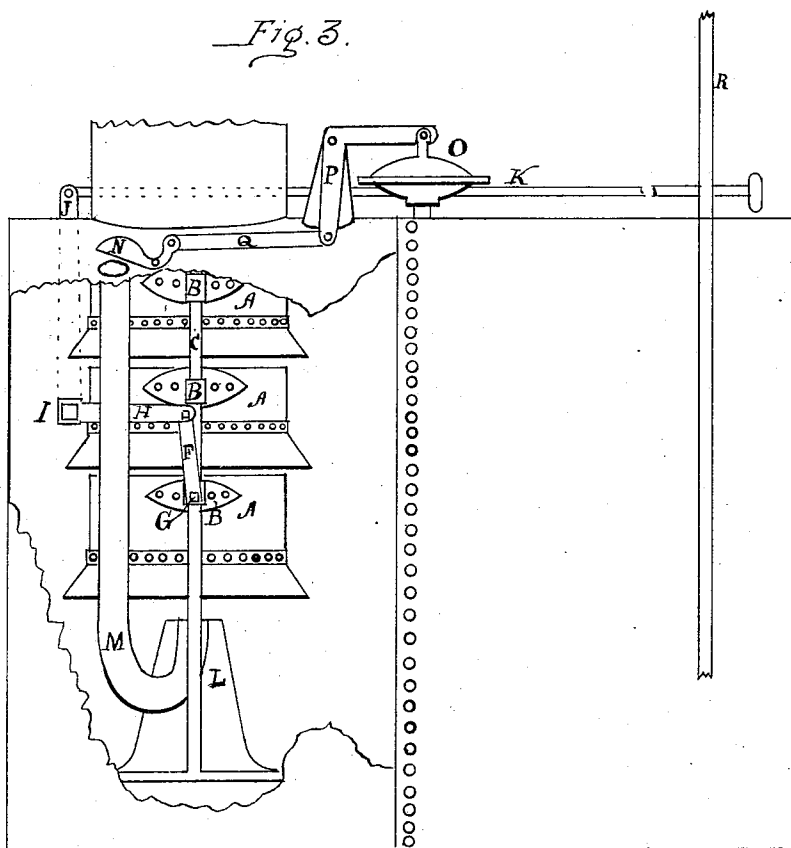
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Fig. 3.



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DRAFT-REGULATING APPARATUS FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 564,470, dated July 21, 1896.

Application filed May 21, 1895. Serial No. 550,069. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. CANBY, a citizen of the United States, residing at West Pittston, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Draft-Regulating Apparatus for Locomotives; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

My invention relates to draft-regulating apparatus for locomotive and that class of boilers; and it consists of a smoke-stack with an adjustable petticoat or mouthpiece to equalize the draft through all the flues, also an arrangement of pipes and valves to introduce fresh air into the smoke-stack to check the draft without opening the fire-door and letting the cold air in onto the boiler and tubes, thereby making a great saving in the fuel and being better for the boiler and flues.

Like letters in different figures refer to like parts.

Figure 1 represents the front view of the boiler with the automatic draft-regulator attached. Fig. 2 is a horizontal section of front of boiler, showing smoke-stack and rock-shaft. Fig. 3 is a longitudinal section of the smoke-box and boiler, showing the connection of the valve N and regulator O and the connection of arm J to the cab R by the rod K.

A A' A'' represent the sections of the smoke-stack, or, as familiarly called, "petticoats," arranged with lugs B on the sides with slides D D', having slots and set-screws E E', by which they are adjusted to the space required between them, thereby enabling the engineer to equalize the draft in the fire-box, as experience shows that when the draft is nearest to the bottom of the smoke-jacket the draft is strongest on the back end of the fire next the flue, and by decreasing there and increasing it in the top flues the draft is made stronger in the front part of the fire-box. This more nearly equalizes the combustion of the fuel. The connecting-rods F F' are attached to the lugs G and the arms H H' project from the rocking shaft I, which is operated by the arm J and rod K, which runs to the cab R. By pulling or pushing the rod

K the petticoats are raised and lowered, thus increasing and decreasing the distance from the exhaust-nozzle L, thereby increasing or diminishing the draft. The air-tubes M M' turn up alongside the exhaust-nozzle L, and are opened and closed by valves N N' on the outside of the boiler. The valves are operated by a pressure-regulator O, so adjusted that they are opened by the steam when it passes a given pressure. This operates on the crank P and connecting-rod Q to open the valve, thus admitting air to the smoke-box and decreasing the amount drawn through the tubes and decreasing the consumption of the coal and obtaining the full benefit for all fuel consumed without letting the cold air in onto the hot iron. By this means we have the combustion automatically regulated, also obtaining the greatest amount of heat from the fuel consumed.

Having thus fully described my invention, what I claim as my invention, and wish to secure by Letters Patent, is—

1. The air-tubes leading from the outside of the shell of the smoke-box in front or rear of a tubular boiler, to the lower part of the smoke-box in combination with the valves N, N, arranged to open and close automatically by connection with the pressure-regulator O; substantially as described and shown.

2. The combination of a cold-air tube with automatic opening and closing valve, operated by the pressure of steam on a pressure-regulator, with exhaust-steam nozzle and adjustable petticoats, substantially as described and shown.

3. The combination of a series of petticoats or short flanged tubes hung under the opening from the smoke-box to the smoke-stack arranged with rods D, D', and set-screws E, E' so as to be adjustable in their relative distance from each other and with lugs B, having a band on the end to slide on rods C, C', so as to be adjustable in height by being connected to the cab by connecting-rods F, F', and arms H, H' and rod K, in combination with an exhaust-nozzle and cold-air tubes, all substantially as described and shown.

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

JOSEPH C. CANBY.

Witnesses:

KATHRYN M. BENJAMIN,
W. C. BRENTON.