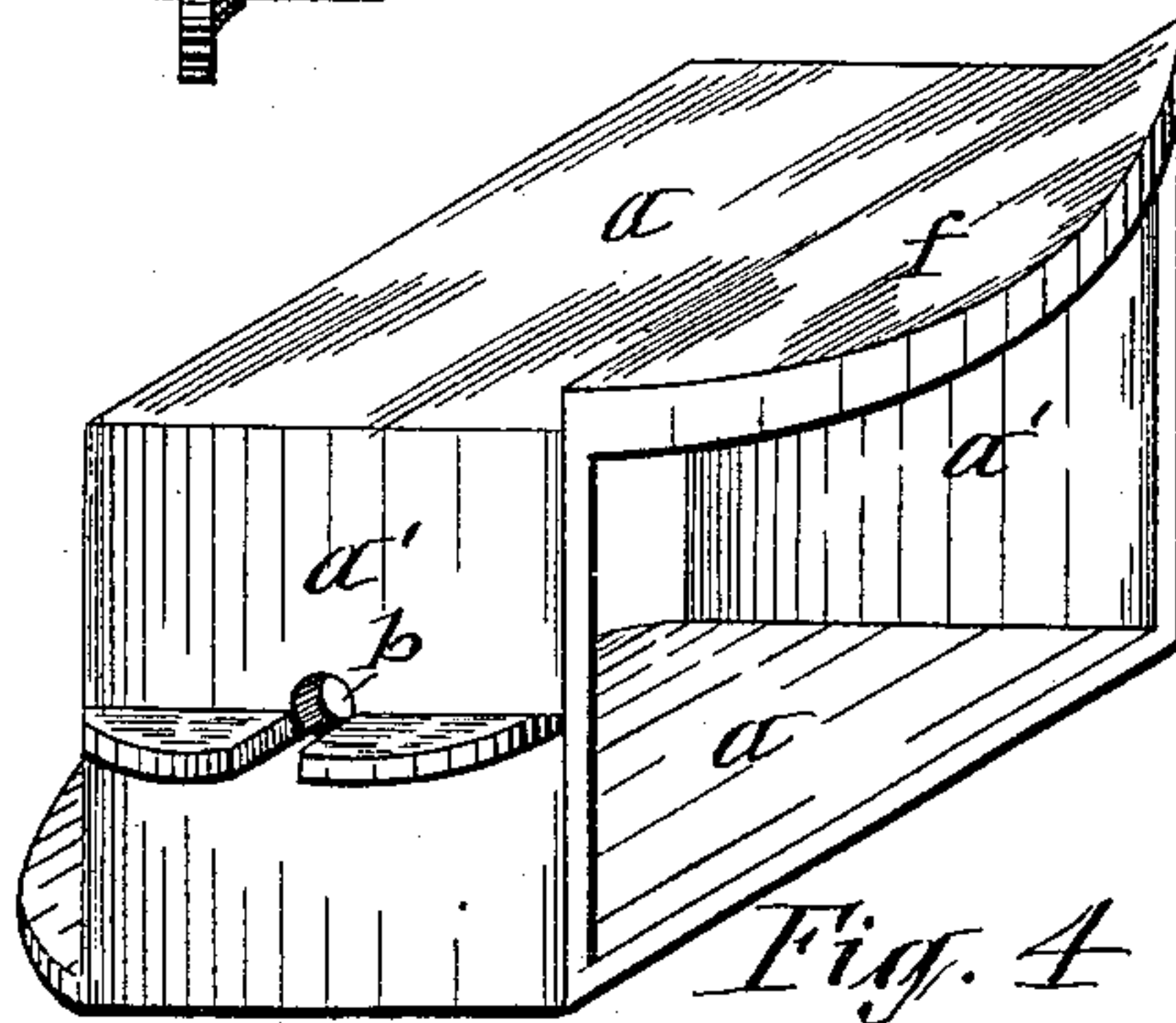
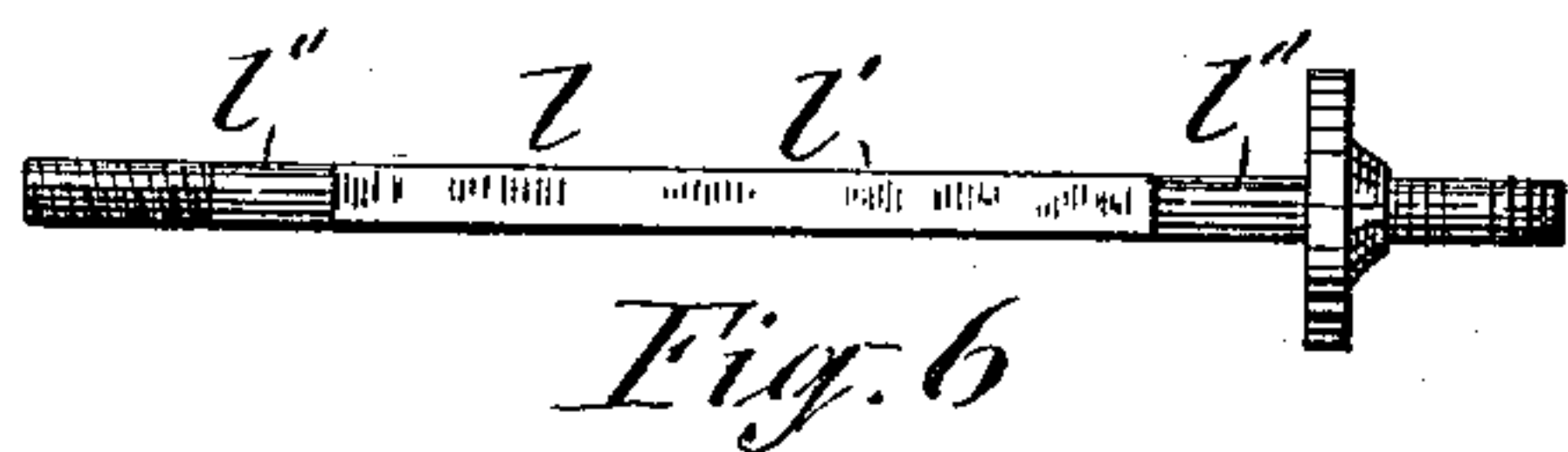
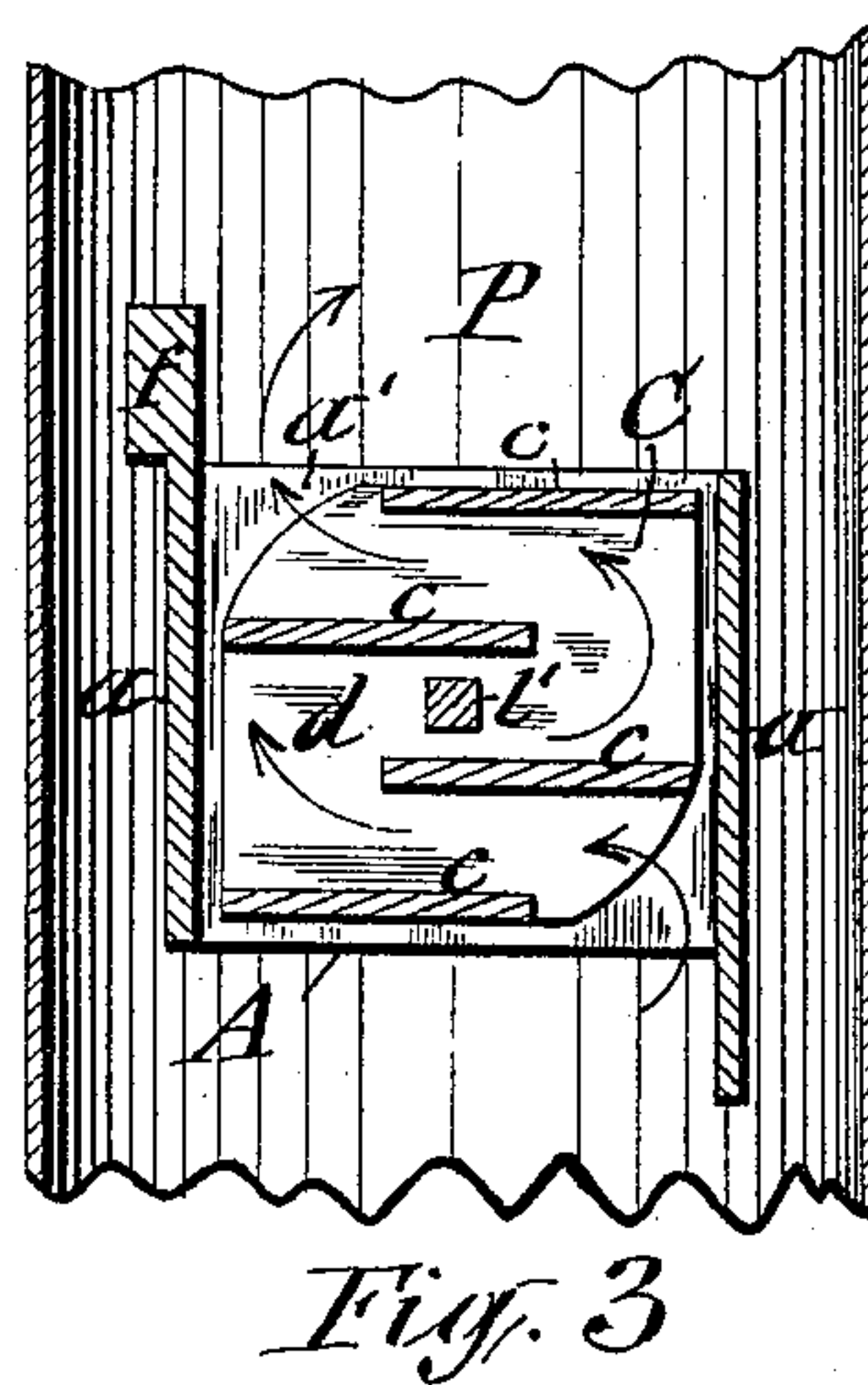
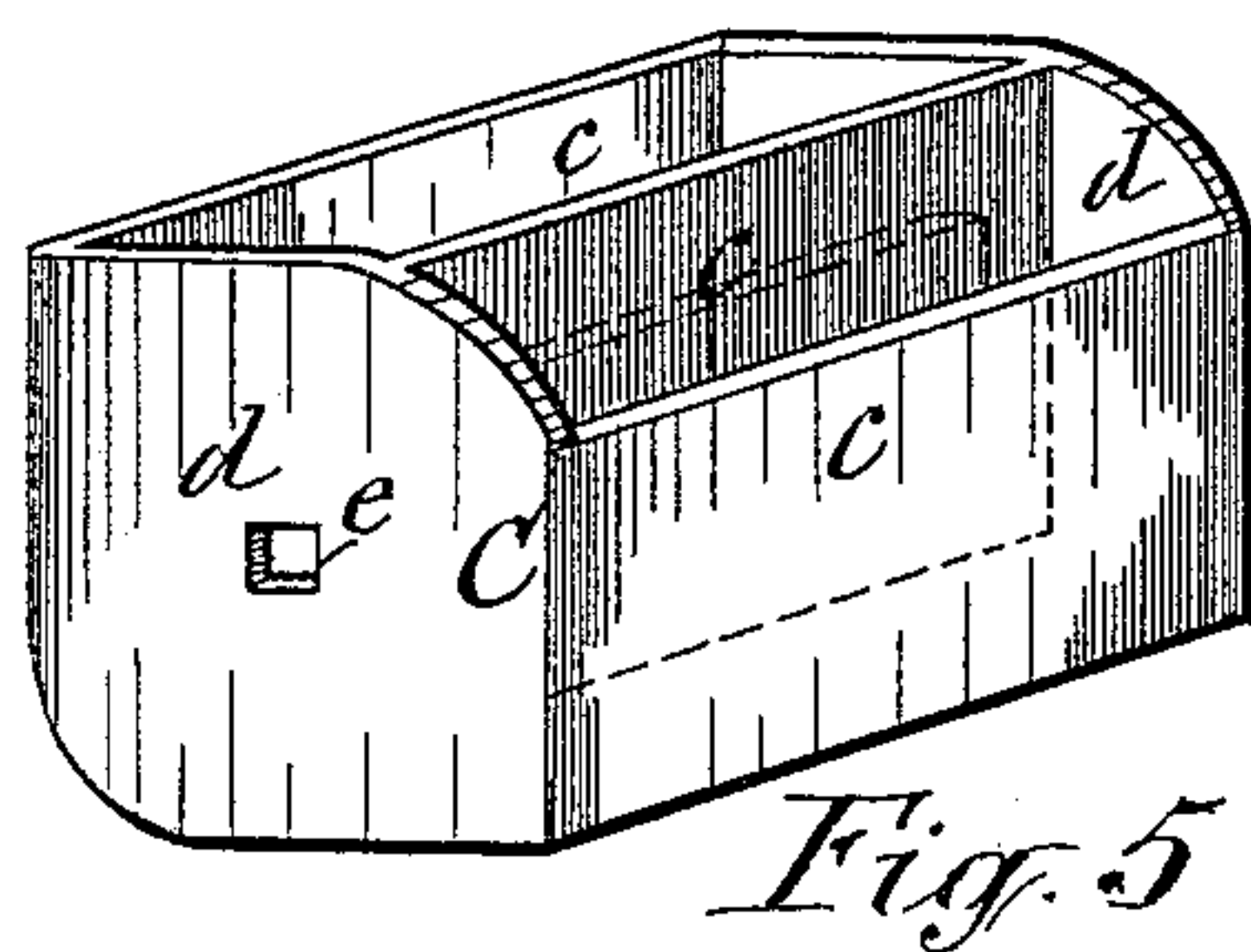
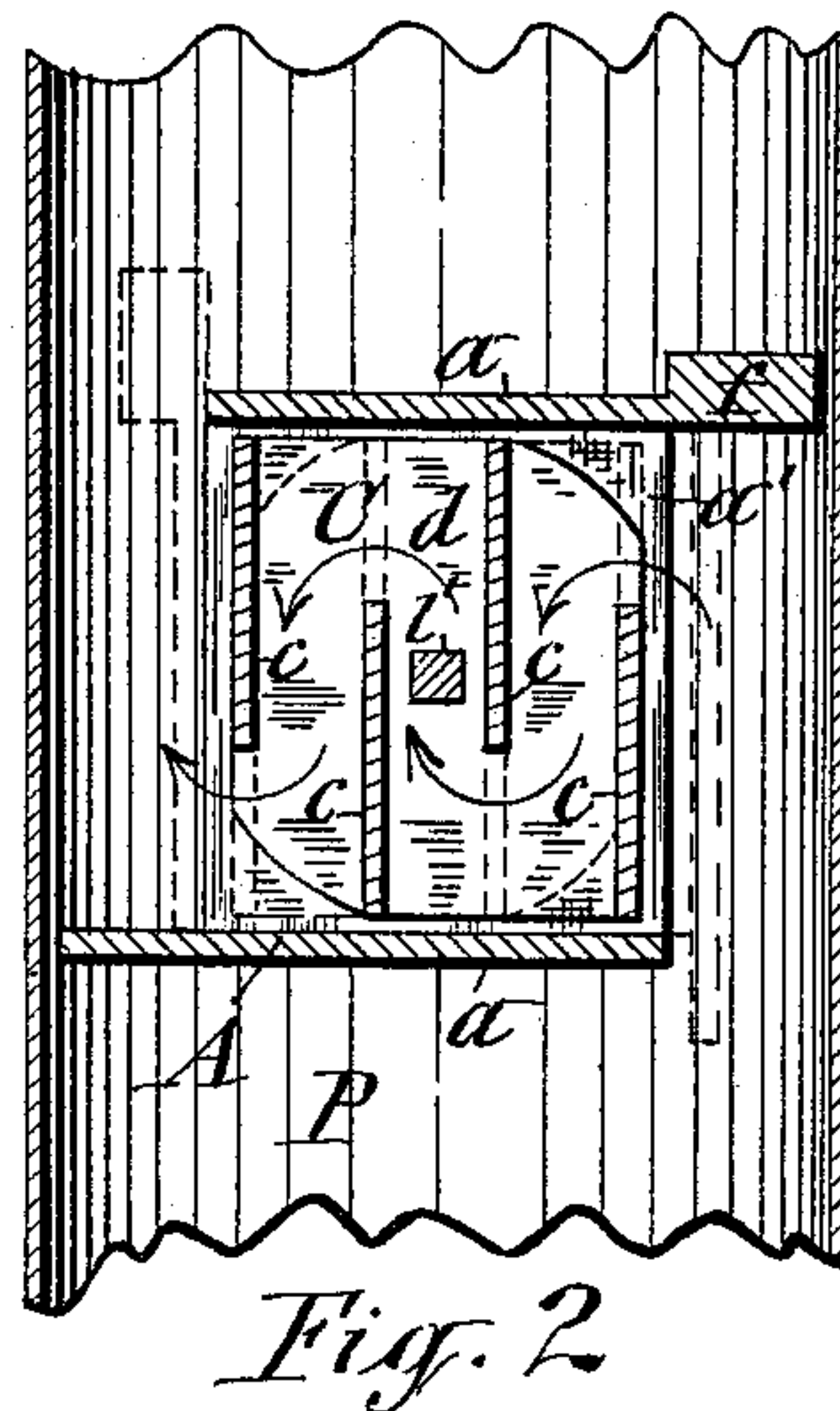
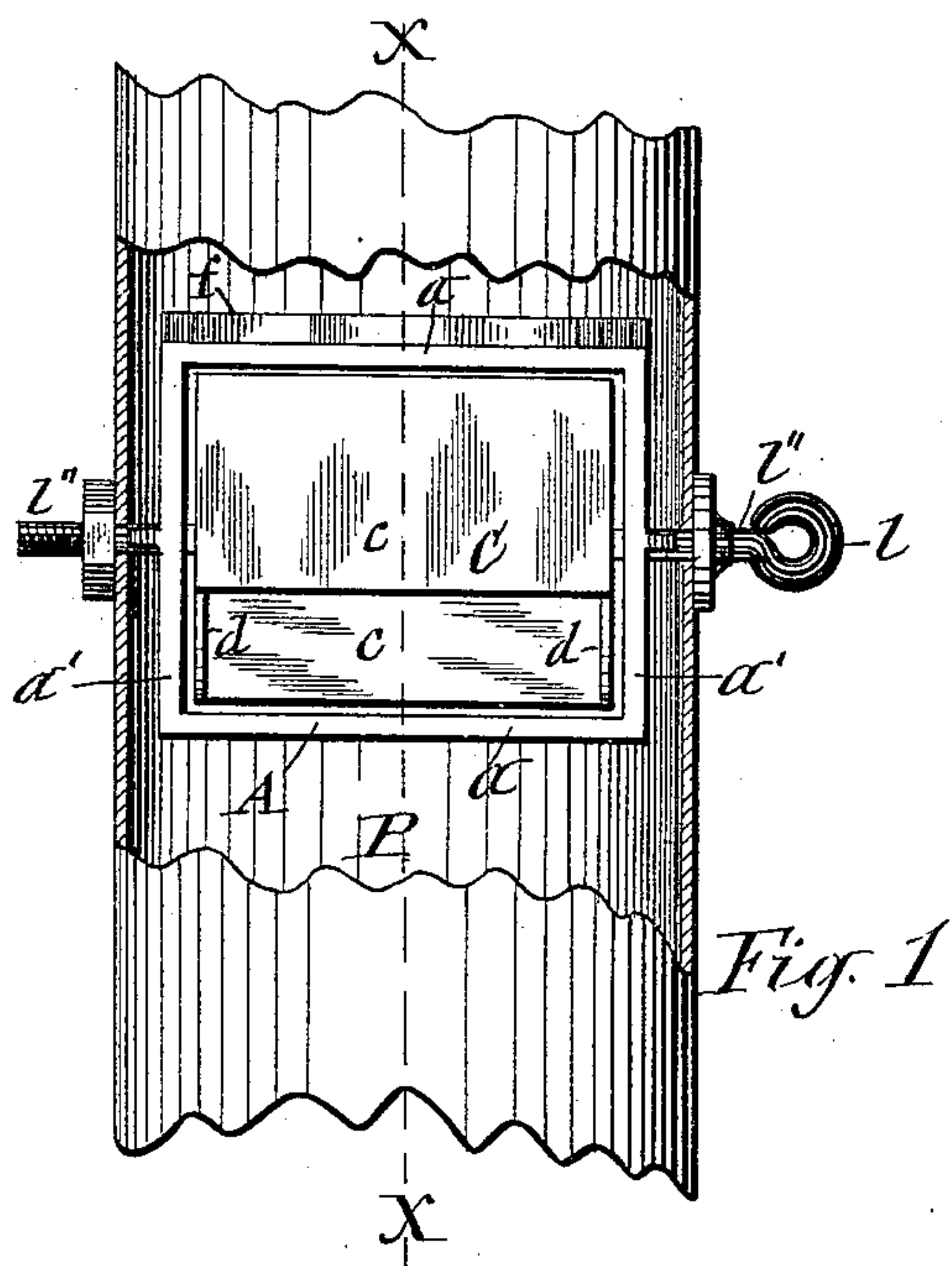


(No Model.)

G. C. HUMPHREY.  
STOVE PIPE DAMPER.

No. 403,672.

Patented May 21 1889.



WITNESSES:

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INVENTOR

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ATTORNEYS



# UNITED STATES PATENT OFFICE.

GEORGE C. HUMPHREY, OF DELPHI, NEW YORK.

## STOVE-PIPE DAMPER.

SPECIFICATION forming part of Letters Patent No. 403,672, dated May 21, 1889.

Application filed February 11, 1889. Serial No. 299,420. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE C. HUMPHREY, of Delphi, in the county of Onondaga, in the State of New York, have invented new and  
5 useful Improvements in Stove-Pipe Dampers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

In said drawings, Figure 1 is a side view of  
10 a section of a stove-pipe provided with my improved damper, a portion of the stove-pipe being broken away to show the position of the damper which is set for maximum check of the draft. Fig. 2 is a vertical transverse section of the same, and illustrating by dotted  
15 lines the position of the damper for full draft. Fig. 3 is a vertical transverse section showing the damper adjusted for partial check of the draft. Figs. 4 and 5 are detached perspective  
20 views, respectively, of the primary damper and secondary damper; and Fig. 6 is a detached view of the shaft of the dampers.

Similar letters of reference indicate corresponding parts.

25 A represents the primary damper, which consists of a case which is open at opposite sides and formed of two parallel plates, *a a*, each of which extends with one of its side edges beyond that of the other, which plates  
30 are united at their ends by plates *a' a'*, which are each provided with a circular aperture, *b*, at or near the center. The projecting edge of the upper plate, *a*, is weighted, as indicated at *f*, for the purpose hereinafter explained.

35 C denotes the secondary damper, consisting of parallel diaphragms *c c c c*, united at their ends by plates *d d*, which are provided at or near their centers with apertures *e e*, one or both of which are of polygonal shape. Said  
40 secondary damper is arranged inside of the primary damper and adapted to rotate therein, partly independently thereof, by the shaft *l* passing through the apertures *b* and *e* of the dampers and formed with a polygonal portion  
45 *l'* and cylindrical portions *l'' l'''*. The polygonal portion engaging the edges of the polygonal aperture *e* locks the secondary damper C on the shaft so as to compel it to rotate therewith, and the cylindrical portions  
50 of said shaft, passing loosely through the aperture *b*, allows the shaft to turn without disturbing the primary damper. The diaphragms

*c c c c* are disposed successively, each with one of its side edges extending beyond that of the adjacent diaphragm alternately at opposite sides of the damper. 55

The two dampers are pivoted to the stove-pipe P by the shaft *l* passing through the stove-pipe. By turning said shaft so as to bring the diaphragms *c c c c* into a vertical  
60 position or parallel with the axis of the stove-pipe without turning the primary damper into a vertical position, the draft through the pipe is checked by being compelled to pass in a sinuous course and with vertical deflec-  
65 tions through the damper, as indicated by arrows in Fig. 2 of the drawings. The top of the primary damper A, being weighted on the lateral extension *f* of said top, holds said  
70 valve in its horizontal position, while the secondary damper C is turned into the vertical position, as aforesaid.

By giving the secondary damper C a further half-turn the diaphragms are again brought into a vertical position; but during  
75 the last quarter of the turn of said damper the outermost diaphragm *c* encounters the under side of the top plate of the primary damper and compels the latter to turn from  
80 a horizontal position to a vertical position, as indicated by dotted lines in Fig. 2 of the drawings, and when in this position a direct draft is established through the pipe P. By then giving the secondary damper a quarter-turn  
85 back the diaphragms *c c c* are set into horizontal positions, while the primary damper A remains in a vertical position, as shown in Fig. 3 of the drawings. The draft then passes in a sinuous horizontal direction, as indicated  
90 by arrows, and thus the draft is partly checked. It will therefore be observed that my improved damper affords perfect control of the draft through the pipe.

What I claim as new, and desire to secure by Letters Patent, is— 95

1. The combination of a primary damper consisting of a case open at opposite sides and pivoted at its ends and a secondary damper consisting of diaphragms united at their ends and arranged rotatably inside of the primary  
100 damper, as set forth.

2. The combination of a primary damper consisting of a case open at opposite sides and pivoted at its ends and a secondary damper



consisting of parallel diaphragms disposed successively, each with one of its side edges extending beyond that of the adjacent diaphragm alternately at opposite sides of the damper and firmly united and arranged rotatably inside of the primary damper, as set forth.

3. The combination of a primary damper consisting of a case open at opposite sides, a secondary damper arranged inside of the primary damper, and a shaft passing loosely through the ends of the primary damper and locked on the secondary damper, substantially as and for the purpose set forth.

4. The combination of the primary damper A, having the plates *a a*, each extending with one of its side edges beyond that of the other and provided with the circular apertures *b* in its ends, the secondary damper C, composed of parallel diaphragms *c c c*, disposed succes-

sively, each with one of its side edges extending beyond that of the adjacent diaphragm alternately at opposite sides of the damper, and having the end plates, *d d*, provided with a polygonal aperture, *e*, and the shaft *l*, formed with the polygonal portion *l'* and cylindrical end portions, *l'' l''*, and passing through the apertures *b* and *e* of the dampers, substantially as described and shown.

In testimony whereof I have hereunto signed my name, in the presence of two witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 23d day of January, 1889.

GEORGE C. HUMPHREY. [L. S.]

Witnesses:

MARK W. DEWEY,  
A. F. WALZ.