

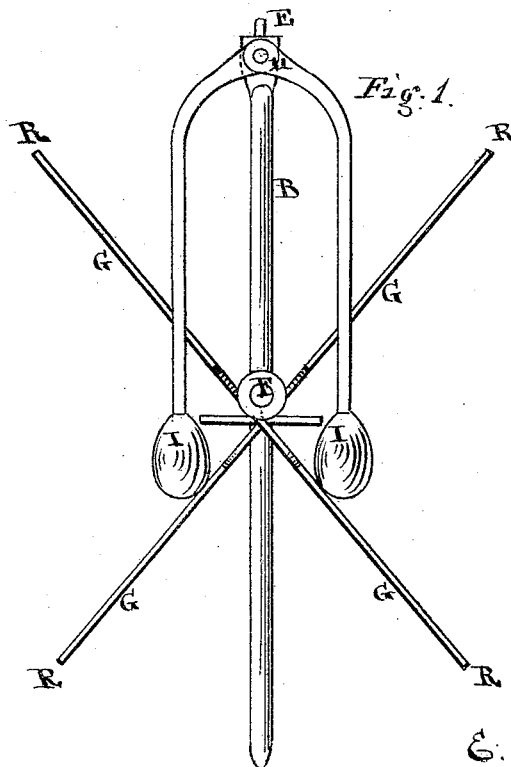
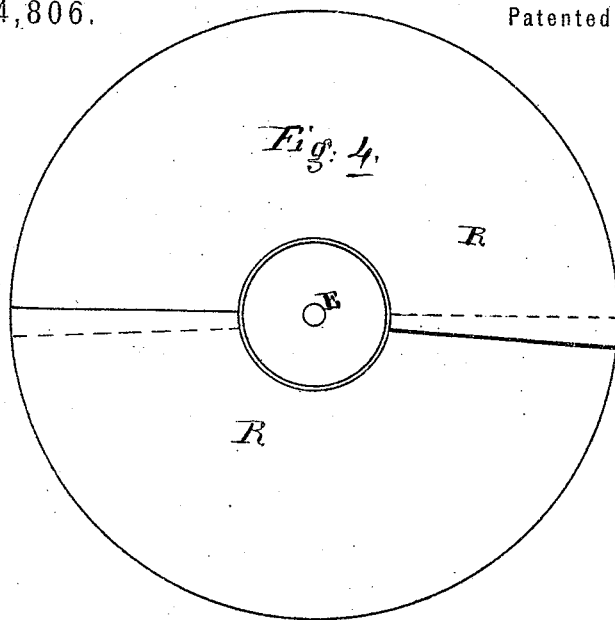
E. R. HALL & D. A. KEYES.

3 Sheets--Sheet 1.

Improvement in Stove-Pipe Dampers.

No. 114,806.

Patented May 16, 1871.



Witnesses

*Geo. D. Patten*  
*D. S. Linn*

*E. R. Hall*  
*D. A. Keyes*  
*S. W. Wood*  
(attorney)

E. R. HALL & D. A. KEYES.

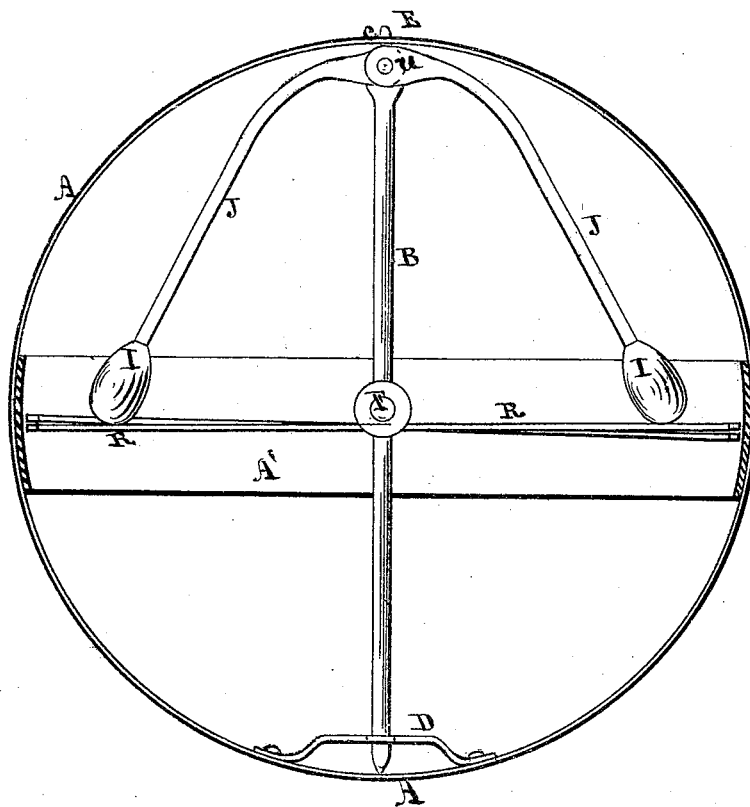
3 Sheets--Sheet 2.

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Fig. 2.



Witnesses

*Jno. D. Patton.*  
*J. S. Linniman*

*E. R. Hall.*  
*D. A. Keyes*  
*(S. W. Wood,*  
*Attorney)*

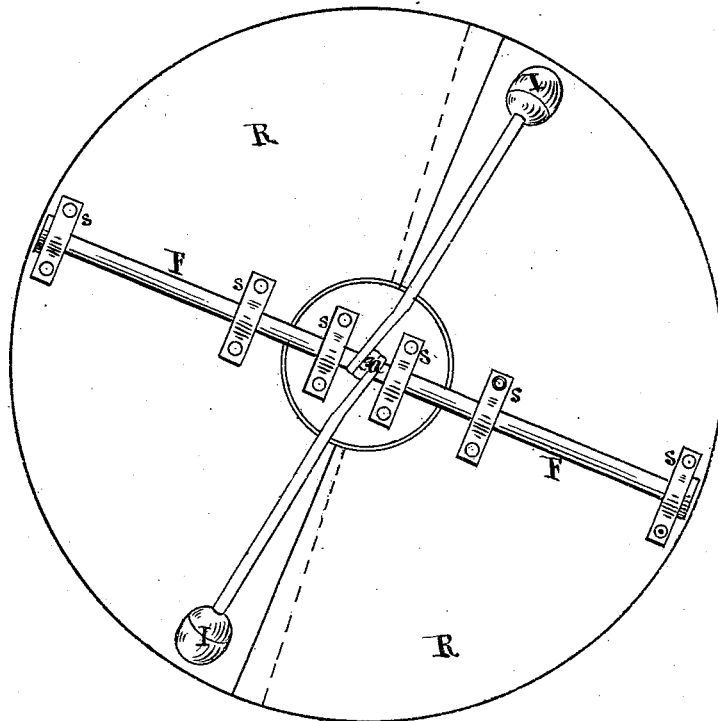
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Fig. 3.



Witnesses.

*James D. Patten.*  
*Samuel Harrison*

*E. R. Hall.*  
*D. A. Keyes.*  
*{ S. W. Wood }*  
*Attorney*

# United States Patent Office.

ELI R. HALL AND DANIEL A. KEYES, OF NORFOLK, CONNECTICUT.

Letters Patent No. 114,806, dated May 16, 1871.

## IMPROVEMENT IN STOVE-PIPE DAMPERS.

The Schedule referred to in these Letters Patent and making part of the same.

### To all whom it may concern:

Be it known that we, ELI R. HALL and DANIEL A. KEYES, both of Norfolk, county of Litchfield and State of Connecticut, have invented an Improvement in Stove-Dampers; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making part of this specification—

Figure 1 being a side elevation of a damper at rest, opening the full draught of the stove.

Figure 2 is also a side elevation of the same, showing the wings or segments forming the damper in a horizontal position, closing the draught.

Figure 3 is a top view of fig. 2.

Figure 4 represents a plan of the two segments or wings in the same position as fig. 3, detached.

Like letters designate corresponding parts in all the figures.

The nature of our invention consists in forming the damper in stoves or furnaces in segments, and governed to regulate the draught therein by means of weights, the whole arranged and operated substantially as herein set forth.

For convenience of applying to stove-pipes, and not to obstruct the draught, a skeleton-frame is made by securing, at right angles, two cylindrical bands, A A', which serve to retain the damper in position, and upon which to mount the shaft B, to which the various moving parts are secured.

At the lower side of the perpendicular band A is formed a step, D, which retains the lower end of the shaft B in position upon the band A, while the upper end, E, passes through the band at c, as shown in fig. 2.

To this perpendicular shaft B, at or near the center, is secured, in any convenient manner, a cross-bar, F, fig. 3.

To this cross-bar, at s s s s, are pivoted the segments or wings forming the damper proper, which, when closed, as in figs. 2 and 4, completely cut off the draught.

These wings or segments of a circle, when at rest, appear, as in fig. 1, standing at an angle, so that the draught through the pipe strikes against the back G of each segment, causing them to rotate slower or faster, according to the force of the draught, closing, in proportion to their velocity, by the pressure of the draught, the passage through the pipe, and opened by means of weights, as hereinafter described, thereby regulating, by constantly adjusting themselves, the draught.

The pressure of the draught through the pipe and against the lower surfaces of the segments, standing at an angle, causes them to rotate and to move perpendicularly through the arc of a circle, of which the cross-bar, to which they are secured, is the center, thereby lessening the draught as they continue to approach a horizontal position, as in figs. 2, 3, and 4.

In order to return these wings or segments of a circle to their original position when at rest, as in fig. 1, and to adjust and retain them to the pressure of the draught through the pipe to open and close it, as the case may be, governing-weights I rest upon each segment, and are pivoted, by arms J, to the upper end of the shaft B at u; thus, when a rotating motion is given to the segments R by the pressure of the draught through the pipe, the centrifugal force imparted to the governing-weights I causes them to rise, allowing the segments R to decrease the draught by lessening the passage, and as the draught decreases the velocity of the segments and their governing-weights, being pivoted to the same shaft, also decrease, and the falling of the weights opens the segments or wings, adjusting themselves and maintaining a steady and equal draught at all times, regardless of the amount of fire.

To prevent these segments passing a horizontal position in a strong draught, they are each a trifle more than a semicircle, overlapping each other, as shown in figs. 2, 3, and 4, so that in an extreme draught they will close entirely the passage in the pipe, and so remain until the fire shall subside to the required degree.

It will be observed that when the draught is the strongest the governing-weights are nearer the outer edges of the segments or wings, imparting greater weight to govern the increased draught, and with a lower fire, and consequently less draught, the segments open by the falling of the governing-weights, which, as they approach the center of the segments, impart less weight and render the segments more sensitive.

What we claim as our invention, and desire to secure by Letters Patent, is—

A stove or furnace-damper, constructed in segments and governed by adjustable weights, the whole being self-acting, and arranged substantially as herein set forth.

ELI R. HALL.  
DANIEL A. KEYES.

Witnesses:

HIRAM P. LAWRENCE,  
WATSON E. BENOT.