C. F. HUNT.

STEAM-BOILER FURNACE.

No. 191,433. Patented May 29, 1877.

fig. 3

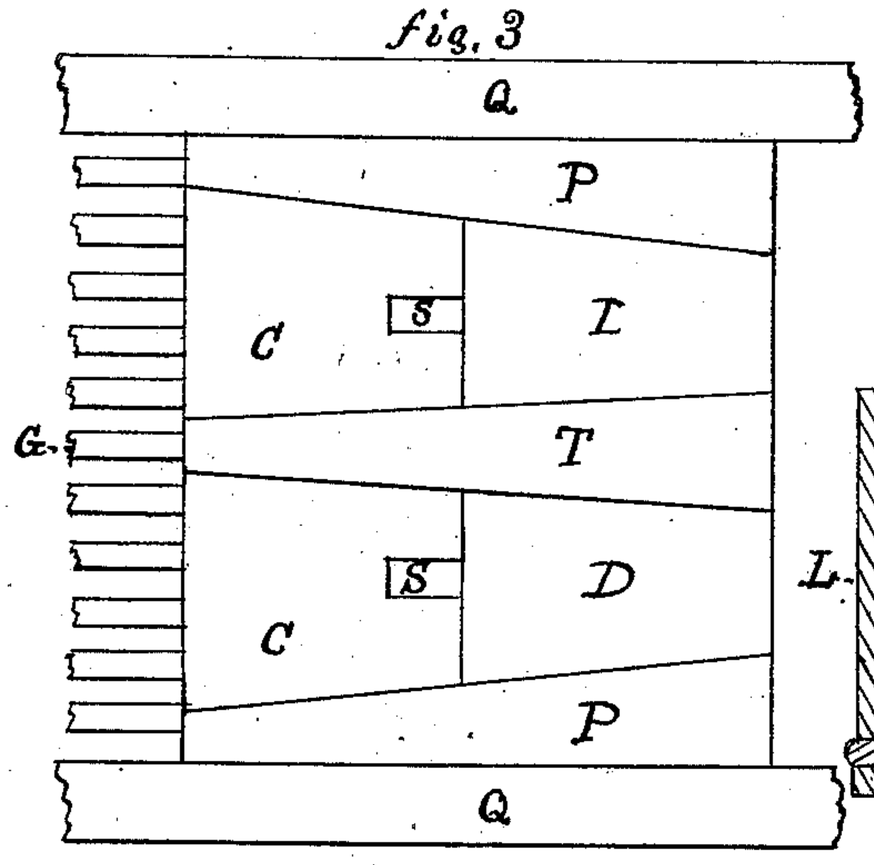


fig. 2

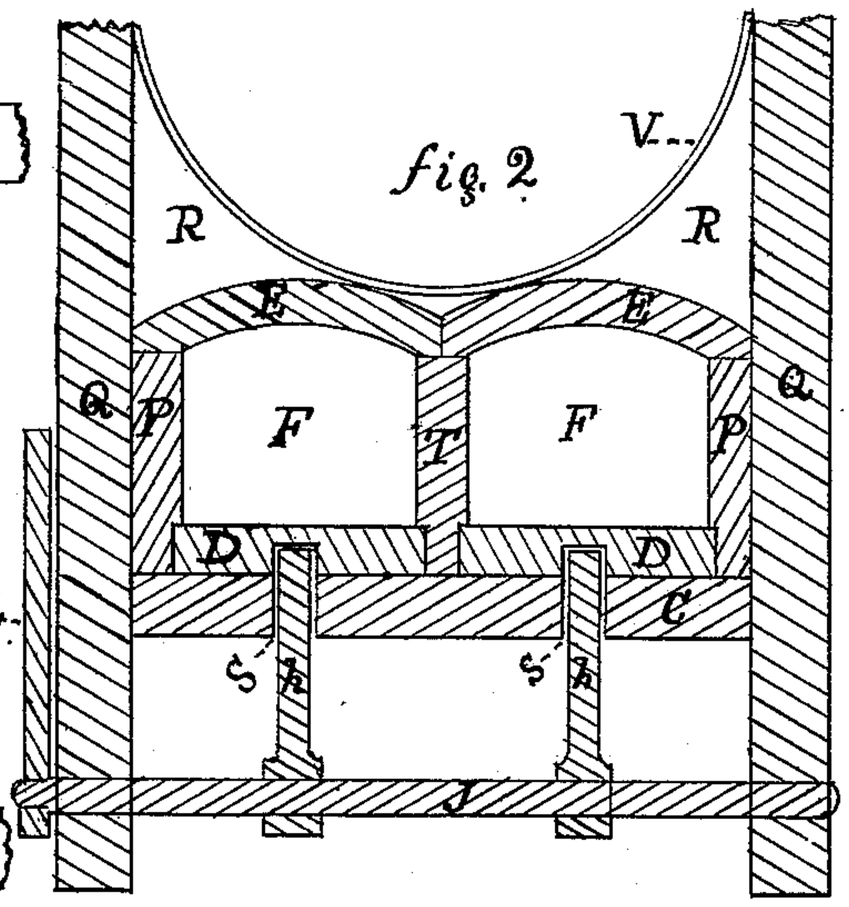
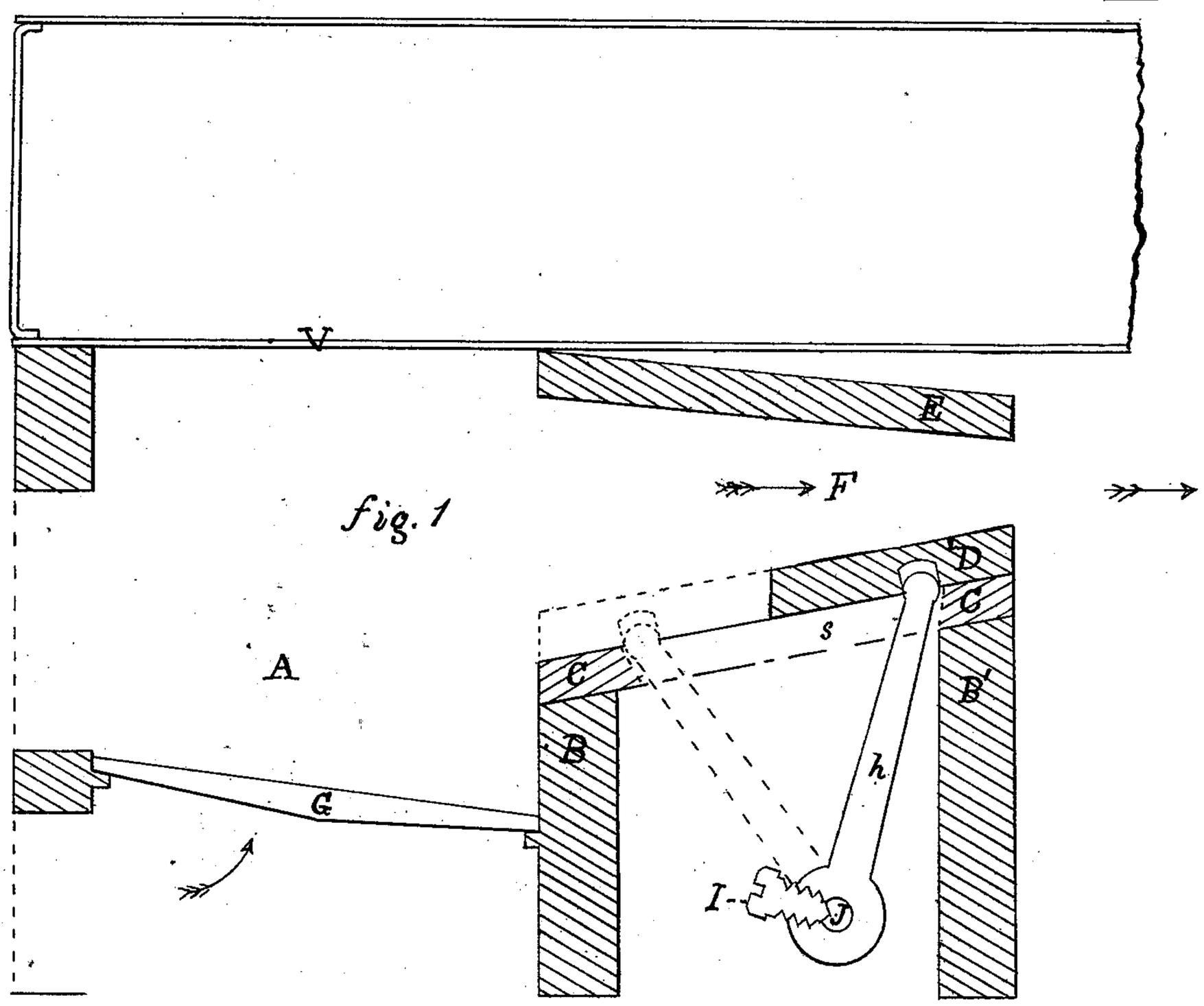


fig. 1



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UNITED STATES PATENT OFFICE.

CHARLES F. HUNT, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN STEAM-BOILER FURNACES.

Specification forming part of Letters Patent No. **191,433**, dated May 29, 1877; application filed January 20, 1877.

To all whom it may concern:

Be it known that I, CHARLES F. HUNT, of Chicago, Illinois, have invented an Improved Steam-Boiler Furnace, of which the following is a specification:

The nature of this invention consists of an improved mode of constructing the smoke-passages over the bridge-wall of a furnace for steam-boilers, the object of which is to more effectually consume the gases evolved.

In the drawing accompanying this specification and forming a part of the same, and which are lettered for reference by similar letters for like parts in the several figures, Figure 1 represents a vertical longitudinal section through the furnace, and as far back as the invention relates. Fig. 2 is a vertical cross-section through the bridge-wall and surroundings. Fig. 3 is a horizontal section through the openings F F, Fig. 2, and also showing the top of parts D and C, Fig. 2.

In Fig. 1, A is the furnace proper; B B′, the bridge-wall; C, the top of the same; D, is a movable tile of fire-brick or other refractory substance; E, an arch over passage F; G, one of the grates; V, the boiler; *h*, an arm fastened firmly to a rock-shaft, J, by a set-screw, I.

In Figs. 2 and 3, T is a tapering tile of fire-brick, extending from the front of the bridge-wall to the back of the same, and forming one side of passages F F, and also supporting one side of arches E E. P P are similar tile, and used for a like purpose. Q Q are side walls of boiler-furnace. *s s* are slots in the fire-brick tile C, through which the arm *h* passes. L is a lever, fastened outside the wall to the rock-shaft J. R R are spaces between the arches E E and the boiler. These spaces are bricked up at the rear end of the arches, so as to allow none of the products of combustion to pass over the arches. The arches E E are inclined downward from front to rear. The top C of bridge-wall has an upward inclination from front to rear, and the tiles T and P P are tapered to correspond to the inclinations of E E and C, so that when in position the passages F F are large at the front end, and gradually decrease toward the rear. In the bottom of the passages is a movable tile, D, which slides longitudinally upon the tile C. This tile D is moved by the arm *h*, which is operated by the lever L.

When the lever L is moved to its limit toward the front, the arm *h* and tile D will be in the position shown by the dotted lines. When the fire is started the tile D is moved to the front, and after the fire-brick have become highly heated the tile D is moved back, thereby contracting the rear end of the passages F F, and causing the products of combustion to pass in close contact with the highly-heated surface of the fire-brick and be more perfectly consumed.

The rear end of tile D may be raised or lowered, if desired, instead of sliding.

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

1. The tapering passages F F, as constructed in combination with a movable tile, D, which is designed to vary the size of the rear end of the passages, for the purpose specified.

2. The rock-shaft J, in combination with the arm *h*, and movable tile D, and tapering passage F, as and for the purpose specified.

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Witnesses:

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