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L. L. SCOTT

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DRAFT REGULATOR AND RELIEF DOOR

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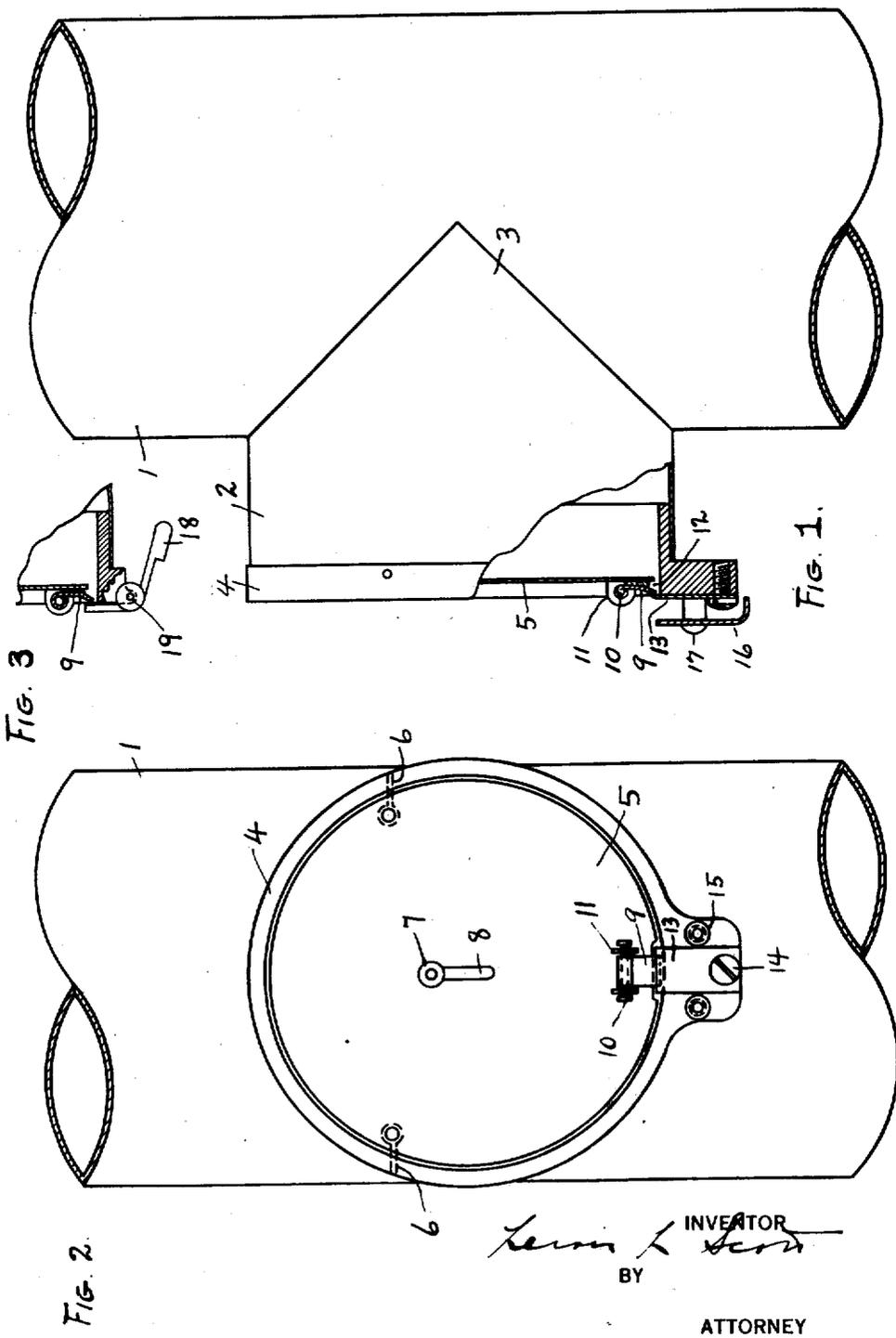


Fig. 2.

Fig. 1.

Fig. 3.

INVENTOR
L. L. Scott

BY

ATTORNEY

UNITED STATES PATENT OFFICE

2,125,466

DRAFT REGULATOR AND RELIEF DOOR

Lewis L. Scott, St. Louis, Mo.

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5 Claims. (Cl. 236—45)

This invention relates to automatic draft regulators for heating plants arranged to automatically relieve excessive pressure that may be developed in the heating plant.

5 The object of my invention is to provide an extremely simple and inexpensive draft regulator so arranged that it will not only regulate draft in the heating plant to which it is attached, but will also automatically relieve any
10 excess pressure suddenly developed in the heating plant or chimney.

The accompanying drawing illustrates my invention.

15 Figure 1 is a vertical side view of my draft regulator shown partly in section and shown attached to a flue pipe which is normally connected to a heating furnace, not shown, said flue pipe also being connected to the chimney or flue, which discharges the products of combustion from the furnace to the outside atmosphere.

Figure 2 is a front view of Figure 1.

Figure 3 is a modified arrangement of that part shown in section in Figure 1.

25 Referring now to the drawing, the numeral 1 indicates a flue pipe which is normally connected to a heating furnace not shown, and which is also connected to the flue leading to the outside atmosphere. The numeral 2 indicates a sheet metal cylinder which has extended arms 3, and
30 arranged to be attached to the flue pipe, and said flue pipe having an opening corresponding to the cylinder 2, and registering with the opening in cylinder 2. The numeral 4 indicates a cylindrical ring attached to the sheet metal cylinder 2, and arranged to carry the regulator door 5 on a pivot bearing 6 secured to the door, and having bearings in the ring 4 as shown in
35 Figure 2. The numeral 7 indicates a locking nut device, operating in the slot 8, for the adjustment of a counterbalance weight (not shown) similar to that shown on Patent 1,809,005 to R. A. Walker.

45 The numeral 9 indicates a hinge member which is pivoted on the pin 10, which pin is mounted on the projecting members 11, secured to the door 5. The numeral 12 indicates a felt cushion arranged between the hinge member 9 and the door 5 to reduce noise in the operation of the device. The numeral 13 indicates a
50 flat spring which is secured to the lower part of the ring 4 by the screw 14. The spring 13 is arranged to contact with the hinge member 9 when the door is in a closed position, as shown
55 in Figure 1. If excessive pressure is developed

on the inside of the door 5, the spring 13 will yield and permit the door 5 to open in a reverse position, and thereby relieve pressure in the flue pipe 1 and connected parts. As soon as pressure is relieved, the door 5 will fall back to normal position, and the hinge 9 will swing out so
5 as to pass easily over the end of the spring 13, without offering any resistance to the door in getting back to normal operating position. The numeral 16 indicates a shield cover for the
10 spring 13, and serves no purpose other than to cover the spring and prevent tampering therewith. The cover 16 is secured to the projecting lugs 15 on the lower part of the ring 5 by the
15 screws 17.

In Figure 3 I have shown a modified yielding arrangement. The weight 18 is pivoted at 19, and said pivot is secured in the lower part of the ring 5. The weight 18 is arranged to contact
20 with the hinge member 9 in exactly the same way that the spring 13 contacts with the hinge member 9. In the event that excess pressure is developed on the inside of the door 5, the weight 18 will yield in the same general way
25 that the spring will yield as before described.

I claim:—

1. A draft device for furnaces comprising in combination a smoke flue having an opening thereinto, a valve for controlling said opening
30 arranged to move from closed to open position in response to air drafts moving through said opening into the flue, a frame ring around said valve which carries pivot bearings secured to said valve, a weight pivoted to said frame ring
35 serving to limit the closed position of said valve, but yieldable under abnormal pressure from the valve to permit movement of the valve into a reverse open position.
2. A draft device for furnaces comprising in
40 combination a smoke flue having an air opening thereinto, a valve for controlling said opening arranged to move from closed to open position in response to air drafts moving through said
45 opening into the flue, a yielding member, a pivoted hinge member arranged to contact with said yielding member so as to limit the closed
50 position of the valve under normal conditions, said yielding member and said pivoted hinge member being arranged to cooperate to permit
55 the valve to move into a reverse open position when the resistance offered by the yielding member is overcome by abnormal pressure applied to the inside of the valve, and to permit said valve to move from reverse open position to normal

draft regulating position with substantially no resistance from said members.

3. In a draft device for furnaces comprising in combination a smoke flue having an air opening thereinto, a valve for controlling said opening arranged to move from closed to open position in response to air drafts moving through said opening into the flue, a frame around said valve which carries pivot bearings for said valve, a yielding member secured to said frame, a hinge member pivoted to said valve and arranged to contact with the yielding member and the valve so as to limit the closed position of said valve under normal conditions, but to permit the valve to move into a reverse open position when the resistance offered by the yielding member is overcome by abnormal pressure applied to the inside of the valve, said hinge member arranged to move outward and ride over the yielding member when the valve moves from the reverse open position to normal draft regulating position, thereby offering substantially no resistance to said movement.

4. In a draft device for furnaces comprising in combination a smoke flue having an air opening thereinto, a pivoted valve for controlling said opening arranged to move from closed to open position in response to air drafts moving through said opening into the flue, cooperating abutments on the valve and the flue, one of which has a hinge member pivoted to said valve and arranged so as to limit the closed position of said

valve under normal conditions, one of said abutments being yielding to permit the valve to move into a reverse open position when abnormal pressure is applied to the inside of the valve, said hinged member arranged to move outwardly and ride over the other abutment when the valve moves from reverse open position to normal draft regulating position, thereby offering substantially no resistance to said movement, and a cushion arranged between the hinged member and said valve.

5. An automatic draft regulator for heating plants provided with a casing connected to the flue of the heating plant, and having an opening through which air may flow into said flue, a swinging valve arranged in said opening to permit air to flow into the flue and automatically regulate the draft through the heating plant, a frame around said valve which carries pivot bearings for said valve, a pair of cooperating abutment members comprising a hinged member on the valve and a top in the frame, one of said members being yielding so as to limit the closed position of said valve under normal conditions but to permit the valve to move into a reverse open position when abnormal pressure is applied to the inside of the valve, and the hinged member arranged to ride over said stop when the valve moves from reverse open position to normal draft regulating position with substantially no resistance to said movement.

LEWIS L. SCOTT.

CERTIFICATE OF CORRECTION.

Patent No. 2,125,466.

August 2, 1938.

LEWIS L. SCOTT.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, line 22, claim 5, for the word "top" read stop; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 27th day of September, A. D. 1938.

Henry Van Arsdale

(Seal)

Acting Commissioner of Patents.

draft regulating position with substantially no resistance from said members.

3. In a draft device for furnaces comprising in combination a smoke flue having an air opening 5 thereinto, a valve for controlling said opening arranged to move from closed to open position in response to air drafts moving through said opening into the flue, a frame around said valve which carries pivot bearings for said valve, 10 a yielding member secured to said frame, a hinge member pivoted to said valve and arranged to contact with the yielding member and the valve so as to limit the closed position of said valve under normal conditions, but to permit 15 the valve to move into a reverse open position when the resistance offered by the yielding member is overcome by abnormal pressure applied to the inside of the valve, said hinge member arranged to move outward and ride over the yielding member when the valve moves from the 20 reverse open position to normal draft regulating position, thereby offering substantially no resistance to said movement.

4. In a draft device for furnaces comprising 25 in combination a smoke flue having an air opening thereinto, a pivoted valve for controlling said opening arranged to move from closed to open position in response to air drafts moving through said opening into the flue, cooperating abutments 30 on the valve and the flue, one of which has a hinge member pivoted to said valve and arranged so as to limit the closed position of said

valve under normal conditions, one of said abutments being yielding to permit the valve to move into a reverse open position when abnormal pressure is applied to the inside of the valve, said hinged member arranged to move outwardly 5 and ride over the other abutment when the valve moves from reverse open position to normal draft regulating position, thereby offering substantially no resistance to said movement, and a cushion arranged between the hinged member 10 and said valve.

5. An automatic draft regulator for heating plants provided with a casing connected to the flue of the heating plant, and having an opening through which air may flow into said flue, 15 a swinging valve arranged in said opening to permit air to flow into the flue and automatically regulate the draft through the heating plant, a frame around said valve which carries pivot bearings for said valve, a pair of cooperating 20 abutment members comprising a hinged member on the valve and a top in the frame, one of said members being yielding so as to limit the closed position of said valve under normal conditions but to permit the valve to move into a reverse 25 open position when abnormal pressure is applied to the inside of the valve, and the hinged member arranged to ride over said stop when the valve moves from reverse open position to normal draft regulating position with substan- 30 tially no resistance to said movement.

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