No. 789,132. PATENTED MAY 9, 1905.

F. E. BACHMAN.

CHIMNEY VALVE.

APPLICATION FILED JAN. 6, 1905.

2 SHEETS—SHEET 1.

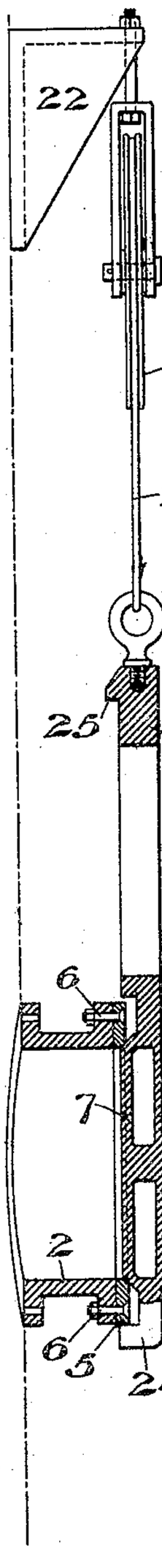


Fig. 1.

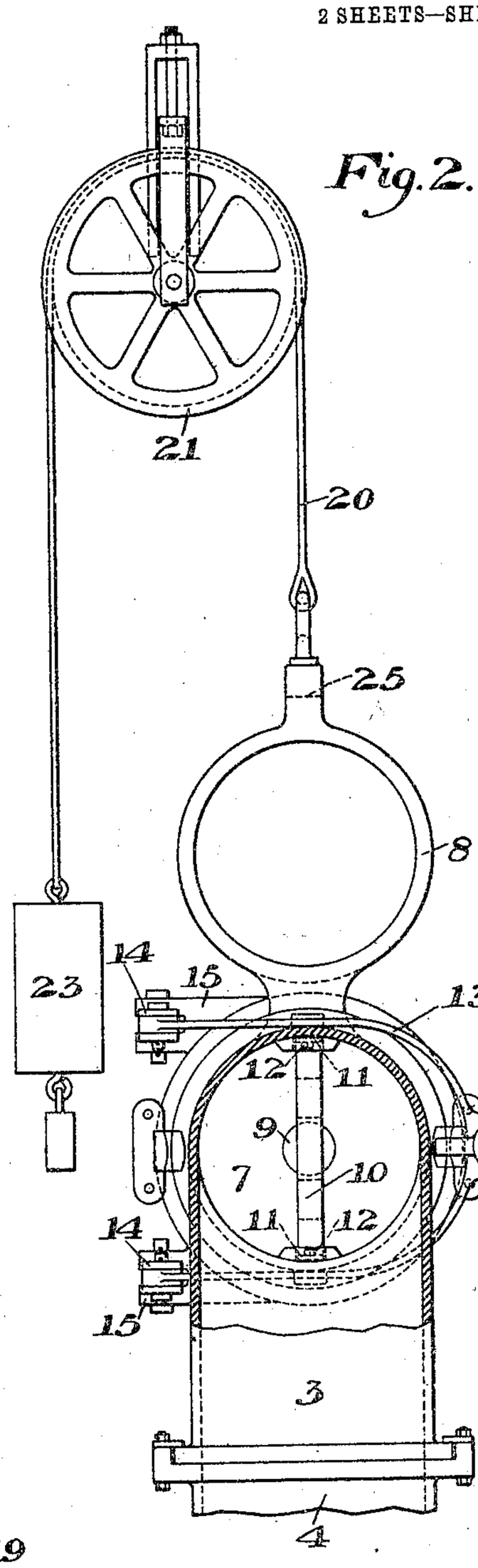


Fig. 2.

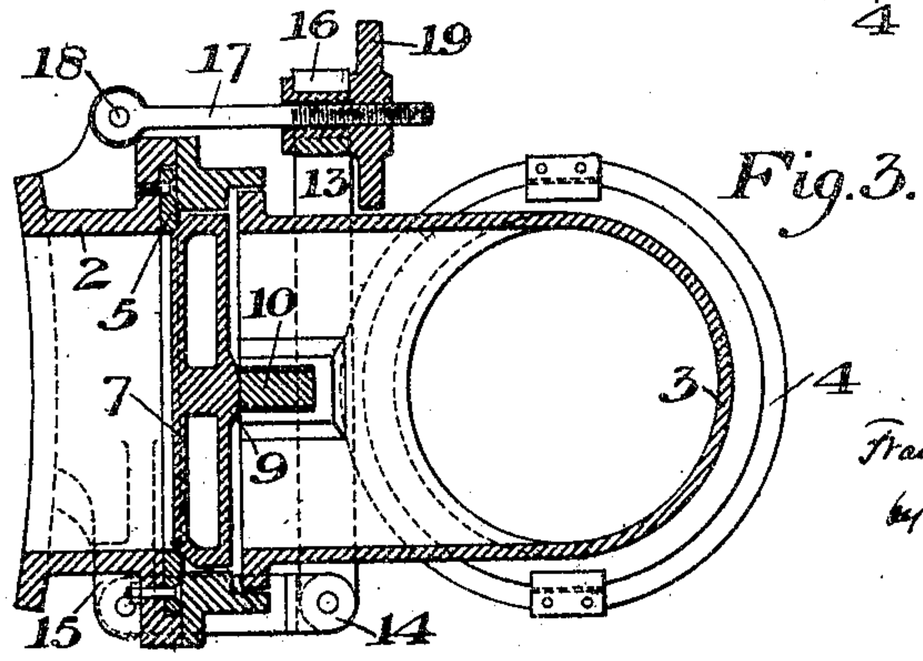


Fig. 3.

WITNESSES

Warren W. Swartz

H. M. Downie

INVENTOR

Frank E. Bachman

by Bakewell & Byrnes

his Attys

No. 789,132. PATENTED MAY 9, 1905.

F. E. BACHMAN.

CHIMNEY VALVE.

APPLICATION FILED JAN. 6, 1905.

2 SHEETS—SHEET 2.

Fig. 4.

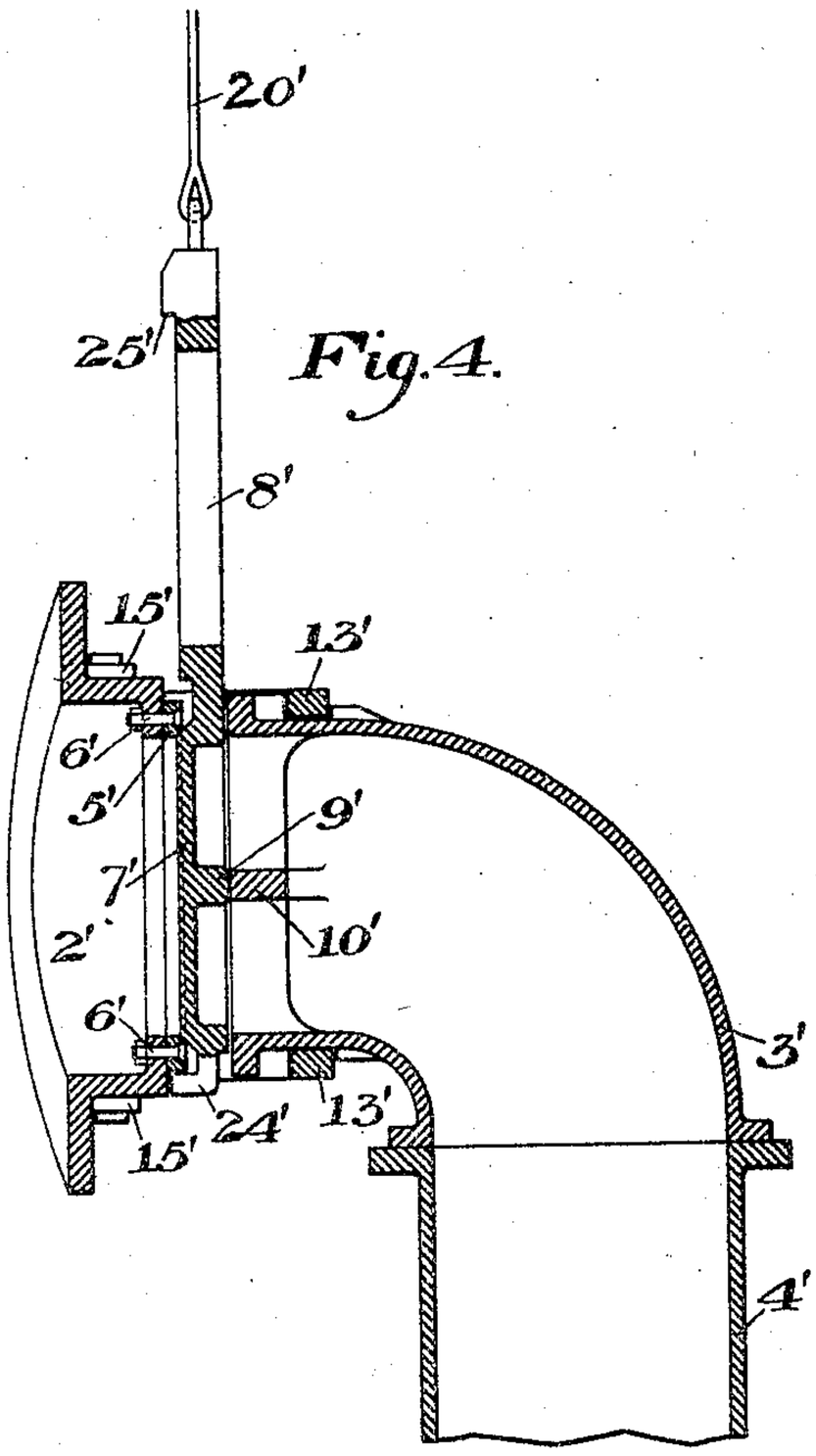


Fig. 5.

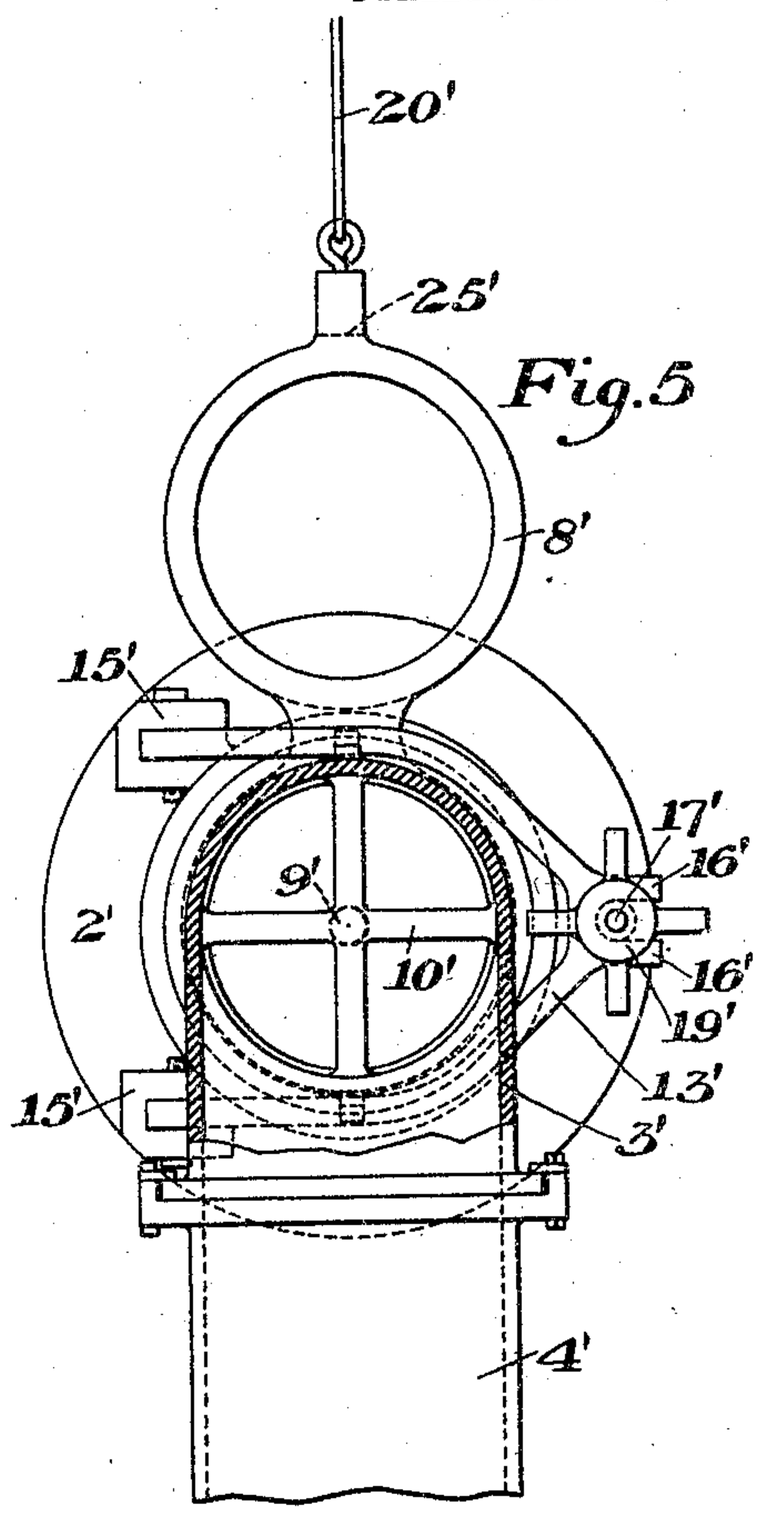
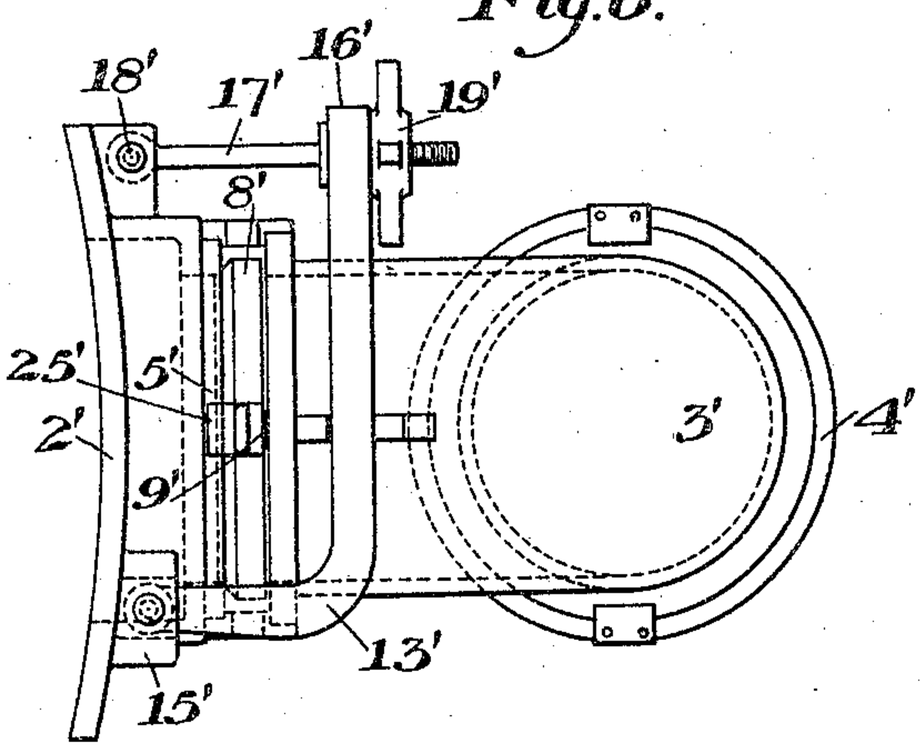


Fig. 6.



WITNESSES

Warren W. Swartz

H. M. Corwin

INVENTOR

Frank E. Bachman

by Bakewell & Symes

his attys

No. 789,132. Patented May 9, 1905.

UNITED STATES PATENT OFFICE.

FRANK E. BACHMAN, OF PORT HENRY, NEW YORK.

CHIMNEY-VALVE.

SPECIFICATION forming part of Letters Patent No. 789,132, dated May 9, 1905.

Application filed January 6, 1905. Serial No. 239,858.

To all whom it may concern:

Be it known that I, FRANK E. BACHMAN, of Port Henry, Essex county, New York, have invented a new and useful Chimney-Valve, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section of a chimney-valve constructed in accordance with my invention. Fig. 2 is a vertical cross-section, and Fig. 3 is a horizontal section, of the same. Fig. 4 is a partial vertical longitudinal section showing a modified form. Fig. 5 is a vertical cross-section of the form of Fig. 4, and Fig. 6 is a plan view showing the clamping device of this form.

My invention relates to the class of spectacle-valves for hot-blast stoves or furnaces, and is designed to provide an improved construction and arrangement of such valves.

The invention consists in providing a counterweight system for the valve, in shifting the flue-section to clamp the valve, in providing stops for the valve in open and closed position, and, further, in the construction and arrangement of the parts, as hereinafter more fully described and claimed.

In the drawings, referring to the form of Figs. 1, 2, and 3, 2 represents a flue-section leading from a hot-blast stove into an elbow-section 3, which is movable upon the flue connection 4. The section 2 is provided with a removable valve-seat 5, secured by screw-bolts 6 and preferably having an inner beveled edge which coacts with the beveled annular face of the closed disk portion 7 of the spectacle-valve. This closed disk portion is preferably cast integral with the open eye portion 8 of the valve and is provided at the center of one face with a projecting boss 9, against which a cross-bar 10 in the elbow 3 is forced to clamp the valve in closed position. This cross-bar is preferably removable from the elbow and is held by small levers 11, removably secured by screws 12. In order to force the elbow-section toward the flue-section 2 and clamp the valve in closed position, I provide a U-shaped swinging yoke 13, whose legs in the form shown are pivoted to links 14, which may be pivotally secured to lugs 15 on the stove-section 2. The legs of this yoke extend between oppositely-arranged lugs on the flue-section 3, as shown in Fig. 1, and the curved portion of the U is provided with lugs 16, between which extend a swinging clamping-bolt 17, pivoted to the section 2 at 18 and provided with nut 19. In order to counterbalance the weight of the valve either partially or wholly, I suspend it upon a flexible rope or chain 20, which extends over a pulley or sheave 21, pivotally hung from a bracket 22 on the stove and provided with a counterweight 23. To hold the valve in open position or closed position, I provide end stops or lugs 24 and 25 at its upper and lower ends, which will contact with the flue-section 2 and stop the valve in proper place. I have shown the valve in closed position. In opening it the nut 19 is unscrewed to loosen the valve from its seat and force the cross-bar away from the valve, and the counterweight is raised until the disk-opening stops in registry with the flues. In closing the valve the counterweight is lowered until the valve is stopped with its solid disk portion in registry with the flue, when the nut is tightened, thus forcing the elbow-section forward and causing the cross-bar to press upon the boss of the valve, forcing it to its seat.

In Figs. 4, 5, and 6 I show another form in which the cross-bar 10′ is formed integrally with the elbow-section 3′ and is in the form of a skeleton cross with its central portion bearing upon the projection 9′ of the closed portion of the valve. In this form the legs of the yoke 13′ are bent and pivoted directly between lugs 15′ on the flue-section 2′. In this form parts similar to those of the first form are designated by similar numerals with the prime-mark applied.

Where the cross-bar is removable it is preferably slightly shorter than the internal diameter of the elbow to prevent breakage or distortion due to expansion of the cross-bar under the heat.

The advantages of my invention will be apparent to those skilled in the art. A single

motion frees the valve from its seat and from the elbow, so that the valve may be opened and closed in much less time than other valves of the exterior type. The moving of the elbow carries the clamp away from the valve and the elbow back from the valve. As the valve is an outside one, leaks can be easily seen, while the valve is easily moved owing to its counterbalancing. The construction is simple and effective and gives an efficient clamping action without perforating the elbow-section.

A cam may be used instead of the screw for operating the clamp and many other variations may be made in the form and arrangement of the parts without departing from my invention.

I claim—

1. A spectacle-valve for furnace-flues, having means for sliding it bodily endwise in the direction of its major axis, and means for clamping the valve in closed position against its seat; substantially as described.

2. A spectacle-valve for furnace-flues arranged to slide endwise in opening and closing, means for clamping the valve in closed position against its seat, and a counterweight connected to said valve; substantially as described.

3. In a furnace-valve, a movable flue-section, a spectacle-valve, and a cross-piece in the flue-section arranged to bear against the valve and force it against its seat; substantially as described.

4. In a furnace-valve, a movable flue-section having an internal cross-bar, a spectacle-valve having a closed disk portion against the center of which the cross-bar acts, and a clamping device for forcing the flue-section and cross-bar against the valve; substantially as described.

5. In a furnace-valve, a movable flue-section having an internal cross-piece, a spectacle-valve upon which the cross-piece bears, and a swinging yoke engaging the flue-section and arranged to force the valve against its seat; substantially as described.

6. In a furnace-valve, a vertically-sliding spectacle-valve, a flexible connection leading therefrom to a counterweight, a shiftable flue-section having an internal cross-bar bearing on the valve, and a clamping device arranged to force the flue-section and cross-bar against the valve to press it against its seat; substantially as described.

7. A spectacle-valve for furnace-flues having means for sliding it bodily endwise in the direction of its major axis, stops arranged to stop the valve in opened and closed positions, and means for clamping the valve against its seat; substantially as described.

8. The combination with a spectacle-valve, of means for sliding it bodily and longitudinally of its major axis, a stop arranged to stop the valve in closed position, and means for clamping the valve against its seat; substantially as described.

9. A furnace-valve movable transversely of a flue into and out of closing position, a clamping device carried on a flue-section, and means for moving the flue-section and clamping device simultaneously toward and from the valve; substantially as described.

10. The combination with an external furnace-valve, of a seat and elbow therefor, and connections arranged to free the valve from both the seat and elbow at one motion; substantially as described.

11. In a furnace-valve, a movable flue-section having an internal separate cross-bar, the flue-section being arranged to allow for endwise expansion of the bar, and a movable valve against which the bar may be pressed; substantially as described.

In testimony whereof I have hereunto set my hand.

FRANK E. BACHMAN.

Witnesses:

T. I. GOBEL,

LEWIS D. FRAUNFELDER.