No. 622,851. Patented Apr. 11, 1899.

T. C. HATCH.

AUTOMATIC DAMPER.

(Application filed Nov. 14, 1898.)

(No Model.)

Fig. 1.

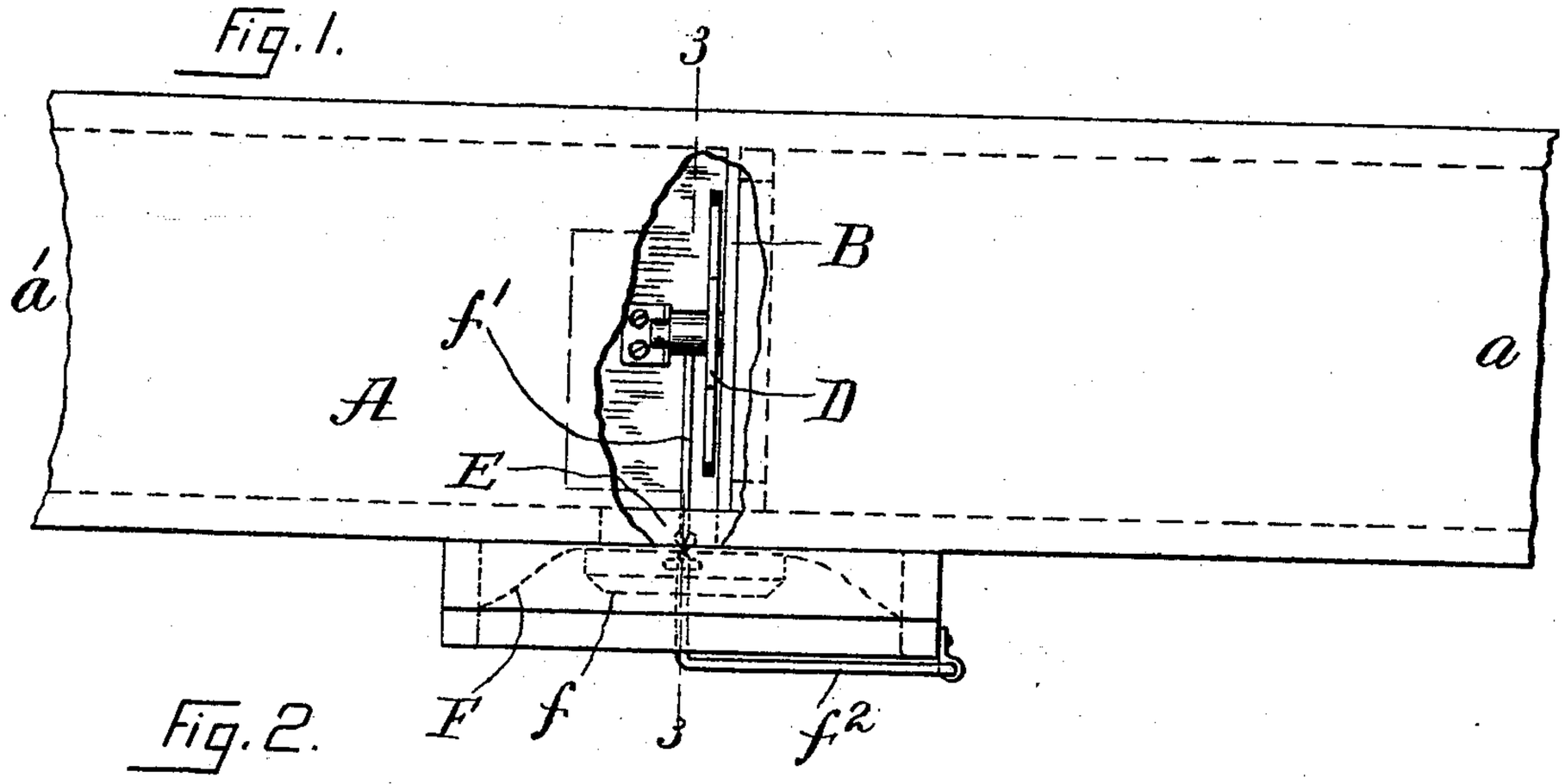


Fig. 2.

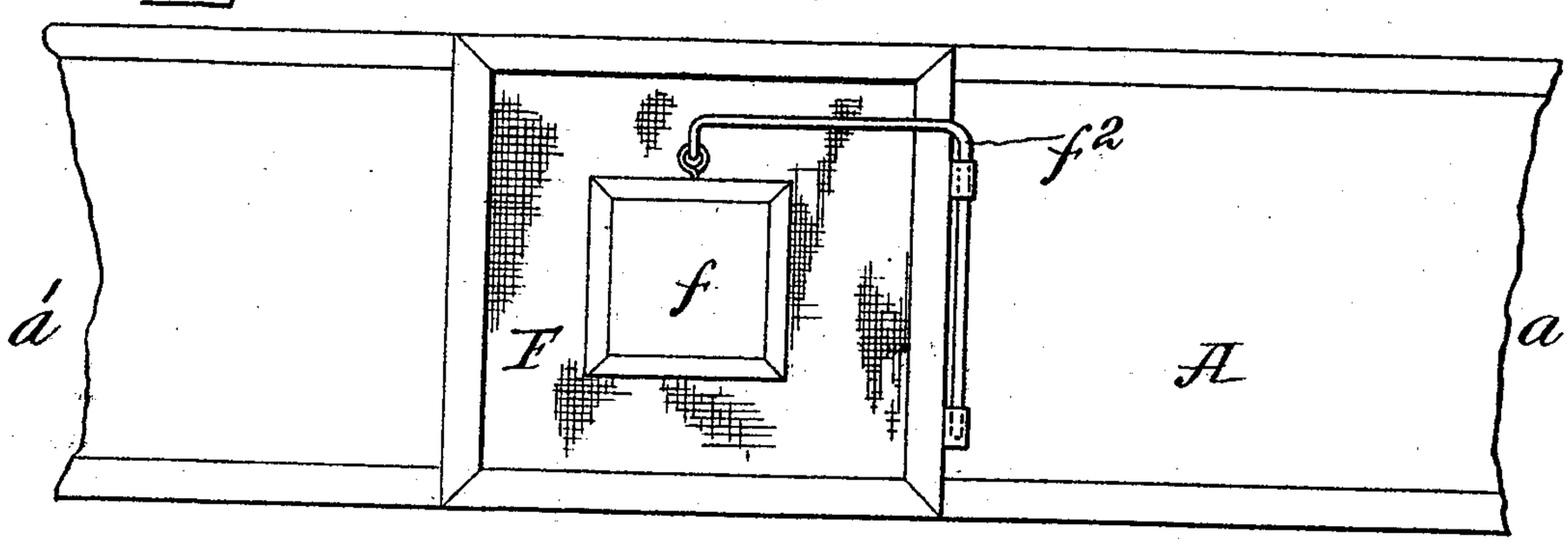
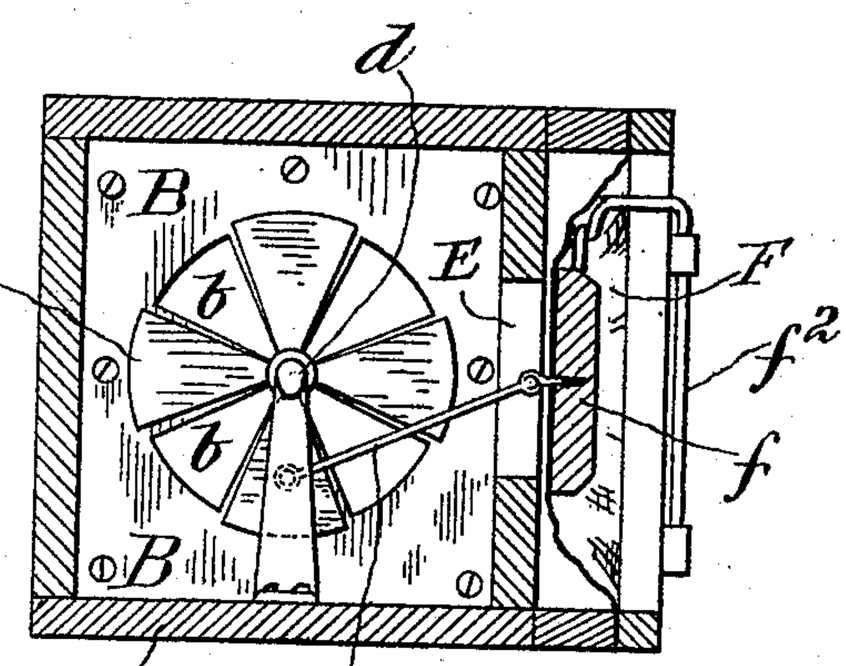


Fig. 3.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC DAMPER.

SPECIFICATION forming part of Letters Patent No. 622,851, dated April 11, 1899.

Application filed November 14, 1898. Serial No. 696,375. (No model.)

To all whom it may concern:

Be it known that I, THATCHER C. HATCH, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Automatic Damper, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a plan showing my damper in place in the cold-air box, the box being partly broken away. Fig. 2 is an elevation of a cold-air box supplied with my damper, and Fig. 3 is a section on line 3 3 of Fig. 1.

In regulating the supply of cold air which is to be admitted to a furnace great difficulty is experienced because the amount of air which flows through the box is largely, if not entirely, dependent upon the weather on the outside, so that a much larger quantity of air will flow through a given opening under certain conditions than will flow through the same opening under other conditions. For this reason it is necessary to change the opening in the cold-air box whenever the condition of the weather changes, so that the best results of the furnace may be obtained, and the cold air will be delivered to the furnace in not too great or too small quantities.

To this end my invention consists in the combination, with the damper of a cold-air box, of automatic means to adjust the damper, which means are controlled by the pressure of air in the air-box, the object being to make a damper which will adjust itself to changes in the weather and will always give a proper supply of cold air to the furnace.

In the drawings, A is the cold-air box, one end of which, *a*, opens into the open air and the other end *a'* into the furnace. Built across the air-box is a plate B, in which are cut holes *b*, which are preferably segments of a circle, and mounted on plate B is the damper D, which is made up of segments corresponding in number and nearly corresponding in size to the openings in plate B, so that when the damper D is swung on its axis *d*, by means of which it is secured to plate B, it will close more or less the opening *b* in plate B. One wall of the air-box is cut away at E, and this opening is covered by a piece F, of cloth or other flexible material, which carries a plate *f*, to which is attached one end of a rod *f'*, the other end of which is attached to one segment of the damper D, so that the movement of the plate *f* will cause the damper D to swing and either open or close the openings *b* in plate B. The plate *f* is held in position by a rod f^2, which is mounted on the outside of the air-box.

The operation is as follows: When the air enters the air-box at *a*, it will flow by the damper into the chamber, one wall of which is the flexible sheet F. If the air is flowing into the air-box too fast, it will cause the flexible sheet F, and with it the plate *f*, to move outward, and thereby close or partially close the damper D. On the other hand, if the damper D is not open far enough to admit sufficient air, or, in other words, if the furnace is using the air faster than it is supplied to it, a suction is created which causes sheet F, and with it plate *f*, to move inward, and thus open the damper D. It will now be clear that my damper is automatically opened and closed by the pressure of the air in the air-box, and as the pressure of air in the air-box depends entirely upon the weather my damper will adjust itself to the weather, on very cold or windy days preventing so much cold air from entering the furnace that it will not be properly heated and still always supplying sufficient air to be heated.

What I claim as my invention is—

The automatic damper above described made up of a cold-air box; its damper; a flexible sheet forming part of one wall of the cold-air box; a plate carried by the flexible sheet and a rod one end of which is fastened to the plate, and the other to the damper all combined and arranged substantially as shown and described.

THATCHER C. HATCH.

Witnesses:
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