No. 856,603. PATENTED JUNE 11, 1907.

W. F. RUST.

CHIMNEY VALVE FOR HOT BLAST STOVES.

APPLICATION FILED JUNE 8, 1906.

2 SHEETS—SHEET 1.

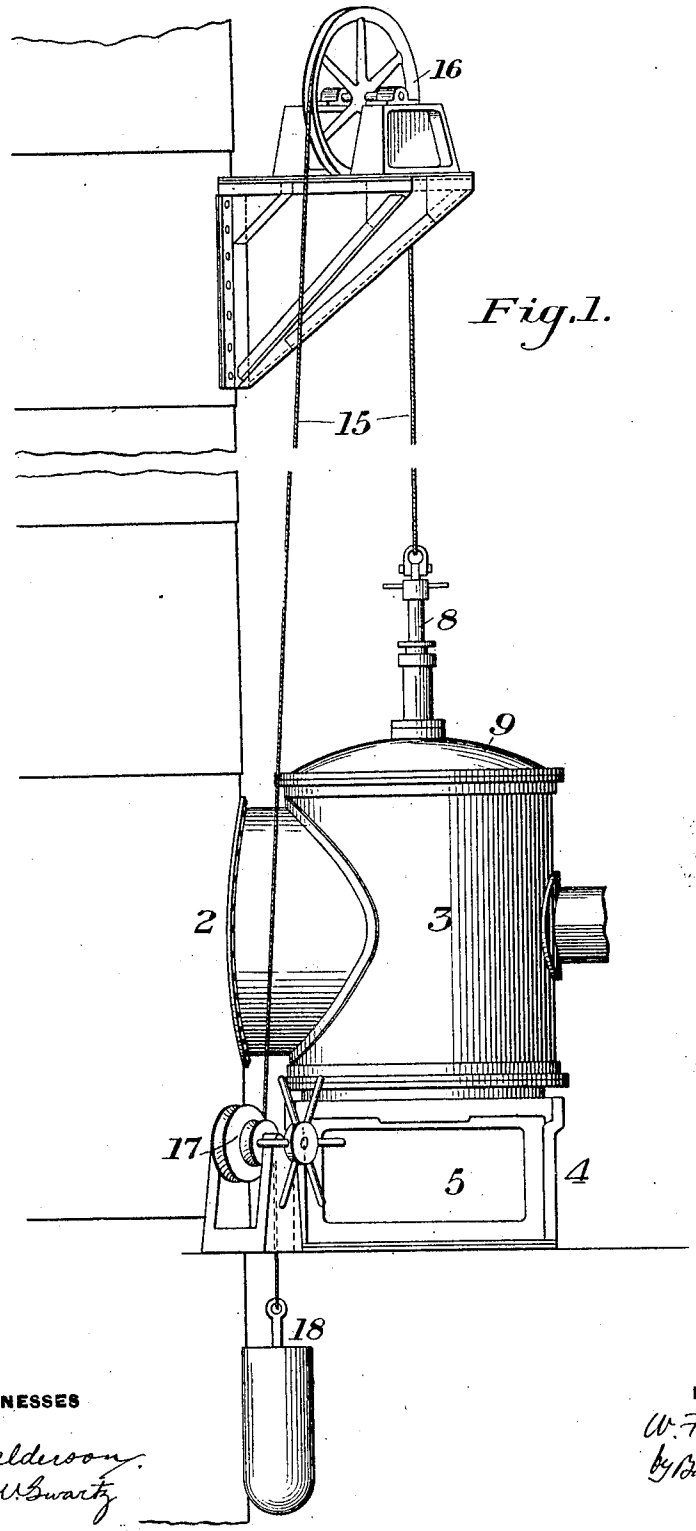


Fig. 1.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 2.

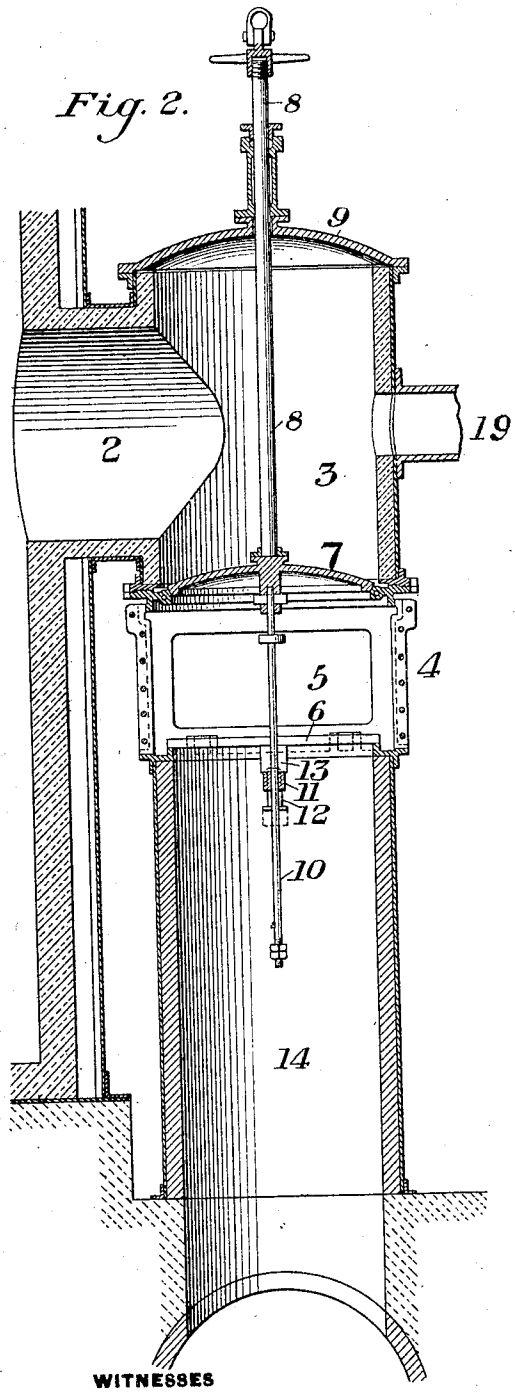
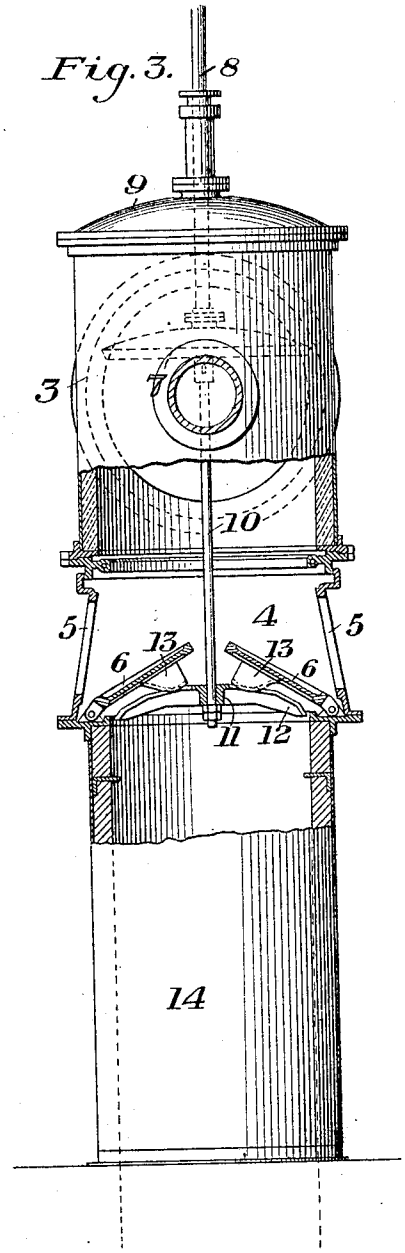


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM F. RUST, OF JOLIET, ILLINOIS.

CHIMNEY-VALVE FOR HOT-BLAST STOVES.

No. 856,603. Specification of Letters Patent. Patented June 11, 1907.

Application filed June 8, 1906. Serial No. 320,726.

To all whom it may concern:

Be it known that I, WILLIAM F. RUST, of Joliet, Will county, Illinois, have invented a new and useful Chimney-Valve for Hot-Blast Stoves, 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 side elevation of my improved valve; Fig. 2 is a central vertical section of the same; and Fig. 3 is a sectional front elevation showing the valve partly open.

My invention relates to the class of chimney valves for hot blast stoves and is designed to provide a simple and effective construction which if a leak in the valve should occur when the air is being forced into the stove will allow the escaping air to pass into the atmosphere and thus indicate a leak. It is also designed to provide a valve arranged so that the air pressure tends to force the valve against its seat.

A further object of the invention is to reduce and simplify the number of operations in opening and closing the valve.

In the drawings, 2 represents the stove connection, and 3 the valve chamber or casing which is preferably lined with a refractory material. In the form shown, I place below the valve chamber, a metal casing or chamber 4 having side openings 5, 5 which are preferably upwardly and inwardly inclined so that they are closed by the swinging doors 6, 6 when the same are raised.

The valve 7 is in the form of a disk secured to valve rod 8 which projects through a suitable stuffing box in the top or cover 9 of the casing. To the valve hub or central piece is keyed a tail-rod 10 having a cross-bar 11 provided with wings 12 which are arranged to act upon lugs 13 secured to the swinging doors.

In most cases the casing 4 rests on the chimney flue, but the conduit section 14 may be used, leading to the flue below the valve.

I have shown the operating mechanism as consisting of a flexible cord or cable 15 secured to the upper end of the valve rod and extending over a sheave 16 mounted on a bracket secured to the stove and thence extending down to a winch 17. The winch is preferably provided with a counterweight system 18.

19 indicates a cold air inlet from the blowing engine.

When the stove is being heated up the valve is raised and the doors are held back against the side openings to close them and afford a passageway to the chimney. When the stove is on blast the valve is lowered to its seat and the cross-bar on the tail-rod being lowered allows the doors to rest in horizontal position. The doors close the entrance to the chimney and any leakage of air past the valve will escape to the atmosphere. This leakage of air will attract attention through the noise, and moreover, the air will not pass to the chimney flue and interfere with the draft for the other valves.

The advantages of my invention will be apparent to those skilled in the art. In the case of a leak, when the stove is on blast, the air escapes directly to the atmosphere and will indicate the leak by the noise produced; where in former valves the air leaking past a valve could not be detected and such leaking air would pass directly to the chimney thereby diminishing the draft. The air pressure tends to force the valve to its seat, thus not only assisting in keeping the valve tight, but making it possible to use only one chimney valve on each stove. The valve is simple and easy to operate, the operating mechanism may be of any desirable character, and the doors are operated by the same movement as that of the valve proper. The valve and seat can be easily changed, it only being necessary to disconnect a few bolts connecting the two halves of the door casing. The halves can then be moved to either side and the valve and seat removed.

The means for opening and closing the air outlets may be varied, and many other variations may be made in the form and arrangement of the valve, its casing and connections, without departing from my invention.

I claim:—

1. In a chimney valve for hot blast stoves, a main valve, and a conduit controlled by said valve and having an air escape outlet which is open when the main valve is closed, and means for closing said outlet when the main valve is open; substantially as described.

2. In a chimney valve for hot blast stoves, a supplemental closure between the valve and the chimney, an air outlet, and connections for moving the closure to close the air outlet when the main valve is open; substantially as described.

3. In a chimney valve, a supplemental

closure between the valve and the stack, an air outlet adjacent to said closure, and mechanism connected with the main valve and arranged to move the closure to shut the air outlet when the main valve is opened; substantially as described.

4. In a chimney valve, a movable door between the valve and the chimney, said door being normally in closed position, an air outlet in the flue adjacent to the door, and a connection extending from the main valve and arranged to move the door to close the air outlet when the main valve is opened; substantially as described.

5. A chimney valve having a tail-rod, and a swinging door, the conduit having an air opening adjacent to the door, and the tail-rod having mechanism for moving the door against the air outlet when the main valve is opened; substantially as described.

6. A chimney valve having in the conduit between said valve and the chimney flue, a valve device normally forming a supplemental closure for the flue, said flue having a side opening, and means whereby the said opening is closed when the main and supplemental valves are moved from their seats; substantially as described.

7. A chimney conduit having a valve, an air opening in the valve flue, and a double-acting valve normally forming a supplemental closure for the conduit and arranged to close the air opening when the stove is opened to the chimney; substantially as described.

8. In a chimney valve, a sectional case between the valve and the chimney flue, said casing having escape openings, and means for closing said openings, when the chimney valve is opened said casing being removable to give access to the valve and seat; substantially as described.

In testimony whereof, I have hereunto set my hand.

WILLIAM F. RUST.

Witnesses:
A. F. DREES,
THOS. J. SAMPSON.