

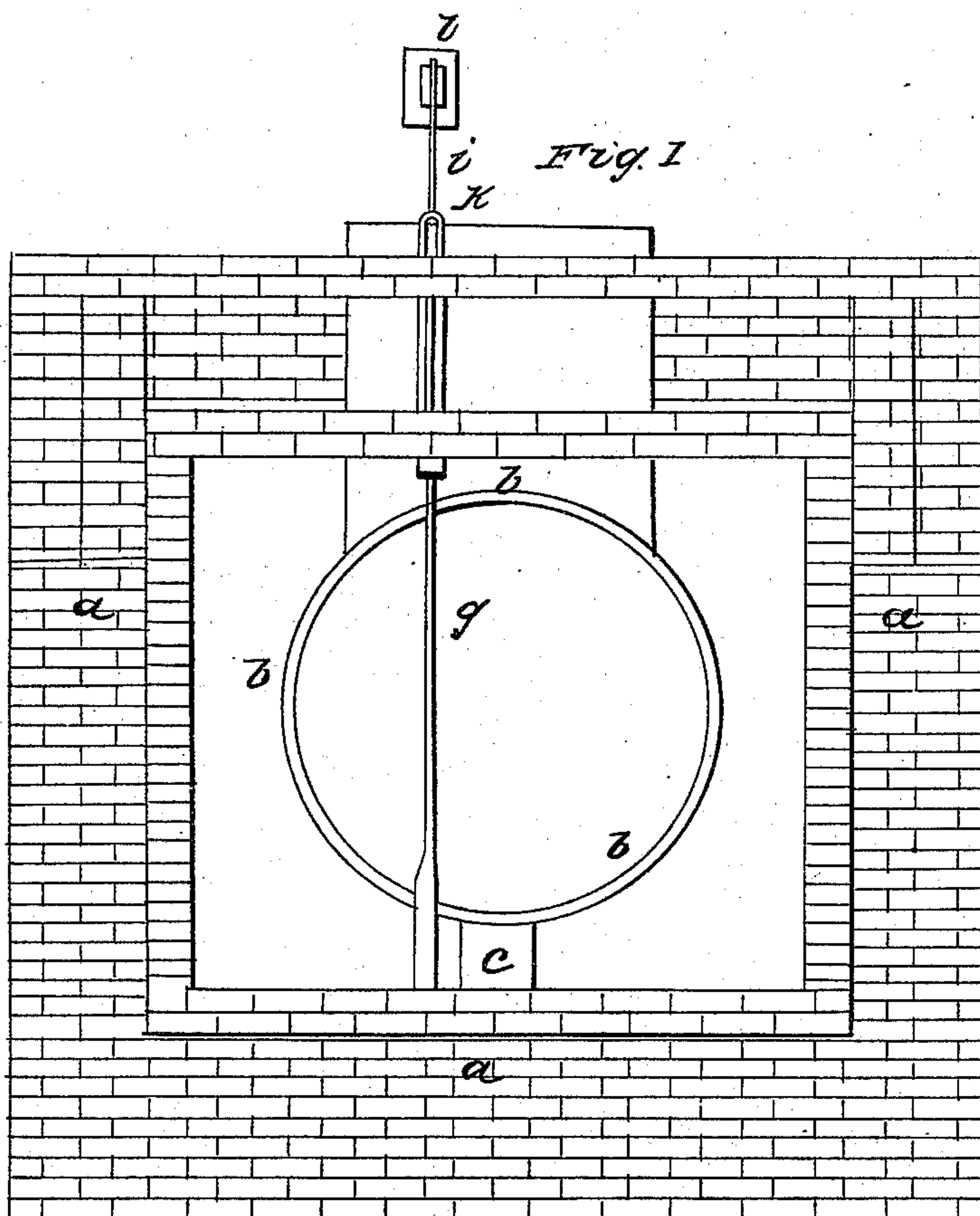
D. TREADWELL

2 Sheets—Sheet 1.

Damper.

No. 11,583.

Patented Aug. 22, 1854.



*Witnesses*  
*Esau L. Colver*  
*Joseph Garrett*

*Inventor*  
*Danl Treadwell*

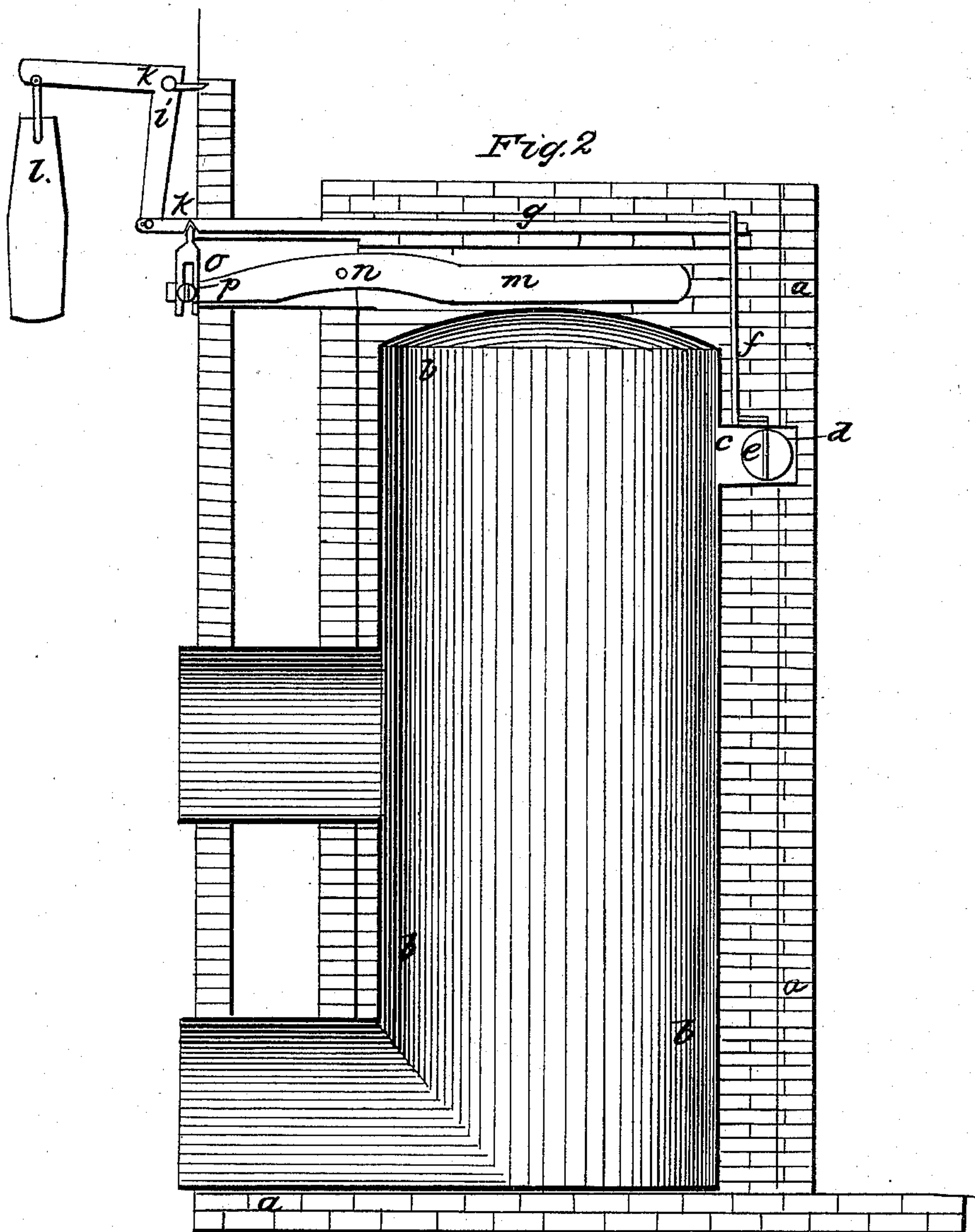
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# UNITED STATES PATENT OFFICE.

DANIEL TREADWELL, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNOR TO H. H. AND F. H. STIMPSON, OF BOSTON, MASSACHUSETTS.

## OPERATING DAMPERS OF FURNACES.

Specification of Letters Patent No. 11,583, dated August 22, 1854.

*To all whom it may concern:*

Be it known that I, DANIEL TREADWELL, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful mode of closing the dampers of furnaces or other heating apparatus by means of the heat created within the same, and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

The figures of the accompanying plate of drawings represent my improvements.

Figure 1 is a plan or top view of a furnace, with my improvements applied thereto. Fig. 2 is a central transverse vertical section of the same.

The object of my invention, is to render the damper or valve of a furnace or stove, self-acting, or so as to be closed by the expansion of the furnace itself, and thereby prevent it from being overheated, which is the main cause of their burning or wearing out. I am aware that stoves have been constructed, in which the damper was closed by devices actuated by the expansion of a metallic tube or bar, but all these devices differ from my invention, inasmuch as they are designed both to open and close the damper, by acting directly upon the same, whereas my invention is intended merely to withdraw a catch and permit the weight or spring to close the damper, without ever opening the same, the force for withdrawing the catch, being the expansion of the stove or furnace itself.

*a a a* in the drawings represents the outer casing or brickwork of a furnace, and *b b b* the metallic body of the same, *c*, is the smoke flue, and *d* the damper or valve, to be closed at the proper time by the expansion of the furnace. The damper *d* turns on a pivot *e*, forming a part or extension of a bent rod *f*, attached to a sliding bar *g*. The bar *g* is fastened by a pivot *h*, to a right angular lever *i*, turning on a fulcrum *k*, and having attached to one end a weight *l*. Upon the

top of the stove or furnace, is placed a bar or lever *m*, turning on a fulcrum at *n*, and having attached to its outer end a bolt or catch *o*, made adjustable so as to be moved up or down by a set screw *p*, as shown in Fig. 2. This bolt *o* fits into a notch of the sliding bar *g*, and when engaged with the said notch, the parts will be in the position shown in Fig. 2, and the damper or valves thereby held open, to allow the smoke free exit through the smoke flue. The bolt *o* is first made to engage with the notch of the bar *g*, by simply pulling out the said bar until the bolt catches in the notch of the same, when the damper will be held open. When the furnace has become sufficiently heated, the expansion of the same will lift the inner end of the lever *m*, and thus depress the other end, and disengage its bolt *o* from the notch of the sliding bar *g*, which will by means of the weight *l* and angular lever *i*, be retracted, and receive sufficient motion to turn the bent rod *f*, and thus close the damper.

From the foregoing description it will be seen, that the bolt or catch *o* can be so adjusted by means of the set screw *p*, with regard to the sliding bar *g*, as to be disengaged from the notch of the same, and thereby cause the damper to shut, by the slightest movement of the bar or lever *m*, and thus that the amount of heat to which the furnace shall be exposed, before the damper or valve in the smoke flue is closed, can be regulated at pleasure.

It will be evident, that the damper instead of operating to close the passage which leads directly to the delivering flue, may be so applied as to cause the smoke or other products of combustion, to pass through a radiator.

It will further be obvious, that any other suitable arrangement of devices, may be substituted for those herein described, as the medium through which the expansion of the stove or furnace acts upon the damper, without varying the essential features of my invention.

An obvious modification of form without changing the principle of my invention will be, to make the damper turn upon a horizontal axis, and make one side of the damper heavier than the other. By this means the damper will turn and close by its own



weight whenever the catch *o* is removed.  
In this form the weight *l* and lever *i* may be  
dispensed with.

Having thus described my improvements,  
5 I shall state my claims as follows:

What I claim as my invention and desire  
to have secured to me by Letters Patent, is—  
Using the expansion of the stove or fur-

nace for closing the damper, through the  
medium of the devices herein above de- 10  
scribed, or any other combination of devices  
substantially similar.

DANL. TREADWELL.

Witnesses:

EZRA LINCOLN,  
JOSEPH GAVETT.