

Sept. 26, 1933.

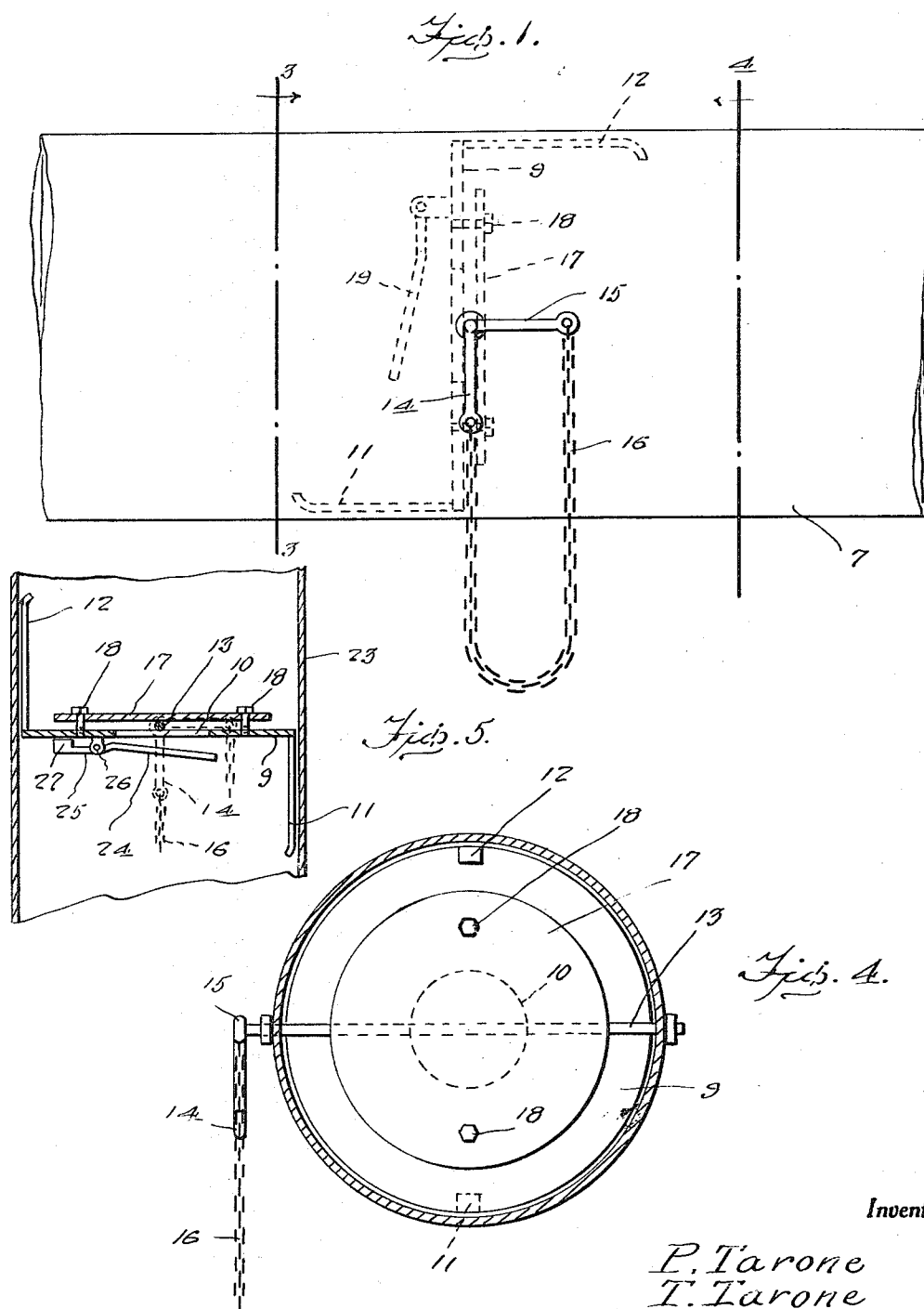
P. TARONE ET AL

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AUTOMATIC DRAFT CONTROL DAMPER

Filed April 18, 1933

2 Sheets-Sheet 1



Sept. 26, 1933.

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2 Sheets-Sheet 2

Fig. 2.

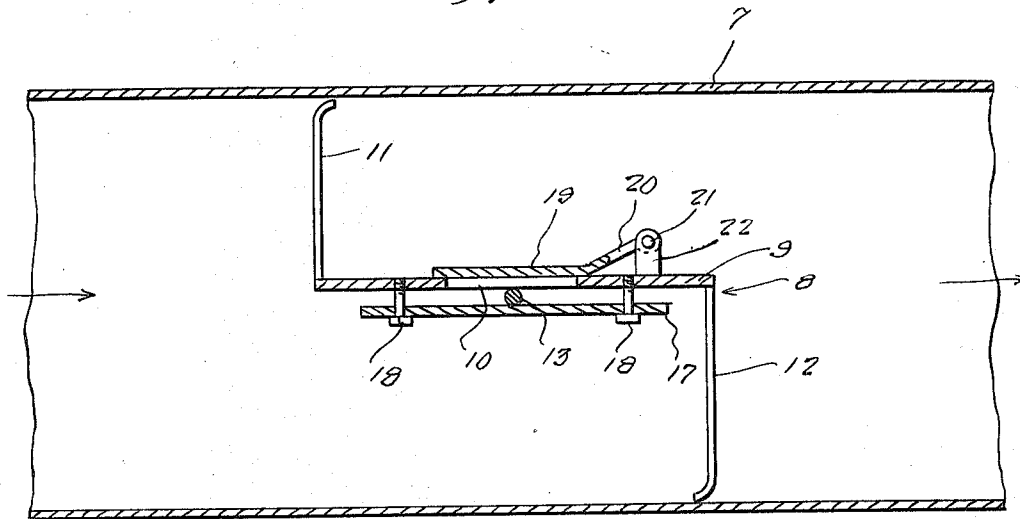


Fig. 3.

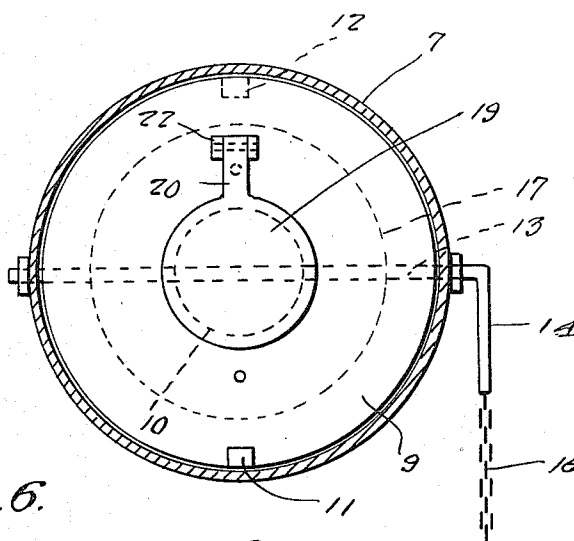
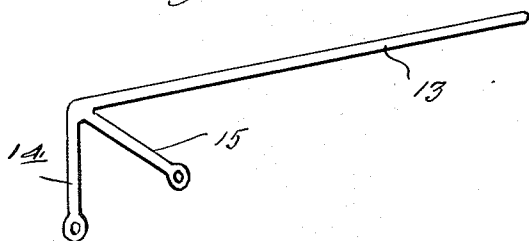


Fig. 6.



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AUTOMATIC DRAFT CONTROL DAMPER

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2 Claims. (Cl. 126—285)

This invention relates to an improved damper ingeniously designed and adapted to regulate and control the draft on currents in the combustion and draft circulation conduit of boilers, furnaces and the like.

Our primary aim is to structurally improve upon devices heretofore used for this purpose by providing a unique and characteristically different device calculated to better fulfill the purposes of an invention of this class.

In perfecting the embodiment of the invention intended to fulfill the requirements of our aims we have evolved and produced an assembly of properly selected and coordinated features designed to promote efficiency, dependability, economy and to otherwise assure uniform draft control and consequent superior heating conditions.

Other features and advantages will become more readily apparent from the following description and drawings.

In the drawings:

Figure 1 is an elevational view of the improved damper constructed in accordance with the principles of the present invention showing it installed in a horizontally disposed conduit or pipe.

Figure 2 is a longitudinal sectional view thereof with the damper swung to complete open position.

Figures 3 and 4 are transverse or cross sectional views taken approximately on the planes of the lines 3—3 and 4—4 respectively of Figure 1.

Figure 5 is a view in section end elevation showing a slightly modified form of the invention installed in a vertically disposed draft pipe.

Figure 6 is a perspective view of the oscillatory rocker shaft.

Attention is first invited to Figures 1 to 4 inclusive wherein it will be observed that the numeral 7 designates the draft circulation pipe. The improved damper as a unit is distinguished by the numeral 8. The primary part thereof comprises a disk 9 of a diameter to fit swingably within the pipe 7. This is formed with a central aperture 10. Moreover at diametrically opposite points it is formed with right angularly disposed oppositely extending stop fingers 11 and 12. The free ends of these fingers are slightly curved in the manner shown. The fingers are of a length to strike the inside of the pipe in the manner shown in Figure 2 so as to limit the swinging movement of the disk in its opening position. The disk is attached to a centrally disposed horizontally arranged rocker shaft 13 mounted for

oscillation in appropriate bearings in the pipe in the customary manner. This rocker shaft as shown in Figure 6 is formed at one end with a pair of rocker arms 14 and 15 to which an operating chain 16 may be connected as shown in Figure 1 for convenient actuation. When the rocker arm 14 is in a perpendicular position as shown in Figure 1 this indicates that the damper is closed. When however the chain 16 is pulled down and the arm 15 is moved around to a perpendicular position this indicates that the damper is open or in the position shown in Figure 2.

A relatively small baffle disk or plate is indicated by the numeral 17 and this is clamped against the rocker shaft 13 by a pair of diametrically opposed screws or bolts 18 as indicated clearly in Figure 2. This disk 17 is clamped against the exit side of the disk 9 so as to retard the movement of the effluent air and gases. It also constitutes a shield or guard reacting against the violent down draft such as would otherwise prove damaging to the source of heat. It will be noticed that this baffle disk or plate 17 is somewhat smaller in diameter than the main disk 9.

On the opposite side of the disk 9 is an automatic throttling check valve. This comprises a disk like shutter slightly larger in diameter than the central aperture, said shutter being distinguished by the numeral 19 and having an arm 20 pivotally mounted as at 21 between a pair of attaching lugs or ears 22 carried by the plate 9 and located eccentrically of the opening 10. Naturally when the damper as a unit is swung to open position as shown in Figure 2 this shutter drops down to a closing position. When however the damper swings to its full closed position as shown in Figure 1 the shutter 19 gravitates automatically to open position, that is, a position uncovering the aperture 10. Manifestly when the effluent currents become excessive or abnormal the pressure set up automatically swings the shutter 19 to a closed or partly closed position depending upon the degree of pressure generated at the time. This is the automatic feature of the invention, it being understood that the damper proper is moved to either open or closed position by the chain 16 and cooperating arms 14 and 15.

The construction illustrated in the vertically disposed pipe 23 in Figure 5 is identical with that already described except for the automatic check or valve feature. Thus the corresponding parts are designated by corresponding numerals. The valve or shutter is here distinguished by the numeral 24 and is sufficient to cover the aperture 10. It embodies a mounting arm 25 which is

pivotaly suspended as at 26 between appropriate hanger lugs. The arm is formed at its free end with a counter weight 27. Under this arrangement the shutter 24 normally assumes an open position and is swung automatically to closed position when sufficient pressure is built up therebeneath by escaping gases.

The gist of the invention is in the provision of a horizontally disposed rocker shaft with suitable external operating means, a centrally apertured main disk carried thereby and located for limited swinging movement in the pipe, a centralized baffle disk on the escape side, and an automatic pivotally mounted pressure controlled check valve on the opposite side of the main disk. Thus constructed the device serves as a unit to effectively control the draft and to insure uniform combustion and more satisfactory heating results.

A careful consideration of the foregoing description in conjunction with the illustrative drawings will enable the reader to obtain a clear understanding of the purpose, features and advantages, the explicit construction, and the invention as hereinafter claimed.

It is to be understood that minor changes in shape, size, relative proportions, and materials may be resorted to in practice without departing

from the spirit of the invention or the scope of the invention as now claimed.

Having thus described our invention, what we claim as new is:

1. In a structure of the class described in combination a draft pipe, a rocker shaft mounted for oscillation therein, operating means for said rocker shaft, a centrally apertured main disk carried by said rocker shaft and confined in said pipe, a baffle plate mounted on one side of the apertured portion of said disk in spaced parallelism to the disk, and an automatic draft responsive check valve mounted on the opposite side of said disk.

2. In a structure of the class described, a pipe, an oscillatory rocker shaft mounted for rotation in said pipe, a centrally apertured disk carried by said rocker shaft and provided with diametrically opposed oppositely pointing stop fingers, a baffle plate, bolts clamping the baffle plate in spaced parallelism with said disk at a point opposite the central aperture, and a draft responsive check valve comprising a shutter disposed on the opposite side of said disk.

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