

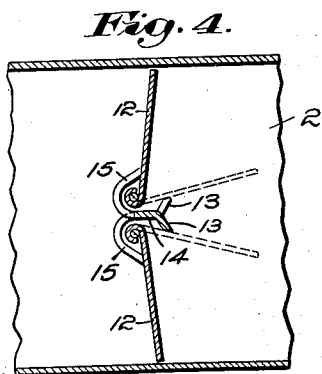
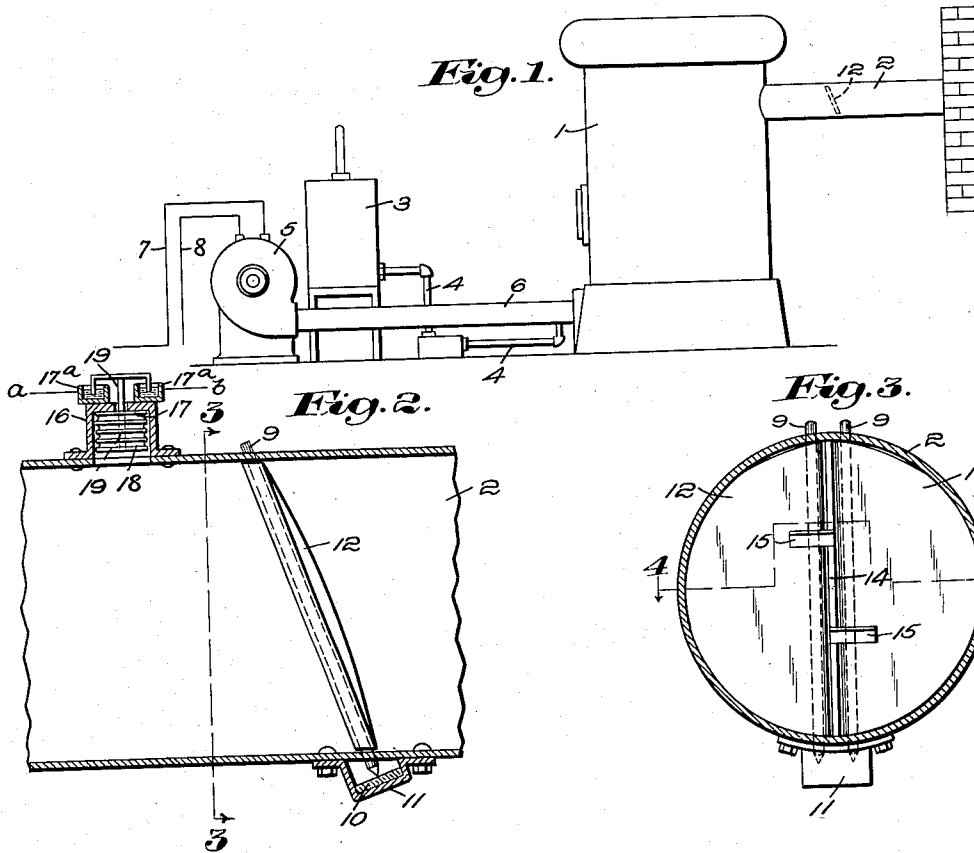
Jan. 14, 1930.

W. F. SCOTT

1,743,731

HEAT CONSERVATION MEANS

Filed Feb. 18, 1925



Inventor:
Warren F. Scott,
by Edwin Scott James, Attorney.

UNITED STATES PATENT OFFICE

WARREN F. SCOTT, OF STONEHAM, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO
HENRY L. WADSWORTH, OF LEXINGTON, MASSACHUSETTS

HEAT-CONSERVATION MEANS

Application filed February 18, 1925. Serial No. 9,969.

This invention relates to heaters, such as furnaces, boilers and the like for buildings, and aims to provide novel means such as a damper, for instance, for conserving the heat in the heating element by preventing it from escaping up the chimney. While the invention is particularly adapted for use with oil burners where a forced draft is used, it can be used also with any heater where a natural draft sufficiently strong is available.

In the drawings of the embodiment of my invention illustrated and described herein,

Fig. 1 is a side elevation of a conventional form of heater embodying my novel heat conserving construction;

Fig. 2, a partial vertical, longitudinal, sectional view through the smoke pipe, showing my novel construction;

Fig. 3, a vertical cross section on the line 3—3, Fig. 2;

Fig. 4, a horizontal section on the line 4—4, Fig. 3, looking down.

Referring first to Fig. 1, the construction illustrated comprises a conventional hot water, hot air or steam heater 1, with a smoke pipe 2, a liquid fuel supply tank 3, with pipe 4 connecting the same to the burner, not shown, in the heater 1. Associated with the supply means is a motor blower 5, of conventional design, and pipe 6 leading therefrom also to the burner, the motor adapted to be supplied with power through the lines 7, 8, from any convenient source, not shown.

It is well known that most of the successful oil burners are equipped with a motor to supply the necessary air for breaking up and atomizing the particles of oil. Therefore, the damper is left open most of the time in the smoke pipe, particularly as the operation of the motor is intermittent. Consequently when the motor stops and the flame is turned down low or even entirely out, a very large amount of latent heat, is contained in the heater which, if the damper is left open, will escape up the chimney. It is one of the objects of my invention to save this heat.

To that end, in the case of such a heater as described, I provide an automatically closing damper to be placed at any location where the draft may be conveniently blocked or the heat

trapped in the smoke pipe. In Figs. 2, 3, 4, I show such a construction wherein are provided supporting rods 9, herein for convenience two, which are mounted for rotation in the smoke pipe in an inclined plane cross-wise of the pipe, but in a vertical plane longitudinally of the pipe. The upper ends of both rods are extended through suitable openings in the pipe 2, while the lower ends are extended through the pipe and, being very hard, preferably, are pointed and mounted for easy movement in a suitable bearing 10 as glass carried by a strap 11, fastened to the under side of the pipe.

Each rod 9, Figs. 2, 3, 4, carries a wing 12 of suitable material, as metal, properly fashioned in outline, the two wings substantially closing the passage in the pipe 2. These rods, Fig. 2, are mounted at such an angle relative to the vertical that, Fig. 4, the wings 12 will automatically normally swing outwardly by gravity from the center and close the pipe 2, Fig. 3.

When, therefore, the blower 5 is in operation, the force of the draft will open the wings 12, swinging them back against the fingers 13 on the rod 14, also mounted in the pipe 2, and when the draft stops, the wings will at once close through gravity, preventing the radiation of a large amount of heat.

To avoid any danger from the wings moving forward to a point beyond which they will not return by gravity, the stops 13 are provided. Similar fingers 15 are carried by the rod 14 rearwardly, and prevent the wings by any chance from wedging themselves against the soot on the inner wall of the pipe 2.

In order to guard against inconvenience from the wings failing to open with the draft, through any cause, I provide a relief valve 16 with a disk 17 carried thereby and supporting a controlling bellows like diaphragm 18 on a movable stem 19, the ends of which are supported in mercury cups 17^a in the circuit 7, 8. Ordinarily with the motor in operation, the circuit is closed through the member 19 and lines *a*—*b* leading from the lines 7—8. Should the pressure build up in the pipe 2 because the damper did not open,

the pressure would raise the diaphragm 18 and stem 19, lift the member 19 from the mercury cups and break the circuit, stopping the blower.

5 This invention is not limited to the particular embodiments thereof illustrated and described herein.

Claims:

10 1. Smoke pipe closing means comprising a pipe, rods in the pipe, damper members carried thereby, the rods positioned in an inclined plane crosswise of the pipe but in a vertical plane longitudinally of the pipe so that the damper normally moves to closed position.

15 2. Smoke pipe closing means comprising a pipe, rods in the pipe, damper members carried thereby, and a post provided with a damper stop thereon, the rods positioned in an inclined plane crosswise of the pipe but in a vertical plane longitudinally of the pipe whereby the damper normally moves to closed position.

20 3. Smoke pipe closing means comprising a pipe, rods positioned in the pipe, a bearing member for the rods without the pipe, a damper carried by the rods, the rods positioned in an inclined plane crosswise of the pipe but in a vertical plane longitudinally of the pipe whereby the damper normally moves to closed position.

25 In testimony whereof, I have signed my name to this specification.

WARREN F. SCOTT.

35

CERTIFICATE OF CORRECTION.

Patent No. 1,743,731.

Granted January 14, 1930, to

WARREN F. SCOTT.

It is hereby certified that the above numbered patent was erroneously issued to the inventor said "Scott and one-half to Henry L. Wadsworth, of Lexington, Massachusetts", as assignee, whereas said patent should have been issued to the inventor said "Scott and one-half to Henry L. Wadsworth, of Lexington, Massachusetts, Marion P. Wadsworth, of Lexington, Massachusetts, executrix of said Henry L. Wadsworth, deceased", as shown by the records of assignments in this office; 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 4th day of February, A. D. 1930.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.