

H. W. TABER.
Automatic-Damper.

No. 218,596.

Patented Aug. 12, 1879.

Fig: 1.

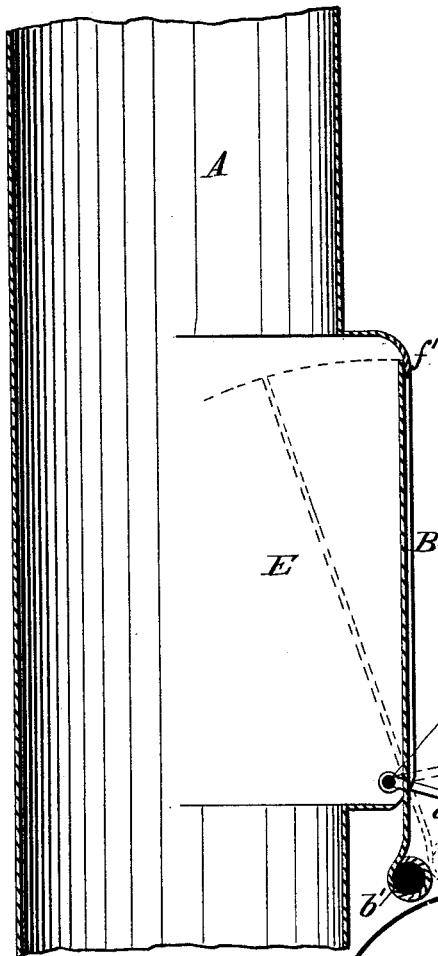


Fig: 2.

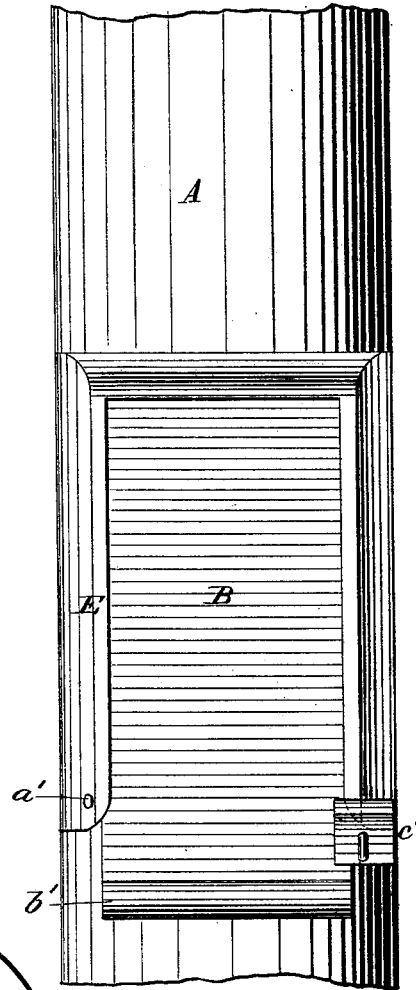
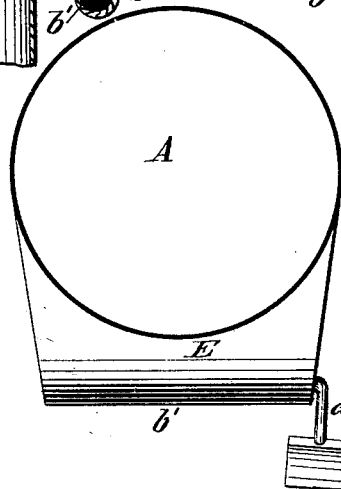


Fig: 3.



WITNESSES:

A. Seehl.
G. Sedgwick

INVENTOR:

H. W. Taber
Munn & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

HARLOW W. TABER, OF ROSCOE, DAKOTA TERRITORY, ASSIGNOR TO HIMSELF, ARCHIBALD DRESSER, AND J. D. SMITH, OF SAME PLACE.

IMPROVEMENT IN AUTOMATIC DAMPERS.

Specification forming part of Letters Patent No. **218,596**, dated August 12, 1879; application filed February 26, 1879.

To all whom it may concern:

Be it known that I, HARLOW W. TABER, of Roscoe, in the county of Moody and Territory of Dakota, have invented a new and Improved Automatic Damper for Furnaces, Stoves, &c., of which the following is a specification.

Figure 1 is a sectional side view of the damper in place on the stove-pipe. Fig. 2 is a plan of the same. Fig. 3 is an end view of pipe with damper attached.

Similar letters of reference indicate corresponding parts.

This invention consists of an automatic draft and heat governor for stoves, furnaces, and the like, and is to be attached to the pipe, smoke-stack, or chimney above the furnace or stove. It also acts automatically and inversely as a ventilator when used in close or confined rooms, giving a greater amount of ventilation when the room is hottest, and closing when cold.

In the drawings, A represents the stove-pipe; B, the self-acting damper or valve, which is hinged at *a'*, and nearly balanced by the weight *b'* at its projecting end, and held in position and against the currents of air tending inward by the adjustable sliding weight *c'*, which is supported by the arm *d'*, that is firmly attached to the damper on a plane with the hinge at about the angle represented.

At all times when there is no fire in the furnace or stove the sliding weight *c'* will hold the damper against the stop *f'*, so that no obstruction is offered to the draft, and this position of the damper will be maintained until the temperature within the pipe so rarefies the air and creates such an upward draft that the pressure of the outer air upon the surface of the damper overcomes the resistance offered to the sliding weight.

As the hot air rises into the pipe or chimney from the furnace or stove it produces a partial vacuum, and when the rarefaction has sufficiently decreased the atmospheric pressure within the pipe the pressure of the outer air forces the damper B open and into the chamber E, overbalancing the weight *c'*, and admitting into the pipe or chimney through

the chamber a strong counter-current of colder air.

When light and quickly-combustible fuel is used in the stove or furnace, the damper is forced even into the main pipe A, thereby partially cutting off the main draft, as well as admitting a stronger counter-current.

The adjustment of the sliding weight *c'* on the arm *d'* determines the resistance opposed by the damper to the superior pressure of the outer air; hence, by its adjustment, the intensity of the counter-current and of the draft and the rate of combustion in the stove or furnace are regulated.

Among the advantages which this device as a damper and ventilator possesses over all others with which I am acquainted, the following may be mentioned:

By its use there is a great saving of fuel for heating purposes, as it retains the hot air and fills the vacuum created by it in the pipe with colder air from outside.

When it is used combustible and explosive gases never collect in the stove or pipe, as is frequently the case when the draft is entirely cut off on the old principle. Controlled by this, such combustible substances as hay, straw, and shavings, when used for fuel, burn with as steady a fire and heat as more solid fuel.

When this device is used the cold draft of air entering the pipe prevents danger from fire, both from sparks and articles coming in contact with the pipe.

The adjustable weight never gets too hot to be handled with the bare hand, and when desirable the damper can be set arbitrarily and without reference to its automatic character.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In combination with the stove-pipe or chimney A, the chamber E, the damper or valve B, weight *b'*, and arm *d'*, with adjustable weight *c'*, substantially as herein shown and described.

2. In combination with the stove-pipe or chimney A and chamber E, the automatic

damper or valve B, with its connections and attachments, as herein shown and described, the extent or range of whose action, when it is properly adjusted, may be governed by the difference between the pressure of the atmosphere and that of the air or gases within the stove-pipe or chimney, substantially as herein shown and described.

3. In combination with the damper B for stove-pipes or chimneys, the permanent weight b' , arm d' , and sliding weight c' , substantially as and for the purpose described.

HARLOW W. TABER.

Witnesses:

JOHN H. NEPERUD,

DAVID F. DRESSER.