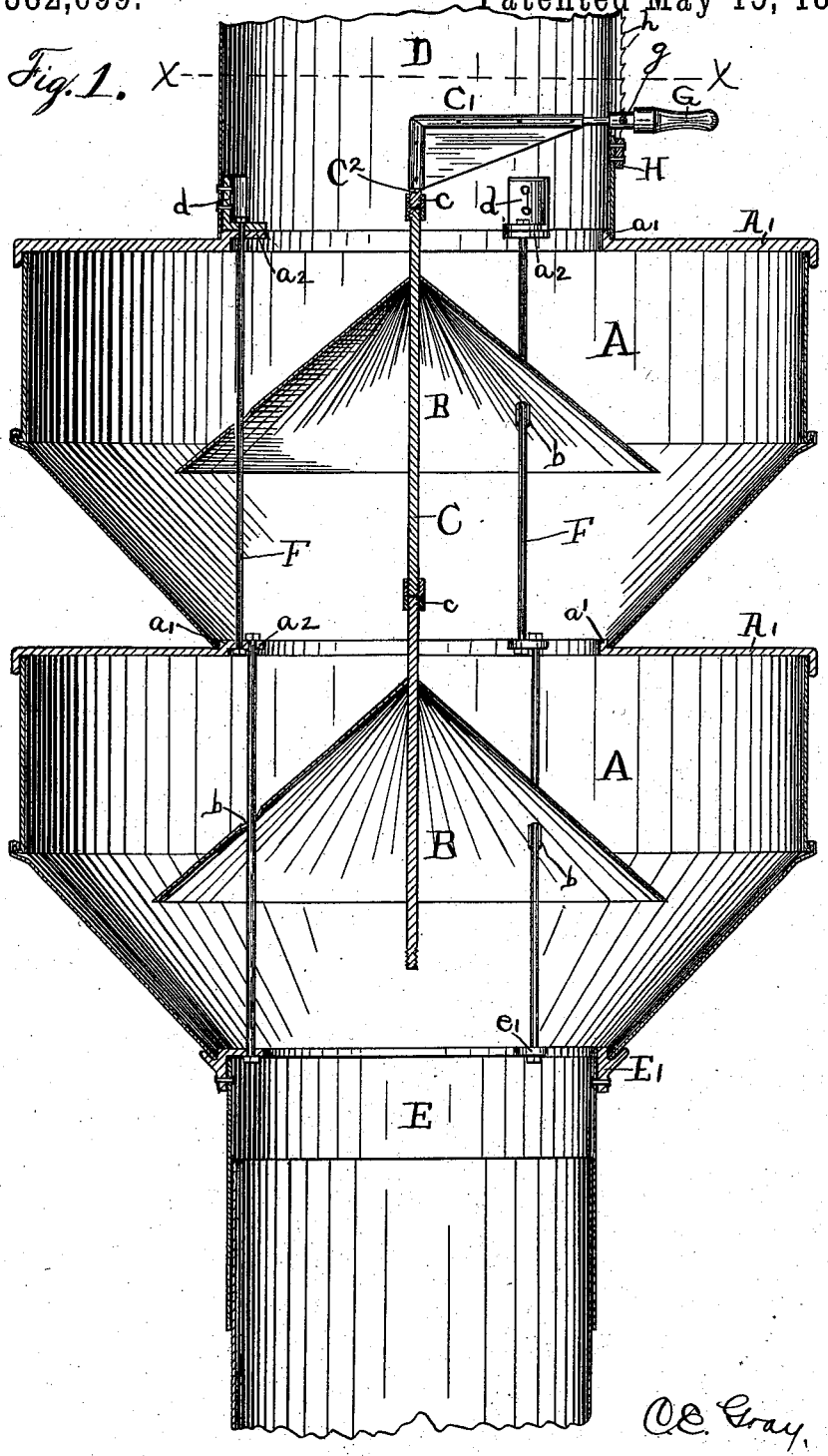
(No Model.) 2 Sheets—Sheet 1.

C. E. GRAY.

DRAFT REGULATOR.

No. 382,699. Patented May 15, 1888.

Fig. 1.



Witnesses—
Cora L. Cadwallader,
John R. Mettenstrom

C. E. Gray,
Inventor.
By Burton & Burton
His Attys.

(No Model.) 2 Sheets—Sheet 2.

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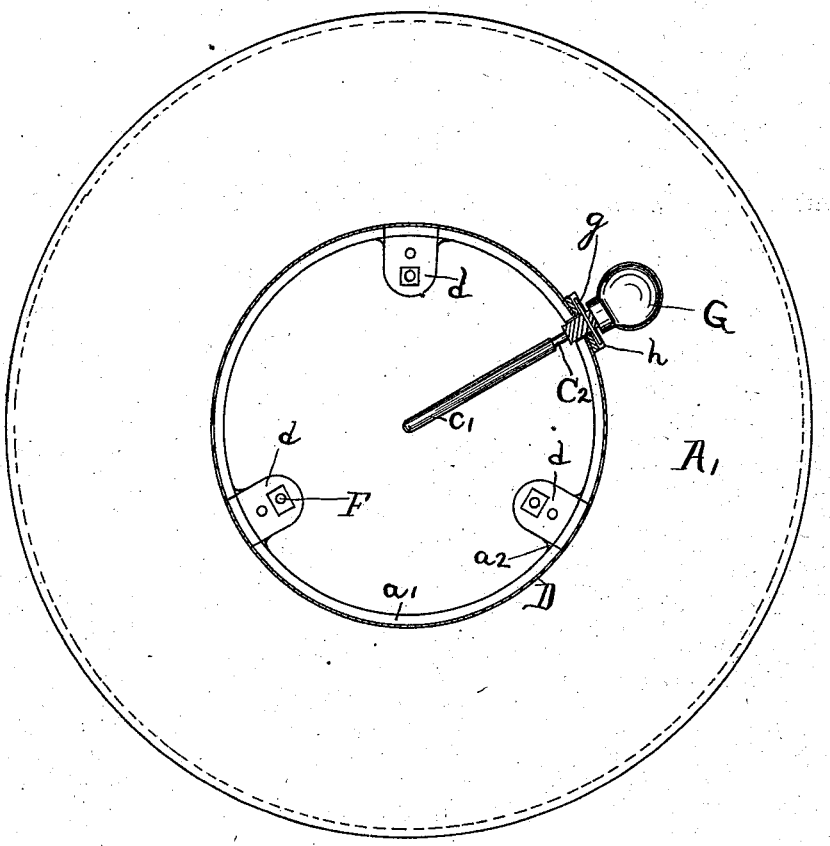
Fig. 2.



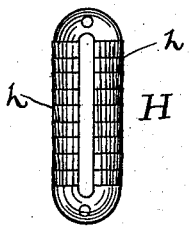


Fig. 3.

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UNITED STATES PATENT OFFICE.

CARROLL E. GRAY, OF WAUKESHA, WISCONSIN.

DRAFT-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 382,699, dated May 15, 1888.

Application filed October 10, 1887. Serial No. 251,906. (No model.)

To all whom it may concern:

Be it known that I, CARROLL E. GRAY, a citizen of the United States, residing at Waukesha, county of Waukesha, State of Wisconsin, have invented certain new and valuable Improvements in Draft-Regulators, which are set forth in the accompanying specification, reference being had to the drawings forming a part thereof.

Figure 1 is a vertical section showing a double use of my device. Fig. 2 is a section through *x x* of Fig. 1. Fig. 3 is a detail of the notched plate H.

My device is adapted to fit in and be made a part of a stove-pipe as one joint of pipe, the joint below entering the part E and the part D entering the joint above. The part E is a short piece of pipe, and above it and riveted to it is the cast ring E′, having an annular depression in which rests the casing of the chamber A, which is expanded laterally toward the top, and formed, preferably, as shown, so that the lower part is an inverted truncated cone and the upper part a cylinder. The top of this chamber A is formed by the cast ring A′, which, being of greater diameter than the pipe, affords a convenient warming-shelf on which small articles can be placed. This top ring is adapted to fit over the top edge of chamber-case, and has on its inner circumference an upwardly-projecting flange, *a′*. Extending inwardly from this flange I provide two or more lugs, a^2. (Three are shown.) I also provide lugs *e′* on the ring E′, similar and similarly situated. By the bolts F, passing through these lugs and secured at each end by nuts, I bind the two rings E′ and A′ together and the casing of the chamber A between them. The outer circumference of the projecting flange *a′* is equal to the inner circumference of the lower edge of the case of the chamber A, and therefore above this top plate can be added another or other chambers, duplicates in every respect of the one described—*i. e.*, comprising the top ring and casing—which will be secured to the one below by the bolt F passed through the other bolt-holes in the lugs a^2.

The top part, D, is a short piece of pipe having lugs *d* riveted to its inner side at points corresponding to the lugs a^2. The lugs *d* are riveted to the part D at a short distance above its lower end, so that the pipe sets down around the projecting flange *a′*. The bolts F are then passed through the lugs a^2 and *d* and secured by nuts, and the whole thus bound firmly together.

Within each chamber A, I provide a damper, B, in the form of a cone, having the support C (preferably a rod) passing through it and extending somewhat above it. When more than one damper-chamber is used, this support will be joined to the support from the damper above by the pipe-coupling *c*, if a rod is used, and when but one chamber is used, to the continuation C^2 of the support. This rod C^2 is provided with the stiffening-apron C′, and is attached to a handle, G, whose stem extends through a slot in the pipe D. On the outside of the pipe D, riveted thereto, is the plate H, slotted to allow the stem of the handle to pass through it, and provided with teeth *h*, in which rests the catch *g*. By means of this handle moving in the slot in the pipe D, the conical dampers are raised and lowered in the chambers A. I form these conical dampers of such diameter at their bases that the area remaining between them and the sides of the chambers when the dampers are open shall be equal to the area of the pipe E, so that the smoke ascending through the pipe shall have the same space in the chambers in which to pass as it had in the pipe, the dampers simply serving to deflect it. For this reason the sides of the dampers extend laterally past the bolts F. I therefore provide apertures *b* in the dampers, through which the bolts pass, and serve as guides for the dampers, and prevent any cramping or twisting of the dampers or supports C, which might be occasioned by my direct raising and lowering device. The lugs a^2 also serve a double purpose, acting also as stops for the dampers when they are raised, thereby preventing them from ever closing the pipe entirely, (which would be attended with danger,) since there will always be open the portion of the annular space remaining between the lugs.

It will be seen that since one damper-chamber, including its damper and connections, is precisely like another and each has on its upper side the projecting ring *a′* and is of the same diameter at its base as the pipe D, as many dampers and damper-chambers may be

employed, as is desired, and the number of them increased at any time without disturbing those already in use.

The form of the chambers shown in the drawings, the upper part being cylindrical, beside providing a warming-shelf is also advantageous in that the greatest possible radiating surface is exposed and the heat of the smoke thereby utilized.

I claim—

1. A draft-regulator comprising a conical damper adapted to be raised and lowered, a damper-chamber thereabout having annular top and bottom plates provided with lugs projecting laterally from their inner circumferences, and bolts passing through the lugs of the top and bottom plates, whereby they are bound together, substantially as and for the purpose set forth.

2. A draft-regulator comprising a conical damper adapted to be raised and lowered, a damper-chamber thereabout whose sides are expanded laterally toward the top and whose top and bottom are annular plates provided with lugs projecting laterally from their inner circumferences, and bolts passing through said lugs, whereby the top and bottom plates are bound together and the sides secured between them, substantially as and for the purpose set forth.

3. In a draft-regulator, in combination, a damper-chamber having annular top and bottom plates provided with lugs projecting laterally from their inner circumferences, a conical damper therein adapted to be raised and lowered, and bolts connecting the lugs of the top and bottom plates passing through apertures in the damper and serving as guides therefor, substantially as and for the purpose set forth.

4. In a draft-regulator, in combination, a conical damper adapted to be raised and lowered, a damper-chamber thereabout expanded laterally toward the top and having an annular top plate provided with lugs projecting laterally from its inner circumference, which lugs serve as stops for the damper when raised, substantially as and for the purpose set forth.

5. In a draft-regulator, in combination, a damper-chamber having annular top and bottom plates provided with lugs projecting laterally from their inner circumferences, a conical damper therein adapted to be raised and lowered, and bolts, connecting the lugs of the top and bottom plates, passing through apertures in the damper and serving as guides therefor, the lugs on the upper plate serving as stops for the damper when raised, substantially as and for the purpose set forth.

6. In a draft-regulator, in combination with a damper-chamber expanded laterally toward the top and having annular top and bottom plates provided with lugs projecting laterally from their inner circumferences, a pipe above and secured to the damper-chamber, a conical damper within the chamber, bolts passing through the lugs, by which the top and bottom plates are bound together, and through apertures in the damper, whereby they serve as guides for it, and a damper-support extending upward and passing through the wall of the pipe, and having a lifting-handle outside the pipe whose stem engages in a notched plate, substantially as and for the purpose set forth.

C. E. GRAY.

Witnesses:
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