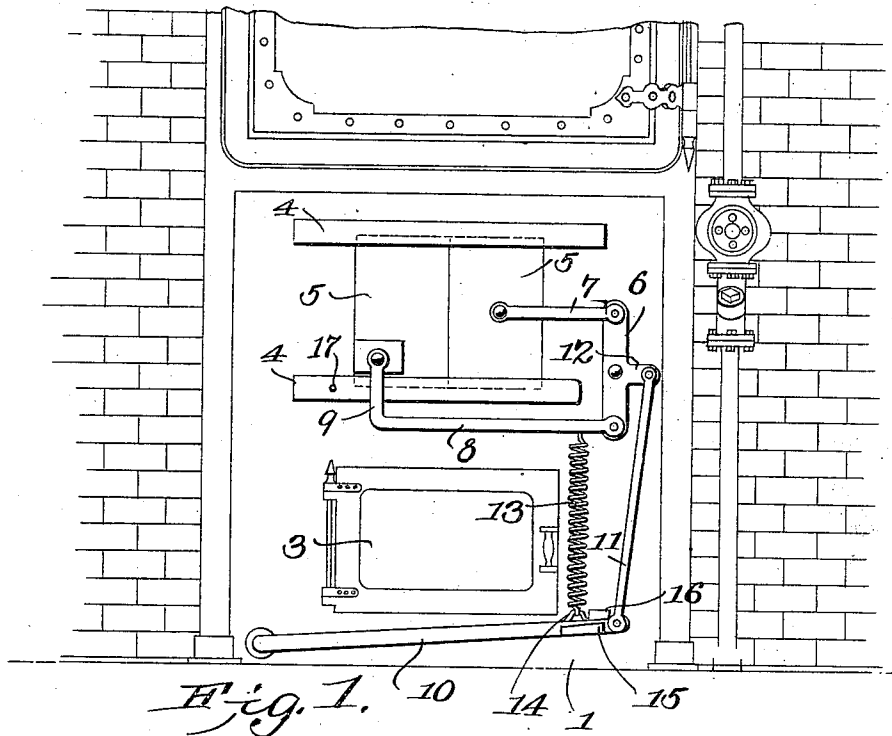
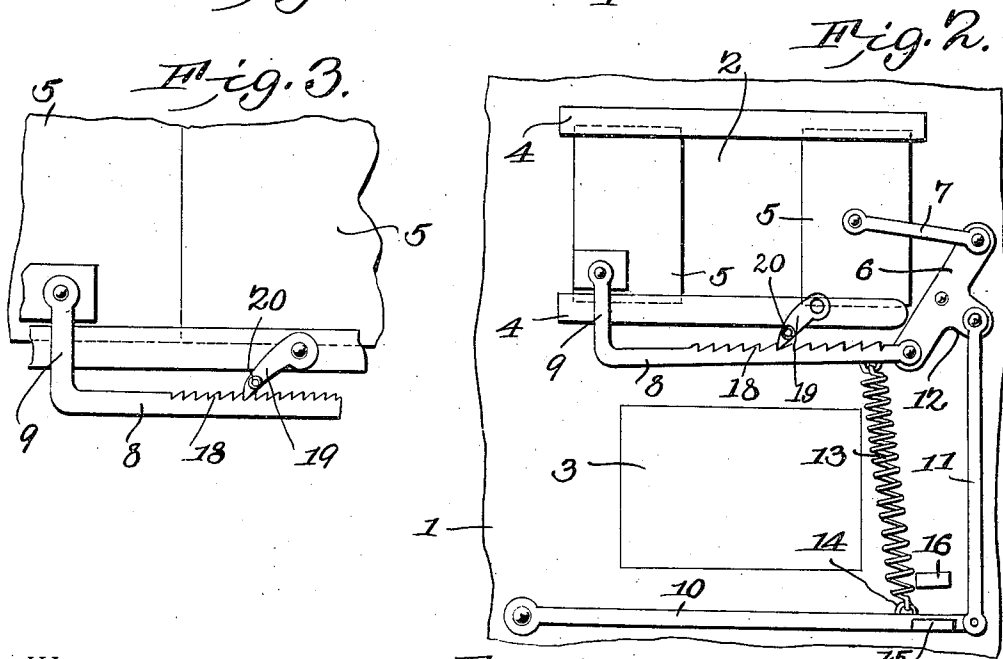


No. 843,742.

PATENTED FEB. 12, 1907.

F. L. FOX.
FURNACE DOOR FOR BOILERS.
APPLICATION FILED MAR. 13, 1906.



WITNESSES:

E. F. Stewart
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UNITED STATES PATENT OFFICE.

FRANK L. FOX, OF SEYMOUR, INDIANA.

FURNACE-DOOR FOR BOILERS.

No. 843,742.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed March 13, 1906. Serial No. 305,807.

To all whom it may concern:

Be it known that I, FRANK L. FOX, a citizen of the United States, residing at Seymour, in the county of Jackson and State of Indiana, have invented a new and useful Furnace-Door for Boilers, of which the following is a specification.

This invention relates to mechanism for opening the doors of furnaces; and its object is to provide means of very simple construction which can be actuated by the foot of the operator so as to quickly open the furnace-doors and which when released will automatically return the doors to closed positions.

Another object is to provide mechanism which will not in any wise interfere with the opening or closing of doors other than the ones operated by said mechanism even though said doors be located close together and one above the other.

A still further object is to provide means for holding the doors open, if so desired.

With the above and other objects in view the invention consists of sliding doors adapted to be slid simultaneously in opposite directions by means of substantially parallel arms which are pivoted to them and to the ends of a centrally-fulcrumed lever located at one side of the furnace-door and connected by a link to a treadle located at the bottom of the furnace. This treadle is spring-supported, and by depressing it the doors will be moved in opposite directions and the spring will be compressed. When the treadle is released, the spring will return the doors to closed position and all of the parts of the mechanism will be restored to their normal positions.

Means are provided whereby the doors can be held open, if desired.

The invention also consists of certain other novel features of construction and combinations of parts, which will be hereinafter more fully described, and pointed out in the claim.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings, Figure 1 is a front elevation of the mechanism connected to a furnace. Fig. 2 is a similar view showing the door held in open position by means of a modified form of lock, and Fig. 3 is a detail view of said modified form.

Referring to the figures by numerals of reference, 1 is a furnace having a feed-opening 2 therein, below which may be located other doors, as 3, such as are usually provided in

the lower portions of furnaces for various purposes. Arranged above and below the feed-opening 2 and extending beyond the sides thereof are parallel guides 4, between which are mounted slidable closures 5, adapted to meet in front of the center of the opening 2 and to move in opposite directions to open or close the furnace. A lever 6 is fulcrumed at its center adjacent one end of the guides 4 and an arm 7 connects the upper end of this lever with the adjoining closure 5, while another arm 8 connects the other closure with the lower end of the lever 6. Both of these arms are pivotally connected at their ends to the closures and lever and are preferably substantially parallel. The lower arm 8, however, has an upward extension 9, which is connected to the closure, so that said arm will rest below the doors and will not extend across the opening 2 when the furnace is opened.

A treadle 10 in the form of a long lever is pivoted at one end to the lower portion of the furnace 1 and extends between or under the doors of the furnace according to their arrangement and is pivotally connected at its free end to the link 11. This link is in turn pivoted to an arm 12, which extends at right angles from the center of lever 6. A spring 13 is connected to the arm 8 and treadle and serves to resiliently support said treadle. This spring is preferably adjustably connected to the treadle by means of a bolt 14. A foot-piece 15 extends from the treadle to facilitate its depression by the operator, and a stop 16 is located above said treadle to limit its upward movement.

Any suitable means may be employed for locking the doors or closures 5 in opened position. I can, if preferred, provide a holding-pin 17, which may be inserted into the lower guide 4 after the closures have been opened, so as to prevent the lower arm 8 from returning to its normal position. A much better construction than this, however, is the provision of ratchet-teeth 18, which are disposed along the upper surface of the arm 8 and are adapted to be engaged by a dog 19, pivoted to the lower guide 4. This dog normally rests by gravity on the teeth 18, and when the closures are opened these teeth will slide under the dog, which will of course hold the closures open. A handle 20 is located upon the dog, so that the same can be swung upward and back out of engagement with the teeth whenever desired.

A door such as herein described can be applied to any form of furnace, and by reason of the particular construction and arrangements of its operating mechanism the doors
5 ordinarily used in front of a furnace will not be interfered with, but can be readily opened and closed without difficulty.

It is to be understood that, if desired, two sets of this opening mechanism may be used
10 upon two sets of adjoining doors 5 simply by reversing the operating mechanism of one of the sets of doors. With this construction the guides 4 should be provided with parallel grooves, so that the adjoining doors of the
15 two sets can be caused to overlap when either or both doors are opened.

What is claimed is—

The combination with a furnace having guides thereon, and a pair of doors slidably
20 mounted between the guides; of a treadle

pivottally connected to the furnace, a lever pivottally connected to the furnace, an arm extending from the lever adjacent its pivot, a link connection between said arm and the
25 treadle, arms extending from opposite portions of the lever and pivottally connected to the sliding doors, a supporting-spring connected to the treadle, and means for automatically engaging one of the pivoted arms
30 to secure the parts against the tension of the spring, said arms, lever and treadle and their connections being disposed in substantially the same plane.

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

FRANK L. FOX.

Witnesses:

W. Q. HARPER,
RILEY W. SWEANY.