

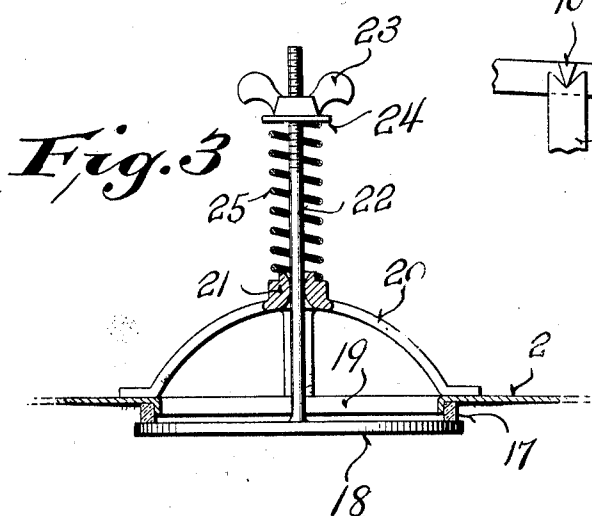
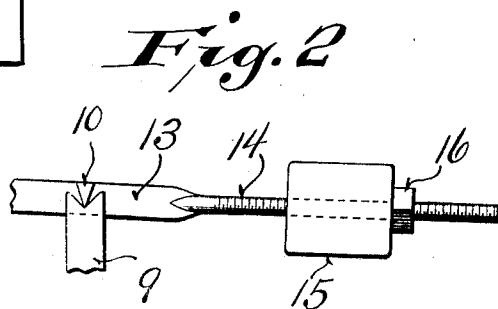
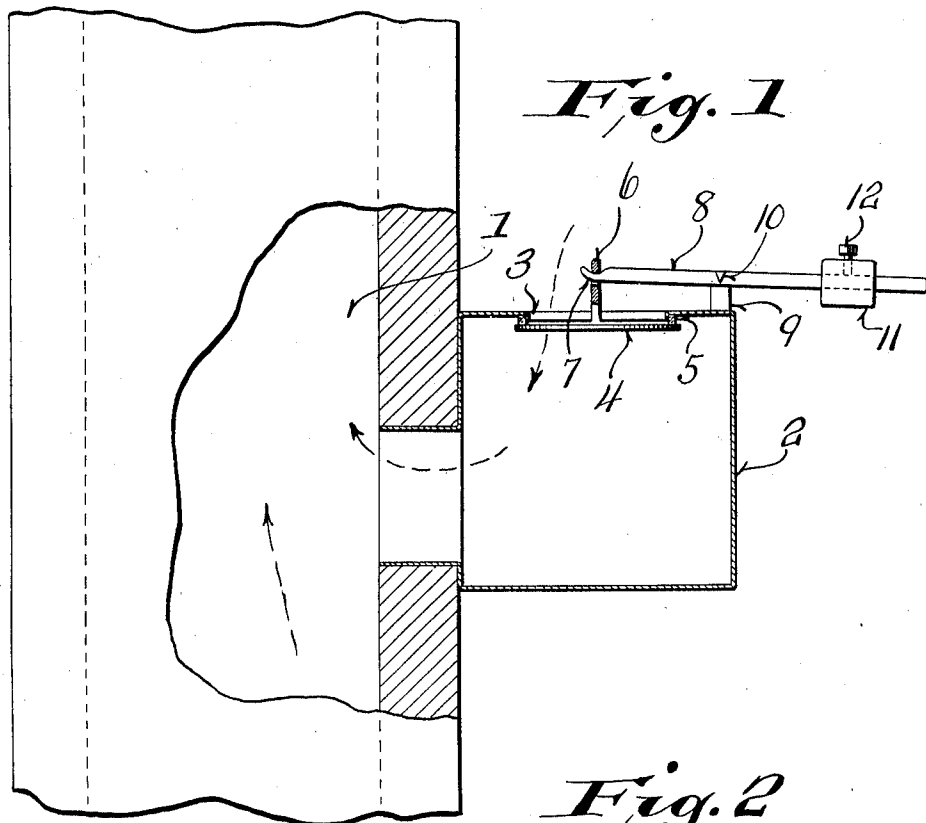
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G. NEUMANN

AUTOMATIC DAMPER

Filed April 18, 1925



Erworbener:
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UNITED STATES PATENT OFFICE.

GEORGE NEUMANN, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE NEUMANN FUEL SAVER CO., OF MILWAUKEE, WISCONSIN.

AUTOMATIC DAMPER.

Application filed April 18, 1925. Serial No. 24,189.

This invention relates to adjustable dampers.

In flues connected to furnaces it frequently happens that the draft fluctuates between wide values and consequently the action of a furnace connected to the flue cannot be accurately controlled. For example, if furnaces are connected to a single flue and operated in this manner, the variation in one furnace will necessarily affect the draft for the other furnaces. Also a high wind materially increases the draft through the flue and varies the action of the furnaces.

This invention is designed to provide an automatic damper in the nature of a valve which is so balanced and adjusted that it will automatically control the suction or draft in the flue and will prevent such draft from exceeding a predetermined limit.

Embodiments of the invention are shown in the accompanying drawing, in which:—

Figure 1 is a sectional view showing the device attached to a flue.

Figure 2 is a view to an enlarged scale of a detail of the construction illustrating a modified form.

Figure 3 is a further view of a modified form.

Figure 1 shows a flue 1 which is in communication with a casing 2 of box-like construction. In the form shown in Figure 1, the casing is provided with a relatively large aperture 3 through its upper wall, and a disk-like valve 4 is positioned below such aperture and is adapted to close it. A gasket 5 is employed to act as a sealing ring, and insure a tight joint when the valve is closed.

The gasket is composed of yielding material having a flat face adapted to contact with a corresponding flat face of the floating disc-like valve 4.

It has been found that when the face of the gasket contacts with the disc-like valve a slight vacuum develops in a cohesion of these two parts.

Owing to the cohesion of the valve, it thus requires a greater force to initially dislodge it than to maintain the device open after the valve member has been dislodged. The gasket, therefore not only serves to cushion the device and render it quiet in operation, but also avoids the constant chatter to which devices of this type are subjected, due to the

rapid and light spasmodic puffs of air caused by variable atmospheric conditions.

The disk is provided with an eyelet portion 6 projecting upwardly therefrom, and such eyelet portion is suspended from the hooked end 7 of a lever 8. The case 2 carries a pair of projections 9 upon which the knife edge supports or trunnions 10 of the lever are adapted to rest. The outwardly projecting end of the lever slidably carries a weight 11 which may be slipped to the desired point and locked in adjusted position by means of a set screw 12.

Figure 2 shows a modified form of construction in which the lever 13 corresponding to the lever 8 is provided with a threaded extension 14 which screws into a weight 15. A suitable lock nut is indicated at 16 and is adapted to lock the weight in adjusted position. If desired, the supports 9 for the knife bearings or trunnions 10 may be notched, as shown in Figure 2, to more securely retain the trunnions in position.

In the modified form shown in Figure 3, substantially the same general construction is followed as that previously described. The casing 1 is provided with an opening surrounded by a gasket 17 adapted to be engaged by a disk 18. A convenient way of carrying the gasket is to turn a flange 19 adjacent the aperture through the casing in the form shown in Figures 1 and 3.

In the modified form illustrated in Figure 3, a spider-like bracket 20 extends outwardly from the casing and is provided with a guiding hub 21 through which the valve stem 22 loosely passes. If desired, the hub 21 may be provided with an opening which is flared at its opposite ends for the reception of the valve rod, as shown, to reduce the friction and to permit slight adjustment of the valve without binding at the guiding hub 21. A wing nut 23 is screwed upon the threaded upper end of the valve stem 22 and presses a washer 24 against a light compression spring 25.

Obviously, the adjustment of any of these devices may be very accurately made and consequently the point at which the valve will open may be accurately determined.

In operation the valves open when the draft exceeds a predetermined value and consequently tend to maintain a relatively uniform operation of the flue. This is high-

ly desirable and aids in the correct operation of furnaces connected with the flue.

It will be seen, therefore that although the device is extremely simple and may be cheaply manufactured that nevertheless, it functions in a purely automatic manner, and secures a very desirable and long sought for result in flue construction.

Although the invention has been described in considerable detail, it is to be understood that the invention may be variously embodied and is, therefore, to be limited only as claimed.

I claim:

15 The combination of a flue for a furnace and draft regulating device comprising a casing communicating with said flue and having a top member provided with an opening, a floating disc-like valve member
20 adapted to close the opening in the top mem-

ber or to move downwardly from said top member, one of said members having an annular lip, a resilient gasket surrounding the lip and adapted to contact with the other of said members, said gasket having a flat contact surface, whereby the aforesaid gasket and the other member tend to cohere when contacting to require a greater initial force to open the device than is necessary to maintain the device open, a bearing projecting from the casing, a lever pivoted thereto and having an inner end supporting the floating member, and an adjustable weight carried by the outer end of said lever. 25 30

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin. 35

GEORGE NEUMANN.