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F. I. SLEASTER

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FORCED DRAFT ATTACHMENT FOR FIRE BOXES

Filed Jan. 26, 1928

Fig. 1.

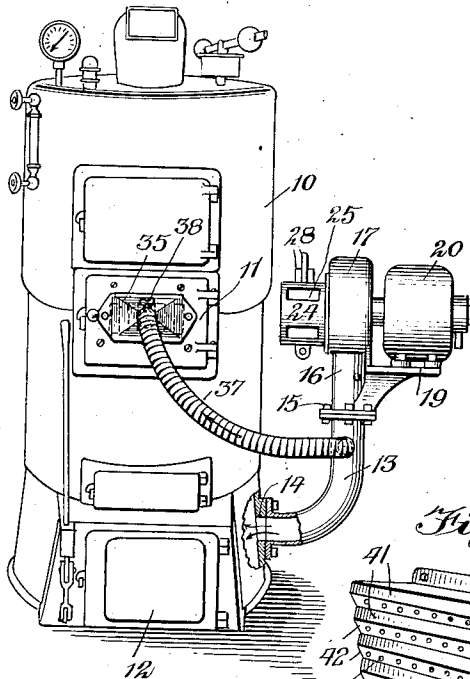


Fig. 4.

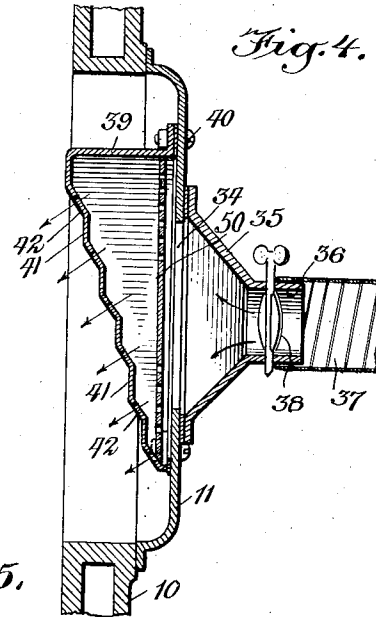


Fig. 5.

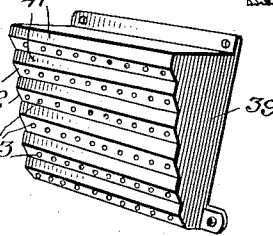


Fig. 2.

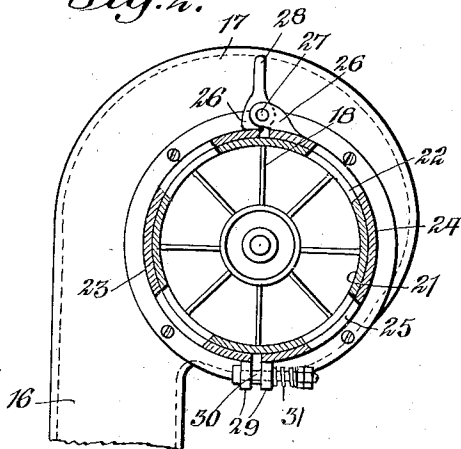
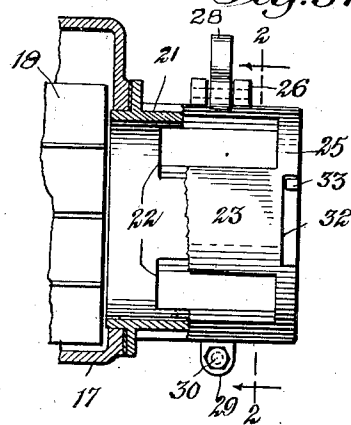


Fig. 3.



WITNESSES
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FORCED-DRAFT ATTACHMENT FOR FIRE BOXES

Application filed January 26, 1928. Serial No. 249,757.

The present invention is concerned with the provision of an attachment for fire boxes, particularly with a device for use in connection with the ordinary household type of furnace. The attachment permits the use of a forced draft through the ordinary furnace fire box, permitting the use of finely comminuted coal such for instance as buckwheat coal or screenings.

10 A feature of the invention is the provision of a forced draft inducing apparatus which not only causes an updraft through the fire box from the subjacent ash pit, but directs a plurality of independent air jets downwardly on the surface of the burning fuel in the fire box.

15 Preferably a single blower is used to control both of these drafts, the fire box door carrying an air-distributing chamber receiving air under pressure from the blower and delivering it in a series of fine independent jets on the surface of the burning coal.

20 The invention also comprehends the use of a special type of blower casing and barrel shutter for controlling the supply of air to the blower, whereby the air supply for both the over and under drafts may be accurately controlled.

25 Objects of the invention are to provide an attachment of this character which may be conveniently applied to any ordinary furnace, and which when applied, will be highly efficient and economical in operation.

30 Further objects are to provide an attachment of this type of simple, practical construction, which will be rugged and durable, and well suited to the requirements of economical manufacture and convenient installation.

35 With the above noted and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts as will be more fully hereinafter set forth and pointed out in the claims. The invention may be more fully understood from the following description in connection with the accompanying drawings, wherein—

40 Fig. 1 is a perspective view showing my

improved attachment applied to an ordinary furnace.

Fig. 2 is an enlarged transverse sectional view through the damper mechanism which controls the supply of air to the blower; this view being taken on the line 2—2 of Fig. 3.

Fig. 3 is a view partly in section and partly in side elevation of the screen mechanism taken at right angles to Fig. 2.

Fig. 4 is a vertical sectional view through the fire box door showing the distributor in section.

Fig. 5 is a perspective view of the distributor.

In the drawings I have used the reference numerals 10 to designate generally a conventional type of household furnace having the usual fire box door 11 and ash pit door 12. While the motor and blower unit of the present attachment may be disposed at any desired distance from the fire box, I have shown a convenient means for supporting them immediately adjacent the furnace, this means consisting of a riser pipe 13 connected at its lower end to the side wall of the ash pit, and delivering air through an opening 14 in the ash pit. Bolted or otherwise secured at 15 to the upper end of the riser 13 is a blower casing casting 16 providing a chamber 17 for a blower 18, and a platform 19 for the motor 20 which operates the blower.

70 A cylindrical extension 21 secured to the front of the blower casing 17 is provided with a plurality of longitudinally extending openings 22 in its sides. A cylindrical damper member including a pair of approximately semi-cylindrical sections 23 and 24 encircles the extension 21. The cylindrical shutter is provided with openings 25 therein adapted to be selectively registered with, or moved across the openings 22 in order to regulate the supply of air to the blower 18.

75 The two sections of the cylindrical shutter 24 are provided at one end with lugs 26 pivotally connected at 27 and one of the lugs being extended to form a handle 28. At their other ends the sections 23 and 24 carry cooperating apertured ears 29 connected by a bolt 30, which bolt is encircled by a coiled expansion spring 31 tending to advance the ears to—

ward each other, and cause the shutter to snugly fit the extension 21.

Rotary movement of the shutter in both directions is limited by the engagement of a notch 32 in the section 23 with a lug 33 arranged at the outer end of the extension 21.

The fire box door 11 is provided with an opening 34 therein over which is secured a flaring air supply plate 35 having a cylindrical extension 36 adapted to receive one end of a hose line 37, the other end of which is connected to the pipe 13 at any desired point. A manually operable damper 38 in the extension 36 controls the flow of air through the pipe line 37.

An open backed air distributing box 39 is bolted as at 40 to the inner face of the fire box door and co-operates with the door to produce a closed air distributing chamber.

The inner wall of this box inclines gradually toward the fire box door from its top to its bottom; this wall being made up of an alternating series of vertical sections 41 connected to each other by outwardly and downwardly inclined sections 42. These latter sections are provided with suitable apertures 43, through which, jets of air under pressure are directed on to the surface of the burning fuel in the fire box.

The successive inclined apertured sections 42 provide for a distribution of air jets over substantially the entire surface of the bed of coals.

The distributor box 39 may, if desired, be provided with an integral apertured air baffling plate 50 upon the solid intermediate portion of which the stream of air from the pipe line 37 impinges. By virtue of this arrangement, air enters the body of the distributor box through the apertures in the plate 50 and a substantially uniform pressure is maintained within the box.

With the blower in operation, and the valve 38 open or partially open, a simultaneous over and under draft is produced by the blower through the fire box. Air under pressure enters the ash pit through the pipe 13 and passes upwardly through the bed of coals at the same time that air under pressure is being discharged in a series of independent jets upon the top of the fuel from the distributor 39.

Obviously, various changes and alterations might be made in the general form and arrangement of the parts described without departing from the invention. Hence I do not wish to limit myself to the details set forth, but shall consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

I claim:

1. As a new article of manufacture, a blower casing including a cylindrical extension closed at its outer end and having openings

in its sides, a cylindrical shutter controlling said openings, said shutter including a pair of semi-cylindrical sections pivoted together at one end and spring held together at their other end.

2. As a new article of manufacture, a blower casing including a cylindrical extension closed at its outer end and having openings in its sides, a cylindrical shutter controlling said openings, said shutter including a pair of semi-cylindrical sections pivoted together at one end and spring held together at their other end, and a handle associated with the pivot means.

3. A blower, including an apertured casing, and a pair of circumferentially positioned members pivotally movable to permit circumferential joint movement to control said apertures.

4. A blower, including an apertured casing, and a pair of circumferentially positioned shutters, pivotally movable with respect to each other to permit circumferential joint movement to control said apertures.

5. A blower, including a casing having a cylindrical apertured extending portion, and a pair of co-operating apertured circumferentially positioned members pivotally movable to permit circumferential movement of said members to control said apertures, and means normally urging said members in frictional relation with said portion.

6. A blower, including a casing having a cylindrical apertured extending portion, a pair of co-operating apertured circumferentially positioned members pivotally movable to control said apertures, and pivoted means for controlling the position of said members.

Signed at New York in the county of New York and State of New York this 24th day of January, A. D. 1928.

FREDERICK I. SLEASTER.

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