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C. O. STALEY

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DRAFT REGULATOR

Filed April 27, 1929

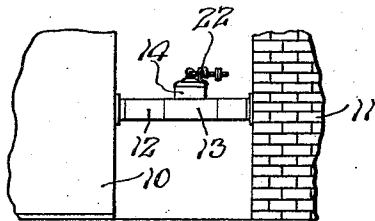


*Fig. 1*

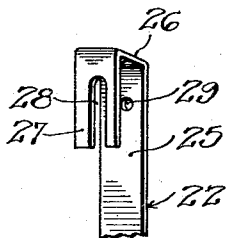
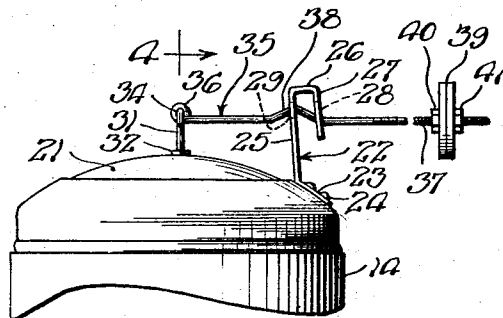


*Fig. 3*



A →

*Fig. 2*

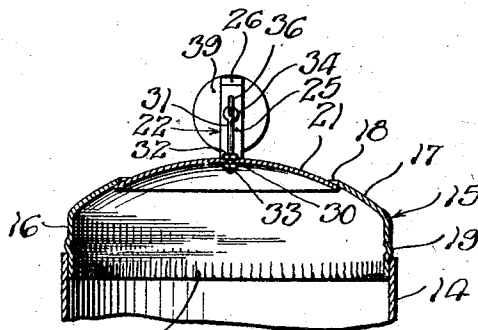


*Fig. 4*

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## UNITED STATES PATENT OFFICE

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## DRAFT REGULATOR

Application filed April 27, 1929. Serial No. 358,602.

This invention relates to certain novel improvements in draft regulators and has for its principal object the provision of an improved construction of this character which will be highly efficient in use and economical in manufacture.

It is among the objects of my invention to provide a draft regulator which may be mounted in the flue pipe extending between a combustion apparatus and a flue to interrupt the draft passing therethrough by providing an opening intermediate said combustion apparatus and said flue.

Another object of the invention is to provide a device of the above named character which will be arranged in a manner such that the magnitude of the opening will be dependent upon the force of the draft passing through the flue pipe.

Another object of the invention is to provide a device of the above named character which will be arranged so that the member for regulating the magnitude of said opening will be supported for relatively free movement and which will be arranged so that an adjustable counterbalance may be provided so as to regulate said movement.

A still further object of the invention is to provide a very simple arrangement for supporting the regulating member and the counterbalance therefor.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings, showing the preferred form of construction and in which:

Fig. 1 is a fragmental view depicting a preferred form of construction for my invention in association with a flue pipe extending between a combustion apparatus and a flue;

Fig. 2 is a side elevational view of a preferred form of construction for my invention;

Fig. 3 is a fragmental perspective detail view depicting a bracket employed in my device; and

Fig. 4 is a transverse sectional view taken substantially on the line 4—4 on Fig. 2.

In the accompanying drawings wherein I have illustrated a preferred form of construction for my invention 10 indicates a combustion apparatus which may be of any approved form such as a warm air furnace or a steam boiler and these devices may either be of the coal burning type or they may be arranged such that any other type of fuel may be burned therein such as for example gas or oil. Arranged in spaced relation with the combustion apparatus is a flue 11 of any approved form. A flue pipe 12 extends between the combustion apparatus 10 and the flue 11 for the purpose well understood in the art. In the present instance I show a substantially T-shaped section 13 in the pipe 12 which includes an upstanding neck 14 and it is to be understood that any desired arrangement might be provided which might include the neck 14.

My improved apparatus is intended to be associated with the neck 14 and includes a main body portion 15 which comprises a neck portion 16 that terminates in a conical portion 17 which is truncated so as to provide an opening 18.

A bead 19 is formed on the neck portion 16 in spaced relation with the lower end thereof and in the present instance I depict the neck portion 16 as being telescoped within the neck 14 and the bead 19 serves to limit inward movement of the neck 16 with respect to the neck 14. If desired the portion of the neck 16 engaging the neck 14 may be crimped as indicated at 20 so as to insure better connection between these elements.

A plate 21 is provided which is of a diameter slightly greater than the diameter of the opening 18 and the plate 21 is intended to cooperate with the opening 18 so as to close passage therethrough when the edges of the plate 21 are brought into engagement with the edge of the portion 17 around the opening 18, it being understood that the plate 21 is fitted interiorly of the portion 17.

On the portion 17 I mount a bracket generically indicated by 22 which includes a foot portion 23 that is disposed on the

portion 17 and secured thereto in any approved manner as by the rivets 24. The bracket 22 includes an upstanding portion 25 which terminates at its upper end in a portion 26 that extends substantially at right angles to the portion 25 and the portion 26 terminates in a portion 27 that extends downwardly from the portion 26 substantially parallel to but spaced from the portion 25 and it will thus be seen that a substantially U-shaped formation is arranged at the upper end of the bracket 22. The portion 27 is disposed over the foot portion 23.

In the portion 27 a slot 28 is formed which extends therethrough from the lower edge thereof. In the portion 25 in alignment with the slot 28 an opening 29 is formed. It is apparent that the bracket 22 may be made from a single piece of material formed in the manner set forth by bending at proper points and it is apparent that the opening 29 and the slot 28 may be expeditiously formed therein.

At substantially the apex of the member 21 an opening 30 is provided through which a stem 31 is extended. Suitable nuts 32 and 33 on the stem 31 are arranged on each side of the member 21 so as to secure the member 21 on the stem 31 and if desired the lower end of the stem 31 may be peened so as to prevent displacement of the nut 33 and in this manner the member 21 is secured to the stem 31. At the upper end of the stem 31 a eye 34 is formed.

The counterbalance arrangement for the plate 21 includes a lever 35. At one end of the lever 31 an eye 36 is formed in which the eye 34 is intended to be connected as clearly illustrated in Figs. 2 and 4. The opposite end of the lever 35 is screw threaded as indicated at 37. Intermediate the eye 36 and the screw threaded portion 37 an offset portion 38 is provided in the lever 35 and the offset portion 38 provides a fulcrum. In assembling the device the screw eyes 34 and 36 are interconnected and the lever 35 has the end portion 37 thereof extended through the opening 29 and the slot 28 until the fulcrum provided by the offset portion 38 rests in the opening 29 and it is apparent that the portion of the lever 35 adjacent this offset portion 38 will extend through the slot 28. It is, therefore, apparent that the lever 35 may pivot about the bracket 22 in a vertical plane and it is apparent that the portion of the lever 35 extending through the slot 28 will prevent movement thereof in a horizontal plane. In order to counterbalance the weight of the member 21 and the portions cooperating therewith on the portion of the lever extending from the fulcrum 29 and carrying these parts I provide the weight members 39. The weight members 39 are intended to have openings provided therein through which the screw threaded portion of the lever 37 may be freely extended or if desired these openings

may be arranged for screw threaded engagement with the screw threads 37 on the lever 35. Arranged on each side of the weight members 29 are nuts 40 and 41 which serve to lock the weight members 39 in position on this end of the lever 35.

The weight members 29 are intended to be disposed so as to not only counterbalance the weight of the member 21 and the parts associated therewith but are also intended to be positioned such that they will hold the member 21 in closing position with respect to the opening 18 until a draft of predetermined force is present in the flue pipe 12 at which time the air pressure on the upper surface of the member 21 will act thereon to move the member 21 downwardly to provide an opening in the flue pipe 12 which will obviously check the force of the draft passing there-through and that the time this checking overcomes the draft the weights 39 will serve to reposition the member 21 in closing position with respect to the opening 18.

While I have set forth that two weight members 39 are provided it is to be understood that this arrangement is employed only to afford a greater range of adjustment and a greater or less number of weight members might be employed without departing from the purview of my invention. It is also apparent that I have described an arrangement which is of relatively inexpensive construction and which may be very economical in manufacture and one in which the likelihood of parts becoming broken or worn out is reduced to a minimum.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to protect by Letters Patent is:

1. In a draft regulator of the character stated, a member adapted for connection with a flue pipe including a cylindrical neck portion adapted to be projected into a flue pipe and including a frusto-conical head portion having a centrally disposed circular opening provided therein, a movable cap member substantially a spherical segment in shape movable in a vertical plane interiorly of said frusto-conical portion for closing said opening, the lower annular edge portion of said last-named member being adapted for having abutting engagement with the upper annular edge of said frusto-conical portion interiorly thereof, a bracket carried by said frusto-conical portion including a substan-

5 tially U-shaped portion at the upper end thereof providing an arm portion, said bracket having an opening formed in the stem portion thereof and having a slot  
10 formed in said arm portion, a lever extended through said opening and said slot, means for connecting one end of said lever to said movable cap member, and adjustable means on the other end of said lever for counterbalancing said movable cap member.

2. In a draft regulator of the character stated, a member adapted for connection with a flue pipe including a cylindrical neck portion adapted to be projected into a flue pipe  
15 and including a frusto-conical head portion having a centrally disposed circular opening provided therein, a movable cap member substantially a spherical segment in shape movable in a vertical plane interiorly of said  
20 frusto-conical portion for closing said opening, the lower annular edge portion of said last-named member being adapted for having abutting engagement with the upper annular edge of said frusto-conical portion interiorly thereof, a bracket carried by said  
25 frusto-conical portion including a substantially U-shaped portion at the upper end thereof providing an arm portion, said bracket having an opening formed in the stem portion thereof and having a slot  
30 formed in said arm portion, a lever extended through said opening and said slot, said lever including an offset substantially V-shaped portion pivotally mounted in said  
35 opening providing a fulcrum whereby when said cap member is moved said lever will be pivoted on said fulcrum and guided in a vertical plane through said slot, means for connecting one end of said lever to said movable cap member, and adjustable means on  
40 the other end of said lever for counterbalancing said movable cap member.

In testimony whereof I affix my signature.

CARL O. STALEY.