

(No Model.)

2 Sheets—Sheet 1.

J. D. SWINDELL.
CASING FOR FURNACE VALVES.

No. 478,769.

Patented July 12, 1892.

FIG. 1.

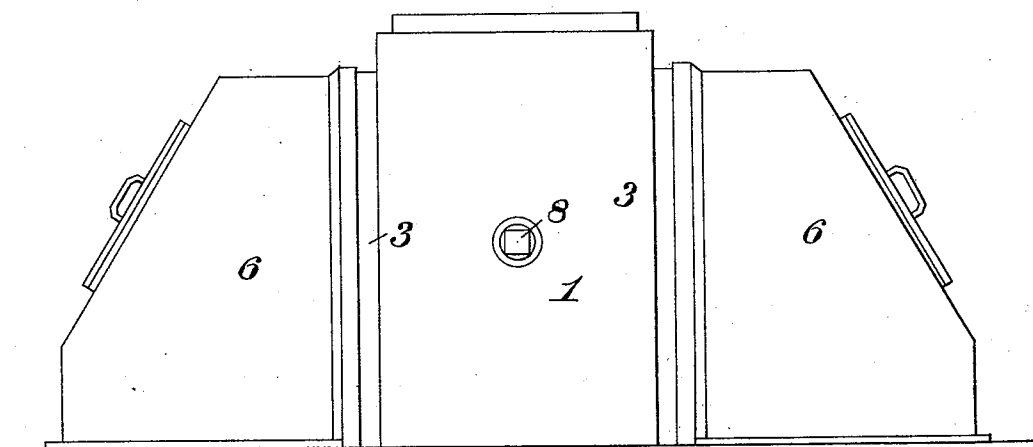
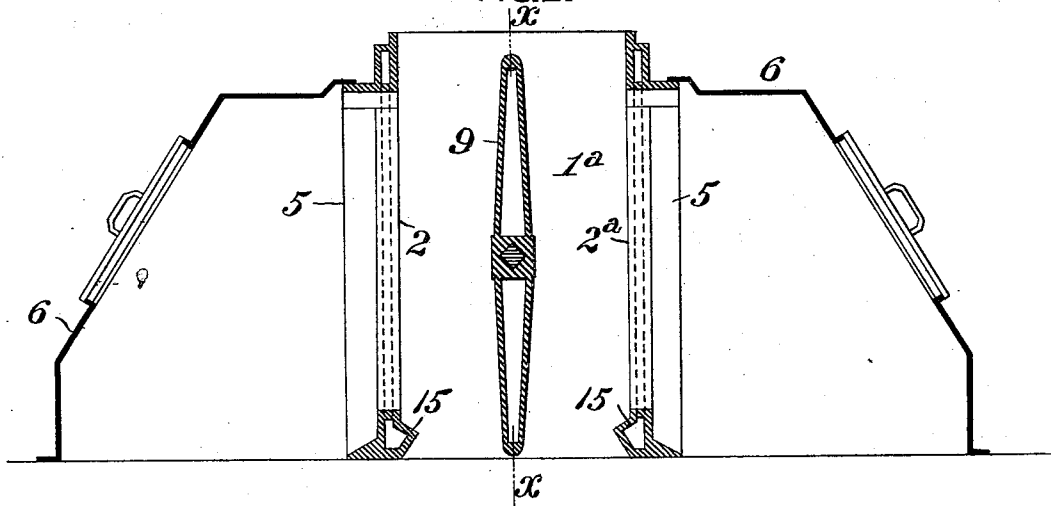


FIG. 2.



WITNESSES:

Daniel S. Wolcott
F. E. Gaither

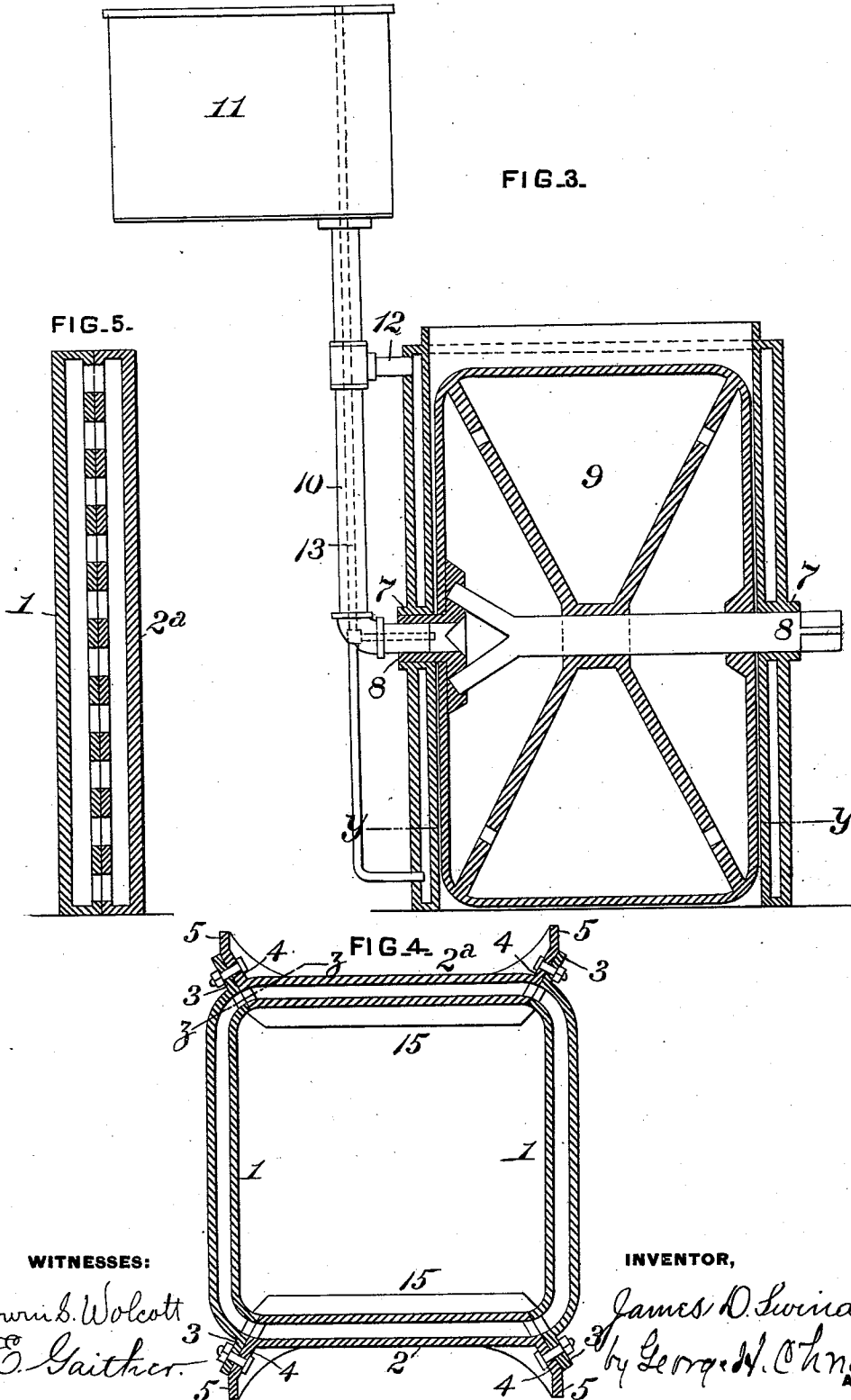
INVENTOR,

James D. Swindell
by George H. Christy
Att'y.

J. D. SWINDELL.
CASING FOR FURNACE VALVES.

No. 478,769.

Patented July 12, 1892.



UNITED STATES PATENT OFFICE.

JAMES D. SWINDELL, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO EDWARD H. SWINDELL, OF SAME PLACE.

CASING FOR FURNACE-VALVES.

SPECIFICATION forming part of Letters Patent No. 478,769, dated July 12, 1892.

Application filed December 30, 1890. Serial No. 376,248. (No model.)

To all whom it may concern:

Be it known that I, JAMES D. SWINDELL, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Casings for Furnace-Valves, of which improvement the following is a specification.

The invention described herein relates to certain improvements in casings for valves of regenerative chambers. It has been customary to form these casings or chambers of a single solid casting, so that it is necessary in case of the destruction of any part or portion thereof to replace the entire casing, and, further, these casings have been so constructed that the valve simply bears against the casing near the edges of the ports. Hence there is liable to be an opening between the lower edge of the valve and casing, permitting the air and gas on one side to leak through and be ignited by the products of combustion on the other side. The flame thus produced rapidly destroys both the edge of the valve and the casing, rendering necessary a renewal of both parts.

The object of the present invention is to provide for the removal and renewal of parts of the casing without disturbing other parts thereof; and it is a further object to provide a seat for the lower edge of the valve, and also to so construct the valve-casing as to provide water-chambers therein, thereby increasing its durability.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view in side elevation of a valve-casing embodying my invention. Fig. 2 is a sectional elevation of the same. Fig. 3 is a sectional elevation, the plane of section being indicated by the line *xx*, Fig. 2. Fig. 4 is a horizontal section on the line *yy*, Fig. 3, the valve being removed; and Fig. 5 is a sectional detail taken on the line *zz*, Fig. 4.

In the practice of my invention the valve case or shell is made in four pieces or sections—to wit, the sides 1 and 1^a and the end pieces 2 and 2^a. The side and end sections are provided along their adjacent outer edges with flanges 3 and 4, through which are formed holes for the reception of bolts, whereby the

several sections may be secured together. It is preferred that the flanges should be flared or outwardly inclined, as shown in Fig. 4, so as to facilitate the adjustment of the sections together and to insure the formation of a tighter joint between their meeting faces. The end sections 2 2^a have openings or windows formed through them for the passage of the gases, &c., as shown in Figs. 2 and 4, and the flanges 4 of said sections have their outer edges formed straight, as at 5, for the reception of the hoods 6, connecting the valve-casing with the flues of the furnace, as is customary.

The sides 1 1^a are formed with double walls, forming a water-space between them, and suitable bearings 7 are formed on said sides for the trunnions 8 of the valve 9, as shown in Figs. 1 and 3. The end sections 2 2^a are also formed with double walls, thereby forming a water-passage around the openings or windows therethrough, as shown in Figs. 2 and 4. In order to obtain a circulation of the water from the side to the end sections, and vice versa, when the sectional form of casing is employed, registering openings 16 are formed in the meeting walls of said sections, as shown in Fig. 5.

The valve 9 may be of the usual or any suitable construction having a water-space formed therein, as shown in Figs. 2 and 3. A pipe 10, leading from an elevated tank 11, is connected, as shown in Fig. 3, to one of the trunnions 8, said trunnion being made hollow for the supply of water to the valve. This pipe 10 is provided with a branch 12, connected to the valve-case and preferably to one of the side sections thereof. The pipe 10 and its branch 12 normally serve as outlets for the escape of water from the valve and casing, the water being normally supplied thereto through a pipe 13, preferably arranged within the pipe 12 down to the trunnion 8, as shown in Fig. 3, and connected to some suitable source of supply, as a pump. The pipe 13 is extended downward and connects with the lower part of the casing. The purpose of this construction is to insure a supply of water in the valve and casing in the event of a rupture of the pipe 13 or the breaking down of the supply-pump, as when the

water ceases to flow through the pipe 13 the water in the tank will flow back through the pipe 12, thereby maintaining a supply of water in the valve and casing until the pipe 13 or the supply-pump can be repaired.

In the ends of the casing, below the windows, are formed ledges 15, having their upper faces downwardly inclined, thereby providing seats for the lower edges of the valves. These seats or ledges are so constructed that the lower edges of the valves will ride up thereon when shifted and be supported, thus preventing the lower edges from dropping away when highly heated by the passage of the products of combustion through the casing. This construction provides a double seat for the valves, one against the side of the end sections just above the ledge and one against the ledge itself.

It has been shown by experience that the portions of the old style of casings corresponding to the sections 2 2^a are more rapidly destroyed than the sides 1 1^a. Hence it has been necessary to remove the entire casing when the ends having the windows were destroyed. The sectional construction of the casing hereinbefore described permits of the easy removal of any of the sections in case of injury without disturbing the other portions. The sectional feature of my improvement, and also the valve ledge or seat, can be embodied in casings whose walls are solid—

i. e., without water-chambers—as will be readily understood by those skilled in the art.

I claim herein as my invention—

1. A casing for furnace-valves, consisting of a series of independently-removable sections, said sections having double walls and their meeting faces provided with the registering openings, in combination with fluid supply and outlet pipes, substantially as set forth.

2. The combination of a valve provided with a water-chamber, an elevated tank for the reception of the water normally escaping from the valve, an outlet-pipe connecting the water-chamber and the tank, and a supply-pipe connecting the water-chamber of the valve with a suitable source of supply, substantially as set forth.

3. The combination of a furnace-valve casing provided with water-chambers, an elevated tank for the reception of the water normally escaping from the casing, an outlet-pipe connecting the casing and tank, and a supply-pipe connecting the casing and a suitable source of water-supply, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JAMES D. SWINDELL.

Witnesses:

DARWIN S. WOLCOTT,
R. H. WHITTLESEY.