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1,641,875

J. BEAULIEU
AUTOMATIC DAMPER
Filed March 8, 1927

Fig. 1.

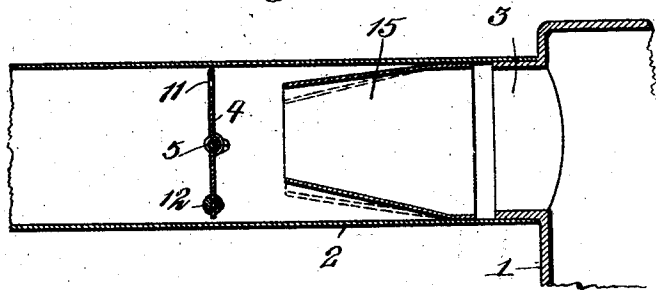


Fig. 2.

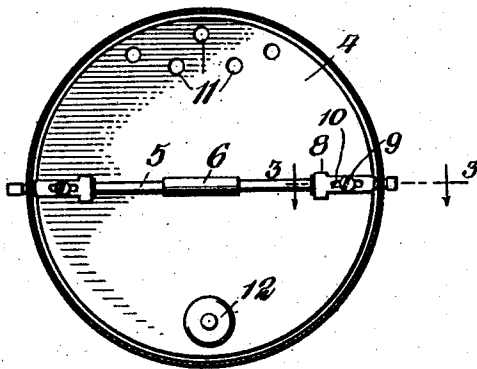


Fig. 3.

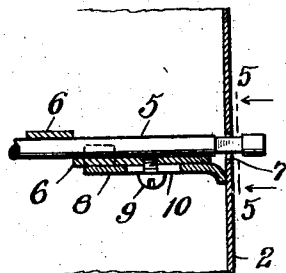


Fig. 4.

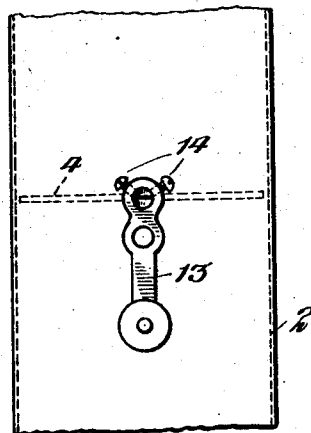
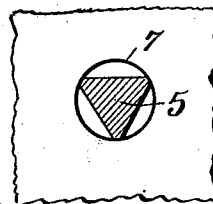


Fig. 5.



WITNESSES
Guinnager
A. W. Foster

INVENTOR
Joseph Beaulieu
BY *mmrdr.*
ATTORNEY

UNITED STATES PATENT OFFICE.

JOSEPH BEAULIEU, OF LYNBROOK, NEW YORK.

AUTOMATIC DAMPER.

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This invention relates to automatic dampers and more specifically to a device adapted to be located in an outlet flue, pipe or passage which will serve as a fuel saver in that it will prevent to a large extent the passage of heat units up the flue.

A further object it to provide a damper of this character, the position of which will be controlled by the draft, so that when in full draft the device will be open and will gradually close as the draft diminishes, and which is provided with means for preventing gas to escape and not choke the fire or pass out into the room.

A further object is to provide a device of this character which is capable of adjustment to fit any location of pipe, that is, vertically, horizontally or angularly disposed.

A further object is to provide a device of this character which is so mounted as to reduce friction to a minimum and insure a perfect automatic action under all conditions.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts, which will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings—

Figure 1 is a view in longitudinal section showing my improved pipe in operative position relative to a furnace;

Figure 2 is a view in transverse section through the outlet flue or pipe, showing the damper in elevation;

Figure 3 is a fragmentary view in section on an enlarged scale on the line 3—3 of Figure 2;

Figure 4 is a view in side elevation illustrating my improved damper in a vertical pipe and having a modified form of weight;

Figure 5 is an enlarged view in section on the line 5—5 of Figure 3.

1 represents a furnace and 2 an outlet pipe or flue operatively connected to the outlet 3 of a furnace. It is to be assumed of course that the furnace is heated by oil burners, gas burners, or any other form of burners for fuel consumption, and that the furnace will be equipped with ordinary draft-controlling means, such as are common on the market.

In the outlet pipe or flue 2 or in a section of said pipe or in any suitable manner which can be used I employ an improved damper

4 which is of a shape to conform to the general shape of the pipe 2, and while I have shown the same in circular form it is obvious that it may be of any shape. This damper 4 is of slightly smaller diameter than the internal diameter of the pipe 2 so as to allow it to move freely therein.

A shaft 5 supports the damper 4 and the latter may be provided with offset portions 6 in a plane extending through the center of the disk so as to receive the shaft as clearly shown in Figures 2 and 3.

The shaft 5 projects through openings 7 in the walls of pipe 2, and while these openings 7 are of circular form the shaft is preferably made angular so that the shaft has a plurality of bearing points which reduce friction.

I have shown the shaft 5 as triangular in cross section where it extends through the openings 7 but it is obvious that it may be made of other shape.

To properly center the damper within the pipe 2 I provide longitudinal adjustable contact plates 8 connected by screws or other adjustable means 9 with the damper 4, the ends of said plates adapted to contact with the inner face of pipe 4 and hold the shaft 5 against undue longitudinal movement. It is of course to be understood that there will be sufficient space or play between the ends of the plates 8 and the wall of the pipe 2 to compensate for the transverse curvature of the latter.

I have illustrated as a specific construction said plates 8 having longitudinal slots 10 therein through which the screws 9 project and are screwed into the laterally offset portions 6 adjacent the edges of the disk or damper 4.

I preferably provide a plurality of openings 11 in the upper portion of the damper through which gas may escape even if the damper is closed, and I locate a weight 12 on the lower portion of the chamber to close the same by gravity.

Instead of providing the damper with the weight 12 I may secure a weighted crank arm 13 to the end of the shaft opposite the pipe 2, and this arm 13 may be adjusted on the shaft and secured at any desired adjustment by means of a set screw 14, so that the damper may be used either in a horizontal pipe, or a vertical pipe such as shown in Figure 4, or in a pipe having any angular disposition, the arm being adjusted so as

to hang vertically and cause the damper to be closed by gravity.

I may also employ a conical deflector or nozzle 15 within the pipe 2, or at any point between the damper and the furnace so as to direct the draft or current against the damper, as may be desired. I illustrate in dotted lines in Figure 1 a position of adjustment of said deflector or nozzle, and it is of course to be understood that when these parts are once adjusted for proper operation or permanently secured the adjustment is only to compensate for varying conditions which prevail in different places.

15 In operation, the damper will open freely when the furnace is under full draft, and when the draft is cut down the damper will automatically close and prevent the heat from being wasted up the chimney.

20 While I have illustrated what I believe to be a preferred embodiment of my invention, it is obvious that various changes and alterations might be made in the general form of

the parts described without departing from the invention and hence I do not limit myself to the precise details set forth but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

I claim:

1. In combination with a pipe, a damper in the pipe, a shaft connected to the damper and projecting through the pipe, and adjustable plates on the damper engaging the inner wall of the pipe to center the damper therein.

2. In combination with a pipe, a damper in the pipe, a shaft connected to the damper and projecting through the pipe, and adjustable plates on the damper engaging the inner walls of the pipe to center the damper therein, said pipe having circular openings receiving the shaft and said shaft angular in cross section where it projects through the openings.

JOSEPH BEAULIEU.