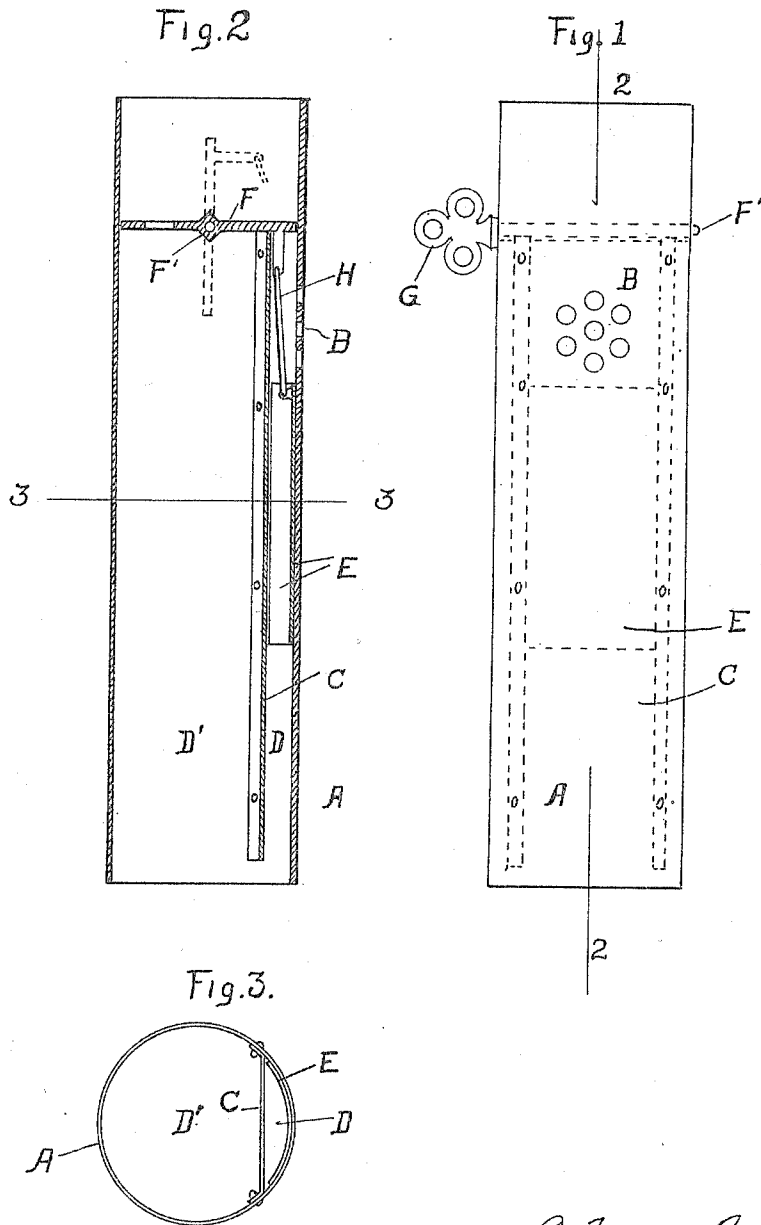


No. 817,173.

PATENTED APR. 10, 1906.

C. F. JENKINS.
HEATING APPARATUS.
APPLICATION FILED MAY 11, 1905.



C. Francis Jenkins
INVENTOR

WITNESSES

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UNITED STATES PATENT OFFICE.

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HEATING APPARATUS.

No. 817,173.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed May 11, 1905. Serial No. 260,039.

To all whom it may concern:

Be it known that I, CHARLES FRANCIS JENKINS, a citizen of the United States, residing at Washington, District of Columbia, have
5 invented a new and useful Improvement in Heating Apparatus, of which the following, together with the accompanying drawings, is a full, clear, and exact description.

My invention relates to means for supplying
10 ing atmospheric air above the fire, thus facilitating perfect combustion of all the fuel and preventing loss in the form of smoke.

The device consists in its simplest form of a joint of stovepipe having an air-duct riveted
15 inside for the greater portion of its length and having a damper so located as to open and close the upper end of the air-duct, as required, and a sliding cover for closing and opening air-inlets leading into the air-duct.

20 In the drawings, Figure 1 is a side elevation, Fig. 2 a vertical section, on the line 2 2 of Fig. 1, and Fig. 3 a cross-section on line 3 3 of Fig. 2, of the device.

In all the drawings like letters refer to corresponding parts, A being a section of the smoke-flue—for example, a stovepipe-joint—
25 B, holes perforated therein; C, the partition riveted to the inside of the pipe and forming a separate space or duct D. E is a sliding shutter for closing the openings B when the
30 damper F is opened to the position shown by the dotted lines in Fig. 2.

G is the damper-handle by which it is operated, and H a rod connecting the shutter and
35 the damper.

The operation of the device is as follows: When the fire is lighted in the stove, heater, or furnace and the damper is opened, the shutter C is pulled up, closing the openings B
40 leading into the air-duct. The air which supplies the oxygen to the fire comes up through the draft-doors and the grate, and much unconsumed fuel goes off in smoke, as is well known. When the fire is well under
45 way, however, the draft-doors are closed and the damper F in the flue is closed. This action opens the holes B and also closes the top of the air-duct. Cool air is therefore drawn in and down the duct D. When the air is
50 once started in a downward direction, it continues downward, because it is heavier than the hot gases in the flue, notwithstanding the

contrary direction of the latter. The fresh air continues its downward course until it reaches the fire and spreads out over the hot
55 coal, mingling with the incandescent gases, completing combustion in a perfect manner. As the hot gases can pass out of the top of the chimney only just as fast as the fresh air comes in to replace them, a constant, uniform
60 heat is maintained. Again, because the cool air jetting downward from the duct D passes the hot gases rising in the flue in contact therewith it absorbs heat from the gases—
65 heat which would otherwise be lost up the chimney—and its temperature is thus raised to such an extent that it more readily gives up its oxygen to complete combustion.

As is known, coal when first attacked by heat splits into little flakes with more or less
70 violence. When this flaking occurs under the body of coal, as is ordinarily the case, many of the little particles fall through the grate and are lost in the ashes, whereas should this flaking occur at the top of the
75 body of coal the little particles fall back into the fire and are not lost. This is one of the sources of saving in underfeed-furnaces, as well as in the device which is the subject of this application—a saving attested by the colorless, clinkerless contents of the ash-pit, and
80 the lessened quantity of it. A further saving is effected by the absorption by the incoming cool air of the waste heat of the chimney-gases. A still further saving occurs be-
85 cause of the perfect combustion which the absence of all smoke indicates. I am aware that similar claims are made for other devices invented for a like purpose; but these objects are accomplished in the present de-
90 vice in a much more complete and satisfactory manner and in a simpler and less expensive and more easily applied device.

What I claim, therefore, as my invention, and wish to protect by Letters Patent of the
95 United States, is—

1. In the flue of heat-producing apparatus, the combination of an air-duct, located in said flue, air-inlets therefor, a damper for controlling the rising gases and for opening
100 and closing the upper end of said air-duct, and means connected to the damper for opening and closing the air-inlets.

2. A stovepipe-section having a longitudi-

nally-extending air-duct therein, air-inlets therefor, a damper for restricting the sectional area of said pipe and simultaneously closing an end of said air-duct.

- 5 3. A stovepipe-section having a longitudinally-extending air-duct therein, air-inlets therefor, a damper for restricting the sec-

tional area of said pipe and simultaneously closing an end of said air-duct, and means for controlling the supply of air to said duct. 10

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Witnesses:

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