No. 725,749. PATENTED APR. 21, 1903.

E. A. MOORE.

MEANS FOR PROTECTING COKE OVENS.

APPLICATION FILED SEPT. 10, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

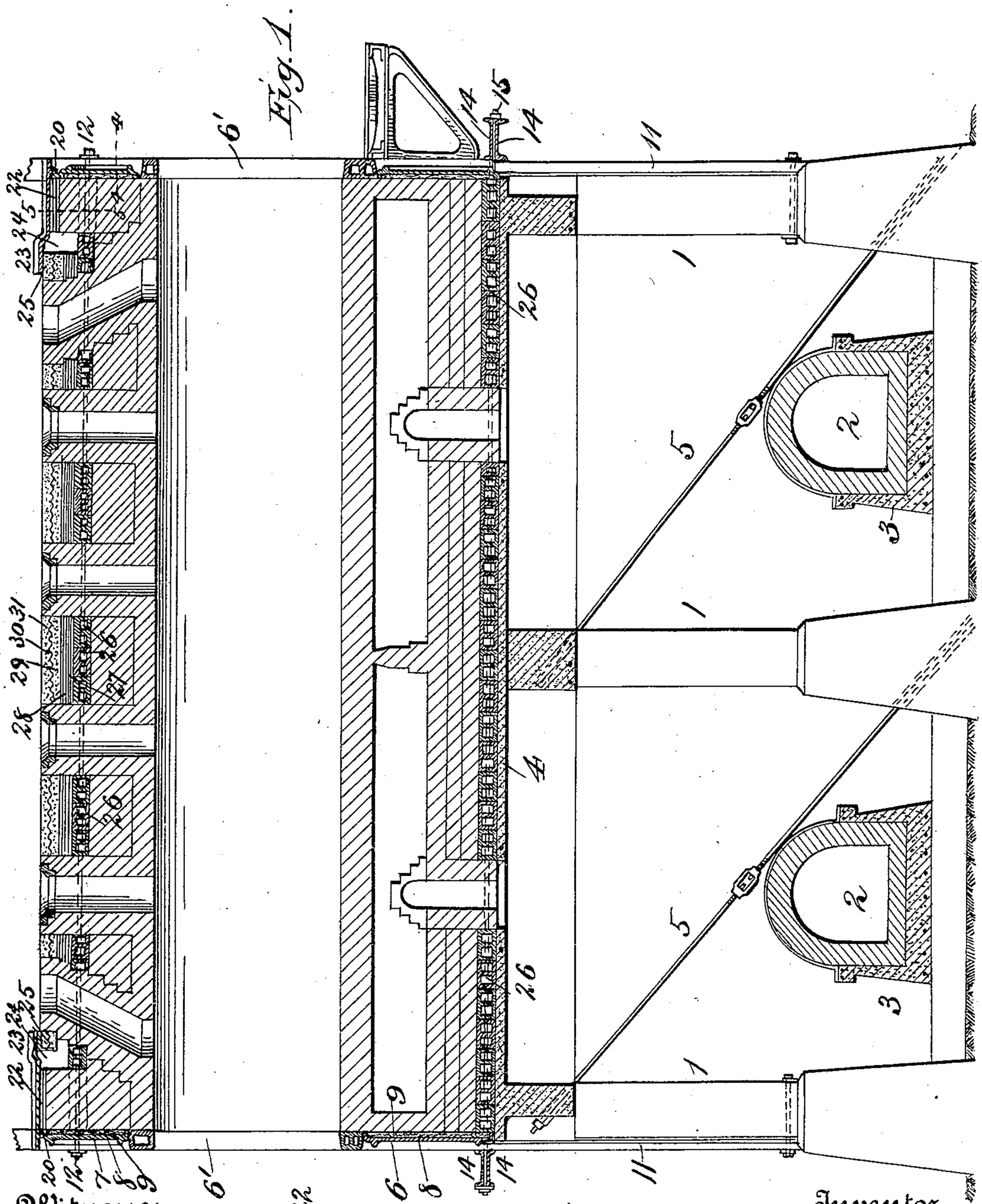
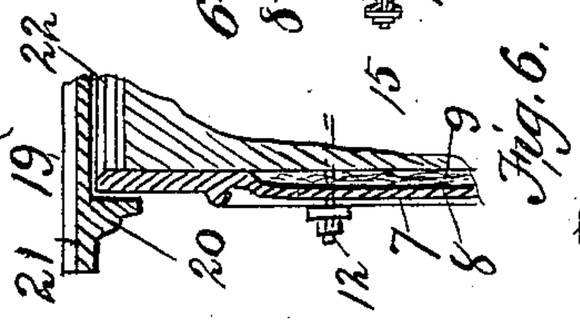


Fig. 6.



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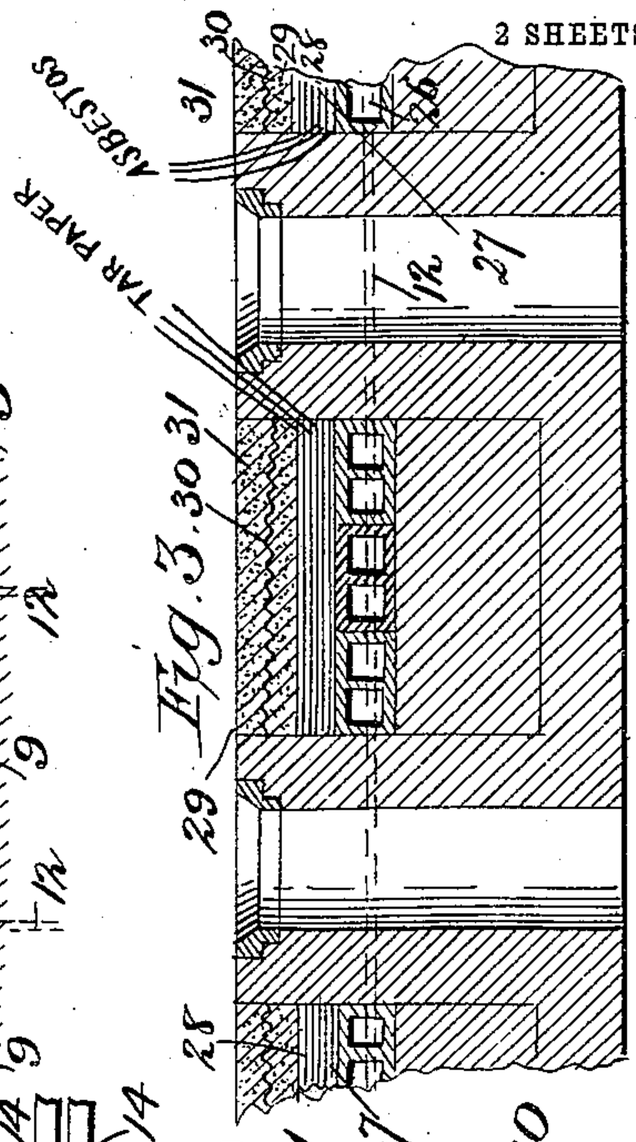

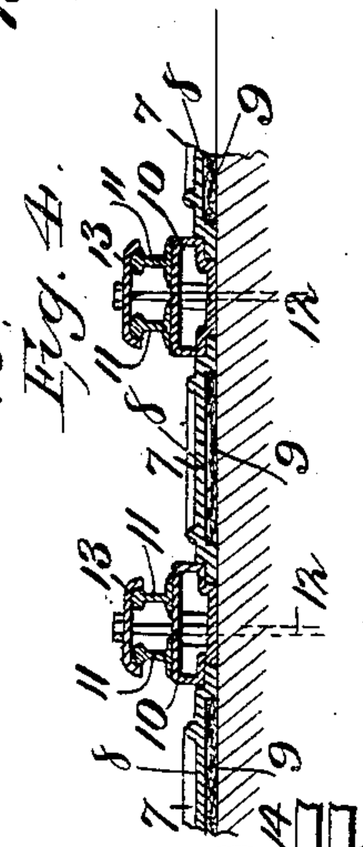

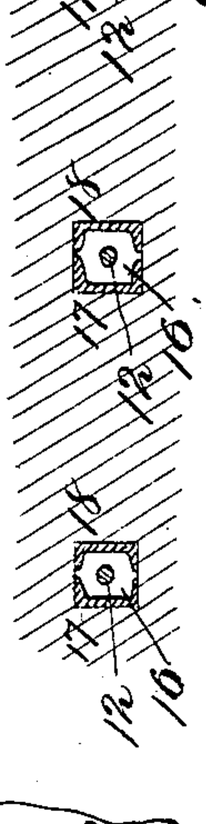

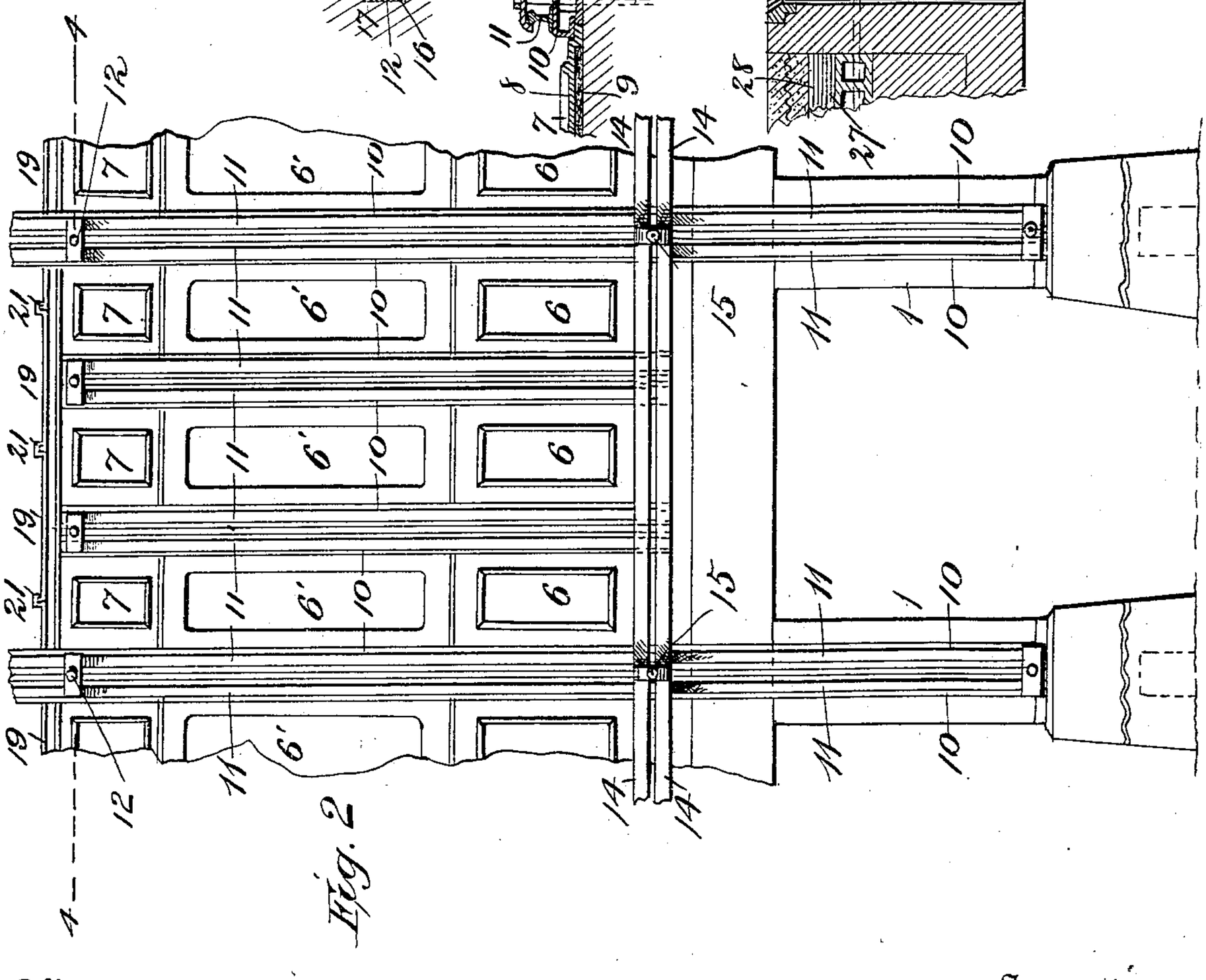

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UNITED STATES PATENT OFFICE.

EDWIN A. MOORE, OF PHILADELPHIA, PENNSYLVANIA.

MEANS FOR PROTECTING COKE-OVENS.

SPECIFICATION forming part of Letters Patent No. 725,749, dated April 21, 1903.

Application filed September 10, 1902. Serial No. 122,752. (No model.)

To all whom it may concern:

Be it known that I, EDWIN A. MOORE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Means for Protecting Coke-Ovens; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates, primarily, to coke-ovens of the type known as the "Otto-Hoffman," has for its object the protection of the brickwork against deterioration from exposure to the elements and prevention of radiation of heat through the top of the oven, and consists in certain improvements in construction, which will be fully disclosed in the following specification and claims.

In the accompanying drawings, which form part of this specification, Figure 1 represents a vertical transverse section of a coke-oven provided with my improvements; Fig. 2, a front elevation of a section of a battery of coke-ovens; Fig. 3, a vertical transverse section on an enlarged scale; Fig. 4, a horizontal section on line 4 4, Fig. 1; and Fig. 5, a vertical section on line 5 5, Fig. 1, showing the air-chamber inclosing the transverse tie-rods.

Reference being had to the drawings and the designating characters thereon, 1 indicates the supporting-columns, 2 the gas-flues, 3 the troughs supporting said flues, 4 the floor, and 5 the tie-rods, all of which are shown, described, and claimed in my application, Serial No. 122,751, filed September 10, 1902.

It is well known that the masonry of coke-ovens exposed to the elements suffers great deterioration, resulting in washing out the mortar between the courses of brick, in the cracks formed in the masonry by expansion, and the breaking off of the brick on the edge of the top of the structure, and that the heat radiated through the top of the structure is so great as to seriously interfere with the comfort of the men who are required to work there. This radiation of heat also becomes a matter of loss in the operation of the ovens, and therefore enters into the cost of producing coke.

It is my purpose to incase the sides of the structure, in which are the openings to the ovens, with metallic sections or panels provided with a material to prevent the radiation of heat through the panels and to protect the top of the structure against radiation of heat and wear and tear of the elements.

The metallic sections or panels are indicated by the numeral 6 below the oven-openings 5, and 7 above the same, and are each provided with a recess 8 in the rear side thereof, which recess is filled with asbestos, mineral wool, or other suitable material 9 to prevent radiation of heat. The sections or panels 6 and 7 are secured in position by hollow cast-iron pilasters 10, which rest upon the panels at their adjacent edges, and upon the pilasters rest buckstays 11, which extend throughout the height of the structure and are secured in position by rods 12, extending across the structure, with a nut on the rod. At the lower end of the panels transverse bars 14, of angle-iron, are applied to hold the buckstays to the panels, and these bars are secured in position by rods 15, also extending across the structure. The transverse rods or bolts 12 are incased in a chamber 16, formed by two sections 17 18 of channel-iron to protect the rods from intense heat by the circulation of air through the chambers around the rods or bolts.

19 indicates sections or panels of iron on top of the structure, running along the edges, overlapping the panels 7 at their upper end, and having a lip 20, which engages the panels, and the edges of the panels 19 overlap each other, as shown at 21 in Fig. 2.

Under the panels are asbestos fillings 22 in sheets or in blocks, and at the inner end of the panels are raised portions 23, which span or cross a channel 24 to allow for expansion of the masonry and rest upon the concrete surface 25 to move freely thereon as the masonry expands and contracts.

26 indicates two courses of hollow tiles forming dead-air chambers to prevent radiation of heat from the ovens, and above the upper course of tiles and dead-air chambers is placed asbestos felt 27, in two or more layers, then two or more layers of tarred paper 28, upon which is laid cement 29, then a layer or sheet of expanded metal 30, which in turn

is covered with cement 31, thus forming a covering which prevents radiation of heat from the ovens and thoroughly protects the top of the structure against the destructive effects of the elements and presents a durable wearing-surface. The tiles of the lower course, resting on the floor 4, are closed at their ends to form dead-air chambers in the tiles to prevent radiation of heat from the ovens.

Having thus fully described my invention, what I claim is—

1. A coke-oven having its sides incased in metallic sections provided with recesses in the rear sides thereof, and heat-non-conducting material in said recesses.

2. A coke-oven having metallic sections provided with recesses in the rear sides thereof filled with a heat-non-conducting material, covering the sides of the oven and the top edges thereof, the latter sections engaging the upper edges of the sections on the sides of the oven, and means for securing the sections to the masonry.

3. A coke-oven having its sides incased in metallic sections provided with a heat-non-conducting lining; in combination with the buckstays of the oven, engaging and retaining said sections in position.

4. A coke-oven having its sides incased in metallic sections; in combination with pilasters engaging said sections, buckstays engaging the pilasters, and rods engaging the buckstays.

5. A coke-oven having a covering of heat-non-conducting material, a stratum of concrete, a layer or sheet of expanded metal, and an outer stratum of concrete.

6. A coke-oven; in combination with transverse tie-rods, and air-chambers formed of metal surrounded by masonry and inclosing said rods.

In testimony whereof I affix my signature in presence of two witnesses.

EDWIN A. MOORE.

Witnesses:
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C. W. METCALFE.