Aug. 25, 1942. W. A. WALTHERS 2,293,956

DRAFT REGULATOR

Filed March 26, 1941

Fig. 1

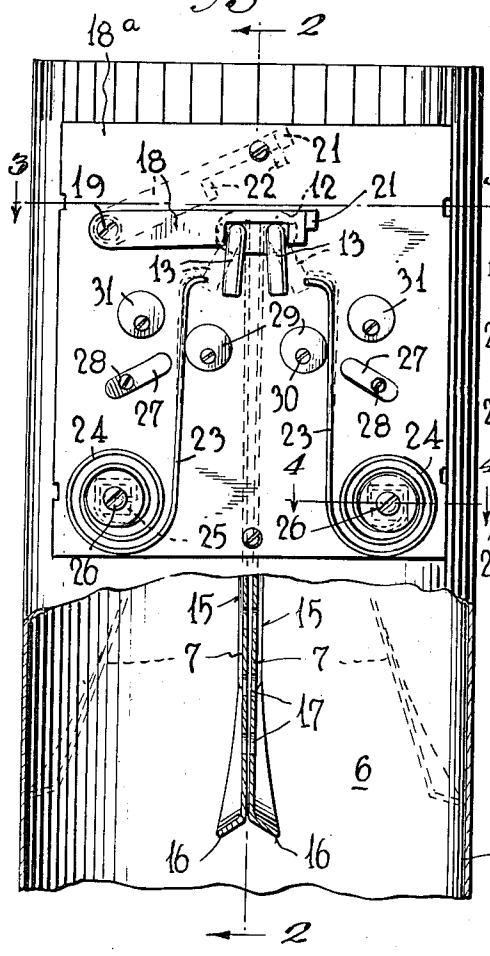


Fig. 2

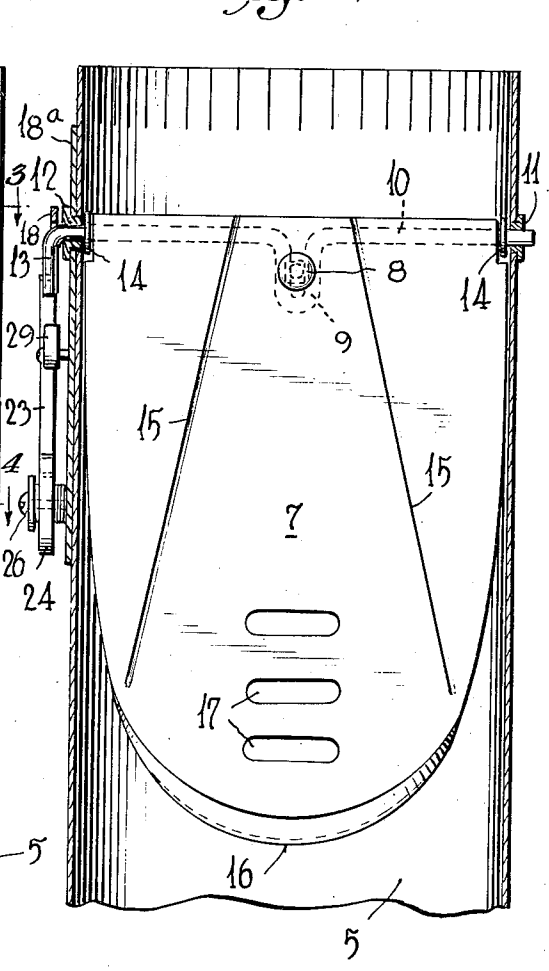


Fig. 3

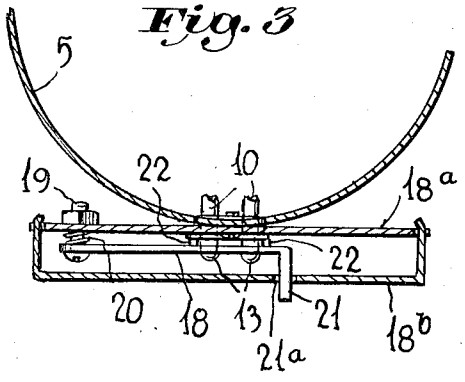
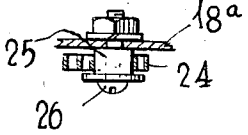


Fig. 4



Inventor

W. A. Walthers,

By Seymour, Bright & Nottingham

Attorneys

Patented Aug. 25, 1942 2,293,956

UNITED STATES PATENT OFFICE

2,293,956

DRAFT REGULATOR

William A. Walthers, Dalton, Wis.

Application March 26, 1941, Serial No. 385,369

2 Claims. (Cl. 137—152)

This invention relates to improvements in dampers or draft regulators and while the device is particularly applicable to stove pipes, it will be observed that it may be employed wherever a gaseous fluid is passed through a conduit.

One of the objects of the invention is to provide an automatic damper responsive to suction and draft and which may be held in closed position by the air or gas in the stove pipe or passageway.

Another object is to provide damper controlling means which may be adjusted to render the damper very sensitive to currents passing through the pipe or conduit.

A further object is to furnish a damper device which may be locked in open position when desired.

Another important object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

With the foregoing objects outlined and with other objects in view which will appear as the description proceeds, the invention consists in the novel features hereinafter described in detail, illustrated in the accompanying drawing, and more particularly pointed out in the appended claims.

In the drawing:

Fig. 1 is a side elevation of a stove pipe, partly in vertical section and showing my improvements applied thereto.

Fig. 2 is a sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a horizontal section on line 3—3 of Fig. 1 of a fragment of the pipe and illustrating in elevation the latch which I employ to hold the damper in open position.

Fig. 4 is a horizontal sectional view of a detail taken on the line 4—4 of Fig. 1.

Referring to the drawing, 5 designates a stove pipe forming a passageway 6 in which I arrange a pair of suspended metal panels 7. Each panel is secured at its upper end, by any suitable means such as a stove bolt 8, to the U-shaped medial portion 9 of a rockable rod 10. The rods are arranged parallel to one another and extend substantially diametrically across the passageway 6, and each rod has its end portions journaled in the wall of the pipe. For example, one end is journaled in a nut or support 11 and the opposite end in a plate 12. The latter end terminates in a depending element or handle 13. Washers 14 are arranged on each rod adjacent the ends thereof to prevent the side edges of the panels from scraping against the interior of the pipe.

Each panel is preferably provided with one or more corrugations 15 for stiffening purposes, and the lower end of each panel terminates in a lip 16 which has a curved edge to snugly engage the inner surface of the pipe when the damper is in closed position.

To prevent the panels from fluttering due to air or gas currents while the panels are in closed position, each panel is provided with one or more apertures 17.

In order to hold the panels in open position when desired, I arrange a latch 18 on a plate 18a secured to the exterior of the pipe. One end of the latch is pivotally connected to the plate by a stove bolt 19 or the like, and a coil spring 20 surrounds the bolt between the plate and the latch to provide friction means to hold the latch in any position to which it has been moved.

The opposite end of the latch terminates in an outwardly extending handle 21. Fingers 22 extend from the latch toward the plate and are adapted to embrace the handles 13 to prevent the latter from swinging upwardly, so as to hold the panels in open position.

In order to regulate the closing of the panels when the latch is in raised position, each handle 13 is associated with a combined leaf and coil spring, the leaf of which is indicated at 23 and the coil at 24. The coil, at best shown in Fig. 4, is wound about the square portion of a flanged hub 25 secured to the plate by a bolt 26 which may be loosened to allow the hub to be turned by its flange to increase the tension of the spring. After the tension is properly adjusted, of course, the bolt can be tightened.

The leaf portion of each spring is tensioned in its movement in one direction by an adjustable stop 27 secured to the plate by a stove bolt 28. Movement of the leaf in the opposite direction is limited by an eccentric 29 which is adjustably secured to the plate by means of a stove bolt 30. It is obvious that when the bolt 28 is loosened, the stop 27 may be turned about the axis of the bolt for adjustment purposes, and it is also evident that the stove bolt 30 will permit the eccentric 29 to be turned for adjustment purposes. Other adjustable eccentrics 31 which are turnably mounted on the plate above the stops 27 function as abutments to prevent the damper panels from moving beyond predetermined degrees toward closed position. The parts 25, 27, 29 and 31 permit fine adjustments to be made. Where there is very little draft required, the eccentrics 29 can be set back so as to give the panels a chance to spread and close part of the

passageway 6 before the fingers 13 come in contact with the leaves 23 of the springs. The resistance of the springs will then come into play when the suction becomes greater due to the opening through the passageway becoming suddenly smaller. When the springs make contact with the stops 27, more tension will be exerted on the springs. It will thus be understood that the various adjustable features enable the damper to be regulated so as to automatically control the damper regardless of draft conditions.

The plate or instrument board 18*a*, as best shown in Fig. 3, is preferably provided with a flanged cover 18*b* having a slot 21*a* through which the latch handle 21 projects so that the latter may be actuated by the operator from the exterior of the instrument board while the instruments themselves are concealed.

While I have disclosed what I now consider to be a preferred embodiment of the invention, it is manifest that changes may be made in the details illustrated without departing from the spirit of the invention as expressed in the claims.

What I claim and desire to secure by Letters Patent is:

1. In a structure of the type having a smoke conducting passageway, a pair of damper panels arranged in the passageway, substantially parallel rock shafts extending across the passageway, each panel having one of its ends secured to one of the rock shafts, the free ends of the panels being adapted to swing away from one another to retard the flow of smoke through the passageway, the improvement which comprises crank handles on the shafts arranged exteriorly of the passageway, spring means cooperating with the handles to resist movement of the free ends of said handles away from one another, and a latch mounted on the exterior of the passageway and adapted to clasp said handles for latching the panels in open position.

2. In a structure of the type having a smoke conducting passageway, a pair of damper panels arranged in the passageway, substantially parallel rock shafts extending across the passageway, each panel having one of its ends secured to one of the rock shafts, the free ends of the panels being adapted to swing away from one another to retard the flow of smoke through the passageway, the improvement which comprises a pair of elements fixed to the shafts and arranged exteriorly of the passageway, a plate arranged exteriorly of the passageway, and means for resisting movement of each of said elements, said means comprising a combined coil and leaf spring mounted on the plate, the leaf of the spring having a free end adapted to be engaged by said element for resisting movement of the latter in one direction, adjustable stops mounted on the plate and positioned at opposite sides of the medial portion of the leaf to tension the latter, another adjustable stop arranged to be engaged by the free end portion of the leaf to limit movement of said element in said direction, and winding means for the coil of said spring.

WILLIAM A. WALTHERS.