

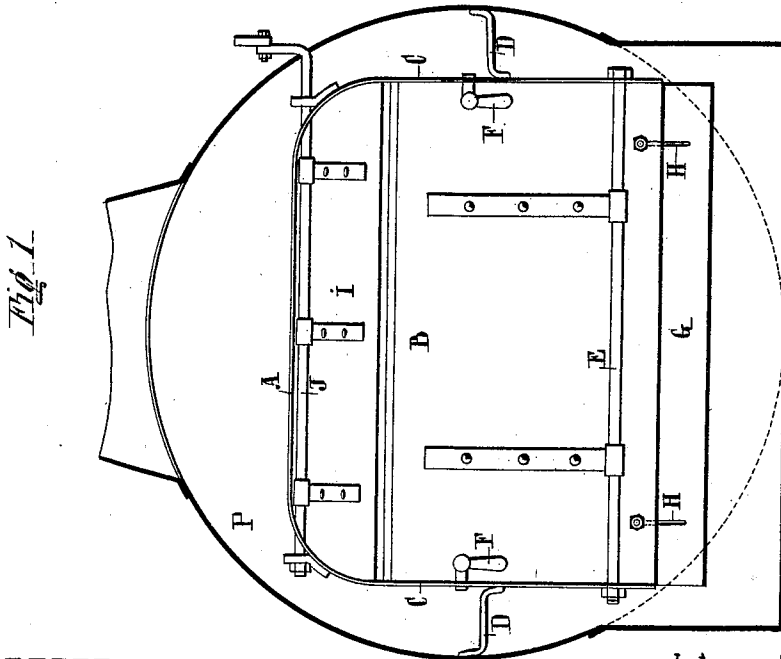
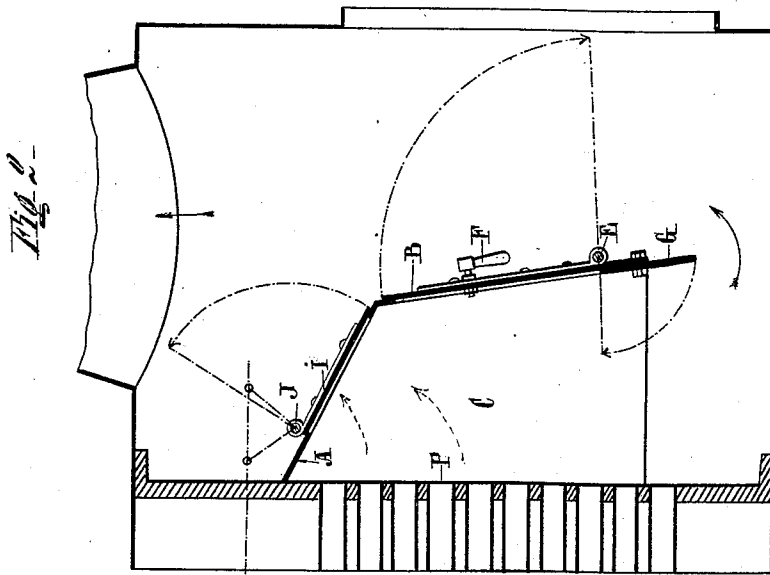
(No Model.)

E. T. VAN HECKE.

DRAFT REGULATOR.

No. 389,913.

Patented Sept. 25, 1888.



Witnesses

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UNITED STATES PATENT OFFICE.

ENGLEBERT THÉOPHILE VAN HECKE, OF PARIS, FRANCE.

DRAFT-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 389,913, dated September 25, 1888.

Application filed July 9, 1888. Serial No. 279,438. (No model.)

To all whom it may concern:

Be it known that I, ENGLEBERT THÉOPHILE VAN HECKE, a citizen of the Republic of France, residing at Paris, in the said Republic, engineer, have invented certain new and useful Improvements in Apparatus for Controlling or Regulating the Drafts of Furnaces in Locomotive, Marine, Stationary, or other Boilers, of which the following is a specification.

10 This invention relates to draft-regulators which are intended to be applied inside the smoke-box of all kinds of tubular boilers, the flues of which are horizontal or slightly inclined, such as in locomotive-boilers, and has
15 for its object to effect an important saving of fuel.

20 The apparatus is constructed in such a manner that the hot gases issuing from the flues are deflected downward before they reach the chimney. This arrangement insures a better distribution of the gases among the flues, and consequently a better utilization of the heating-surface and of heat produced by the combustion.

25 In the accompanying drawings I have shown my invention as applied to the smoke-box of a locomotive-boiler.

30 In the drawings, Figure 1 is a front view of the apparatus fixed to the tube-plate. Fig. 2 is a longitudinal section.

35 As shown on the drawings, the apparatus consists, essentially, of a sort of metallic box, the upper face, A, and front part, B, of which are slightly inclined, so as to be at suitable distances from the tube-plate P, while its lateral faces C abut against the tube-plate. The apparatus is fixed in the smoke-box by means of stays D, bolted to the sides of the smoke-box, or by any other suitable means.

40 The front part, B, of the apparatus is movable and can turn on the hinge E, so as to be turned downward, as shown by the dotted lines on Fig. 2. It is kept closed by means of side bolts, F, or equivalent means. The door is
45 only opened to permit the cleaning of the flues and smoke-box, and is generally kept closed when the engine is in motion.

50 The lower part of the movable front plate, B, is preferably provided with a plate, G, provided with slits H, so as to permit of the dis-

tance between the lower edge of the latter and bottom of the smoke-box being adjusted at will by means of bolts passing through the said slits and holes made in the front plate, B. The maximum downward movement of the plate G is so calculated that the area of the space left between its lower edge and the bottom of the smoke-box is at best equal to that of the area of the opening of the chimney.

55 The upper part, A, of the apparatus is provided with a door or valve, I, capable of turning on a hinge, J. The maximum area of opening of this valve must also be about equal to the area of chimney-opening. This valve, which under ordinary working conditions is kept closed, can be opened more or less by means of a rod
65 jointed to a crank secured to the outer extremity of the hinge J, this rod being of such length that its other end is within the reach of the engineer. A hand-wheel, the boss of which acts as a stationary nut on the threaded end
70 of the said rod, or a rack arrangement, admits of the amount of opening of the hinged flap-valve I being regulated according to the amount of draft required. The apparatus being thus
75 arranged and the valve I closed, it will be seen that the hot gases issuing from the flues are compelled to pass below the regulating-plates G, as shown by the arrows, before entering the smoke-stack. When, on the contrary, the
80 valve I is open, the draft passes in the direction shown by the dotted arrow in Fig. 2. The chief purpose of valve I is to facilitate the lighting of the fire.

85 The possibility of shifting at will the position of the regulating-plate G admits of determining experimentally for each particular boiler the exact position it must occupy in order to secure the most advantageous and most economical results in working that particular boiler to which it is applied. When
90 the position of the plate G is once obtained, and so long as the working conditions of the boiler remain unchanged, it will not be necessary to modify the position of the said plate.

95 It must be understood that my invention is not restricted to the form and arrangement of the draft-regulating apparatus just described. I therefore reserve to myself the right of replacing in some cases the movable swinging
100

plate B by two doors hinged on the lateral fixed faces C of the apparatus, so that the opening of these doors permits free access to the flues.

5 The arrangement of the apparatus, as described hereinbefore, is simple, costs little, and wears slowly. It insures the uniform distribution of the whole of the gases of combustion in the flues, and thereby causes a better utilization of the heating-surface and heat developed by combustion. It reduces, also, greatly the velocity of the gases passing through the upper flues of the boiler, and consequently the quantity of cinders carried away through the said flues, the wear of which is in consequence greatly reduced.

10 It is understood that the dimensions, arrangement, and form of the apparatus can be varied according to the kind of boiler to which

it is to be applied without affecting in any way the nature of the invention.

I claim as my invention—

1. In combination with a boiler, a hood secured thereto and provided with a door in its front wall directly in line with the flues, and an adjustable plate secured to the lower edge of the front wall of the hood.

2. In combination with a boiler, a hood, a valve in the top of the hood, a door in the front wall thereof, and an adjustable plate secured to the lower edge of the hood.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ENGLEBERT THÉOPHILE VAN HECKE.

Witnesses:

V. LAURENT,
E. DUMAS.