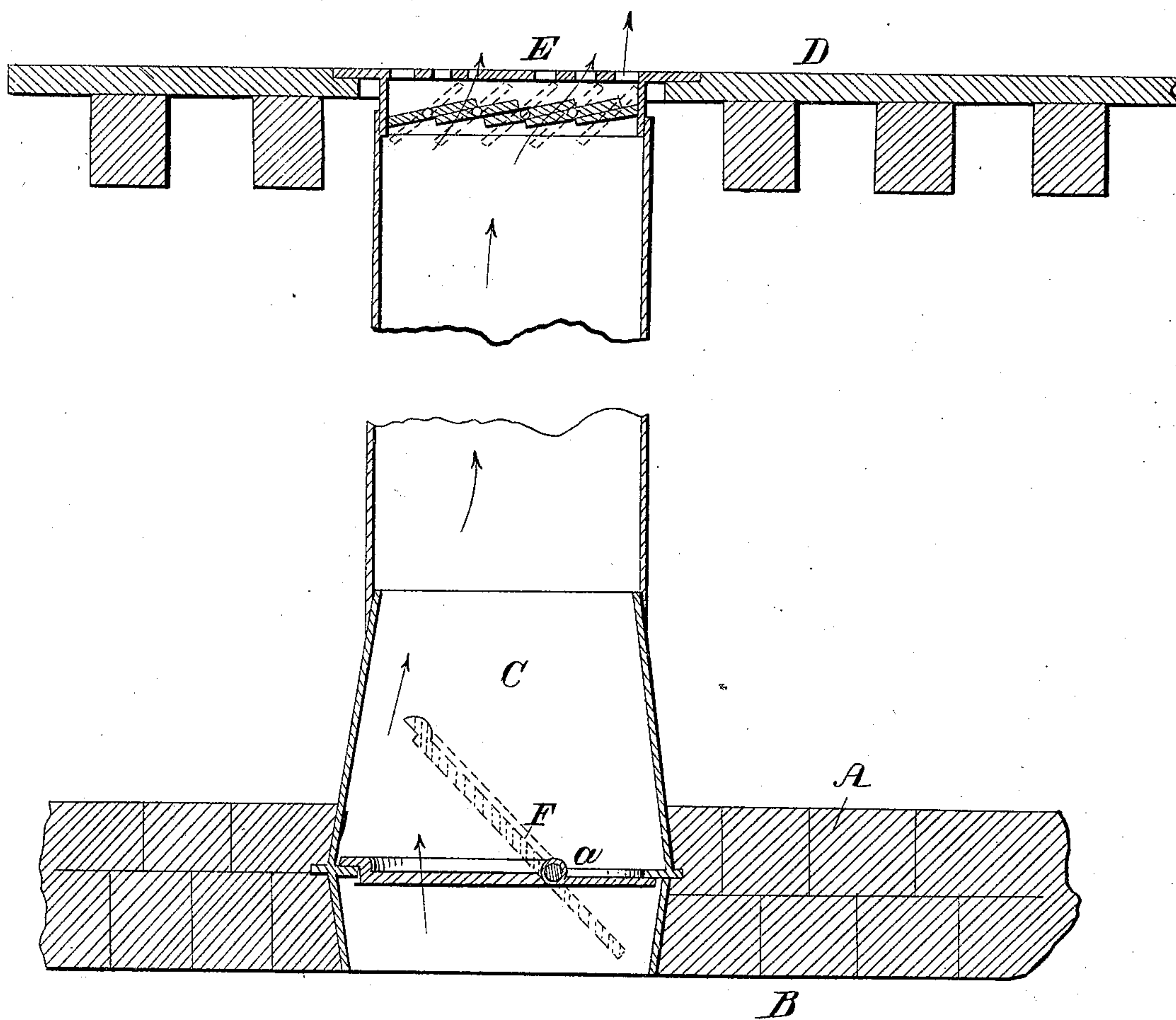


E. BARROWS, Jr.,
Hot Air Register.

No. 19,678.

Patented March 23, 1858.



UNITED STATES PATENT OFFICE.

E. BARROWS, JR., OF BROOKLYN, NEW YORK.

SELF-ADJUSTING DAMPER FOR HOT-AIR FURNACES.

Specification of Letters Patent No. 19,678, dated March 23, 1858.

To all whom it may concern:

Be it known that I, EBENEZER BARROWS, Junr., of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement to be Applied to
5 Air-Heating Furnaces for the Purpose of Regulating or Controlling the Heat in the Air-Conducting Pipes; and I do hereby declare that the following is a full, clear, and
10 exact description of the same, reference being had to the annexed drawing, making a part of the specification, said drawing being a section of a hot-air-conducting pipe of a furnace with my improvement applied to it.

15 The object of this invention is to prevent the overheating of air in the hot-air conducting pipes of air-heating furnaces when the registers of said pipes are wholly or partially closed. This overheating of the
20 air in the closed pipes is attended with dangerous consequences as adjacent wood work is frequently ignited and buildings burned down, and it is the chief objection against the use of such furnaces for the warming of
25 buildings.

The invention consists in placing in the lower part of each hot-air conducting pipe a valve or damper hung on an axis in nearly
30 an equilibrated state so that when the registers of the pipes are closed and the draft through them consequently stopped, the dampers will close by their own gravity and shut off the pipes from the air-heating chamber and when the registers are fully, or
35 more or less open the dampers will be opened to a corresponding degree by the action of the draft.

To enable those skilled in the art to fully understand and construct my invention I
40 will proceed to describe it.

A, represents a portion of the upper part of the masonry which incloses a hot air furnace, to form the air-heating chamber B, and C, is a hot air conducting pipe, the
45 lower end of which communicates with the air-heating chamber B, the upper end of said pipe communicating with an apartment D, to be heated.

E, is a register which is placed or fitted
50 over the upper end of pipe C.

F, is a valve or damper which is fitted in the lower part of pipe C, near its lower orifice. This valve or damper is hung on an axis (a) and it is so loaded as to be
55 nearly balanced or equilibrated, but not quite, the preponderance being so disposed

that gravity will keep the valve or damper in a closed state when not otherwise acted upon.

From the above description it will be seen
60 that when the register E, of pipe C, is closed, the valve or damper F, will also be closed, but if the register be open the draft through said pipe C, caused by the passage of heated air through it will open the valve,
65 the draft overcoming the slight preponderance of the valve by which gravity closes it, and if the register be partially closed the valve will be opened to a corresponding degree. The valve or damper
70 therefore is self-adjusting and as the communication between the hot-air conducting pipe and air-heating chamber is cut off when the register is closed, it follows as a matter of course that the air within said pipe cannot
75 become unduly heated and the accidents which now occur in consequence of the air within said pipe becoming sufficiently hot to ignite adjoining combustible materials is avoided.
80

By this improvement the chief objection attending the use of air-heating furnaces is avoided and no additional care or attention attends its adoption. Without the employment of valves the difficulty mentioned cannot
85 be obviated for hot air conducting pipes often pass through a building in various directions in order to heat the several apartments therein and it is impossible to keep them isolated their entire length from combustible materials. The furnace and parts
90 adjoining being in the cellar may be kept free from wood work and all combustible materials, and they generally are inclosed with masonry, and consequently there is no
95 danger as regards these parts. Valves or dampers not self-adjusting would not answer, for two adjustments would then be required every time the hot air is let into or cut-off from an apartment, viz., one adjustment
100 of the register and another of the valve and as these two devices are far apart, one being in the cellar and the other somewhere in the building above it, the work of adjusting the valves or dampers would necessarily
105 be neglected, especially where the work is left to be done by domestics.

I would remark that any number of hot-air conducting pipes may be used, each one
110 being provided with a valve or damper.

I do not claim broadly the employment or use of valves or dampers placed in the hot-

air conducting pipes of air-heating furnaces for they have been used for similar or analogous purposes; but,

What I claim as new and desire to secure
5 by Letters Patent, is—

Placing the valve or damper F, in the lower part of the hot-air conducting pipe C,

when said valve is so hung or arranged to operate as and for the purpose herein shown and described.

EBENEZER BARROWS, JR.

Witnesses:

W. TUSCH,

W. HAUFF.