Dec. 11, 1934. C. S. ANDERSEN 1,983,515

DRAFT DIVERTER

Filed March 10, 1930

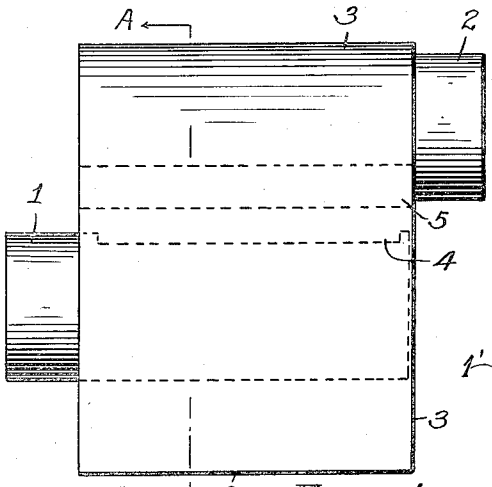


Figure 1.

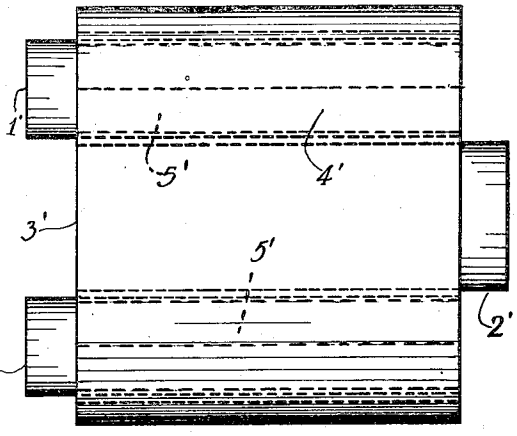


Figure 3

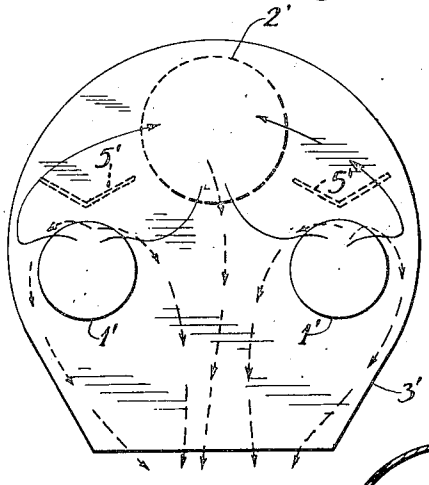


Figure 5

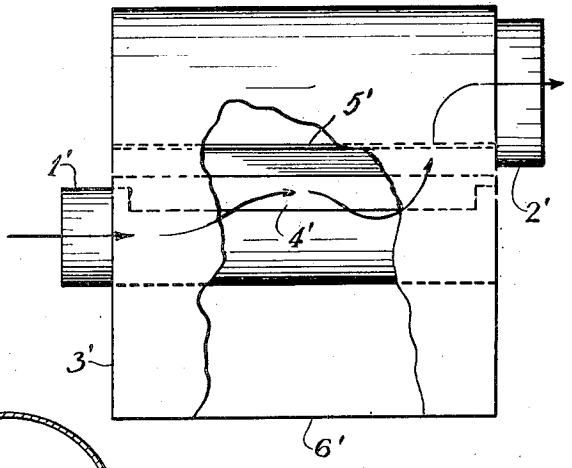


Figure 4

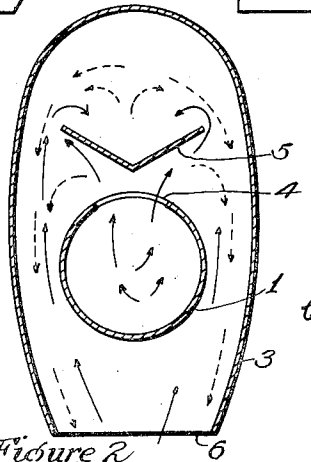


Figure 2

Christian S. Andersen

INVENTOR

Patented Dec. 11, 1934 1,983,515

UNITED STATES PATENT OFFICE

1,983,515

DRAFT DIVERTER

Christian S. Andersen, Warren, Pa., assignor to The Pennsylvania Furnace & Iron Company, Warren, Pa.

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5 Claims. (Cl. 126—307)

The invention relates to improvements in draft diverters of the kind which are generally installed in ducts carrying the products of combustion and excess air, or flue gases, to chimneys or the outer atmosphere from gas-fired appliances employed for heating single rooms or a plurality of rooms, the purpose of said draft diverters being to equalize excessive up drafts in chimneys into which said flue gases are conducted or to divert down drafts in same to issue into rooms, both to the end that the amount of draft available to withdraw the products of combustion from the appliances be constant so that combustion may be normal under any chimney condition; and the object of my improvements is to provide devices of this class which operate successfully to perform their said functions under various and variable chimney conditions without making it necessary to increase, substantially or at all, the vertical distance from the burner or from the floor level to the conduit leading from said heating appliances.

Two forms of the invention are illustrated in the accompanying drawing, in which Figure 1 is a side elevation of one such device, and Figure 2 is a vertical section through the draft diverter shown in Figure 1. Figure 3 is a plan view of a second form of the invention, which differs from that drawn in Figures 1 and 2 in that it has a plurality of openings, and Figures 4 and 5 are elevational views of the device represented in Figure 3.

Similar numbers refer to similar parts throughout the several figures.

The cylindrical conduit 1 constitutes the passage through which flue gases enter the draft diverter and by means of which said diverter is attached to the flue gas outlet of said gas-fired heating appliances. The cylindrical conduit 2 is the means through which the flue gases leave said device and by means of which the invention is attached to a chimney or to a conduit used to further convey the flue gases, and shell 3 is the casing by means of which the flue gases are confined within the device. A rectangular opening 4 provided in passage 1, a baffle 5 directly above this opening, and another opening 6 in the bottom of casing 3 complete the essential parts of the draft diverters illustrated.

When a positive draft is effective in the chimney, or the conduit leading from said device installed in one of said heating appliances while in operation, flue gases enter passage 1, from which they escape through opening 4, separate on baffle 5 and rise between said baffle and casing 3 to issue from the device through discharge passage 2. Excessive positive draft in chimney or conduit is equalized by entrance of air from the room through opening 6 to discharge into said chimney or duct with the flue gases. If the chimney is blocked or is otherwise without draft, the flue gases are discharged into the room through opening 6 instead of being issued into the chimney. If a negative draft is operative in the chimney, the flue gases and air entering from the chimney through passage 2 are discharged together into the room. During each of the above-described chimney actions, the invention operates to maintain a substantially unvarying draft to effectively withdraw the flue gases from said heating appliances. Thus by means of said draft diverter, fluctuating drafts of the chimney are automatically equalized with no effect on the combustion within the appliance and without any or with little gain in elevation of the flue-gas-conducting conduits leading to the chimney or the outer atmosphere.

In Figures 2, 4, and 5 the courses of the flue gases and air during positive draft are drawn by arrows with continuous shafts and the path of flue gases and air when no draft or a negative one is operative are shown by arrows with broken shafts.

In Figs. 3, 4 and 5 I show a modification in which the casing 3' is substantially cylindrical but provided with a flattened portion constituting an open bottom. A pair of spaced horizontally directed inlet pipes 1' extend into the casing from an end wall thereof and are provided each with an opening 4' in its upper surface, surmounted by a baffle 5'. An outlet pipe 2' extends from an end wall of the casing.

I am aware that, prior to my invention, draft diverters designed to equalize chimney effects on combustion in gas-fired heating appliances have been made. I, therefore, do not claim such a combination broadly; but

I claim:

1. A draft diverter of the type described, comprising a casing having an inlet opening and an outlet opening, the axes of said openings being horizontal and the axis of said outlet opening being vertically above the axis of said inlet opening; an entering conduit extending into the casing from said inlet opening; an opening substantially at the top of said entering conduit; a baffle located within the casing substantially above said opening; and a discharge or intake opening substantially at the bottom of the casing; for the purpose set forth.

2. A draft diverter of the type described, comprising a casing having a plurality of inlet openings and an outlet opening; the axes of said openings being horizontal and the axis of said outlet opening being vertically above the axis of said inlet openings; entering conduits extending into the casing from said inlet openings; openings substantially at the tops of said entering conduits; baffles located within the casing substantially above said openings; and a discharge or intake opening substantially at the bottom of the casing, for the purpose set forth.

3. A draft diverter comprising a casing having an opening in its bottom, an end wall and an inwardly concavely curved top, the end wall having an outlet opening, an inlet conduit extending into the casing and having an opening below said outlet opening and facing upwardly, and a baffle mounted horizontally between said openings.

4. A draft diverter comprising a casing having opposite end walls, continuously curved side and top walls, and an open bottom, an inlet pipe extending into the casing through one end wall and having an opening in a portion of its upper surface within the casing, an outlet in the other end wall above the level of said opening, and a baffle mounted in the casing above the opening and below the outlet.

5. A draft diverter comprising a casing having opposite end walls and an open bottom, an inlet pipe extending into the casing through an end wall and having an opening in the portion of its upper surface within the casing, an outlet in an end wall of the casing above the level of said opening, a baffle in the casing above the opening and below the outlet, and an arched top wall of the casing connecting the two end walls to cooperate with the baffle in conducting back draft currents from the outlet opening, past the inlet opening and to the open bottom of the casing.

CHRISTIAN S. ANDERSEN.