(No Model.)

S. P. SMITH.

AIR CURRENT GOVERNOR.

No. 426,628. Patented Apr. 29, 1890.

Fig. 1.

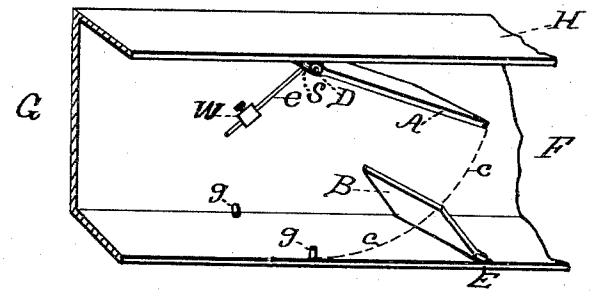


Fig. 2.

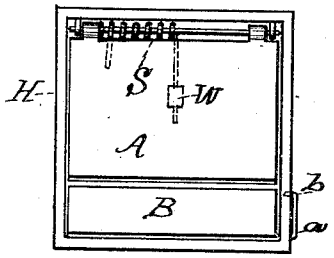


Fig. 3.

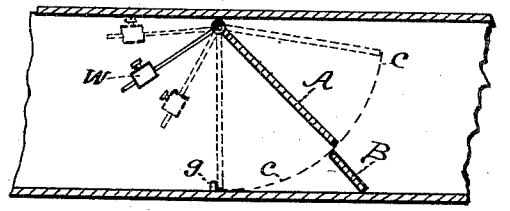


Fig. 4.

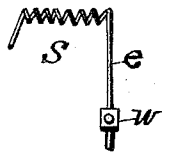
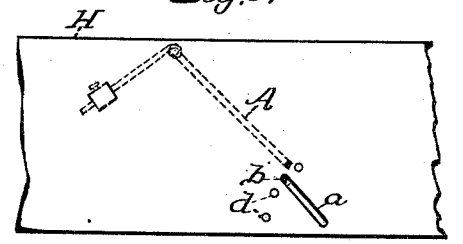


Fig. 5.



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UNITED STATES PATENT OFFICE.

SOLOMON P. SMITH, OF WATERFORD, NEW YORK.

AIR-CURRENT GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 426,628, dated April 29, 1890.

Application filed July 22, 1889. Serial No. 318,252. (No model.)

To all whom it may concern:

Be it known that I, SOLOMON P. SMITH, of Waterford, in the county of Saratoga and State of New York, have invented certain new and useful Improvements in Air-Current Governors; and I do hereby declare that the following is a full, clear, and exact description of the invention, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures therein.

My invention relates to improvements in air-current governors, and is especially applicable to the air-conduits which are employed to supply fresh or cold air to hot-air furnaces.

The object of my invention is, primarily, to regulate and control the supply of air under varying degrees of pressure by causing the degree of pressure to determine the area of the supply-opening, so that a certain quantity of air may pass in a given time, whether the degree of pressure varies or remains constant.

Figure 1 of the drawings is a view in perspective of the governor with the casing on one side removed to show the interior. Fig. 2 is an end elevation showing the inlet-opening. Fig. 3 is a longitudinal vertical section. Fig. 4 is a view of balancing-weight and spring detached. Fig. 5 is a side elevation of the conduit containing the governing device.

H represents a portion of the conduit. The air in passing through travels from F to G.

A is the valve, pivoted at D to the upper inner side of the conduit, and provided with arm *e*, having a weight W, adapted to slide and be adjusted in different positions on the arm. The weight is preferably so adjusted as to balance the valve in about the position shown in Fig. 1. A current of air in passing from F to G would act upon the valve to depress it, and would force it downward until the pressure of the current is balanced by the increased resistance of the weight due to the changed position of the latter. Should the air-current be very strong, as it frequently is in windy weather in air-conduits leading to hot-air furnaces, the vibrating end of the valve may be forced down to the lower inner side of the conduit, passing along the broken curved line C C, in which latter position the air-current is entirely cut off. When the air-current is cut off, the pressure ceases or is diminished to such an extent that the weighted arm immediately acts to raise the valve, whereupon the air-current is restored. An exceedingly rapid current of air thus acts to greatly reduce the area of the opening through which the current passes. A slow current of air, on the contrary, exerts very slight influence upon the valve, leaving an opening of a correspondingly large area for the passage of air through the conduit. I am able, therefore, by means of my improved governor to cause the pressure and resulting rapidity of the air-current to automatically regulate the area of the air passing, whereby a nearly constant volume of air will be delivered through the conduit. There may be stops or buffers *g g* projecting from the inner lower side of the conduit to stop the valve as it closes the air-passage. The weighted arm may be rigidly attached to the valve, or it may be coiled around the pintle which supports the valve, forming a helical spring, as shown in Figs. 2 and 4, the end of the spring being extended down the valve against its lower side, as shown by dotted lines in Fig. 2. As the valve descends, the weight strikes the upper wall of the conduit before the air-passage is entirely closed by the valve, and the spring assists the weight in resisting the further progress of the valve and prevents the valve from closing too violently to produce an unpleasant sound, or entirely closing except under the influence of a sudden and violent gust of wind.

The throat-piece B is pivoted at or near the lower inner side of the conduit opposite the valve, as shown, and it may be turned from a reclining position on the bottom of the conduit to a vertical one, its projecting edge describing the arc of a circle. The throat-piece may be operated by an arm *a* on the outside of the conduit. The arm may be attached to or be integral with the pintle of the throat-piece, and its bent end *b* inserted in one of the apertures *d* in the wall of the conduit to hold the throat-piece in the desired position. The object of the throat-piece is to arbitrarily fix and limit the area of the air-passage.

When the throat-piece is laid flat upon the bottom of the conduit, the largest possible area is given the air-passage, and when it is desired to diminish the area of the passage the throat-piece is turned up to or toward a vertical position beneath the oscillating end of the valve.

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

1. The combination, with the air-conduit F G H, of a pivoted valve, a counterbalance-weight, and a weight-supporting spring-arm having its upper end coiled around the valve-pivot, substantially as described.

2. The combination of the air-conduit, the counterbalanced valve A, and the adjustable throat-piece B, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand this 18th day of July, 1889.

SOLOMON P. SMITH.

Witnesses:

FRANK C. CURTIS,

CHAS. L. ALDEN.