A. GODILLOT.

Grate-Bars for Furnaces.

No. 208,730. **Patented Oct. 8, 1878.**

Fig. 1.

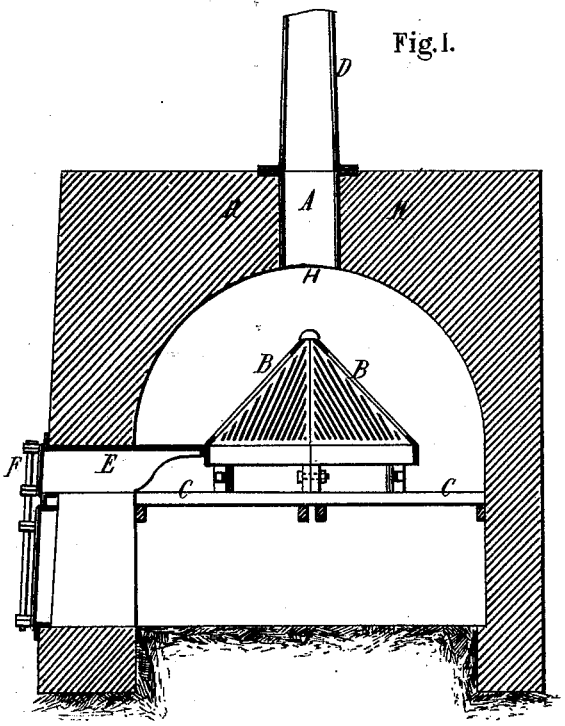


Fig. 3.

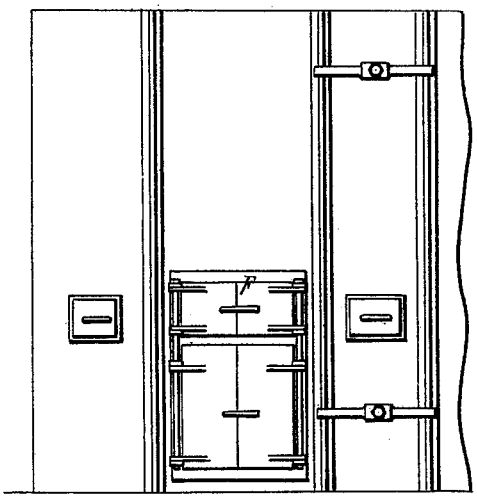
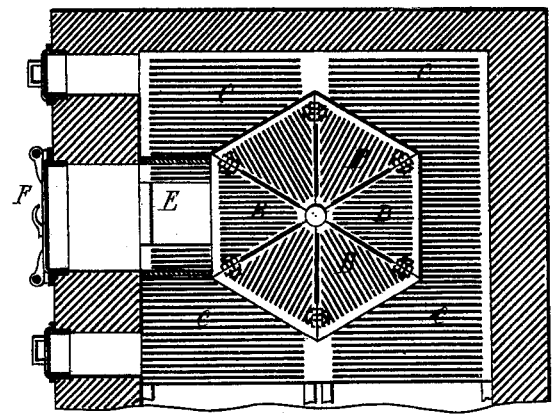


Fig. 2.



Witnesses

J. N. Chumney

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UNITED STATES PATENT OFFICE.

ALEXIS GODILLOT, OF PARIS, FRANCE.

IMPROVEMENT IN GRATE-BARS FOR FURNACES.

Specification forming part of Letters Patent No. **208,730,** dated October 8, 1878; application filed July 12, 1878; patented in France, November 8, 1877.

To all whom it may concern:

Be it known that I, ALEXIS GODILLOT, of Paris, France, have invented certain Improvements in Grate-Bars to be used in Furnaces for Burning Wet or Dry Fuel, of which the following is a specification:

My invention has for its object a system of fire-grate for furnaces intended to burn comminuted fuel, wet or dry. In those furnaces the fuel—such as tan, sawdust, &c.—in small particles, dry or moistened, is usually introduced by orifices in the crown. The fuel, falling on the horizontal grate, accumulates in a mass or heap, becoming compressed by its own weight, so that it is difficult for air to penetrate the mass, and the combustion is consequently imperfect.

I avoid these results by the adoption of the system of pavilion grate which I have contrived, and which is applicable to all kinds of furnaces fed by holes in the crown.

My system consists, essentially, in the addition to the ordinary grate of a grate in the form of a pavilion roof to receive the fuel, which slides along the inclined sides of this grate. Thus the layer of fuel is better spread, air readily penetrates the whole mass, and the combustion is greatly improved. Besides, when desired, I surmount each feeding-orifice in the crown of the furnace with a kind of column tapering somewhat to a larger diameter downward. This column constitutes a fuel-hopper, giving, so to speak, a continuous automatic feed. Finally, the arrangement of my pavilion grate in the furnace is such that the stoker, without admitting cold air, can examine the under side of the grate and discharge the cinders into the ash-pit by means of a rake or poker, which clears the horizontal grate below the pavilion grate.

These essential features of my invention will be readily understood from the annexed drawing.

Figure 1 is a longitudinal vertical section, Fig. 2 is a sectional plan, and Fig. 3 is a front view, of my system of pavilion grate fire applied to a furnace, into which the fuel—tan, sawdust, or the like—in small particles, is introduced by feeding-orifices in the crown.

The horizontal grate C of each fire is surmounted by my pavilion grate B. The name "pavilion" which I give to my inclined grate is derived from its resemblance to a pavilion roof, which I place above the ordinary horizontal grate C.

The pavilion grate B, of pyramidal form, consists of several grated panels, B B B, each inclined. The lower edge of the pavilion grate B is at a certain distance above the level of grate C, to permit the introduction into this space of a rake or poker for clearing the grate. For this purpose a cast-iron piece, E, forming the upper part of the frame for the fire-door F, is extended as an arch up to the grate, Fig. 1.

The level grate C is interrupted under the pavilion, and the arched piece opens out, so as to allow the ashes to form a talus. By this arrangement the fuel, as it is consumed, slides along the sloping panels B, the bars of which follow the line of greatest slope, so that it is not necessary to clear them out. The cinders and ashes collect on the level grate C.

The pavilion grate shown in Figs. 1 and 2 may consist of a greater or less number of grated panels. In the drawing it is shown as formed of six triangular grates, inclined and meeting at the apex. These panels are connected together only by bolts at their bases, being left free at the top to allow for expansion.

The panels may be trapezoidal instead of triangular, so as to constitute truncated pyramids; also the grate might be made in one piece, of conical or other form. Moreover, the form of the pavilion grate will depend on the shape of the feeding-orifices, which may be round, oblong, square, rectangular, or of other shape.

The feed of the fuel, moist or dry—tan, sawdust, &c.—is effected by the orifices A in the crown H of the furnace; but to obtain a continuous and automatic feed, I place over each orifice a column, D, tapering to a larger diameter at the bottom, and serving as a fuel-hopper, Fig. 1.

I am aware that grates with sides inclining upward toward the center have before been

used, and therefore do not broadly claim such construction.

I claim—

The combination of the principal or horizontal grate C and the inclined grate B, arranged above said grate C, and so as to leave an open space between the base of the inclined grates and the horizontal grates, substantially as described.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

ALEXIS GODILLOT.

Witnesses:

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