(No Model.)

# F. H. CATHCART.

## WIND VALVE OR DAMPER FOR FURNACES.

No. 301,859. Patented July 15, 1884.

Fig. 1

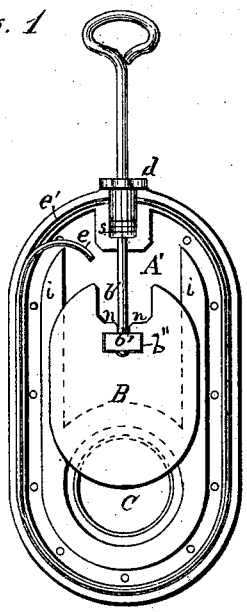



Fig. 2

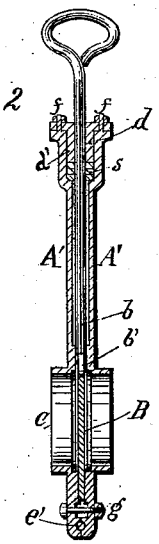



Fig. 3

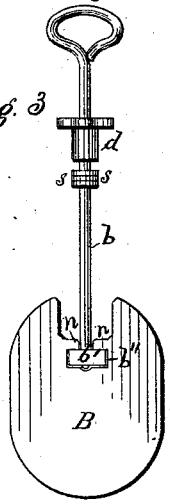



Fig. 4

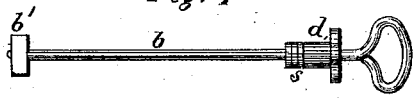
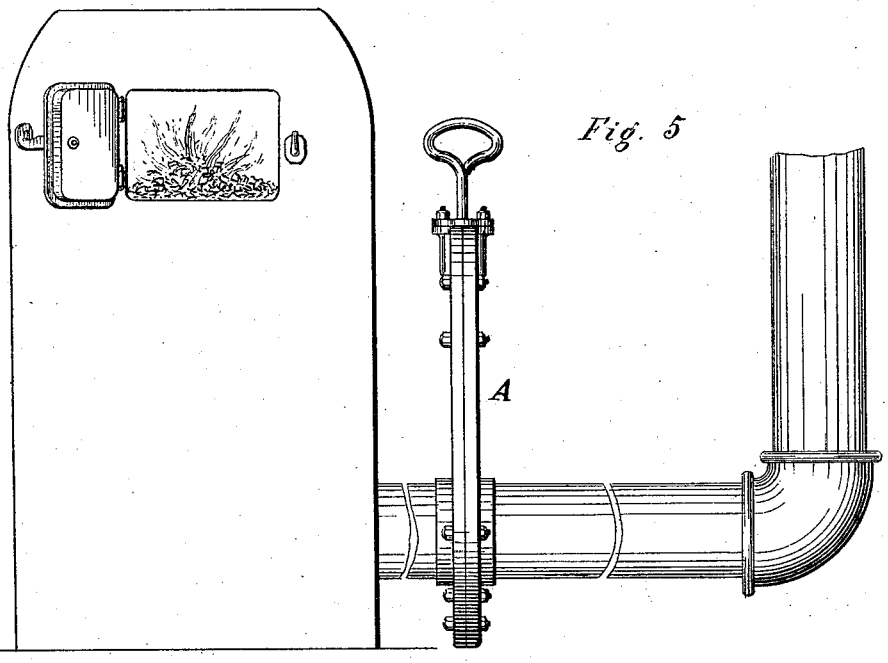



Fig. 5




WITNESSES

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# UNITED STATES PATENT OFFICE.

FRANK H. CATHCART, OF ALEXANDRIA, VIRGINIA.

## WIND-VALVE OR DAMPER FOR FURNACES.

SPECIFICATION forming part of Letters Patent No. 301,859, dated July 15, 1884.

Application filed October 29, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK H. CATHCART, a citizen of the United States, residing at Alexandria, in the county of Alexandria and State of Virginia, have invented certain new and useful Improvements in Wind-Valves or Dampers for Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The object of my invention is to produce a damper or wind-valve which, when placed in position in the supply-pipe of a blast-furnace, will regulate the current of air or completely shut it off without any waste of the same. Speaking in general terms, it consists of two flat and slightly hollowed pieces or shells of metal, preferably iron, having around their edges a continuous groove or furrow. When said shells are placed in the position they are meant to occupy, a space is formed in which the valve plate and rod are contained and move. A flue is also formed for the passage of air. The grooves are opposed to each other and serve to hold in place certain soapstone or other packing, which is used to render the valve air-tight. The shells are fastened together by means of small bolts.

My damper or wind-valve may be applied in any place where it is desirable to regulate or control a draft of air or smoke; but I desire more especially to apply it to the regulation of the air as it is supplied to a furnace by means of the blast-pipe.

My improvement consists, principally, in producing a wind-valve which will control the current of air supplied to furnaces without any loss of the same.

In the accompanying drawings, illustrating an embodiment of my invention, Figure 1 shows a plan view of inside of one of the shells with valve-plate and rod in place. Fig. 2 shows a longitudinal sectional view of valve. Fig. 3 is a detailed view of the damper-plate and rod. Fig. 4 shows the rod detached. Fig. 5 shows the wind-valve applied to blast-pipe ready for use.

Referring to the letters upon the drawings, A represents the wind-valve, consisting of two halves or shells, A′, provided with grooves *e′*, which are situated near the outer edge, and run nearly around the circumference of the shells A′. In groove *e′* is contained a soapstone or other suitable packing, *e*, which serves to prevent the escape of air when the valve is in use. The raised tracks *i* serve for the valve-plate B to move upon, causing less friction than otherwise.

B is the valve-plate, cut in such way as to form the shoulders or dogs *n* and annular recess *b″*, into which the swivel *b′* fits, and is held by dogs *n*, as shown in Fig. 3. B is operated by means of the rod *b*, bent at the outer end so as to form a handle, and having a swivel-nut, *b′*, fastened to the inner end, and provided with the stuffing-box *d*, which fits into chamber *d′*, and is fastened to shells A′ by means of bolts *f*.

*s* is a coil of waste or other suitable packing.

Shells A′ are fastened together by means of bolts *g*.

I am aware that air-tight valves have heretofore been made with packing, and this I do not broadly claim.

What I claim as new, and desire to obtain Letters Patent for, is—

1. In a valve for blast-pipes of furnaces, the shells A′, fastened together by means of bolts *g*, and provided with grooves *e′*, raised track *i*, and flue C, in combination with valve-plate B and rod *b*, having packing *s*, substantially as and for the purpose set forth.

2. In an air-tight wind-valve for blast-pipes of furnaces, the shells A′, fastened together by means of bolts *g*, in combination with the packing *e* and *s* and stuffing-box *d*, substantially as and for the purpose set forth.

3. In an air-tight wind-valve for furnaces, the shells A′, constructed as described, and provided with packing *e*, and fastened together by means of bolts *g*, in combination with plate B and rod *b*, provided with stuffing-box *d* and packing *s*, substantially as and for the purpose set forth.

4. In a valve for blast-pipes of furnaces, the valve-plate B, shaped as shown and described, in combination with rod *b*, provided with

swivel-nut $b'$, stuffing-box $d$, and packing $s$, substantially as shown, and for the purpose set forth.

5. In an air-tight valve or damper, the groove $c'$, provided with packing $c$, situated and operated substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK H. CATHCART.

Witnesses:
F. BATEMAN,
H. C. BORDEN.