

(No Model.)

J. MAYO.  
DAMPER.

No. 475,131.

Patented May 17, 1892.

Fig. 1.

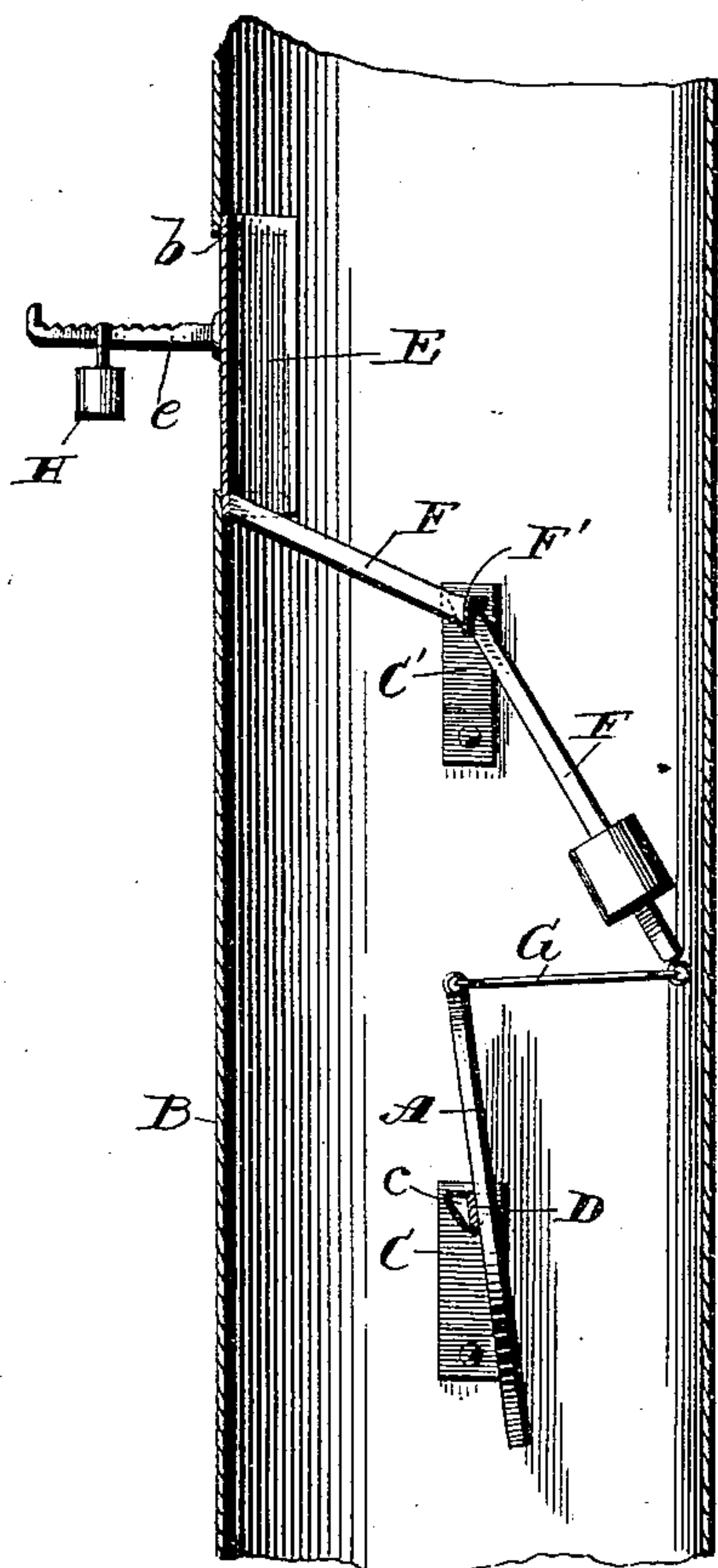


Fig. 2.

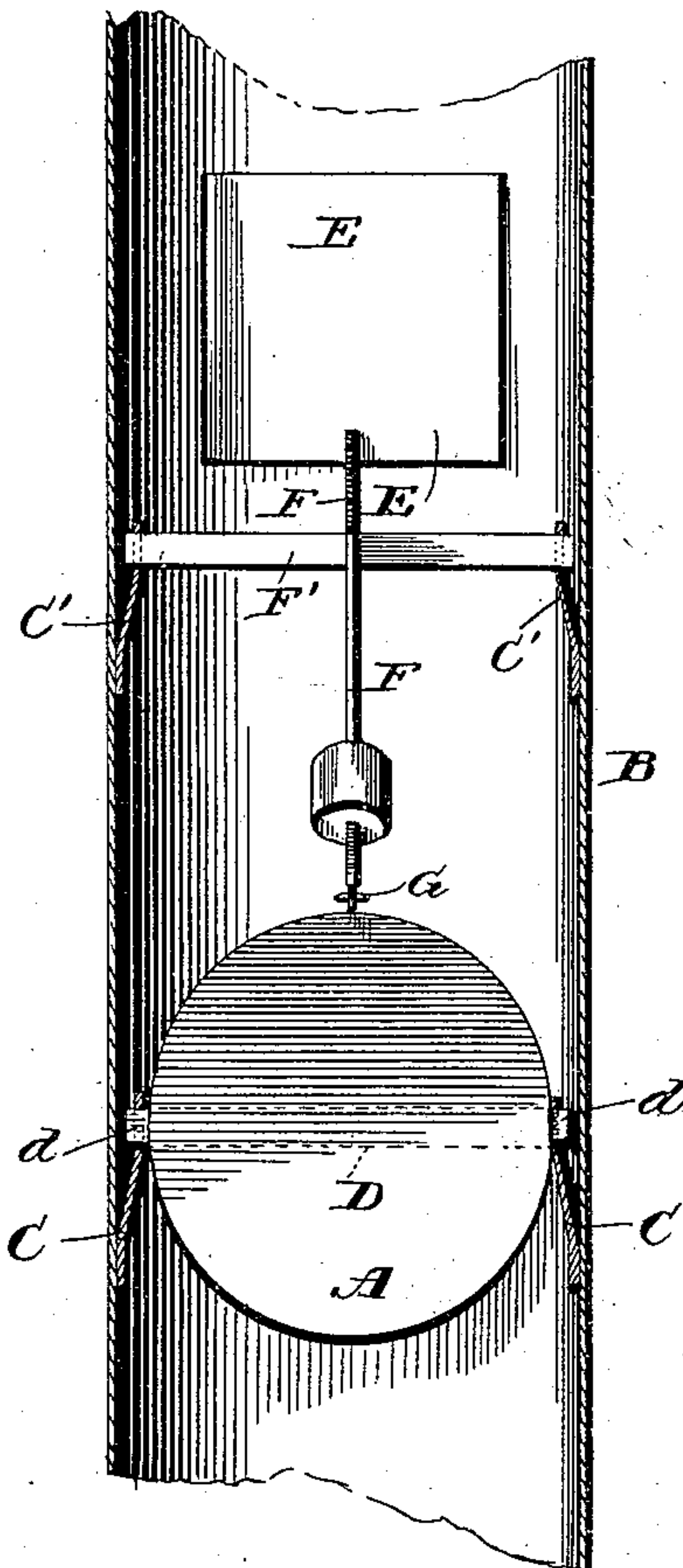
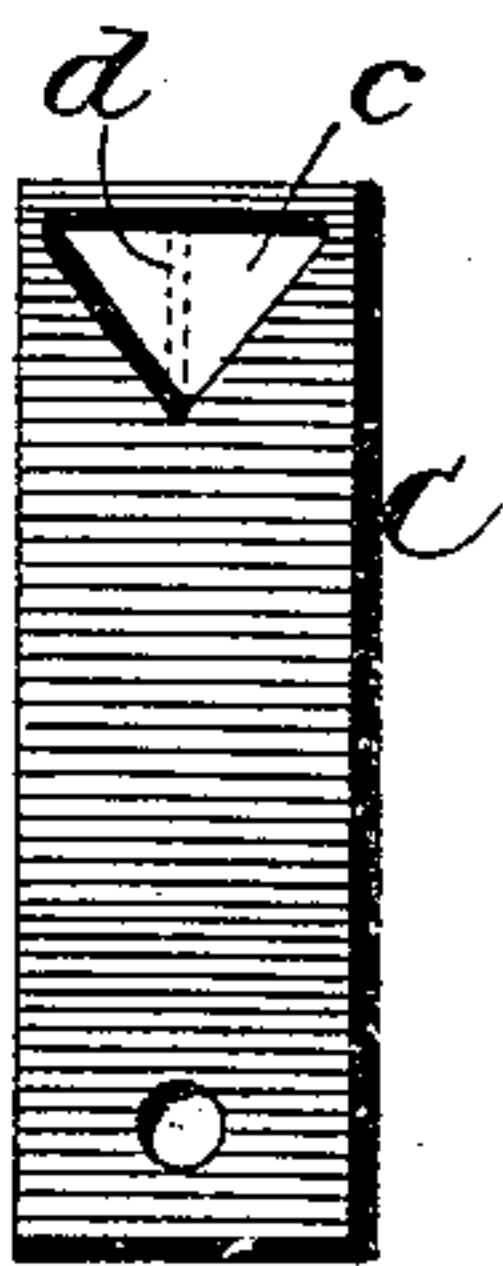


Fig. 3.



Witnesses  
C. J. Williamson  
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# UNITED STATES PATENT OFFICE.

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## DAMPER.

SPECIFICATION forming part of Letters Patent No. 475,131, dated May 17, 1892.

Application filed September 12, 1891. Serial No. 405,507. (No model.)

### *To all whom it may concern:*

Be it known that I, JAMES MAYO, a citizen of the United States, and a resident of Pottstown, county of Montgomery, and State of Pennsylvania, have invented a certain new and useful Improvement in Dampers, of which the following is a full, clear, and exact description.

The object of my invention is to provide means for automatically regulating the heat of stoves, furnaces, &c., which shall be simple in construction and perfect in operation; and to this end my invention consists in the device constructed and arranged substantially as hereinafter specified.

In the drawings, Figure 1 is a vertical section through a portion of stovepipe equipped with my device; Fig. 2, a similar section taken in a plane at right angles to that of Fig. 1, and Fig. 3 is a detail view of the pivot device I employ.

My device is to be placed in the draft pipe or flue of the stove to be regulated, and without substantial variation in its structure in view of circumstances is adapted for use either in vertical, horizontal, or inclined sections of pipes or flues. I show it adapted for use in a vertical section of stovepipe; but with the explanation just made it will be seen that to such arrangement my invention is not limited.

Referring to the drawings, A designates a pivoted damper of any suitable material and shape adapted to be vibrated to open and close the flue or pipe B, in which it is placed. It is pivoted in two upwardly-extended arms or brackets C and C', located at points diametrically opposite each other in the pipe, by having the ends *d* and *d'* of a strip or piece of sheet metal D, to which it is fastened and which project beyond its edges, contained in openings *c* in said brackets. The openings *c* are triangular or V-shaped, and the damper-pivots *d* are set on their edges therein, so that there will be but slight friction to offer impediment to an easy vibration of the damper. If preferred, the pivots or journals *d* may be made integral with the damper instead of in the form of a separate piece.

To cause the damper to be moved automatically, I provide at a point in the pipe B above the same an opening of suitable di-

mensions, over which on the inside of the pipe is a flat or sheet metal piece or plate E, adapted to entirely cover it. Said piece at its lower end is attached to an obliquely and downwardly extending bar or rod F, which at about its longitudinal center is attached to a thin strip or bar F' of sheet metal that extends horizontally across the pipe B and is supported upon the walls thereof in pivot or journal arms or brackets C' and C', similar to those C of the damper. Said bar constitutes a pivot, upon which the plate E may move to and from the opening *b*, and it extends in a direction parallel with the axis of the damper. At its lower end the rod or bar F is connected by a link G with the top edge of the damper, so that vibrations or movements of the plate E will be imparted to the latter.

The operation of the parts thus constructed is as follows, viz: With no fire in the stove the plate E (which I shall term the "regulating-plate") covers the opening *p* in the pipe B, and the damper A, through its connection with the latter, is held open; but when a fire is made and in consequence the air in the pipe or flue is rarefied and lightened, the superior weight or force of the external air upon the outside of the regulating-plate will move the same inward and close the damper proportionate to its inward movement, the parts having such relative arrangement that inward movement tends to close the damper, while outward movement opens it. In order to fix the temperature at which the regulating-plate shall operate, I project outwardly from the same an arm *e*, upon which is suspended a weight H to resist the inward tendency of the plate. Said weight is adjustable on the arm to vary its resistance. By the use of this weight the temperature at which the device shall operate may be fixed. Preferably a counter-balance is attached to the lower end of the arm F, which causes the regulating-plate E to be the more easily tipped, the combined weight having slightly greater effect than the downward pressure of the plate E, whereby the more exact balancing is left to the weight.

It will be seen from the foregoing that the operation of my device is based on the relation which may exist between the pressure of

the heated air in the pipe or flue and the external air, so that should the former be lighter than the latter and to a degree to allow the weight H to be overcome the regulating-plate  
5 will be moved inward and the damper closed, while upon a cooling of the air in the pipe a reverse movement will take place and the damper opened. The peculiar form of pivots employed enables the oscillating parts to  
10 be very easily moved, as but little friction is created.

Having thus described my invention, what I claim is—

The combination, with a stovepipe, of a bar  
15 F, centrally pivoted therein, the opposite ends of the said bar being near opposite sides of

the pipe, a plate projecting upwardly from the upper end of the bar and closing an aperture in the pipe, means for normally holding the said plate in the said position, a  
20 damper centrally pivoted on the said pipe below the said bar, a connection between the lower end of the said bar and one side of the damper, and a counterpoise upon the said lower end of the bar, substantially as de- 25 scribed.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

JAMES MAYO.

Witnesses:

JOHN B. GUEST,

WALACE BRADFORD.