F. J. BEERS & C. E. STAMP.

AUTOMATIC DRAFT REGULATOR FOR HEATERS.

APPLICATION FILED FEB. 6, 1918.

1,268,424.

Patented June 4, 1918.

FIG. 1.

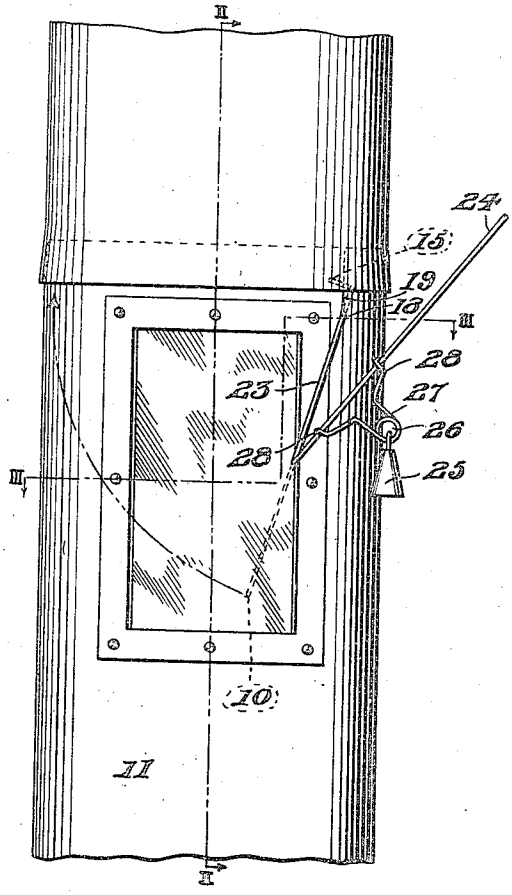


FIG. 2.

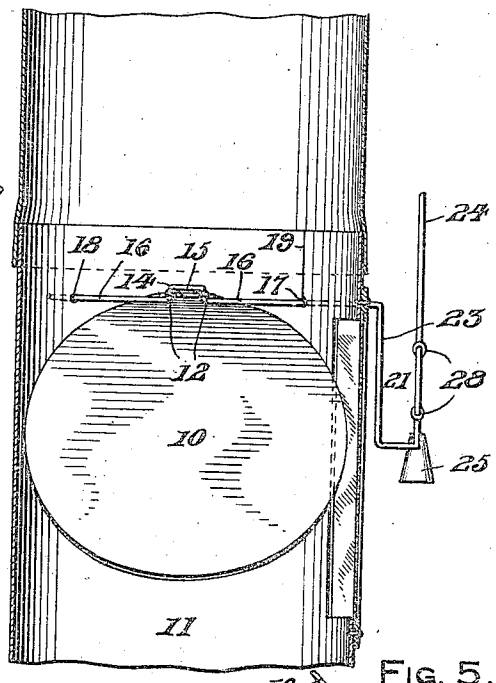


FIG. 5.

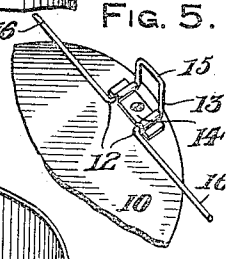


FIG. 4.

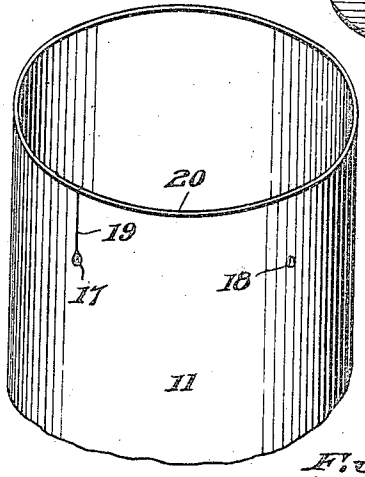
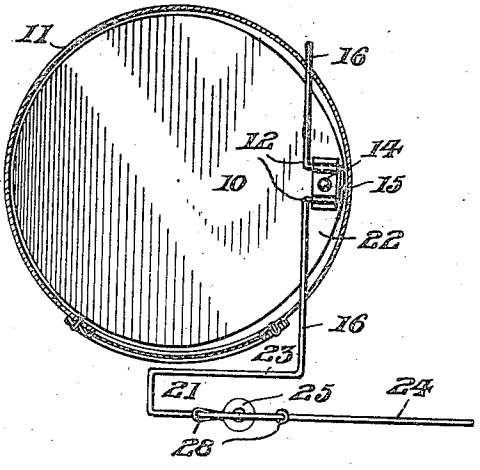


FIG. 3.



Inventors
F. J. Beers
C. E. Stamp

By T. O. L. Bryant,
Attorney

UNITED STATES PATENT OFFICE.

FLOYD J. BEERS AND CLARENCE E. STAMP, OF LOWMAN, NEW YORK.

AUTOMATIC DRAFT-REGULATOR FOR HEATERS.

1,268,424. Specification of Letters Patent. **Patented June 4, 1918.**

Application filed February 6, 1918. Serial No. 215,605.

To all whom it may concern:

Be it known that FLOYD J. BEERS and CLARENCE E. STAMP, citizens of the United States, residing at Lowman, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Automatic Draft-Regulators for Heaters, of which the following is a specification.

This invention relates to certain new and useful improvements in automatic draft regulators for heaters.

The primary object of the invention is the provision of a device adapted for the automatic regulation of the flue drafts of stoves, furnaces and other heating plants, thereby providing more perfect combustion of the fuel and a consequent increase in the efficiency of the plant.

A further object of the invention is to provide a device to conserve both fuel and heat by preventing a waste of heat as well as the overheating of the source of supply, the device rendering the plant more economical as well as safe in its operation.

A still further object of the device is the provision of a draft regulator that is easy and inexpensive to manufacture and may be quickly and readily assembled upon the combustion flue of any heating plant now in use, the device being capable of suitable regulation conforming to operating requirements.

With these general objects in view and others that will appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings and then claimed.

In the drawings forming a part of this application and in which like reference characters refer to corresponding parts throughout the several views,

Figure 1 is an elevational view of a joint portion of an outlet pipe or flue for a heating unit arranged with our device operatively assembled thereon.

Fig. 2 is a vertical sectional central view taken upon line II—II of Fig. 1.

Fig. 3 is a transverse sectional view of the same taken upon line III—III of Fig. 1.

Fig. 4 is a perspective view of the end portion of a length of stove-pipe showing the means by which our device is readily mounted therein and

Fig. 5 is a perspective view of the attaching portion of the damper.

It will be understood that our draft regulating device is serviceable in connection with any form of heating unit such as a stove or furnace, not shown, the invention broadly consisting of an automatically controlled damper herein illustrated at 10 positioned by way of example in the upright pipe or flue 11 of such heating unit.

The damper 10 is in the form of an oval or ovate disk having a trunnioning or hinging member 12, preferably formed of wire bent upon itself with a looped portion 13 secured to one face of the damper by means of a clip 14 with an upstanding portion 15 of the loop perpendicularly arranged with respect to the damper at the edge of the contracted end thereof and forming a limiting stop for the swinging movement of the damper.

The opposite side portion 16 of the trunnioning member 12 projects outwardly and is journaled in perforations 17 and 18 arranged in the flue 11 at one side of the damper and whereby the trunnioning member forms a chord of both the damper 10 and the flue 11.

Access is gained to one of the said perforations such as 17 by means of a slit 19 opening in the adjacent free edge 20 of the flue.

It will be understood that a U-shaped crank portion 21 is arranged upon one end of the trunnion member 16 exteriorly of the flue 11, adapted for purposes of regulation hereinafter fully described so that in the operation of assembling the device, the crank end of the trunnion 16 is positioned into the perforation 17 through the slit 19 after the other end of the trunnion 16 is slid through the other perforation 18 and with the damper 10 arranged within the flue 11. The attachment of the trunnion 12 to the damper 10 being adjacent one edge thereof at a contracted end 22 of the damper, it will be seen that the damper will normally depend in its open arrangement within the flue 11 as best indicated in Figs. 1 and 2 of the drawing, while it will also be apparent that when the damper is closed in its horizontal

position arranged as shown in Fig. 3, the shape of the damper permits sufficient space therearound for the outward passage of products of combustion through the flue. In this position of the damper, it will be seen that the stop portion 15 of the trunnion 12 engages the inner side of the flue 11 and as will be apparent from Figs. 1 and 2 of the drawing, an upper section or length of the flue 11 overlies the top of the lower length of the flue, thereby closing the slot 19.

It will be also apparent that the flue may be arranged horizontal instead of vertical if required and the damper 10 slightly changed accordingly in its mounting within the flue for operating in the same manner as herein set forth.

The inner portion or side 23 of the crank 21 is arranged in a plane parallel with the plane of the damper 10 so that the position of the damper may always be accurately ascertained by viewing the said side 23.

The outer side or length 24 of the crank 21 is bent rearwardly out of parallelism with the side 23 thereof and which arrangement is necessary for the slidable arrangement of the adjacent weight or counterbalance 25 thereon by means of a suitable adjustment or spring clamp 26.

The clamp 26 is formed of wire substantially V-shaped having a central loop 27 for giving resiliency to the clamp while its opposite ends are in the form of eyes or loops 28 slidably mounted upon the crank side 24 and by reason of the resiliency of the clamp the latter remains with its weight 25 at any adjusted position until such position has been manualy changed by the intention of the operator in charge. The entire device is noiseless in its operation and by the adjustment of the weight 25 upon the side 24, the damper 10 may be normally maintained wherever desired, such as partially closed for maintaining a uniform draft through the flue 11 for the fire being controlled. It will at once be apparent that the device may be easily and cheaply installed upon any stove-pipe or flue when desired.

The positions of the perforations 17 and 18 may be readily ascertained when installing the device by measuring upon the trunnion member 16 when positioned above the length of flue 11, the flue being readily slitted as at 19 and the pipes assembled after the damper has been positioned therein. A great saving of coal and fuel is accomplished by employing the device especially in windy weather and at which times the excessive out-draft tends to close the damper preventing any influence upon the burning fire. This automatic moving of the damper 10 to or toward its closed position under the influence of any excessive or sudden draft maintains a draft of uniform volume for a fire, maintaining an even temperature within the place being heated and preventing loss of heat through the flue as well as greatly saving the fuel which is employed.

While the form of the invention herein shown and described, is what is believed to be the preferred embodiment thereof, it is nevertheless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

What we claim as new is:—

1. An automatic controller comprising in combination with a flue, an ovate damper arranged therein having a contracted end, a trunnion member journaled through the flue and attached adjacent the contracted end of the damper with a looped stop-portion at the edge of the damper projecting at right angles to the damper adapted for engaging the inner surface of the flue when the damper is swung to its transverse position therein.

2. An automatic controller comprising in combination with a flue, an ovate damper arranged therein having a contracted end, a trunnion member journaled through the flue and attached adjacent the contracted end of the damper with a looped stop portion at the edge of the damper projecting at right angles to the plane of the damper adapted for engaging the inner surface of the flue when the damper is swung to its transverse position therein, a crank upon said trunnion member exterior of the flue having its inner side in the same plane as the damper and its outer side arranged in a different plane and a counterbalanced weight adjustably slidably mounted upon the said outer side of the crank.

3. An automatic controller comprising in combination with a flue, an ovate damper arranged therein having a contracted end, a trunnion member journaled through the flue and attached adjacent the contracted end of the damper with a looped stop portion at the edge of the damper projecting at right angles to the plane of the damper adapted for engaging the inner surface of the flue when the damper is swung to its transverse position therein, a crank upon said trunnion member exterior of the flue having its inner side in the same plane as the damper and its outer side arranged in a different plane, a resilient V-shaped clamp having looped ends slidably positioned upon the outer side of the crank and arranged with a central resilient coil and a counterbalancing weight swingingly attached to the coil of the said clamp, whereby the damper is normally arranged in its adjusted position.

4. A device of the class described comprising in combination with a flue having perforations adjacent one end thereof and with an entrance slit for one of said perforations, a trunnion wire journaled in said perforations and having a central loop portion

forming a stop within the flue, an ovate damper disk attached adjacent the loop portion of the trunnion wire within the flue adapted for providing clearance between the damper and flue when the damper is arranged transversely of the flue, said trunnion wire having a U-shaped crank exteriorly of the flue with one side of the crank arranged in different plane than the damper and normal positioning means for the damper longitudinally adjustably carried by the said side of the crank.

In testimony whereof we affix our signatures.

FLOYD J. BEERS.
CLARENCE E. STAMP.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."