

(No Model.)

2 Sheets—Sheet 1.

E. JOHNSON.  
DAMPER.

No. 463,333.

Patented Nov. 17, 1891.

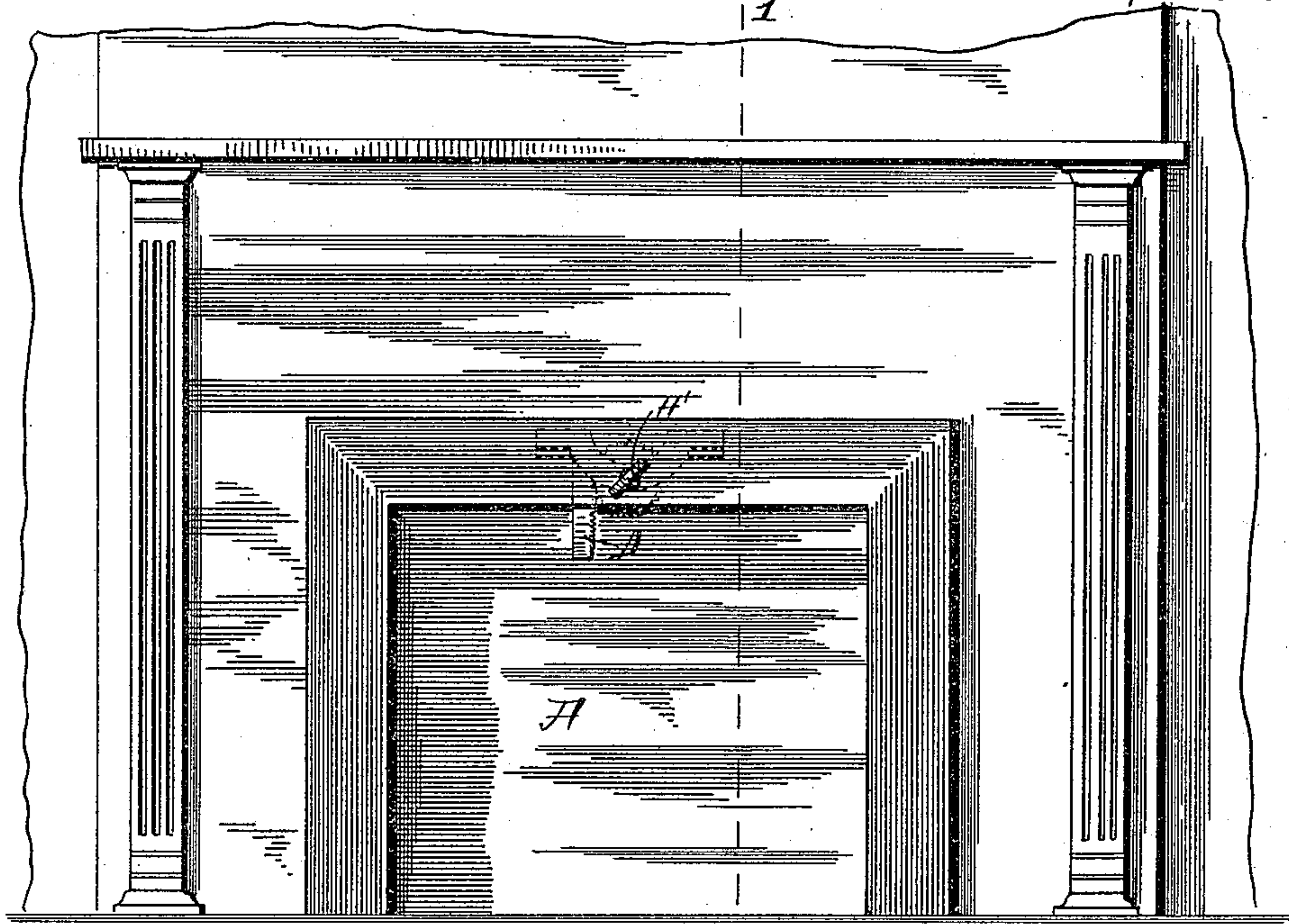


Fig 1

1

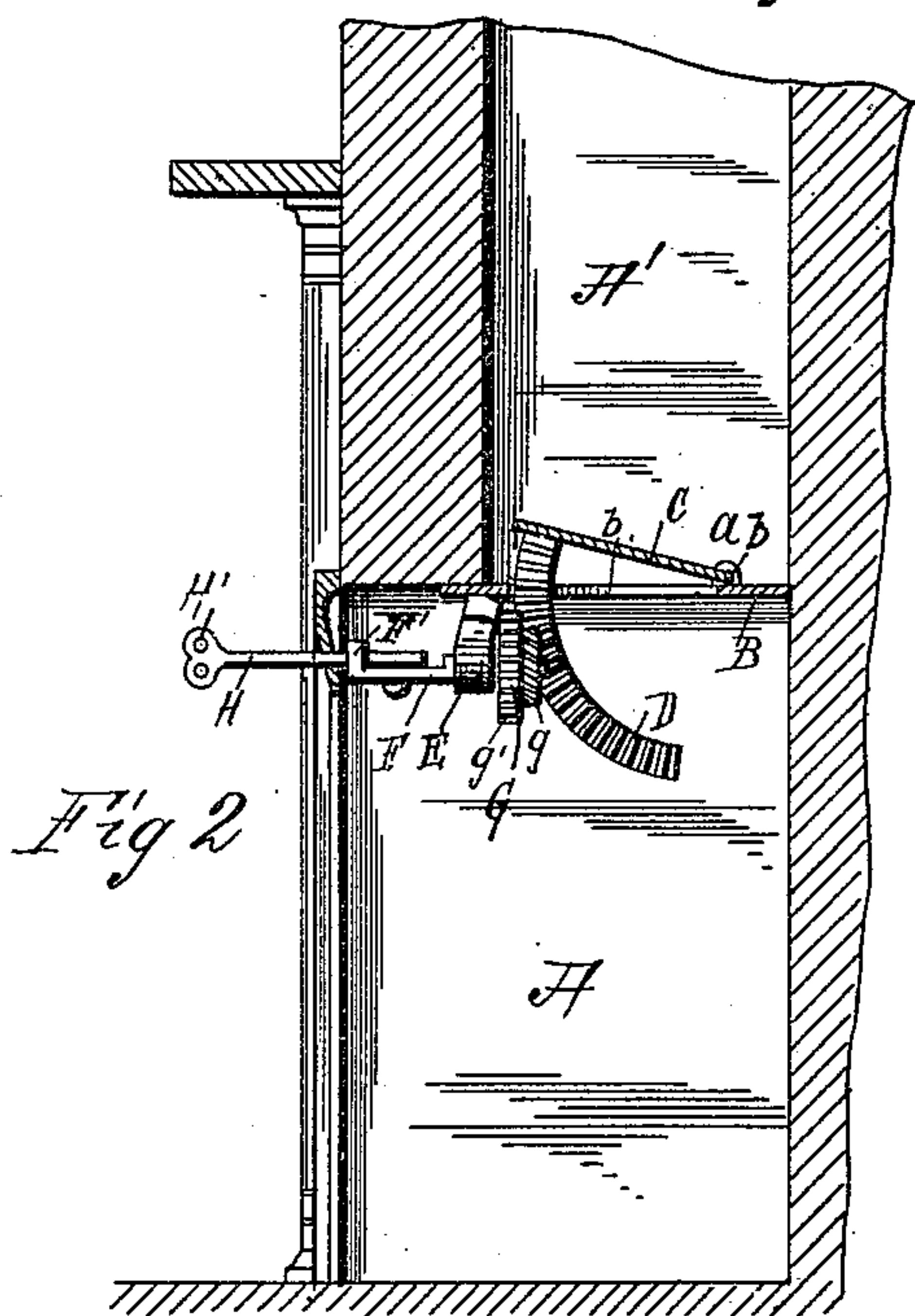


Fig 2

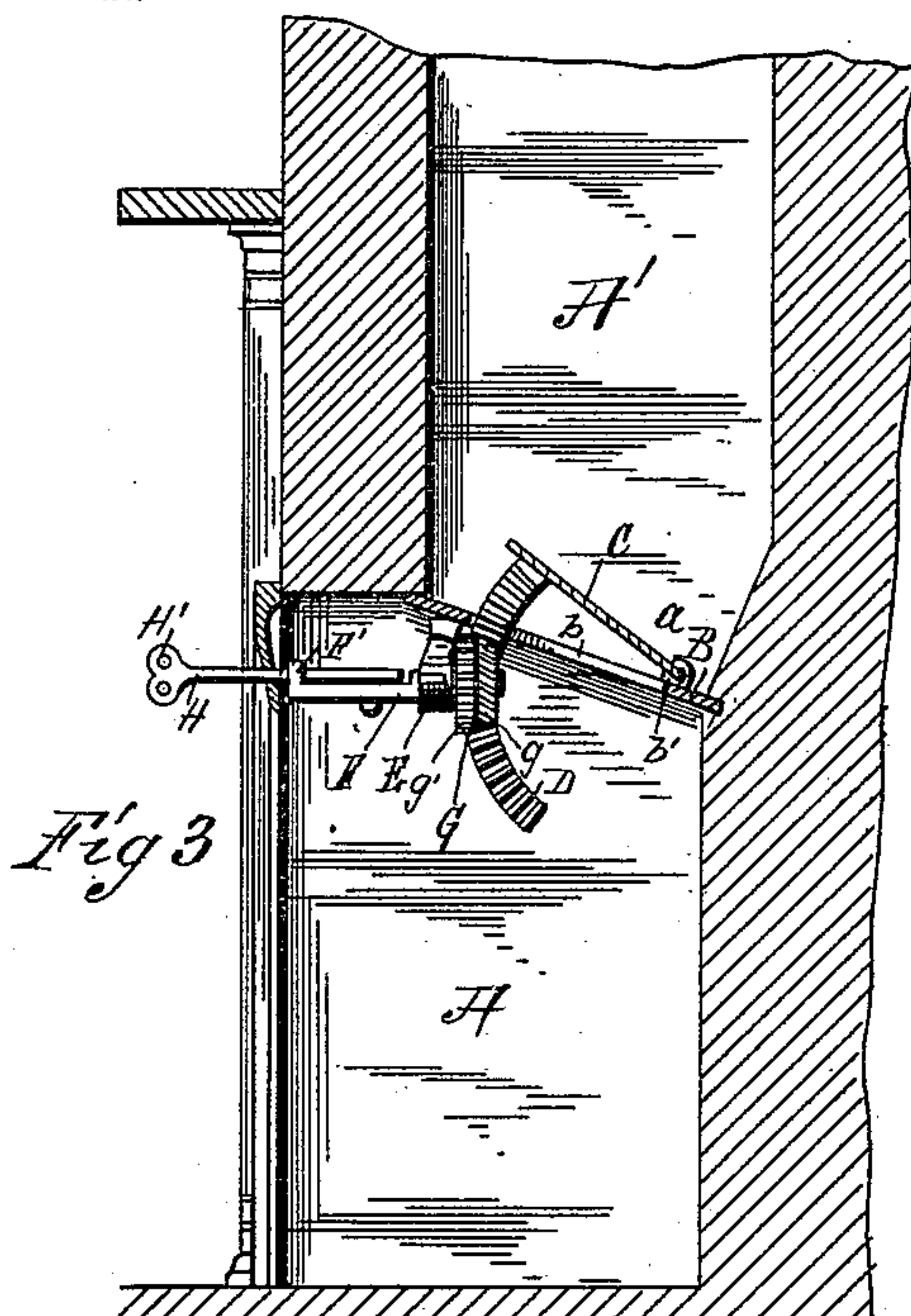


Fig 3

Witnesses  
Watson Hurlburt  
A. M. Best.

Inventor  
By Erick Johnson  
Attys

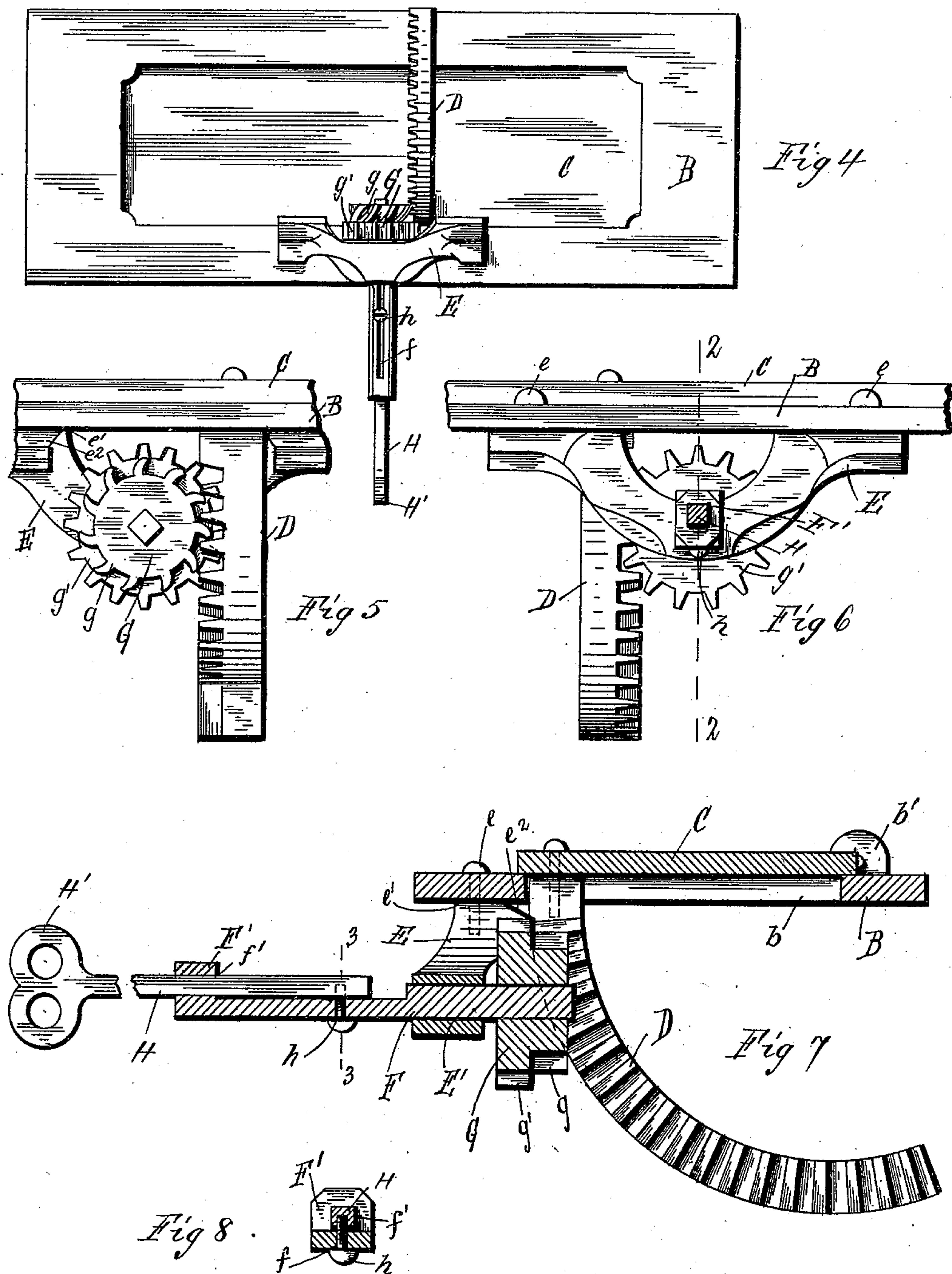
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Witnesses

Watson Hurlburt  
A. M. Best

Inventor

Erick Johnson  
By *Coburn & Martin*  
Atty



# UNITED STATES PATENT OFFICE.

ERICK JOHNSON, OF CHICAGO, ILLINOIS.

## DAMPER.

SPECIFICATION forming part of Letters Patent No. 463,333, dated November 17, 1891.

Application filed March 30, 1889. Serial No. 305,460. (No model.)

*To all whom it may concern:*

Be it known that I, ERICK JOHNSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Dampers, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of a fire-place having my improvement applied thereto; Fig. 2, a sectional view of the same, taken on the line 1 1 of Fig. 1; Fig. 3, a view similar to Fig. 2 and illustrating a modification; Fig. 4, a bottom plan view of the damper detached; Fig. 5, a detail rear elevation; Fig. 6, a detail front elevation; Fig. 7, a sectional view taken on the line 2 2 of Fig. 6, and Fig. 8 a detail sectional view taken on the line 3 3 of Fig. 7. Fig. 4 is on a somewhat larger scale than Figs. 1, 2, and 3, while Figs. 5, 6, 7, and 8 are on a still larger scale.

Like letters refer to like parts in all the figures of the drawings.

My invention relates to dampers for fire-places, and more particularly to that class in which the damper is located in the throat of the fire-place at the junction of the flue and fire-place proper. Heretofore the dampers employed in this location have been either a hinged plate, which may either be thrown back to open the throat wide or thrown forward to entirely close the throat, or else a sliding damper consisting of an apertured plate or diaphragm in combination with a similarly-apertured slide, the whole forming the well-known sliding damper or register. In the former case there is no possibility of adjustment, the damper being entirely opened or closed, while in the latter case at least one-half of the throat is permanently obstructed or closed, even when the damper is opened to its widest extent. Moreover, in both cases there is an entire absence of any accessible means for operating the damper, it being necessary to reach up through the fire-place to the throat in order to move the damper.

It is the object of my present invention to overcome the objections just described as attendant upon the use of these old forms of damper and provide a damper which will not

unduly obstruct the throat of the fire-place, but may be adjusted to give any desired passage at the throat, and which may be readily operated from the exterior of the fire-place.

It is a further object of my invention to provide a damper of this description which shall be adapted for use in various forms of fire-places whether the construction be such as to require a horizontal or an inclined position of the damper.

I will now proceed to describe a construction in which I have practically carried out my invention in one form, and will then particularly point out in the claims those features which I deem to be new and desire to secure by Letters Patent.

In the drawings, A represents the fire-place proper, and A' the flue, the throat *a* being located at the junction of the two.

B represents a plate or diaphragm, which rests upon or is set into the brick-work of which the fire-place is composed at the throat thereof, and is provided with an aperture of a size corresponding substantially to the size of the throat. Upon the upper side of this plate there is mounted the damper proper C, which consists of a plate of sufficient size to close the aperture *b*, said damper being hinged to the plate B, which is provided with lugs *b'* for this purpose on its upper side.

D represents a curved rack or gear segment attached to the plate C and extending downward and rearward therefrom, its center of curvature being preferably coincident with the center of movement of the hinged damper C.

E represents a bearing-yoke, which is secured to the under side of the plate B at the front thereof by means of screw-bolts *e* or other suitable devices for the purpose. This bearing-yoke has an angular surface at the upper ends of its arms, whereby two bearing-surfaces *e'* and *e''* are provided, either of which may be brought to bear against the plate B, so that the said bearing-yoke may be either connected to said plate in the manner shown in Fig. 3 when the plate is placed at an angle or in the manner shown in the remaining figures when the plate is horizontal. The bearing-yoke E is provided with a bearing E', in which is mounted a shaft F, which carries at its rear end a gear-wheel G. This gear-wheel



is double and forms, in fact, two gear-pinions, the rear one of which is provided with skew-teeth  $g$  and the front one with ordinary radial teeth  $g'$ . When the yoke E is connected to the plate B in the manner shown in Fig. 3, the position of the parts is such that the gear-teeth  $g'$  mesh with the rack D, the position of the shaft F being in this case substantially radial to the said rack. When the yoke E is attached to the plate B in the manner shown in the remaining figures, the skew-teeth  $g$  mesh with the said rack. The shaft F extends forward from the bearing E' toward the throat of the fire-place, this forward extension being flattened and provided with a longitudinal slot  $f$ , and there is formed at the front end of this extension a lug F', provided with an aperture  $f'$ .

H indicates a rod provided with a suitable head H', by means of which it may be turned, said rod extending through the front of the fire-place and thence rearward through the aperture  $f'$  in the lug F', its rear end being connected to the forward extension of the shaft F by means of a set-screw  $h$  passing through the slot  $f$  in said extension and screwing into the rod H.

In applying the apparatus just described to a fire-place, the plate B is placed either horizontally, as shown in Fig. 2, or at an angle, as shown in Fig. 3, according to the requirements of the construction, and the yoke E is secured to said plate, so as to maintain the shaft F in a horizontal position whatever the position of the plate may be. The rod H extends out through the mantel or immediately beneath the same, with its handle H' in such a position that it may be readily grasped, so as to rotate the shaft F, and this projection of the handle may be regulated to suit the dimensions of the fire-place and mantel by adjusting the rod in or out through the medium of the devices provided for that purpose, it being secured by the set-screw  $h$  after adjustment. It will be at once seen that by rotating the shaft F through the medium of the projecting handle H' the damper C may be caused to assume either an open or closed

position, or any desired position intermediate between the two, so as to regulate the draft as desired or entirely close the flue. The friction of the parts will be sufficient to hold the damper in any position to which it may be placed. It will thus be seen that I have devised a damper which may be applied to fire-places of different forms and dimensions, and which when thus applied may be adjusted from the exterior, so as to give any desired draft-opening, while at the same time it does not unduly obstruct the throat of the fire-place, thus obviating the disadvantages hereinbefore pointed out as attendant upon the dampers now in use.

It is obvious that various modifications in the details of construction may be made without departing from the principle of my invention, and I therefore do not wish to be understood as limiting myself strictly to the precise details hereinbefore described, and shown in the drawings.

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

1. The combination, with the apertured plate B, of the damper-plate C, hinged thereto and provided with a curved rack D, the shaft F, provided with gear G, having skew-teeth  $g$  and straight teeth  $g'$ , and the bearing-block or yoke E, having bearing E' for said shaft and provided with angular bearing-surfaces  $e'$  and  $e''$ , whereby it may be connected to said plate, substantially as and for the purposes specified.

2. The combination, with the damper C and its rack D, of the shaft F, having pinion G to mesh therewith, and forward extension provided with slot  $f$  and having the terminal lug F', with aperture  $f'$ , the rod H, provided with handle H' and extending through the said apertured lug, and the set-screw  $h$ , passing through the slot into the handle, substantially as and for the purposes specified.

ERICK JOHNSON.

Witnesses:

CARRIE FEIGEL,  
IRVINE MILLER.