

(No Model.)

J. LEVEY.
REGULATOR FOR STEAM FURNACES.

No. 472,373.

Patented Apr. 5, 1892.

Fig. 1.

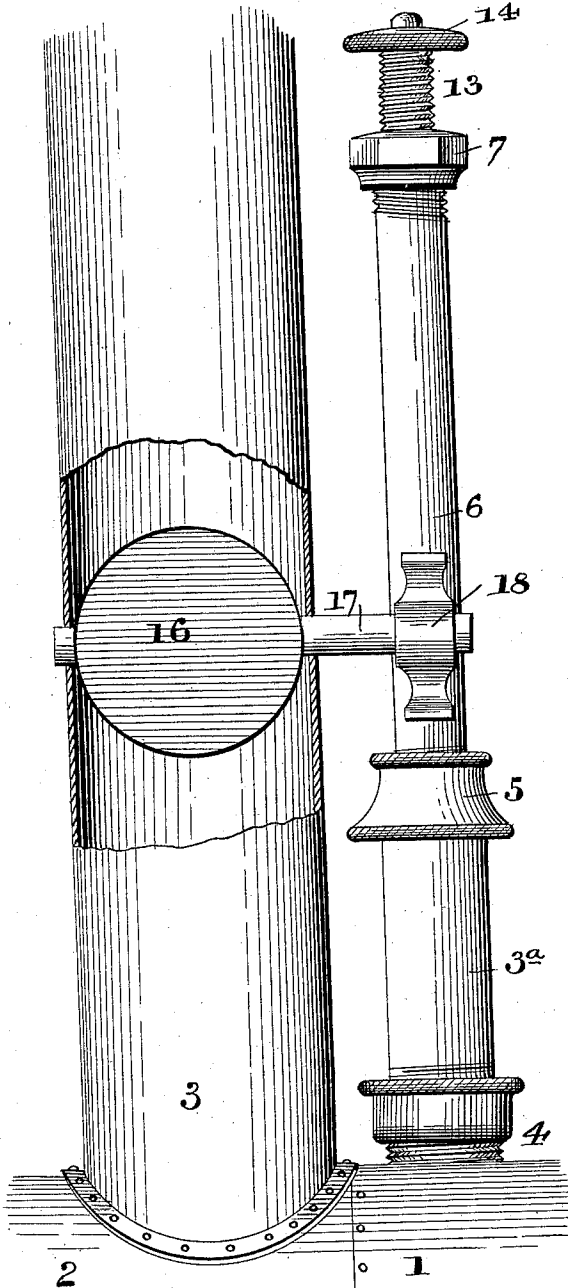
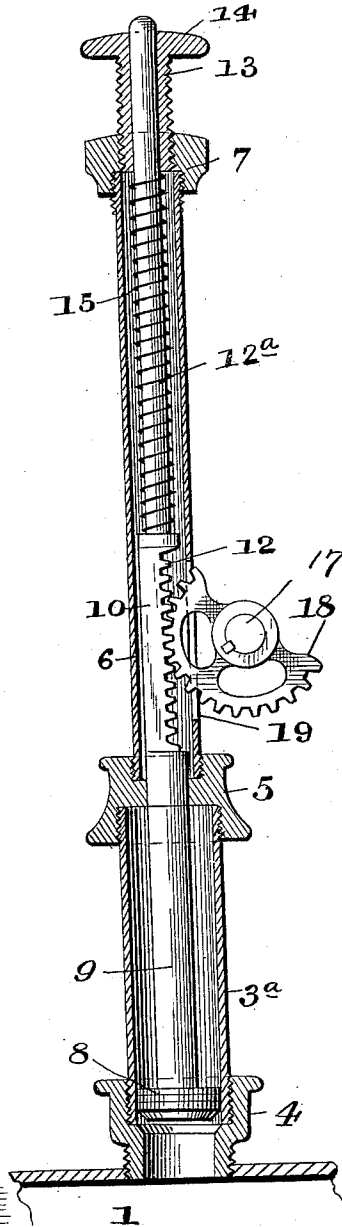


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN LEVEY, OF LINDSAY, CANADA, ASSIGNOR OF ONE-HALF TO GEORGE E. MARTIN, OF SAME PLACE.

REGULATOR FOR STEAM-FURNACES.

SPECIFICATION forming part of Letters Patent No. 472,373, dated April 5, 1892.

Application filed April 29, 1891. Serial No. 390,955. (No model.)

To all whom it may concern:

Be it known that I, JOHN LEVEY, a subject of the Queen of Great Britain, and a resident of Lindsay, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Regulators for Steam-Furnaces; and I 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 drawings, which form a part of this specification.

My invention relates to improvements in the method and means for regulating the draft in steam-boiler furnaces.

The object of the invention is to provide an improved attachment for steam-boilers and the furnaces thereof by means of which when the steam in the boiler has reached a certain predetermined pressure the damper in smoke-stack of the furnace will be closed and the draft cut off, thus not only effecting a great economy or saving in fuel, but also lessening liability of explosions.

The invention consists in the novel method and new combination of parts hereinafter fully described, and specifically pointed out in the claim.

In the accompanying drawings, Figure 1 is a side elevation of a portion of a steam-boiler and smoke-stack of a furnace with my improvement applied thereto. Fig. 2 is a sectional view taken through the center of the attachment at a right angle to the view shown in Fig. 1.

In the said drawings, the reference-numeral 1 designates a steam-boiler of any ordinary construction, 2 the smoke-box, and 3 the smoke-stack.

The numeral 3^a designates a short metallic cylinder having a screw-threaded coupling 4 at its lower end, by which it is secured to the boiler 1, with which it communicates. At its opposite or upper end the cylinder is provided with a coupling 5, having secured thereto an upwardly-extending tube 6, with a screw-threaded head 7.

In the cylinder 3^a is located a piston 8, having a piston-rod 9, which extends through the

coupling 5 into the tube or casing 6, where it is provided or formed with a bar 10, having a number of rack-teeth 12. This bar 10 extends upwardly about midway the length of the tube, where it is connected with a rod 12^a, extending up and projecting through an aperture in the nut 13, having exterior screw-threads, which engage with corresponding threads in the head 7. This nut is provided at its upper end with a head 14. Intermediate of the nut 13 and the upper end of the rack-bar is a coiled spring 15, which embraces the rod 12^a.

The numeral 16 designates a damper pivoted in the smoke-stack by means of a shaft 17, one end of which projects outward toward and past the cylinder 3^a. The outer end of this shaft is provided with a cogged segment 18, the teeth of which pass through a vertical slot 19 in the tube or casing and mesh with the teeth in the bar 12.

The operation will be readily understood. By means of the coiled spring 15 and the nut 13 the piston 8 may be so adjusted that it will not be moved until a certain predetermined boiler-pressure has been reached. When this boiler-pressure has been reached, the piston, rack-bar, and rod will be forced upward, the rack-teeth on the bar engaging with the teeth in the segment, rotating the damper-shaft and closing the same. By this means the draft will be shut off in the furnace until the boiler-pressure falls below the predetermined limit, when the piston will be returned to normal position by the coiled spring and the damper opened.

It will be understood that the coiled spring should be so adjusted as that the piston shall not be moved until the safety limit has been reached or the steam in the boiler has reached the pressure desired.

Having thus described my invention, what I claim is—

The combination, with a steam-boiler furnace and smoke-stack, of the cylinder connected and communicating with the boiler, a piston and piston-rod, a casing or tube having a vertical slot connected with said cylinder, a rack-bar and rod connected with said piston-rod, an adjustable nut in the upper

end of said tube, a coiled spring intermediate
of said rack-bar and nut, a damper located in
said smoke-stack and secured to a damper-
shaft journaled in said stack, and a cogged
5 segment secured to said shaft and meshing
with the rack-bar in the tube or casing, sub-
stantially as described.

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

JOHN LEVEY.

Witnesses:

ISAAC FINLEY,
G. E. MARTIN.