

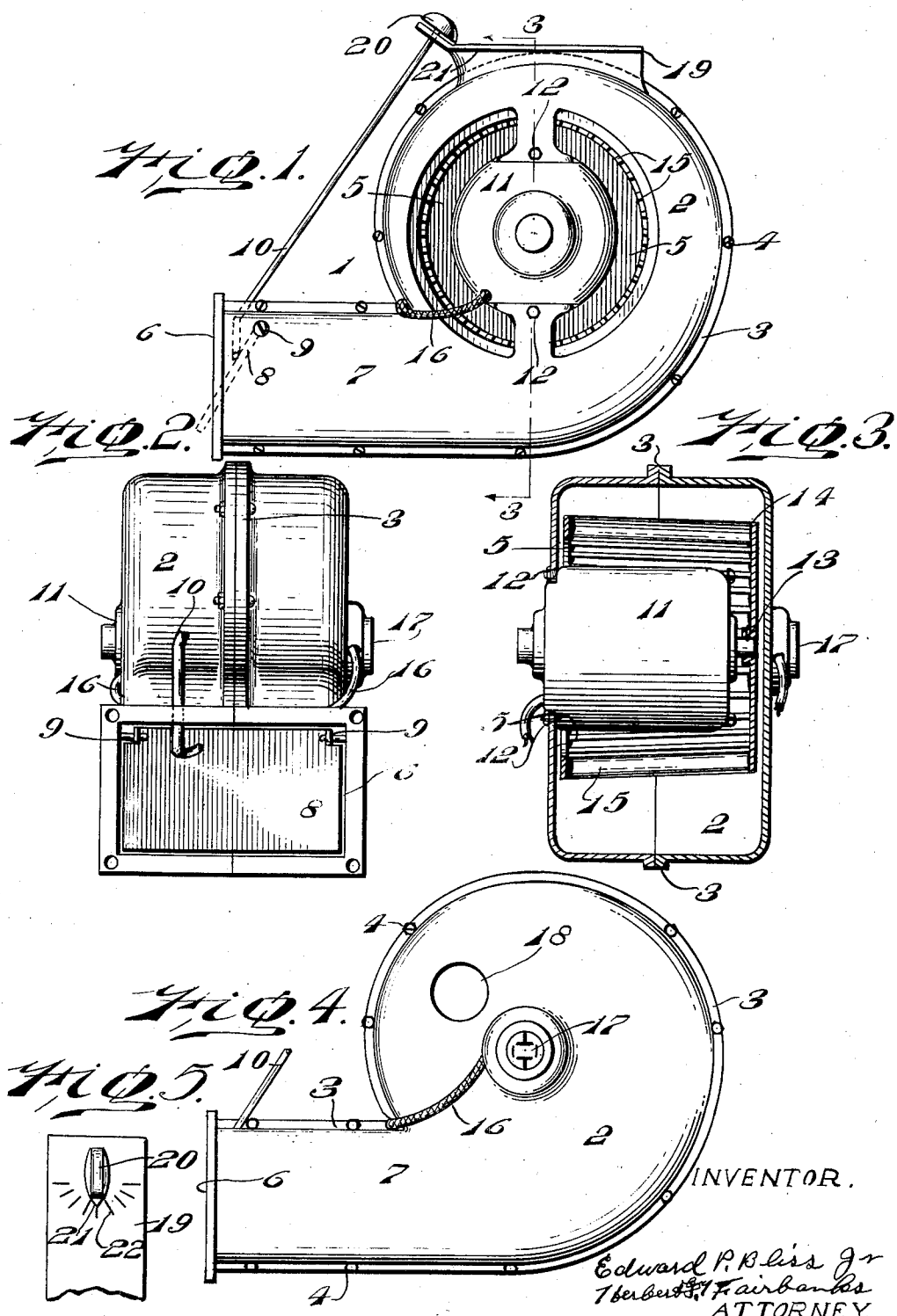
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MOTOR DRIVEN BLOWER

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MOTOR-DRIVEN BLOWER

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The object of this invention is to devise a novel draft combustion system for furnaces wherein all of the moving parts form a self-contained unit and wherein the blower driven
5 by the motor is mounted axially of the motor so that the air passing from the inlet to the blower circulates around the motor to effect its proper cooling.

A further object of the invention is to
10 devise a draft combustion system which forms a unit of structure so that the blower housing can have its discharge conduit connected directly to the walls of the draft opening, such as, for example, the ash pit door
15 of a furnace.

With the above and other objects in view as will hereinafter more clearly appear, my invention comprehends a novel draft combustion system wherein the motor driven
20 blower forms a unit of structure with the blower mounted axially of the motor so that the air passing from the blower housing inlet to the blower will circulate around the motor and effectively cool it.

It further comprehends a novel construction and arrangement of a self-contained unit wherein the blower housing is provided with a side air inlet and with a discharge at its periphery through a tangential conduit
30 which is provided with a damper opening in the direction of flow of the air and having adjustable means to limit the extent of opening of the damper.

It further comprehends a novel draft combustion system which forms a unit of structure and wherein the motor is self-contained within the blower housing with the blower mounted axially of the motor and with the motor arranged in such a manner that the
40 air inlet to its vanes is at the inner periphery of the blower and the discharge takes place at the outer periphery of the blower.

Other novel features of construction and advantage will hereinafter more clearly appear in the detailed description and the appended claims.

For the purpose of illustrating the invention, I have shown in the accompanying drawings a typical embodiment of it, which,
50 in practice, will give reliable and satisfactory

results. It is, however, to be understood that this embodiment is typical only and that the various instrumentalities of which my invention consists can be variously arranged and organized, and the invention is not limited to
55 the precise arrangement and organization of these instrumentalities as herein set forth.

Figure 1 is a side elevation of a draft combustion system embodying my invention.

Figure 2 is an end elevation of the device.
60

Figure 3 is a section on line 3—3 of Figure 1.

Figure 4 is a side elevation showing the side opposite to that seen in Figure 1.
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Figure 5 is a top plan view showing a portion of the name plate and the draft control.

Similar numerals of reference indicate corresponding parts.
70

Referring to the drawings:—

1 designates a draft combustion system embodying my invention. 2 designates the blower housing which is made in sections, the sections being provided with the ribs 3 which
75 are secured together by means of fastening devices 4. The blower housing is provided with a side inlet 5 and with a discharge 6 which communicates with a tangentially disposed conduit 7 having mounted in it a
80 damper 8 which opens in the direction of the blower of the air which is being discharged. The damper 8 is pivotally mounted at 9 and a control 10 is provided which limits the extent of opening movement of the damper.
85

Mounted centrally in the blower housing is a motor 11 which is retained in position by means of the fastening devices 12 which pass through one section of the blower housing and through the casing of the motor. The
90 motor 11 has fixed to its shaft by means of a set screw 13, the hub of a blower 14, which latter is provided with circumferentially spaced longitudinally extending vanes 15. It will thus be seen that the blower is mounted
95 axially of the motor so that it practically surrounds the entire motor. The conductor 16 for the motor is connected with a socket 17 mounted over the journal of the motor at
100 one side, and this socket is adapted to re-

ceive the usual prongs of an electrical conductor leading from a source of electric supply.

The blower housing is provided with an opening 18.

The motor driven blower forms a self-contained unit and is adapted to be connected with the walls of a draft opening of a furnace in a manner similar to that shown and described in my co-pending application Serial No. 329,389, filed December 3, 1928. As illustrated, the end of the discharge conduit is flanged to adapt it to receive fastening devices which serve as the support and sole means for holding the motor driven blower unit in assembled position with respect to the draft opening of a furnace. In practice this is usually attached directly to the ash pit door of the furnace.

The motor is automatically controlled in any desired or conventional manner in accordance with the variation in temperature in the room in which the control is located so that the operation of the motor will be automatically controlled. As such features are now well known in the art, I have deemed it unnecessary to illustrate and describe the thermostatic or other temperature control of the motor.

It will be apparent that in accordance with this invention the air entering the blower housing enters through the main air inlet 5 and must circulate around the motor 11 before it passes between the vanes of the blower so that the motor will be effectively cooled. The inlet to the blower is at the inner periphery of the blower. I preferably employ a type of electric motor which will not short-circuit due to overload.

My present invention can be economically manufactured and due to having the blower disposed axially of the motor the parts are balanced so that excessive wear does not take place on the bearings.

It is a distinct advantage to have the motor and blower mounted as a unit of structure so that they can be easily carried by the person who is installing them, and packed for shipment in an assembled condition, as this enables one unskilled in the art to readily connect it with respect to a furnace.

It is also another distinct advantage in having the motor driven blower unit as a unit of structure, since, in case of inspection and repairs one unit can be disconnected and be replaced by another unit.

The control member 10 is in the form of a rod which passes through the discharge conduit 7 and has its inner end deflected so that it will limit the opening movement of the damper 8, the extent of such movement of the damper 8 depending upon the position of the control rod. The control rod at its upper end passes through a top plate 19 secured to the lower housing in any desired or con-

ventional manner, and the control rod is provided with a grasping portion 20 having a pointer 21 which travels in the path of the graduations 22 on the plate 19. This enables one to determine the extent to which the damper is permitted to open. This plate 19 preferably also serves as a name plate. I have shown this plate in Figures 1 and 5 but for the sake of clearness of illustration it has been omitted from Figures 2, 3 and 4.

While my present invention is especially adapted to be employed for draft combustion systems, it will be apparent that it is not limited to such use but can be advantageously employed in any desired place where a desired draft is to be produced.

It will now be apparent that I have devised a new and useful draft system which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have, in the present instance, shown and described a preferred embodiment thereof which will give in practice satisfactory and reliable results, it is to be understood that this embodiment is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. In a motor driven blower, a blower housing having a side air inlet and a discharge at its periphery, an electric motor within said housing, a blower fixed to the motor shaft and surrounding the periphery of said motor to cause all the air entering said inlet and passing to said blower to circulate around the motor to cool it.

2. In a motor driven blower, a blower housing containing all of the moving parts, having a side inlet and a discharge conduit, a motor journaled centrally in said housing, and a blower concentric with and surrounding said motor and fixed to the motor shaft and said blower having the air inlets to its vanes at its inner periphery to cause all the air from the inlet to circulate around the motor to cool it before such air passes to the blower.

3. In a motor driven blower, a unitary structure comprising a blower housing having a side inlet and a discharge conduit which latter is adapted to be secured to the walls of a draft opening to serve as the supporting means for said unitary structure, an electric motor centrally mounted in said housing, a blower mounted axially of the motor, surrounding it and driven by it, and said blower having its inlet in proximity to the outer periphery of the motor, whereby the entire air from said housing inlet cools the motor before passing the blower inlet.

EDWARD P. BLISS, JR. 130