

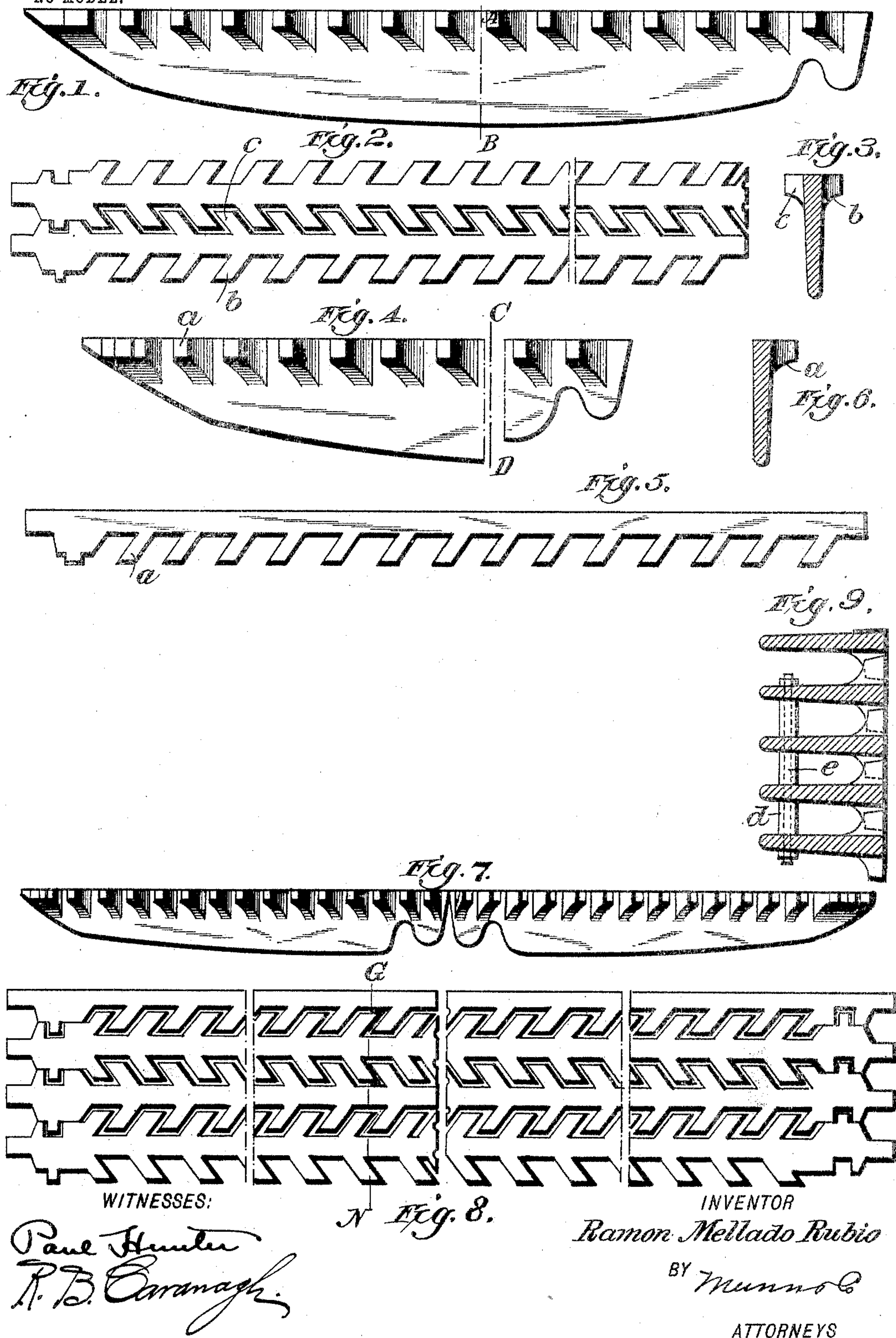
No. 777,352.

PATENTED DEC. 13, 1904.

R. M. RUBIO.
FURNACE GRATE.

APPLICATION FILED JULY 25, 1903.

NO MODEL.



UNITED STATES PATENT OFFICE.

RAMON MELLADO RUBIO, OF PUERTO REAL, SPAIN.

FURNACE-GRATE.

SPECIFICATION forming part of Letters Patent No. 777,352, dated December 13, 1904.

Application filed July 25, 1903. Serial No. 166,970. (No model.)

To all whom it may concern:

Be it known that I, RAMON MELLADO RUBIO, a subject of the King of Spain, and a resident of Puerto Real, Cadiz, Spain, have invented certain new and useful Improvements in Furnace-Grates, of which the following is a full, clear, and exact description.

This invention relates to furnace-grates or the arrangement and form of the fire-bars constituting the same, the object being to provide a form and arrangement of fire-bar adapted for use in boiler and like furnaces burning small coal or the residue obtained by washing coal, with the ultimate object of economy in fuel consumption.

A grate according to the present invention has an area equal to that of ordinary grates; but it is adapted for burning small coal. The fire-bars are arranged closer together than is the case with ordinary grates, being only sufficiently wide apart to allow the fine ash resulting from the small coal to fall between the bars into the ash-pit.

The special form of the grate or arrangement and form of fire-bars constituting the same facilitates the passage of air between the bars and assists the cooling, preventing melting of the angles and consequent breakage or damage. Although the bars are at less distance apart than is usual with ordinary grates, the area for passage of air is greater.

The improved grate obviates the necessity for the use of a clinkering-bar, an ordinary slicer being all that is required.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of a grate-bar embodying my invention. Fig. 2 is a plan view of two grate-bars, showing the position they occupy when in operation. Fig. 3 is a section taken on the line A B of Fig. 1. Fig. 4 is a side view of a slightly-modified form of grate-bar. Fig. 5 is a plan view of one form of my improved grate-bar. Fig. 6 is a transverse sectional view taken on the line C D of Fig. 4. Fig. 7 is a view in side elevation of an assemblage of bars forming a grate. Fig. 8 is a plan view of the same, and Fig. 9 is a section taken on the line G N of Fig. 8.

The grate-bars, which are to be placed against the wall of the furnace, have one side plain and are provided on the other side with inclined teeth *a*, starting from the central portion or body of the bar, as shown in Figs. 1, 4, 5, and 6. The remaining bars have two series of teeth *b* *c*, inclined in the same sense for one bar, but in different senses for two consecutive bars, in such a manner that the teeth of each bar mesh with those of the adjacent bar or bars, as shown in Figs. 2 and 8.

Each grate is formed by three or four groups of bars united by cross-pieces *d*. These cross-pieces comprise short lengths of tubing connected together by a rod *e*, screwed and fitted with nuts at its two ends, as shown in Fig. 9.

With these grates a great saving in the consumption of fuel is realized and the bars last much longer than those ordinarily in use.

After the fire is well lighted in the ordinary manner and after the fuel has been spread over the whole surface of the grate it may be charged with small coal or coal-washings, taking care to form a layer of only slight thickness. The slice is then passed to increase the volume of the coal by raising it.

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

1. A furnace-grate, comprising a plurality of bars, each having lateral teeth inclined in direction of one end of the bar and extending between the teeth of the adjacent bar, alternate bars having their teeth projecting in opposite directions.

2. A furnace-grate, comprising a plurality of bars, each having lateral teeth inclined in direction of one end of the bar and extending between the teeth of the adjacent bar, the outermost bars having teeth on one side and the intermediate bars having teeth on both sides, alternate intermediate bars having their teeth projecting in opposite directions.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RAMON MELLADO RUBIO.

Witnesses:

FRANCISCO CIMIANO Y MIRONES,
JOSÉ RESTEGUI SOLAR.