

J. ADAIR.
FIRE PLACE

No. 179,389.

Patented July 4, 1876.

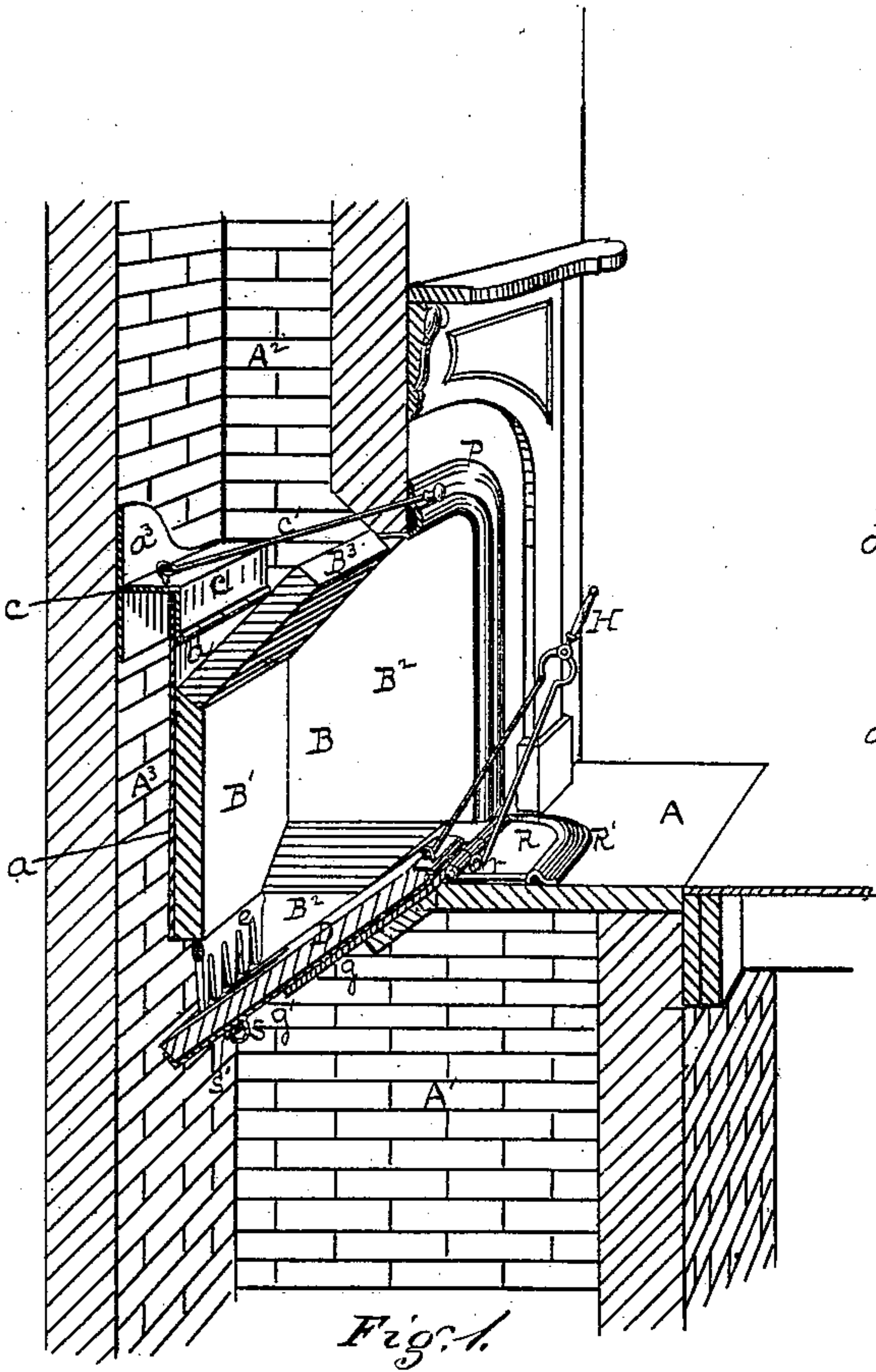


Fig. 1.

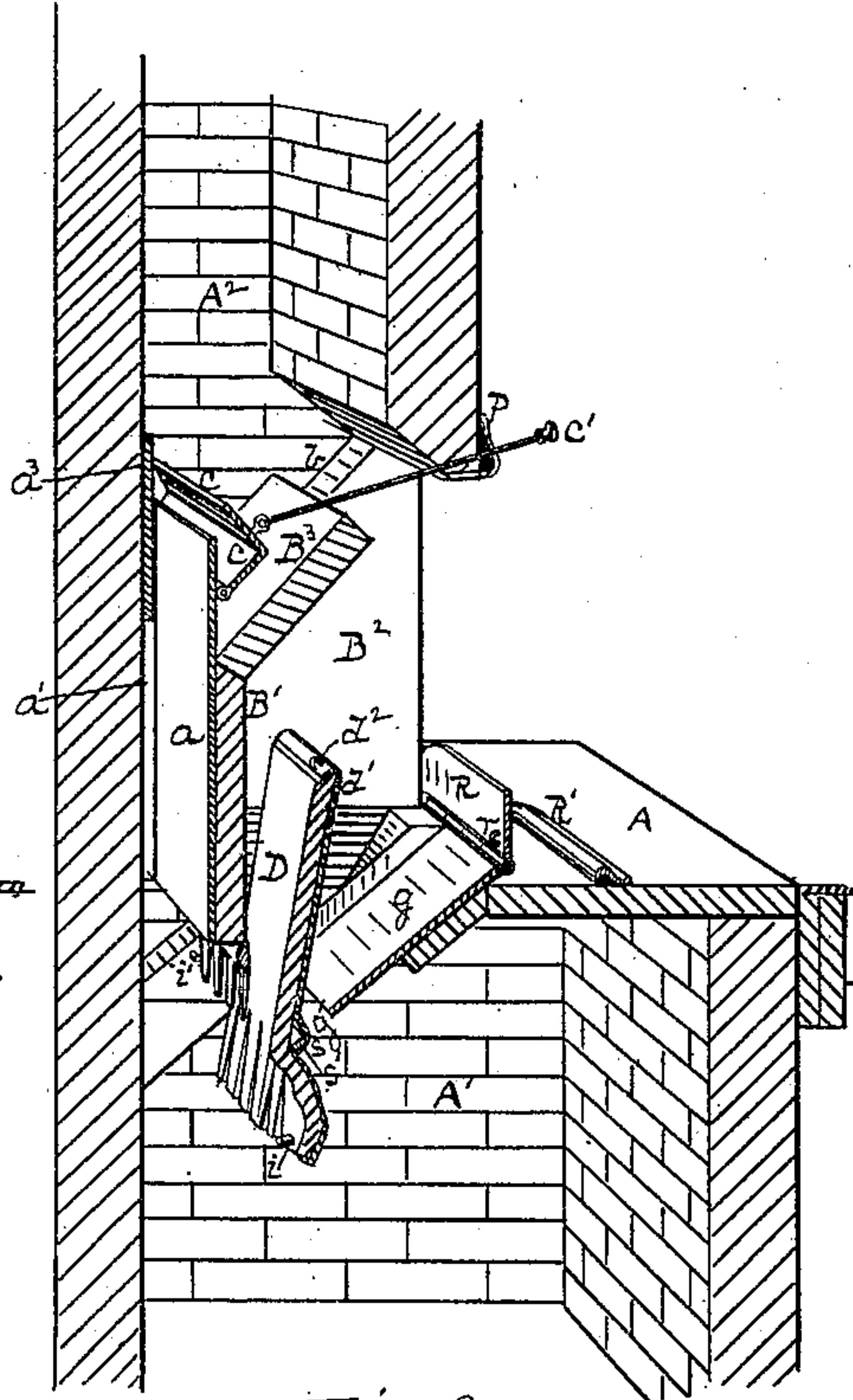


Fig. 2.

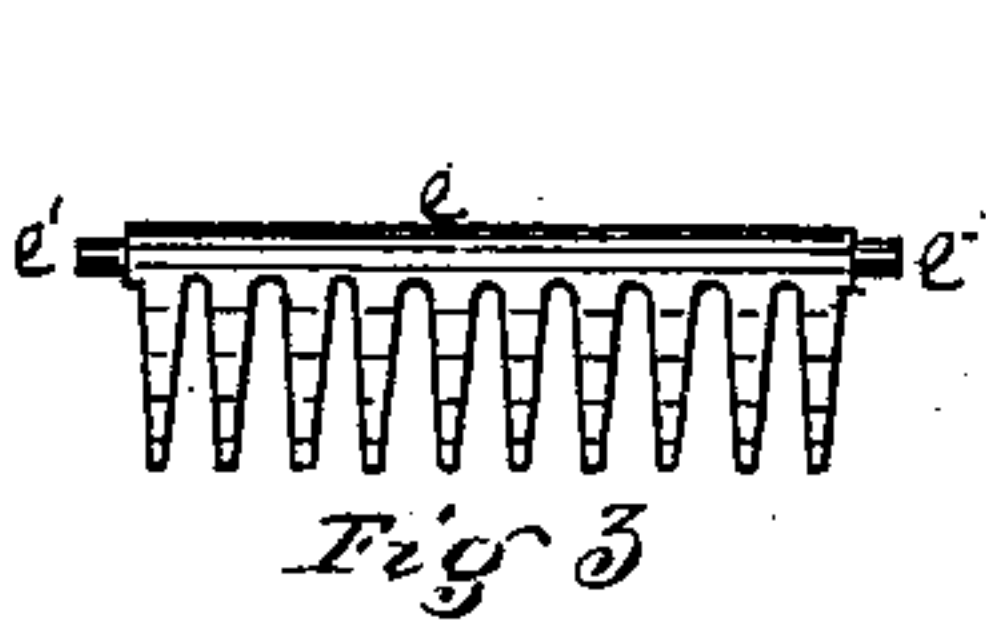


Fig. 3.

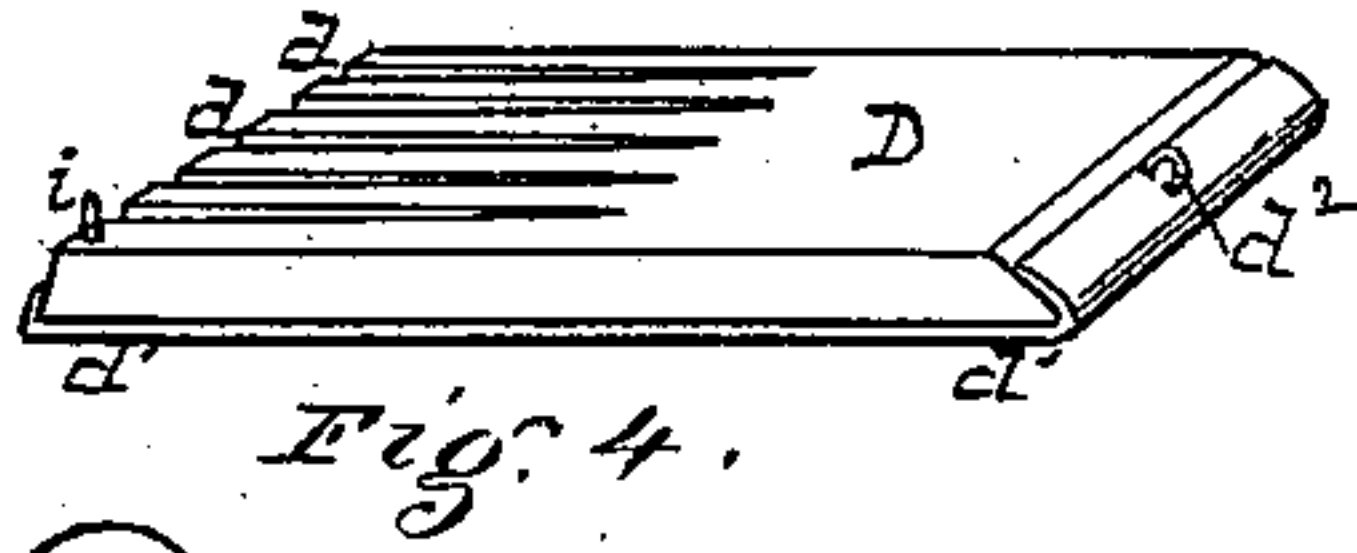


Fig. 4.

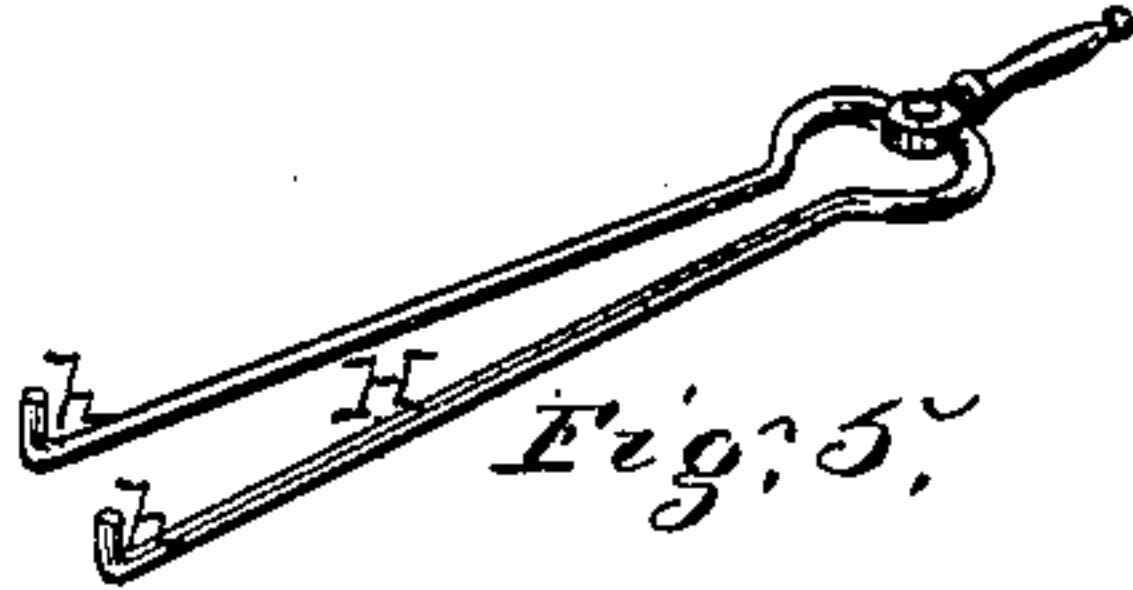


Fig. 5.

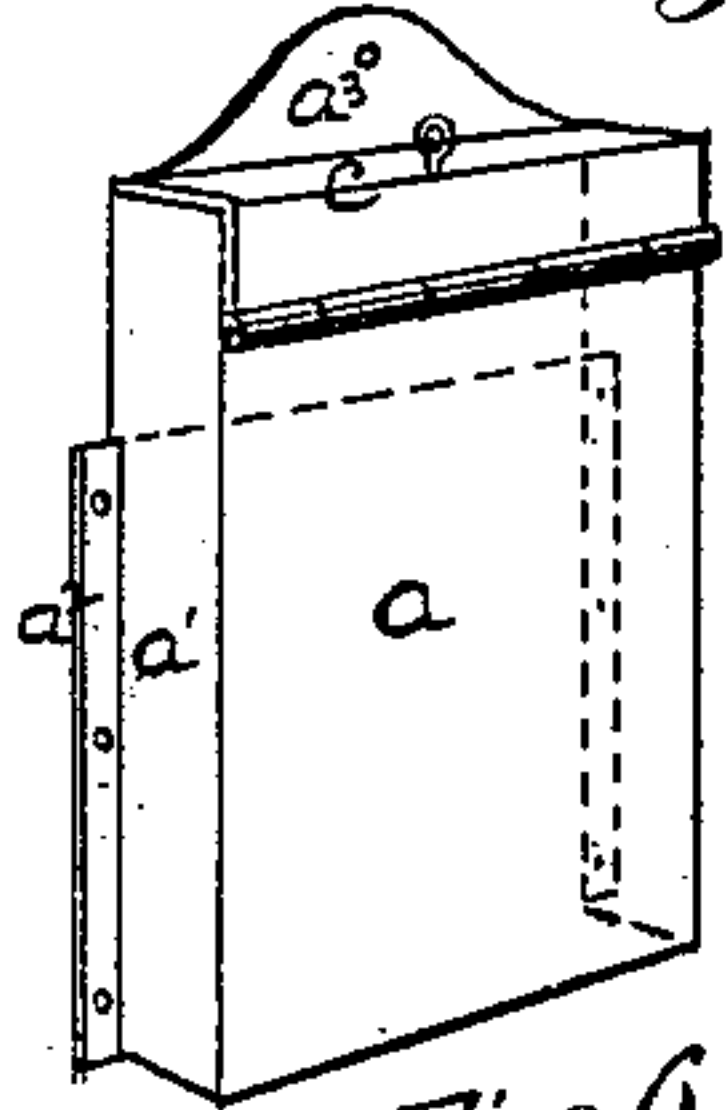


Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

JAMES ADAIR, OF KILLBUCK TOWNSHIP, ALLEGHENY COUNTY, PA.

IMPROVEMENT IN FIRE-PLACES.

Specification forming part of Letters Patent No. **179,389**, dated July 4, 1876; application filed May 31, 1876.

To all whom it may concern:

Be it known that I, JAMES ADAIR, of Killbuck township, (Pittsburg P. O.,) county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Fire Place and Grate; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a sectional view in perspective, from the front, of my improved fire place and grate. Fig. 2 is a like view from the rear; and Figs. 3, 4, 5, and 6 are separate views of detached parts, as hereinafter explained.

My present invention relates chiefly to certain improvements in the grate described in patent granted to me July 6, 1875. Some practical difficulties have been experienced in setting the damper therein described, and while overcoming these I have also improved the construction in other respects.

In the drawing, A represents the hearth, A¹ the ash-pit, A² the chimney, and A³ the air and dust flue in the rear of the fire space or chamber B. The latter is inclosed by the usual rear, side, and roofing tile B¹, B², and B³, and a throat, b, makes provision for the passage of smoke, &c., from the fire to the chimney.

The first part of my invention relates to the manner of forming the air-flue A³. For this purpose I use a flanged plate, a, of any suitable material, preferably of sheet metal, the flanges a¹ being made to bear against the back wall. The flanges a¹ also have, by preference, an outwardly-bent narrow flange, a², along the edge of each, to stiffen them, give a better bearing against the back wall, and enable the device, by nail-holes therein, to be secured to the back wall. A cross-plate, a³, may be employed from one flange a² to the other at the upper end, and one or more nail-holes in it will commonly suffice for securing in place the plate a. To the top of this plate I secure the damper c, which is opened and closed by a rod, c', in the same manner and for the same purpose as set forth in the patent above referred to. This device thus attached to the back wall of the chimney, affords an easy and convenient

way of securing and adjusting the damper, and at the same time furnishes a back-rest or support for the rear tile B¹, while it is being placed in position, and also, when it becomes cracked or broken, prevents the pieces from falling into the ash-pit.

The other important features of my invention are organized chiefly with reference, first, to effecting the combustion of the fuel wholly or chiefly in the back part of the fire-chamber, and level with or below the floor; and, second, to admitting air into the fire-chamber for supporting combustion only, or chiefly at the intersection of the rear and bottom sides of the fire-chamber, and preferably through a shallow grate in or under the back tile. To this end, as shown in the drawing, I suspend just beneath the back tile B¹, by suitable gudgeons e', resting on the lower tile B², a grate, e, made comparatively shallow, and preferably standing vertical, though it may be somewhat inclined, if so preferred.

The bottom of the fire-chamber is made close over the whole or greater part of its extent by means of a tile, D, which slopes downward from the front, as shown, and passes under the lower edge of the grate e. This tile is made with flutings d, extending from its lower end any desired distance up, as shown in Fig. 4, and for convenience in use and operation it is secured to a metallic backing, d¹. This metallic backing has a hook, s, which, passing through the slot g' of the plate g engages a cross-bar, s', on the lower end of said plate g. This plate g constitutes a fixed support for the tile D, and the recess g' is wide enough to permit of the hook s moving up and down, so that the tile may be caused to move up and down by a sliding motion, and thus clear itself of ashes.

This sliding motion may be effected in any desired way, one such being by the use of a hook entering the eye d²; but for convenience I use a pair of tongs, H, with a hook, h, on each leg. Then I make a fixed eye, r, at any convenient point in line with the eye d²—say in the fender-plate R—and inserting a hook, h, in each eye, I use the tongs as a lever to shift the bottom tile D. At or a little before the end of the upward movement of the tile, a pin, i, engages the grate e, and by giving it

a slight jar or a motion greater or less, facilitates the discharge of the ashes. The too great movement of the grate *e* in the opposite direction is prevented by any suitable stop, as at *i'*. The hook *s* also has the capacity of turning slightly by a short rotary motion on the cross-bar *s'*, whereby the bottom tile *D* may be turned up to the position shown in Fig. 2, so as to dump or empty all, or any desired portion, of the contents of the fire-basket into the ash-pit below.

When not in dumping position, it may be locked in any suitable way; but I prefer to arrange the hook *s* so far to the rear of the center of gravity of the tile *D* that the preponderance of the weight of the forward or outer end will keep the tile in proper position for ordinary uses.

The fender-plate *R* is hinged, to enable it to be turned up, as in Fig. 2, as a guard against danger of fire, and also to throw back into the fire-basket any ashes or coals that may have worked or fallen out. *R'* constitutes the fender-frame, and, like the front *P*, may be of any desired form or construction.

Some portions of the devices described may be omitted without impairing materially or destroying the useful functions of the other parts, and numerous modifications may be made without any substantial departure from the scope of my invention—as for example, the form of the grate *e* may be varied at pleasure, and it may be arranged horizontally at the lower end of the tile *D*, the latter being shortened a little for the purpose. In this respect it is only essential that the open grate for admitting air to the fire be at the lower rear side of the fire-basket, while the bottom of the fire-basket over the whole or greater part of its area is closed, or substantially so; and, for this purpose, the bottom may be made of two or more closely-fitting tile, instead of one, and any suitable means may be employed for effecting the removal of the ashes—dumping, or shaking, or both.

The flutings *d* are preferably used in order to supply air to the fuel at the desired dis-

tance up the tile *D*; also, the place of the plate *a* may be supplied by an open-ended box or tube similarly arranged, so as to make a flue, and constitute a flue-lining, and also support the damper and back tile.

One advantage derived from the use of the rear sloping bottom tile is that all ashes are thereby discharged into the ash-pit at the point farthest removed from the front, and the wood work of the floor is guarded from danger of fire.

I claim herein as my invention—

1. A flue-lining, *a*, arranged between the back wall and the back tile of the fire-chamber, and supporting the damper and back tile, substantially as set forth.

2. The rear sloping bottom tile *D*, in combination with a grate, arranged at its rear lower end, substantially as and for the purposes set forth.

3. A low-down fire-grate, arranged at the rear lower corner of the fire-basket, in combination with a close bottom under the whole or the greater part of the fire-space, and an air and dust flue, and damper in the rear, substantially as set forth.

4. The combination of a movable bottom tile, *D*, and movable grate *e*, in combination with ash-pit, air and dust flue, and damper, substantially as set forth.

5. The hinged fender-plate *R*, arranged substantially as and for the purposes set forth.

6. As a means of operating the sliding tile *D*, an eye, *d*², thereon, and a fixed eye, *r*, in line therewith, arranged for use with a double-hooked lever or tongs, substantially as set forth.

7. The plate *g*, having a slot, *g'*, and cross-bar *s'*, in combination with tile *D* and hook *s*, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JAMES ADAIR.

Witnesses:

S. A. WILL,

GEO. H. CHRISTY.