J. W. BLOOD.

AUTOMATIC DAMPER.

APPLICATION FILED MAR. 11, 1914.

1,135,568.

Patented Apr. 13, 1915.

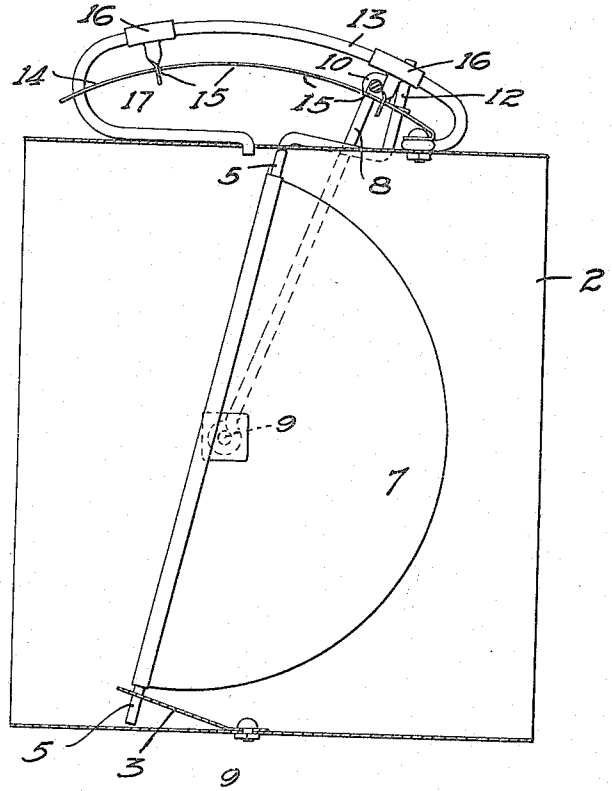

FIG. 1.

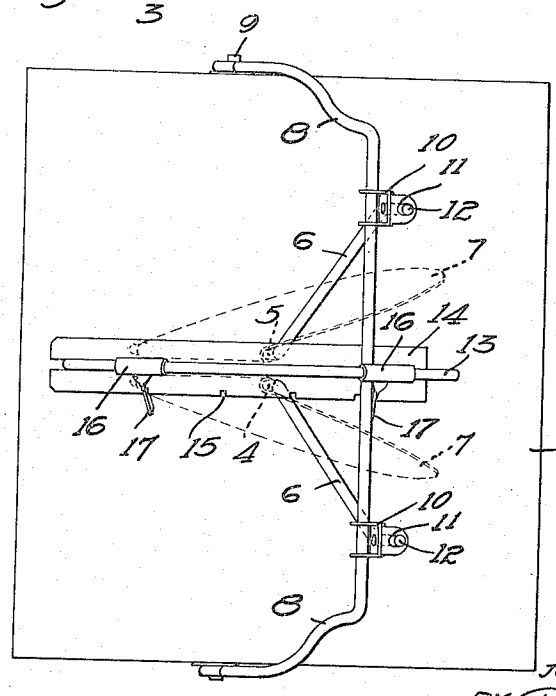

FIG. 2.

WITNESSES

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AUTOMATIC DAMPER.

1,135,568. Specification of Letters Patent. Patented Apr. 13, 1915.

Application filed March 11, 1914. Serial No. 823,904.

To all whom it may concern:

Be it known that I, JOSEPH W. BLOOD, citizen of the United States, resident of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Automatic Dampers, of which the following is a specification.

My invention relates to dampers designed for application to smoke flues for the purpose of automatically regulating the draft therethrough.

The primary object of my invention is to provide a damper which will open and close automatically with the varying strength of the draft.

A further object is to provide an automatic damper of very simple construction, one which will be positive and reliable in its action, and capable of application to a horizontal or vertical pipe.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is a detail sectional view of an automatic damper embodying my invention, showing the damper blades in their open position, Fig. 2 is a top view, illustrating the connection between the damper blades and the device for regulating the throw or travel of the blades.

In the drawing, 2 represents a sheet metal collar adapted for application to a smoke pipe in any ordinary or preferred manner. Within the collar is a plate 3 secured at one end and projecting diagonally into the space within the collar and having bearings for spindles 4 and 5 which project through the wall of the collar and have bearings therein. These spindles are arranged preferably to extend diagonally in the collar and the flue and are provided with operating cranks 6. Upon the spindles 4 and 5 blades 7 are mounted, each in the form of a semi-circular disk. These blades, when the collar is mounted in a horizontal flue, will normally stand by gravity in an open position, as indicated by dotted lines in Fig. 2, and when the draft increases beyond a predetermined point the blades will be swung on their spindles to a position transversely of the flue or partially close the opening therethrough and cut down the draft. I am thus able to utilize the weight of the damper blades for normally tending to swing them to their open position. These blades are mounted to move together and while various means may be employed for connecting them with one another to provide for simultaneous movement, I prefer to provide a bail 8 pivoted at 9 on the walls of the collar and provided with slides 10 thereon having sockets 11 therein in which the upwardly turned ends 12 of the cranks 6 are loosely mounted. The bail 8, as shown, extends transversely of the collar at right angles substantially to the longitudinal axis of the flue and the movement of the blades from their open to their closed position will rock the bail and move the spindle cranks back and forth with the slides on the bail.

For the purpose of regulating the travel of the bail and the degree of movement of the blades, I prefer to provide a guide 13 having a plate 14 provided with notches 15 therein. Stops 16 are slidable on the guide 13 and have projecting fingers 17 to enter the notches 15. A series of these notches are provided, suitably spaced apart, and by moving the slides back and forth on the guide the operator can easily control the travel of the bail in the space between the guide and the notched plate and thereby regulate the movement of the damper blades to suit the varying drafts of different flues.

I have found it necessary in this device to use a counter-balance and thereby avoid the annoyance and adjustments necessarily incidental to such use. As soon as this device is installed in a pipe and the stops regulated to suit the draft of the chimney and regulate the movement of the damper blades, no further attention will be necessary, the blades opening and closing automatically and regulating the draft through the flue in the varying conditions of wind and weather.

In the operation of the damper, the varying draft requires means to regulate the travel or movement of the blades from an open to a closed position, and this travel can be controlled effectively by means of the stops at the ends of the stroke of the yoke. Dampers of this type operate either wide open or closed and the damper may be regulated by the stops to only partially close or partially open, as occasion may require in the varying drafts of the flues where the damper may be installed.

In various ways the details of construction herein shown and described may be

modified and still be within the scope of my invention.

I claim as my invention:

1. The combination, with a horizontal flue, of blades having parallel spindles mounted diagonally within said flue and normally gravity held by said diagonal mounting in an open position, and means connecting said blades with one another for simultaneous movement.

2. The combination, with a flue, of spindles mounted in parallel relation therein, damper blades carried by said spindles and normally held by gravity in an open position within said flue and adapted to swing transversely of said flue and close the draft therethrough, and a pivoted bail connecting said spindles with one another for simultaneous movement.

3. The combination, with a flue, of damper blades mounted therein and having parallel axes, a pivoted bail straddling said flue and having sliding connections with said blades for simultaneous movement thereof, the movement of said blades under the pressure of the currents in the flue swinging said bail on its pivots.

4. The combination, with a flue, of parallel spindles journaled therein, blades mounted thereon, said spindles having crank arms at one end, a pivoted bail straddling said flue and having slides thereon loosely connected with said crank arms, and stop devices in the path of said bail for regulating its travel in both directions.

5. The combination, with a flue, of parallel spindles journaled therein, damper blades carried by said spindles and normally held by gravity in an open position, said spindles having crank arms thereon, a pivoted bail connecting said crank arms with one another for simultaneous movement, a guide, stops adjustably mounted on said guide in the path of said bail for regulating its stroke in both directions, and the movement of said damper blades.

6. The combination, with a flue, of damper blades having parallel spindles journaled therein, and an oscillating bail mounted transversely of said flue and operatively connected with said spindles for simultaneous movement of said blades.

7. The combination, with a flue, of damper blades having parallel spindles journaled therein, an oscillating bail mounted transversely of said flue and operatively connected with said spindles for simultaneous movement of said blades, and stops for regulating the stroke of said bail.

8. The combination, with a flue, of damper blades having spindles journaled therein, an oscillating bail loosely connected with said spindles for simultaneous movement of said blades, and means for regulating the stroke of said bail.

In witness whereof I have hereunto set my hand this 4th day of March, 1914.

JOSEPH W. BLOOD.

Witnesses:

GENEVIEVE E. SORENSEN,
EDWARD A. PAUL.