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AIR FEED FOR HOT AIR HEATING APPARATUS

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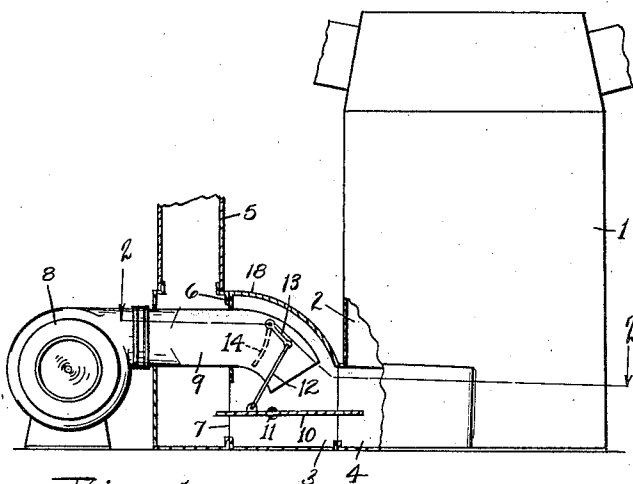


Fig. 1

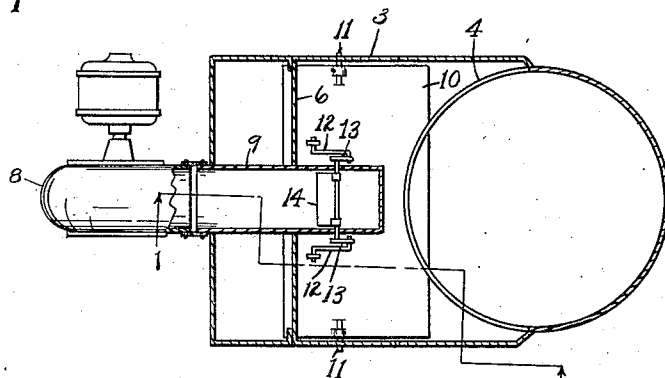


Fig. 2

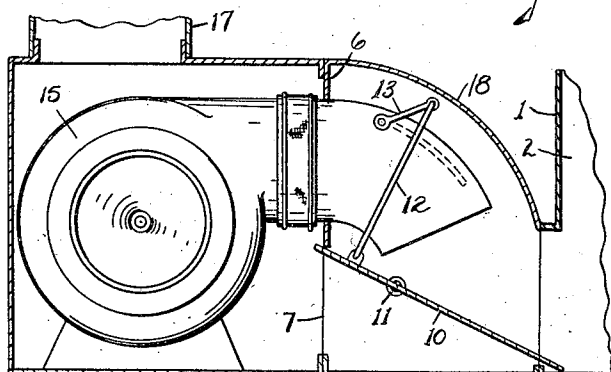


Fig. 3

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AIR FEED FOR HOT-AIR HEATING APPARATUS

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The main objects of this invention are:

First, to provide in a hot air furnace or heating apparatus a combined gravity and forced air feed which is highly efficient, the flow of air by gravity being unimpeded when the forced air feed means is inoperative, and vice versa.

Second, to provide a structure having these advantages which may be readily applied to hot air furnaces of standard and extensively used types.

Third, to provide a structure of the class described which is very simple and economical in structure and not likely to become inoperative in use.

Objects pertaining to details and economies of my invention will definitely appear from the description to follow. The invention is defined in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary elevation of a hot air furnace embodying the features of my invention, partially in vertical section on a line corresponding to the broken line 1—1 of Fig. 2.

Fig. 2 is a detail view partially in section on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary view in vertical section of a modified form of my invention.

Referring to the drawing, 1 represents the casing of a hot air furnace and 2 the heating chamber thereof. The structural details of the furnace and the casing are not illustrated as they form no part of this invention.

At one side of the casing I arrange an air intake chamber 3, the side of the casing 1 having a segmental opening 4 therein through which air may pass from the intake chamber into the casing. This opening 4 is preferably of considerable length, the intake chamber being designed to fit around the side of the casing.

5 represents a cold air gravity feed intake pipe for the intake chamber which is preferably connected to the top of the intake chamber at the rear thereof. A baffle or partial partition wall 6 depends from the top of the intake chamber in front of this grav-

ity feed inlet. The lower edge of the partition, however, is substantially spaced from the bottom of the casing providing a gravity passage 7 along the bottom of the intake chamber.

I preferably mount a blower 8 on the outside of the intake chamber extending its discharge pipe 9 into the intake chamber and through the partition 6. The inner end of this discharge pipe is directed downwardly. Below the discharge pipe I mount a damper 10, the pivot 11 of which is horizontally disposed. This damper normally lies in a horizontal position shown in Fig. 1, but may be swung to closed position shown in Fig. 3 with its rear end in operative relation to the lower edge of the partition 6 and its front edge resting on the bottom of the chamber.

The damper is connected by a link 12 to an arm 13 on the pivot pin of the vane 14 arranged within the discharge pipe so that when the blower is in operation this vane is acted upon by the blast of air and actuates or swings the damper to its closed position. The damper projecting in front of the discharge pipe serves as a deflector or spreading plate for the blast of air directed uniformly through the air heating chamber.

In the modification shown in Fig. 3 the blower designated by the numeral 15 is arranged within a housing 16 constituting a part of the intake chamber, the gravity feed conduit 17 opening to the top of this housing. The housing 16 is connected to a unit 18 carrying baffle wall 6 and on which the damper is mounted.

In either embodiment of my invention the parts are economical to produce and readily assemble in operative relation to the furnace.

I have not attempted to illustrate or describe other embodiments or adaptations of my improvements as I believe the disclosure made will enable those skilled in the art to embody or adapt my improvements as may be desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. The combination with an air heating chamber, of an air intake chamber opening

to said heating chamber and provided with a gravity feed air inlet opening at the rear thereof, said intake chamber being provided with a partition wall extending transversely across its upper portion at the front of said air inlet opening to permit the flow of gravity feed air below it, a blower provided with a discharge pipe disposed through said partition to deliver at the front thereof, a damper provided below said blower discharge pipe and arranged to swing to a forwardly inclined position with its rear end coacting with the lower end of said partition and its front end with the bottom of the chamber to close the gravity feed passage, a vane pivotally mounted within said blower discharge pipe and provided with an arm, and a link connecting said arm to said damper whereby the damper is actuated by said vane to closed position when the blower is in operation.

2. The combination with an air heating chamber, of an air intake chamber opening to said heating chamber and provided with a gravity feed air inlet opening at the rear thereof, said intake chamber being provided with a partition wall extending transversely across its upper portion at the front of said air inlet opening to permit the flow of gravity feed air below it, a blower provided with a discharge pipe disposed through said partition to deliver at the front thereof, a damper pivoted below said blower discharge pipe and arranged to swing to a forwardly inclined position with its rear end coacting with the lower end of said partition and its front end with the bottom of the chamber to close the gravity feed passage, and a vane pivotally mounted within said blower discharge pipe and operatively connected to said damper whereby the damper is actuated by said vane to closed position when the blower is in operation.

3. The combination with an air heating chamber, of an air intake chamber opening to said heating chamber and provided with a baffle wall constituting a partial partition and with a gravity feed air inlet at the rear of said baffle wall, a blower provided with a discharge pipe disposed through said baffle wall to deliver at the front thereof, a damper mounted on a horizontally disposed pivot below said blower discharge pipe and arranged to swing to a forwardly inclined position into coacting relation to the said baffle wall to close the gravity air passage, a vane pivotally mounted within said blower discharge pipe and provided with an arm, and a link connecting said arm to said damper whereby the damper is actuated by the said vane to closed position when the blower is in operation.

4. The combination with an air heating chamber, of an air intake chamber opening to said heating chamber and provided with

a baffle wall constituting a partial partition and with a gravity feed air inlet at the rear of said baffle wall, a blower provided with a discharge pipe disposed to deliver at the front of said baffle wall, a damper mounted on a horizontally disposed pivot below said blower discharge pipe and arranged to swing into coacting relation to the said baffle wall to close the gravity air passage, and a vane associated with said blower discharge pipe and operatively connected to said damper whereby the damper is actuated by the said vane to closed position when the blower is in operation.

5. The combination with an air heating chamber, of an air intake chamber communicating with said heating chamber and provided with a gravity air inlet and with a partial partition at the front of said gravity air inlet, a blower provided with a discharge pipe delivering at the front of said partition, a damper mounted on a horizontal pivot below said blower discharge pipe to swing to a forwardly inclined closed position with its rear end coacting with the lower end of said partition and its front end with the bottom of the chamber to close the gravity passage, and a vane pivotally mounted within said blower discharge pipe and operatively connected to said damper whereby the damper is actuated by said vane to closed position when the blower is in operation.

6. The combination with an air heating chamber, of an air intake chamber communicating with said heating chamber and provided with a gravity air inlet and with a partial partition at the front of said gravity air inlet, a blower provided with a discharge pipe delivering at the front of said partition, a damper mounted on a horizontal pivot below said blower discharge pipe coacting with said partition to close the gravity passage, and a vane operatively associated with said blower discharge pipe and operatively connected to said damper whereby the damper is actuated by said vane to closed position when the blower is in operation.

7. The combination with an air heating chamber, of an air intake chamber communicating with said heating chamber and provided with a discharge pipe delivering to said intake chamber at a point in advance of said gravity air inlet, a damper mounted on a horizontal pivot below said blower discharge pipe to swing to a forwardly inclined position when in closed position and adapted to check the flow of gravity air through said inlet chamber, and a vane pivotally mounted within said blower discharge pipe and operatively connected to said damper whereby the damper is actuated by said fan to closed position when the blower is in operation.

8. The combination with an air heating chamber, of an air intake chamber communicating with said heating chamber and provided with a gravity air inlet, a blower pro-

vided with a discharge pipe delivering to
said air inlet chamber at a point in advance
of its gravity inlet, a damper mounted in said
chamber and adapted when closed to check
5 the gravity air passage at a point at the
rear of the blower discharge, said damper
when closed lying in a forwardly inclined
position and constituting a deflector for the
air discharged from said pipe, and a vane
10 operatively associated with said discharge
pipe to receive the blast therefrom and op-
eratively connected to said damper whereby
the damper is actuated to closed position when
the blower is in operation.

15 9. The combination with an air heating
chamber, of an air intake chamber communi-
cating with said heating chamber and pro-
vided with a gravity air inlet, a blower pro-
vided with a discharge pipe delivering to said
20 air inlet chamber at a point in advance of its
gravity inlet, a damper mounted in said cham-
ber and adapted when closed to check the
gravity air passage at a point at the rear of
the blower discharge pipe, and a vane opera-
25 tively associated with said discharge pipe
to receive the blast therefrom and operative-
ly connected to said damper whereby the
damper is actuated to closed position when
the blower is in operation.

30 In witness whereof I have hereunto set
my hand.

EDWARD G. MILLER.

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