

No. 858,019.

PATENTED JUNE 25, 1907.

T. D. PILCHER.
APPARATUS FOR REGULATING COMBUSTION.
APPLICATION FILED DEC. 15, 1905.

Fig. 1.

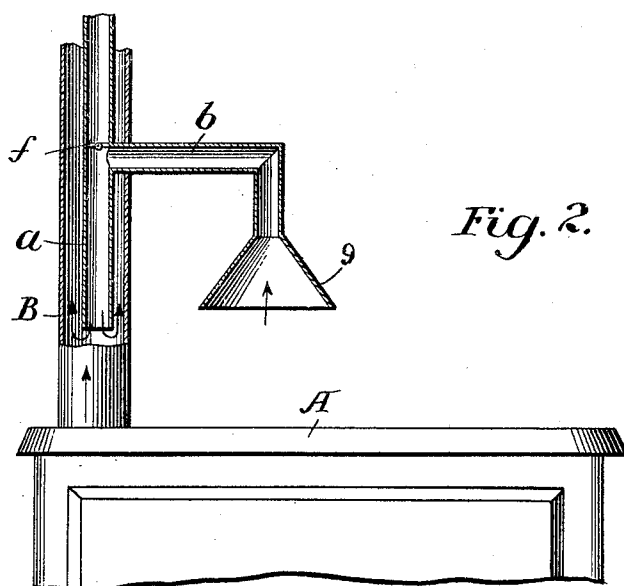
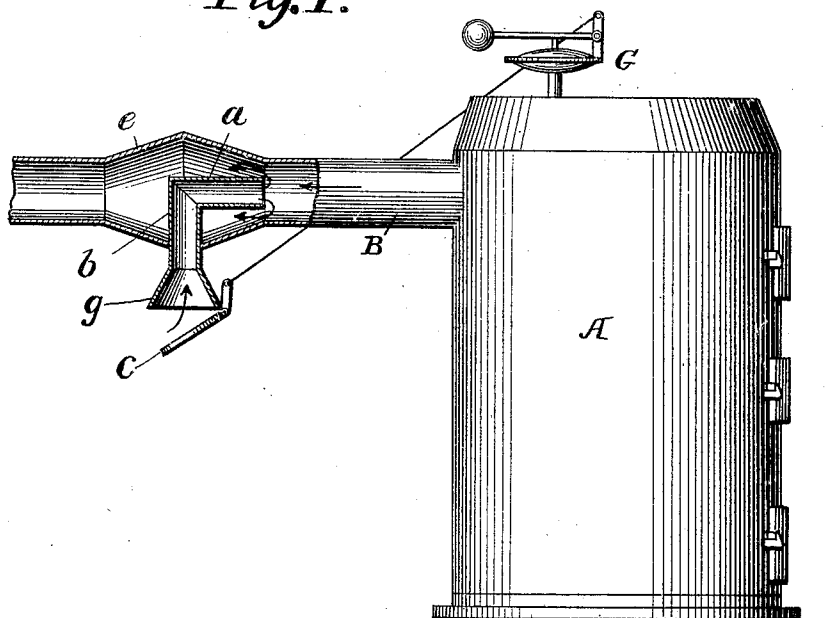


Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR REGULATING COMBUSTION.

No. 858,019.

Specification of Letters Patent.

Patented June 25, 1907.

Application filed December 15, 1905. Serial No. 291,946.

To all whom it may concern:

Be it known that I, THOMAS D. PILCHER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Apparatus for Regulating Combustion, of which the following is a specification.

My invention relates to means for regulating the combustion in the fire-places of furnaces, stoves, etc., and consists in providing the discharge flue with a central air pipe opening toward the fire-place, as fully set forth hereinafter and as illustrated in the accompanying drawing, in which:—

Figure 1 is a sectional elevation illustrating a furnace with my improvement. Fig. 2 is a section showing the construction applied to a range.

A represents a furnace or other structure, from which are discharged the products of combustion from the fuel contained in the fire-place thereof, provided with a flue B which may be either horizontal or vertical. At any suitable point in the flue B is arranged an inlet pipe *a* parallel to the flue, concentric therewith and having its open end toward the furnace or fire-place and communicating with the external air, as for instance through a branch *b* extending through the side of the flue. As thus arranged with its mouth open toward the furnace or fire-place, I have found that the passage of the products of combustion around the outside of the pipe *a* results in a forcible draft from the outside through the side pipe, mixing with the products of combustion and acting so as to secure a superior combustion of the fuel in the fire place, insuring sufficient draft, but without that discharge of unconsumed gases which is liable to take place under ordinary conditions.

In order to reduce the amount of air admitted to the flue in proportion as the temperature of the fire increases, I make use of any suitable regulator G connected to operate a valve *c*, which may be gradually closed, as on the increase of temperature, to cut off the

inflow of air, and in these cases where the device is situated so near the furnace that the inflow of air results in a combustion of the gases adjacent to the pipe *a*, advantage may be secured by enlarging the flue B at *e* adjacent to said pipe.

The outer end of the branch *b* of the pipe *a* may be enlarged to form a hood *g* and this may be arranged above the furnace or the range so as to collect vapor or dust or smoke and prevent its escape into the apartment. I have found it to be of importance that the pipe *a* shall occupy a position concentric with the flue B, as otherwise there may be a tendency of the gases to discharge through the pipe *a* outward, and it is further important to a practical result that the pipe *a* shall bear a relation to the flue B of approximately one third the diameter of the latter, that is, with a flue B of eight inches in diameter, the pipe *a* should be from two and one-half to three inches in diameter.

Without limiting myself to the construction and arrangement shown, I claim:

1. In a furnace provided with a discharge flue, the combination with said flue, of a pipe arranged beyond the furnace and concentric with and within said flue, the inner discharge end of said pipe extending toward the furnace, and an extension of the said pipe projecting outward into the external atmosphere.

2. In a furnace provided with a discharge flue, the combination with said flue, of a pipe arranged beyond the furnace and concentric with and within said flue, the inner discharge end of said pipe extending toward the furnace, and an extension of the said pipe projecting outward into the external atmosphere and terminating in a hood arranged above the furnace.

In testimony whereof I affix my signature in presence of two witnesses.

THOS. D. PILCHER.

Witnesses:

CHARLES E. FOSTER,
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