Oct. 3, 1944. J. L. COBURN ET AL 2,359,465

DRAFT CONTROL

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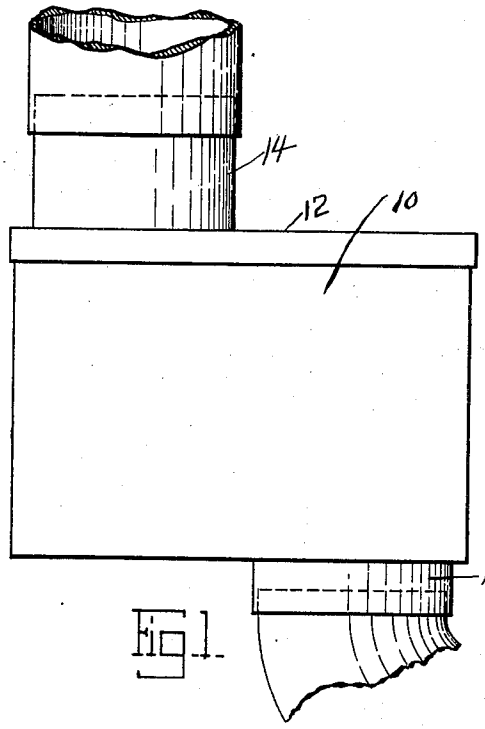


Fig. 1.

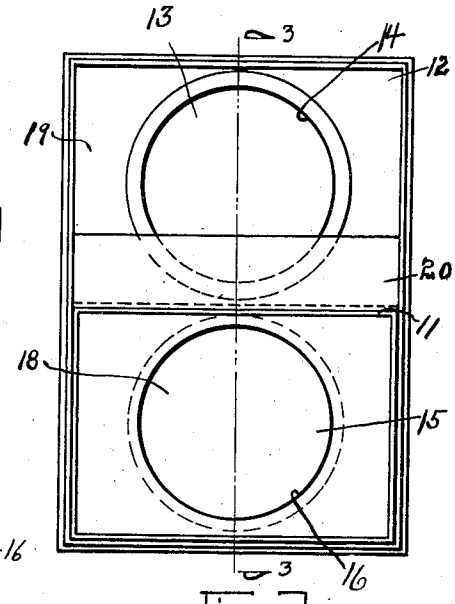


Fig. 2.

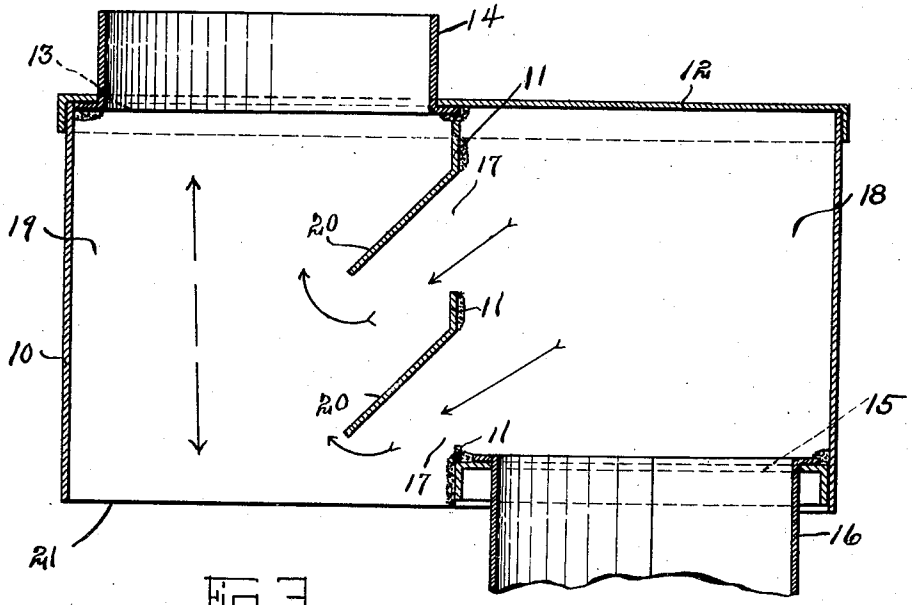


Fig. 3.

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DRAFT CONTROL

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Des Moines, Iowa

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4 Claims. (Cl. 126—307)

This invention relates to draft controls; it is most particularly, but not exclusively, concerned with means for controlling drafts on gas and oil burners.

Certain problems in connection with the control of drafts have heretofore gone unsolved, and it is our purpose to aid in increasing the practicability of heaters, and especially oil and gas heaters. Substantial difficulty has been experienced in conjunction with down drafts extinguishing the pilot flames of gas burners, an occurrence which is obviously most undesirable. In the draft controls heretofore available, it has been possible for the draft to travel either way, depending upon which direction it is strongest; a strong downward draft coming into contact with the tiny pilot flame frequently operates to extinguish the flame and leave the poisonous gas pouring into the room. Another objectionable feature has been the fact that the down drafts, when they occur, have a tendency to fill the heating chamber with cold air from out of doors and hence to cool the object being heated and to decrease generally the efficiency of the device.

It is an object of this invention to provide a draft control which will substantially eliminate the presence of down drafts in the combustion chamber of heating units.

Another object of this invention is to divert drafts coming downwardly through the chimney out into the basement or other room in which the heating unit happens to be situated.

Yet another object of this invention is to provide a draft control unit in which the fumes from the combustion chamber are directed by baffle plates indirectly into the chimney flue and in which the drafts coming down the chimney are diverted by baffle plates from the heating unit flue.

Still another object of this invention is to provide a draft control in which the heater flue is out of alignment with the chimney flue.

Other objects of this invention will become apparent to those skilled in the art as we proceed with the disclosure.

For the purposes of this specification, "primary chamber," unless otherwise specified, will be intended to designate that chamber of our novel draft control into which the heater flue enters; and "secondary chamber" will be intended to signify the chamber which connects directly into the chimney flue.

In order that a clear and concise conception of our invention may be had, reference should be had to the accompanying drawing, forming a part of this specification, in which:

Fig. 1 is a side elevational view of the preferred form of our invention, including fragmentary connections.

Fig. 2 is a bottom view of Fig. 1.

Fig. 3 is a vertical cross section of Fig. 2 taken on line 3—3 thereof.

Referring to the drawing, reference number 10 refers to the main housing which is fragmentarily divided into two compartments by the partition 11. The chimney flue outlet, which is a suitable opening in the wall 12 of the housing 10, is designated by the reference character 13. A stub pipe communicates with the chimney flue and is shown at 14. The heater flue enters our draft control device through the opening 15, in which is shown a stub pipe 16. The partition 11 is provided with one or more openings 17 through which the primary chamber 18 is in communication with the secondary chamber 19. Louvers 20 are preferably provided on the partition 11 extending into the secondary chamber 19 and inclined away from the chimney flue intake 13. Except for the openings heretofore described, namely the heater flue entrance 15 and the openings 17 in the partition 11, the primary chamber is closed. The secondary chamber on the other hand is preferably entirely open at its end 21, which is opposite the chimney flue intake 13.

Under normal operating conditions, the gases from the heating unit enter our control unit through the opening 15. Being otherwise confined, they take the path shown by the arrows out through the openings 17 and into the secondary chamber 19; the inclined louvers 20 cause the gases to take a downwardly inclined course until they have passed said louvers, whereupon they are drawn by the normal draft conditions upwardly and out through the opening 13. In the event that draft conditions are abnormal, and a downward draft exists, a circumstance which is most likely to occur when the heating unit is not in operation, it will be directed out into the room through the opening 21 rather than into the primary chamber 18 and thence through the heater flue entrance opening 15 into the combustion chamber where it might extinguish the pilot light, and would, in any event, tend to cool the combustion chamber and object heated.

Our novel control unit may be fabricated from any suitable material, and the material and means of fabrication are not inherent in our invention. However, we have found it very satisfactory to simply form the same from ordinary

galvanized sheet metal; it may, of course, also be a cast unit. In order to comply with regulations in many vicinities it is necessary to form the opening or openings 17 in the partition 11 to have an area equal to or preferably greater than the area of the heater flue. This construction is not, of course, in any way a limitation on our invention.

As previously indicated, the number of openings 17 formed in the partition 11 is not material; there may be one or more than one. In fact, our construction has a substantial amount of the desired effect if the partition 11 is omitted entirely. Even in the preferred construction, the louvers 20 may be eliminated without impairing the effect of our device to a very substantial degree. While we have described our invention especially in connection with oil and gas fired units, it is obviously not limited thereto, and may be used in substantially any type of heating device.

While we have described a specific form of our invention for the purpose of illustration and explanation, there are many modifications and alterations which will occur to one skilled in the art and which are entirely within the spirit and scope of our invention, we, therefore, wish to be limited herein only by the appended claims.

We claim:

1. In a draft control a housing having an opening in its top adapted to communicate with a chimney flue, an opening in its bottom, offset from the first said opening, adapted to communicate with the flue of a heating unit and an opening in its bottom in general registration with the first said opening, a partition dividing said housing into two compartments one of which incorporates the first and third said openings and the other of which incorporates the second said opening, said partition being provided with a first opening spaced upwardly from its lower edge and being provided with a second opening spaced upwardly from the first said partition opening by a strip of said partition, a generally plane louver secured to said strip of partition extending outwardly only into that compartment adapted to communicate with a chimney flue and extending downwardly sufficiently far to be at least substantially coextensive with the first said opening in the partition and a generally plane louver extending outwardly from adjacent the partition only into that compartment which is adapted to communicate with a chimney flue and extending downwardly so as to be at least substantially coextensive with the second said opening in the partition.

2. In a draft control a housing having an opening in its top adapted to communicate with a chimney flue, an opening in its bottom, offset from the first said opening, adapted to communicate with the flue of a heating unit and an opening in its bottom in general registration with the first said opening, a partition dividing said housing into two compartments one of which incorporates the first and third said openings and the other of which incorporates the second said opening, said partition being provided with a plurality of openings and the construction being such that the outside sidewalls of the compartment adapted to communicate with a chimney flue extend downwardly at least substantially as low as the bottom of the lowermost opening in the partition, a strip of partition below each opening therein, and an inclined louver extending outwardly from above each opening in the partition only into that compartment adapted to communicate with a chimney flue and extending downwardly so as to be at least substantially coextensive with the particular partition opening to which each louver is adjacent.

3. In a draft control a housing having an opening in its top adapted to communicate with a chimney flue, an opening in its bottom, offset from the first said opening, adapted to communicate with the flue of a heating unit and an opening in its bottom in general registration with the first said opening, a partition dividing said housing into two compartments one of which incorporates the first and third said openings and the other of which incorporates the second said opening, said partition being provided with a plurality of openings and the construction being such that there is a portion of the partition beneath each opening therein and an inclined louver extending outwardly from above at least one opening in said partition into that compartment adapted to communicate with a chimney flue and extending downwardly so as to be in the main coextensive with the particular partition opening to which it is adjacent.

4. In a draft control a housing having an opening in its top adapted to communicate with a chimney flue, an opening in its bottom, off-set from the first said opening, adapted to communicate with the flue of a heating unit and an opening in its bottom in general registration with the first said opening, a partition dividing said housing into two compartments one of which incorporates the first and third said openings and the other of which incorporates the second said opening, said partition being provided with an opening and the construction being such that the outside side walls of the compartment adapted to communicate with a chimney flue extend downwardly at least substantially as low as the bottom of said opening in the partition, a strip of partition below said opening therein, and an inclined louver extending outwardly from above said opening in the partition only into the compartment adapted to communicate with a chimney flue and extending downwardly so as to be at least substantially coextensive with the said partition opening.

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