

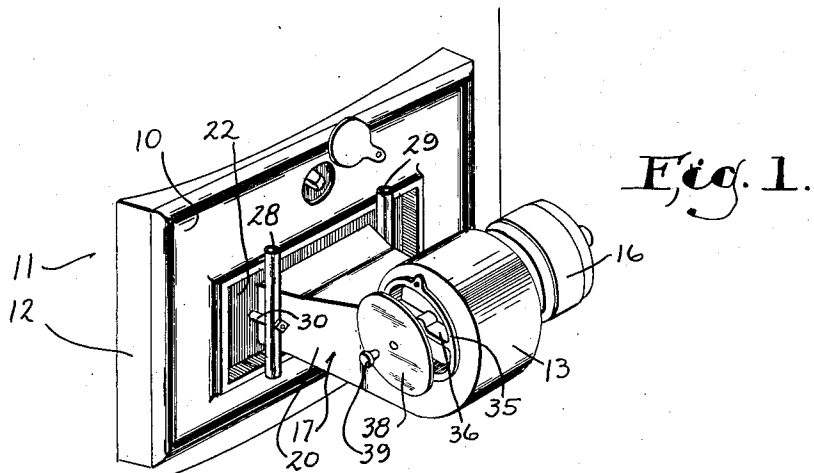
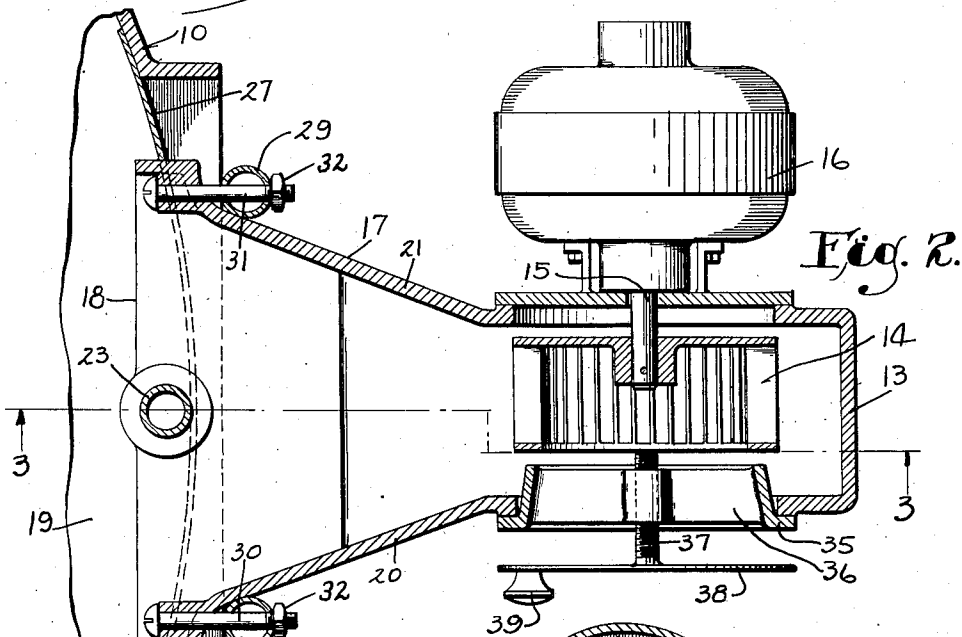
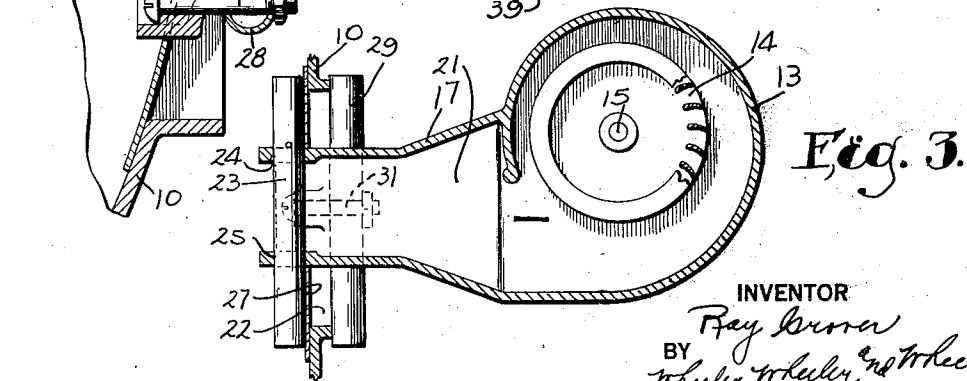
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FURNACE BLOWER MOUNTING

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FURNACE BLOWER MOUNTING

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1 Claim. (Cl. 285—25)

My invention relates to improvements in furnace blowers.

The object of my invention is to provide improvements in means for inducing forced draft in furnaces, particularly with reference to the configuration of the blower housing or outlet portion thereof, whereby to diffuse and break up directional air currents and to so shape said housing as to provide a mounting bracket universally adaptable to various shapes and contours of furnace ash pit doors.

In the drawing:

Fig. 1 is a perspective of my blower and housing installed upon the ash pit door of a domestic furnace.

Fig. 2 is a horizontal section through my blower housing and through an ash pit door such as the one shown in Fig. 1.

Fig. 3 is a section on line 3—3 of Fig. 2.

Like parts are designated by the same reference characters throughout the several views.

Application of forced draft beneath and into fires in furnaces is well known as a desirable means for controlling and assisting the combustion of fuels in such furnaces. However, the application of a blower and its housing including a delivery port for passage of air into the space below the grates of a furnace involves certain problems of installation and directional application of the currents of air from the blower which it is a purpose of my invention to solve.

In order to facilitate the installation of a blower mechanism in conjunction with the ordinary domestic furnace, I construct my blower housing for ready attachment upon the ash pit door 10 of such a furnace 11 so that the entire blower mechanism and air delivery conduit may swing with the door 10 and thus permit removal of the ashes through the door. This simplifies the installation since no cutting of the frame 12 of the door or cutting of any other metal of the furnace structure is necessary.

My blower mechanism includes certain major structural elements which I shall refer to herein as the blower housing 13, impeller 14 mounted on the shaft 15 of a motor 16 and an air outlet conduit 17. The air outlet 17 in its general configuration and with its associated mounting bracket parts comprises the most important structural element involved in my invention.

It will be noted that in the vertical dimension of the conduit 17 there is only slight progressive restriction from the blower housing 13 to the end of the conduit at 18 where the air from the blower 14 is "spilled" into the space 19 under the

grates of the furnace 11. However, the lateral dimensions of the conduit 17 progressively increase from the blower housing 13 to the end 18 thereof. The divergence of the side walls 20 and 21 is proportionally, as shown in Fig. 2 of the drawing, designed to diffuse the air currents passing from the housing 13.

Any marked deviation from the proportion shown in Figure 2 results in the formation of directional currents of air tending to concentrate the "draft" at particular points under the grates of the furnace with the result that fuel is completely consumed at such points and reduced to cold ashes while the remainder of the fuel remains in a state of slow combustion, thereby causing inefficient heating and "cold spots" in the radiating portion of the furnace above the fuel.

As will be noted in the drawing, I install my blower and air delivery conduit in the draft opening 22. In ash door 10 such opening 22 is usually closed by a draft door (not shown) and since the openings 22 may be of various sizes and configurations, I have provided universally adaptable means for mounting my blower mechanism in such an opening. Such means includes an inner brace 23 comprising preferably a tubular member receivable through apertures at 24 and 25 in the upper and lower central portions respectively adjacent the outlet end 18 of the conduit 17.

A mask 27 of suitable sheet material such as asbestos or sheet metal is cut to receive the outlet end 18 of the conduit and to extend laterally and vertically to close the entire opening 22. The mask 27 is held in position by the inner brace 23 as shown in Fig. 3.

Exteriorly of the door 10 I provide exterior braces 28 and 29 at either side of the conduit 17. These exterior braces likewise span the opening 22 and are adjustably drawn into position abutting the margins of the opening 22 by means of bolts 30 and 31 extending through bosses in the interior of the side margins of the side walls 20 and 21 and through said exterior braces 28 and 29. Nuts 32 upon the ends of the bolts 30 and 31, when drawn tightly against the exterior braces, bring the interior brace 23 in pressure relationship to the interior face of the door 10, thus positively clamping my entire blower mechanism upon the door 10 despite irregular or generally curved configuration of the door 10 or the margins of the draft door opening 22.

At 35 I provide an air inlet collar including a spider 36 to support a threaded shaft 37 forming

part of a plate 38 which is adjustable with reference to the spider 36 upon the threads of threaded shaft 37 to limit admission of air to the housing 13 as required by the particular weather or furnace fire conditions. A handle 39 facilitates the manual adjustment of the plate 38.

From the above description it will be seen that I have provided a blower and blower housing with a conduit 17 having a configuration such that directional air currents are diffused and it may be said of my construction that a deliberate setting up of eddy currents has been provided, whereby to prevent my blower from "blowing holes" in a bed of fuel and at the same time by reason of the lateral dimensions of the outlet end 18 of my conduit 17 I am enabled to provide

a particularly substantial and universally adaptable means for mounting my entire mechanism upon any furnace ash door.

I claim:

In a device of the character described, the combination with a tapered conduit to extend into and be supported by the margins of an opening in a plate, said conduit being apertured vertically and centrally, of a brace extended through said aperture to span the opening and abut one face of the plate, and side braces at each side of the tapered conduit, and of sufficient length to abut the other face of the plate, said side braces being adjustably connected with said conduit to clampingly engage said conduit and plate.

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