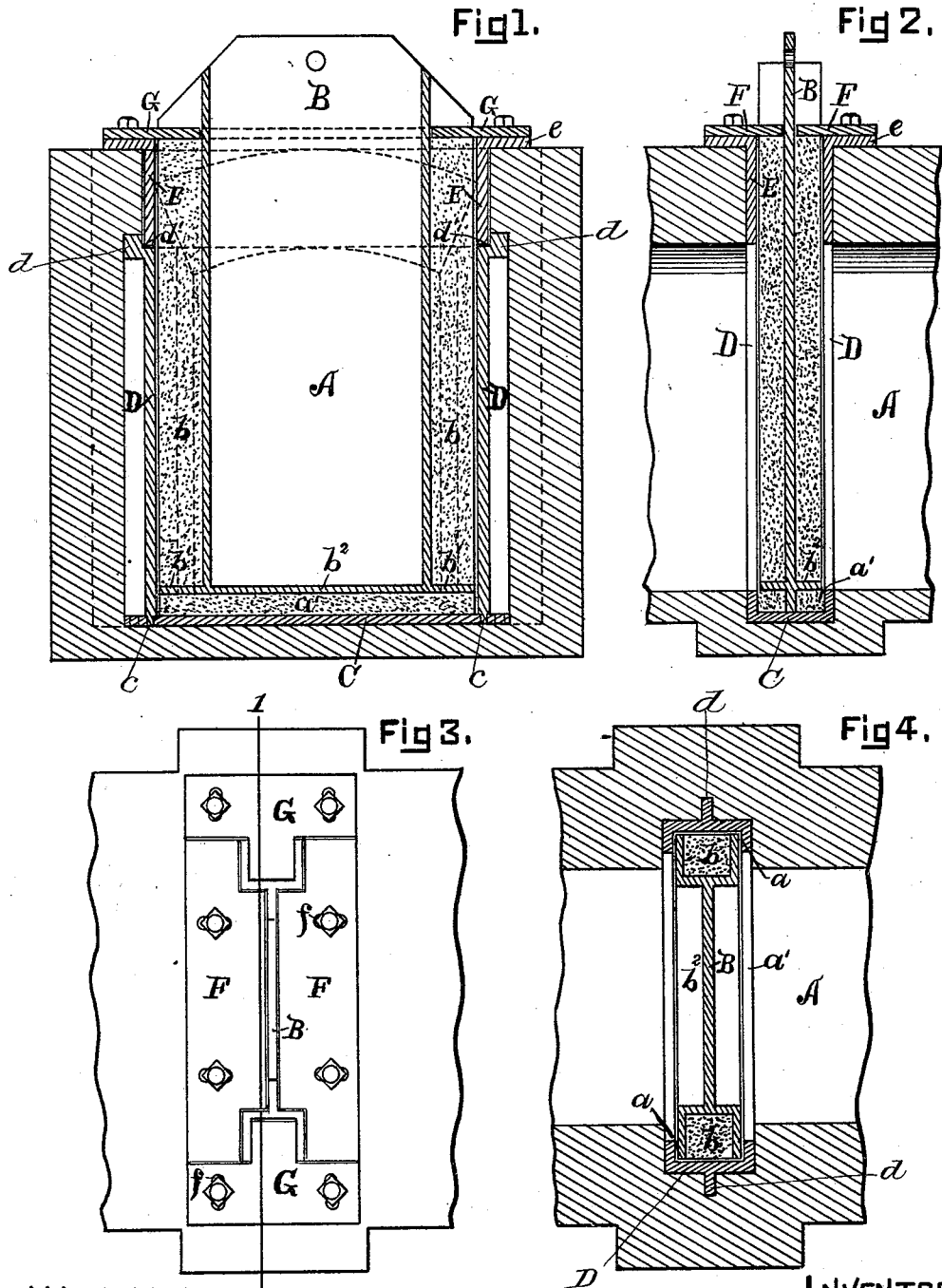


(No Model.)

J. REULEAUX.
VERTICAL SAND DAMPER.

No. 421,516.

Patented Feb. 18, 1890.



WITNESSES.

1

Frank. Miller.
W. J. Bainbridge

INVENTOR.

Josef Reuleaux
By Watson & Thurston
his Attorneys

UNITED STATES PATENT OFFICE.

JOSEF REULEAUX, OF CLEVELAND, OHIO, ASSIGNOR TO THE ALEX. LAUGHLIN COMPANY, OF SAME PLACE.

VERTICAL SAND-DAMPER.

SPECIFICATION forming part of Letters Patent No. 421,516, dated February 18, 1890.

Application filed June 22, 1889. Serial No. 315,269. (No model.)

To all whom it may concern:

Be it known that I, JOSEF REULEAUX, a citizen of Germany, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Vertical Sand-Dampers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention relates to that class of devices which are employed to govern or wholly check the passage of gas through large flues—for example, such as convey the gas from the producers to the place where it is to be used or stored. That style of damper commonly known as a "sand-damper"—that is, a damper with which sand is employed to stop the joints between the damper-plate and the walls which inclose the flue to be closed—has been found to be very satisfactory; but, so far as I am aware, the sand-dampers in use have all been of the horizontal variety, and no vertical sand-damper has ever been constructed or successfully used. One difficulty which immediately suggests itself in the construction of a practical vertical sand-damper is that while it may not be difficult to construct a vertical damper which may be packed with sand when closed, yet when it is attempted to open such a damper the sand will fall down into the flue and choke it up, and this sand could not be safely removed without entirely emptying the flue of gas.

The chief object of my invention is to overcome this prime obstacle to the successful practical use of a vertical sand-damper; and my invention consists, primarily, in the combination of a flue having vertical guides with a vertically-movable damper-plate having channels upon its vertical edges for the reception of the sand, and shelves at the bottom of said channels, on which the sand rests, whereby the sand is raised with the damper.

It also consists in the sub-combinations and details of construction herein described, and definitely pointed out in the claims.

In the drawings, Figure 1 is a vertical sectional view of my improved device, taken at the point indicated by line 1 1 in Fig. 3. Fig. 2 is a vertical sectional view at right angles

to this line. Fig. 3 is a top plan view, and Fig. 4 is a horizontal sectional view, of the same.

Referring to the parts by letter, A represents the flue, which is provided with vertical channels *a*, which serve as guides for the damper-plate, and also a horizontal channel *a'* in the bottom of the flue, which connects said channels.

B represents a damper-plate, having upon its vertical edges the channels *b*, across the bottom of which extend the shelves *b'*. The channel *a'* in the bottom of the flue is partially filled with sand, in which the lower edge of the damper-plate embeds itself when the damper is closed, and the side channels *b b* are also filled with sand, which rests upon the shelves *b'*. By these means the passage of gas under the bottom or past the sides of the damper-plate when lowered is effectually prevented, and when the damper-plate is raised the sand which rests upon the shelves *b'* is raised with it and falls outside of the flue.

The particular embodiment of this invention which is shown in the drawings is the best now known to me, and contains features of invention which are particularly specified in some of the claims. The flues are generally made of brick-work, and a more durable structure is produced in the channels *a a'* are provided with an iron frame. A channel-plate C is therefore fixed in the horizontal channel *a'*, and in the vertical channels *a a* are fixed channel-plates D, having a fin *d* on their backs, by means of which they are more rigidly held in place. Transverse grooves or notches *c* in the channel-plate C receive the lower ends of the channel-plates D, and thereby hold them firmly in place. At the upper ends of the plates D are offsets *d'*, against which rests the lower edge of a rectangular flanged box E. A flange *e* upon said box E sustains it upon the brick-work and furnishes the means by which it is fastened thereto. These channel-plates C D D and the box E, which are held together in the manner explained, furnish a substantial frame in which the damper B operates.

F F represent slotted plates, which are fastened to the box E by means of bolts

which pass through the slots *ff* in said plates. These plates are shaped to fit snugly against the damper B when the same is closed, and they may be moved toward and from said damper and fastened at any desired position relative thereto.

G G represent the plates arranged at the ends of said damper and fastened in like manner to the box E. When these plates F and G are moved close to the damper and fastened, the escape of gas around the upper part of the damper-plate is prevented. When it is desired to raise the damper-plate, it is necessary to slide the plate G laterally, so as to permit the sand in the vertical channels *a* to fall outside the flue. The horizontal ribs *b*², extending across the damper near the lower edge, serve two purposes—viz., they add strength to the damper-plate, and also by engaging with the plates F F prevent the accidental removal of the damper.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a flue having vertical guiding-channels and a transverse groove with a vertically-movable damper-plate having channeled vertical edges and a shelf at the lower end of said channels, substantially as and for the purpose specified.

2. The combination of a flue having vertical guiding-channels in its sides and a horizontal channel in its bottom with a damper-plate having channels in its vertical edge and shelves at the bottom of said channel, the

lower edge of said damper-plate extending below said shelves, substantially as and for the purpose specified.

3. The combination of a flue having channels *a a'* with the vertical channel-plates D, the horizontal channel-plate C, and the rectangular box E, with a vertically-movable damper-plate having channels in its vertical edges and shelves arranged near the bottom of said channels, the lower edge of said damper-plate extending below said shelves, substantially as and for the purpose specified.

4. The combination of the horizontal channel-plate C, said plate having transverse grooves *c*, the vertical channel-plates D, adapted to rest in said grooves, said plates having the offsets *d'* and the rectangular flanged box E, with a vertically-movable damper-plate having channels on its vertical edges, and shelves at the bottom of said channels, substantially as and for the purpose specified.

5. The combination of a flue having the channels *a a'*, the horizontal channel-plate C, having the transverse grooves *c*, the vertical channel-plates D, having the offsets *d'* and the rectangular flanged box E, with a vertically-movable damper-plate, the slotted plates F F and G G, and the bolts whereby said plates are secured to the flanged box, substantially as and for the purpose specified.

JOSEF REULEAUX.

Witnesses:

E. L. THURSTON,
ALEX. LAUGHLIN.