

(No Model.)

W. R. SMITH.
FURNACE REGULATOR.

No. 545,542.

Patented Sept. 3, 1895.

Fig-1.

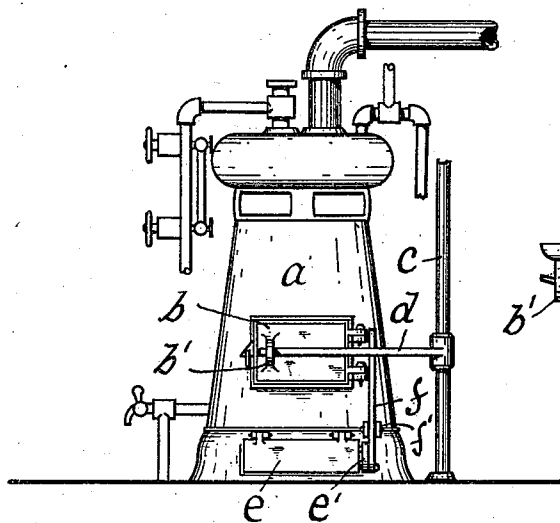


Fig. 2.

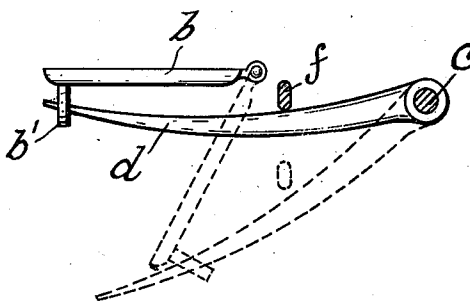
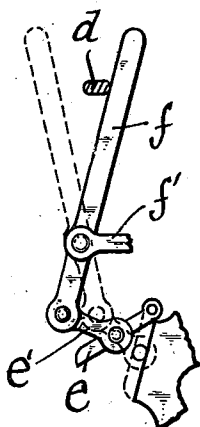


Fig-3.



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UNITED STATES PATENT OFFICE.

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FURNACE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 545,542, dated September 3, 1895.

Application filed July 18, 1895. Serial No. 556,429. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. SMITH, a citizen of the United States, residing at Norwich, New London county, State of Connecticut, have invented certain new and useful Improvements in Furnace-Regulators, which improvements are fully set forth and described in the following specification, reference being had to the accompanying sheet of drawings.

This invention has for its object the improvement of draft-controlling devices for furnaces, stoves, &c., to the end that the draft and feed doors may be made to work simultaneously and may be controlled from points remote from the furnace or stove. On the 15th day of March, 1895, I filed an application, serially numbered 541,950, for a patent for certain draft-controlling devices to which my present improvement is specially applicable. In my said earlier application provision was made for opening and closing the feed-door to reduce or increase the draft, and I have now provided simple mechanism which, operating with said earlier form of regulator, will cause the ash-pit door to be simultaneously closed or opened. Thus the feed-door will be opened to admit cold air into the combustion-chamber whenever the ash-pit door is closed to cut off the direct draft, and, vice versa, the feed-door will be closed whenever the ash-pit door is opened.

To assist in the explanation of my device, the accompanying sheet of drawings has been provided, illustrating the same, as follows:

Figure 1 is an elevation of a furnace properly fitted up with my newly-invented regulating device. Fig. 2 is a detached view, somewhat enlarged, of certain details of my device and illustrates the manner of their operation to produce the results above referred to. Fig. 3 is an elevation illustrating the means provided for the manipulation of the ash-pit door.

Referring to the drawings, the letter *a* denotes a furnace as a whole, and *b* its feed-door.

The letter *c* denotes a vertical shaft located adjacent to the furnace *a* and bearing thereon an arm *d*, the free end of which passes through and engages an arm *b'* on the furnace-door *b*. It will now be understood that should rod *c*

be slightly rotated such rotation will through the arm *d*, secured thereon, cause door *b* to swing on its hinges either to open or close said door in accordance with the direction of rotation of the rod *c*, as readily seen from Fig. 2 of the drawings.

The letter *e* denotes the ash-pit door of furnace *a*, the same being hinged thereto in the usual manner, and the letter *f* denotes a vertically-extending lever pivotally secured near its lower end to the furnace *a* by means of an arm *f'*, extending outward therefrom, and said lever is connected at its lower end to the door *e* by means of a link *e'*. It will be seen by reference to Fig. 3 that the rocking of the free end of lever *f* toward the furnace *a* will throw outward the lower end thereof and thus through the link *e'* swing open the door *e* or vice versa. The rocking of said free end in the opposite direction will serve, through said link *e'*, to rock said door in the direction proper to effect the closing of the latter. The upper end of lever *f* extends into the path of the arm *d* in such manner that when said arm is properly rocked to close its door *b* it also engages and rocks lever *f* into the position shown in full lines in Figs. 2 and 3, in which the door *b* has been swung open. When arm *d* is rocked to open the door *b*, the lever *f* is caused by the weight of its door *e* to correspondingly rock on its pivotal support *f'*, the free end of said lever following up the arm *d* until door *e* has become closed, the various elements being now in the positions shown in dotted lines of the said Figs. 2 and 3.

From the above description it will be very apparent that the operation proper to close the door *b* serves at the same time to correspondingly open the door *e*, and thus the conditions of both doors are such that the fire will be promptly increased or reduced.

My device as a whole is extremely simple and cheap in its construction, and by reason of the fact that it may be manipulated at points remote from the furnace is valuable as a labor-saver and by reason of its complete control of the fire enables a furnace to be run much more economically than is ordinarily done.

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

In a furnace having feed and ash-pit doors,
means for opening and closing the former
consisting of an arm engaging said door as
set forth, and mechanism for simultaneously
5 closing and opening the ash-pit door consist-
ing of a lever having one of its ends connected
with said ash-pit door and its other end lo-

cated in the path of the said arm; all being
substantially as and for the purpose specified.

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