L. BUDD.

ADJUSTABLE AIR SHUTTER CONSTRUCTION FOR FURNACES.

APPLICATION FILED NOV. 24, 1919.

1,407,516. Patented Feb. 21, 1922.

Fig. 1.

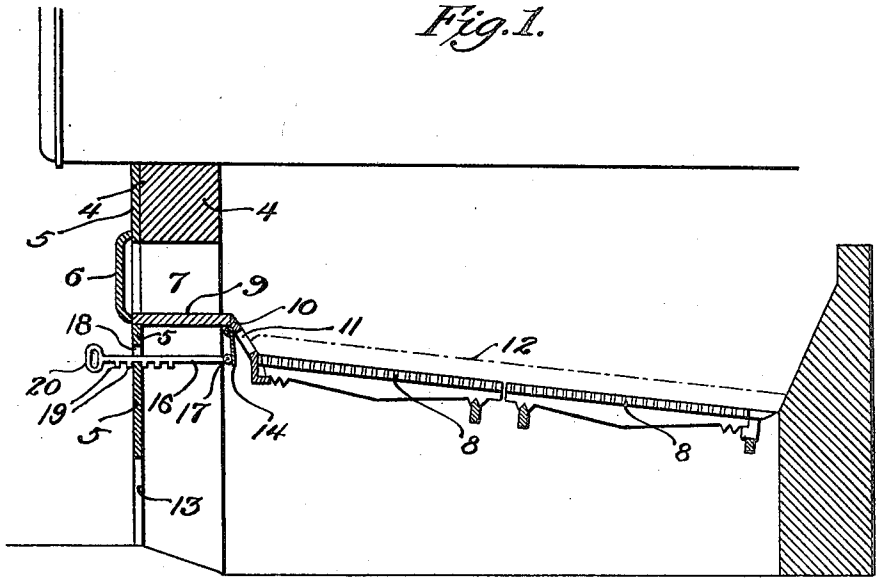


Fig. 3.

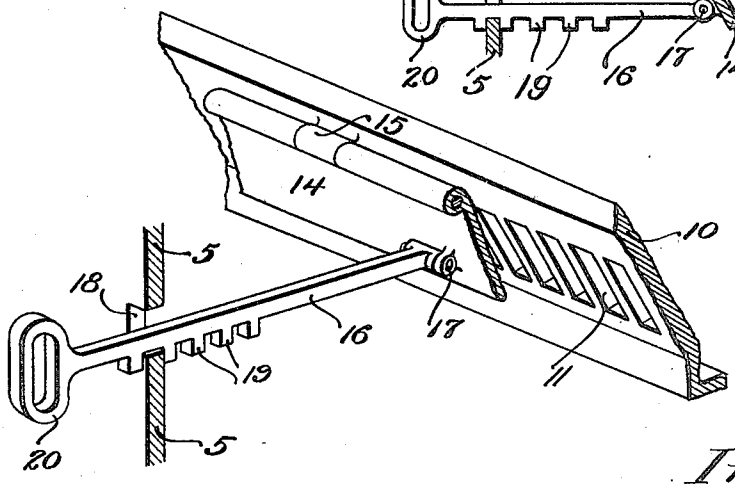
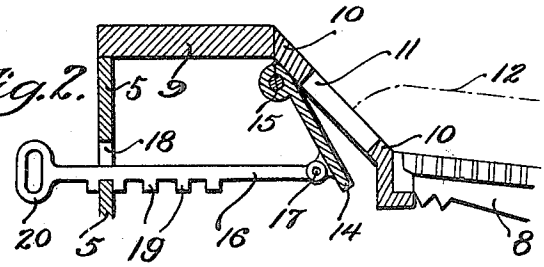


Fig. 2.



Witnesses,
Geo. A. Gruss
Augustus B. Copper

Inventor,
Lester Budd,
By Joshua R. H. Potts
his Attorney.

UNITED STATES PATENT OFFICE.

LESTER BUDD, OF PHILADELPHIA, PENNSYLVANIA.

ADJUSTABLE AIR-SHUTTER CONSTRUCTION FOR FURNACES.

1,407,516. Specification of Letters Patent. Patented Feb. 21, 1922.

Application filed November 24, 1919. Serial No. 340,343.

To all whom it may concern:

Be it known that I, LESTER BUDD, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Adjustable Air-Shutter Constructions for Furnaces, of which the following is a specification.

One object of my invention is to provide an improved air shutter construction which will operate in conjunction with a slotted drop or depression plate for permitting air to be admitted directly to a coal burning fire in a furnace and so as to vary the amount of air thus admitted.

Another object is to arrange a shutter in connection with a slotted drop or depression plate which leads downwardly to the grate from the dead plate adjacent the firing door so that the means for regulating the position of the shutter with respect to the slots in said depression plate can be operated from the front of the furnace.

Another object is to make my invention of a simple and durable construction and so that it can be easily operated to suit various requirements.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is a longitudinal sectional elevation taken through a boiler furnace showing my invention applied thereto,

Figure 2 is an enlarged fragmentary sectional elevation showing certain of the parts of Figure 1 drawn on an enlarged scale, and

Figure 3 is a fragmentary perspective view, partly in section, illustrating my invention.

Referring to the drawings, 4 represents the front wall of a furnace having a front plate 5 and a firing door 6 which registers with the opening 7 through which coal is fed to the grates 8. A dead plate 9 is provided at the bottom of the firing door opening 7 and a drop or depression plate 10 leads downwardly at a slant to the forward portion of the front grate 8. This drop plate has slots 11 which are located between the dead plate 9 and grate 8 and the preferable arrangement of the fuel bed is to have its top surface 12 intersecting the slots 11 below their tops so that there will be a free passage of air through the slots 11 directly to the fire bed.

The front plate 5 has an opening 13 to permit air to enter under the depression plate 10 and grates 8 so that a portion of the air can pass through said slots 11 to the fire bed as above described.

A shutter 14 is hinged to lugs 15 which project forwardly from the depression plate 10. A shutter regulating or adjusting rod 16 is hinged at its inner end to the shutter 14, as shown at 17. This rod 16 has its forward end extending outwardly through a hole 18 in the front plate 5 and has a number of teeth 19 spaced apart and depending downwardly within the length thereof, as clearly shown in the drawings. The outer end of the rod 16 is provided with a handle 20 and the hole 18 is of such height that when the rod 16 is manually raised that said rod 16 can be freely moved longitudinally to vary the position of the shutter 14 with respect to the slots 11 in the depression plate 10.

The front plate 5 is of such thickness that when the rod 16 is lowered, that its teeth will engage the opposite surfaces thereof and in this manner the shutter 14 can be held in various positions with respect to the slots 11 so as to vary the amount of air passing through the slots 11. Thus the amount of air passing to the fire bed can be easily regulated by a workman at a position directly adjacent the firing door and at the same time the desired amount of air can be supplied to the fire bed.

While I have described my invention as taking a particular form, it will be understood that the various parts of my invention may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claim.

Having thus described by invention, what

I claim as new and desire to secure by Letters Patent is:—

In a furnace, a depression plate having a slotted portion slanting downward from the firing door; a shutter positioned under said depression plate; and means having a portion extending outside of said furnace and operative to move said shutter into and out of engagement with the lower face of said slotted slanting portion; substantially as described.

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

LESTER BUDD.

Witnesses:
SARA T. HALL,
BENJAMIN H. FINLAYSON.