W. R. WOOD.

MECHANICAL STOKER.

APPLICATION FILED JUNE 4, 1908.

987,661.

Patented Mar. 21, 1911.

3 SHEETS—SHEET 1.

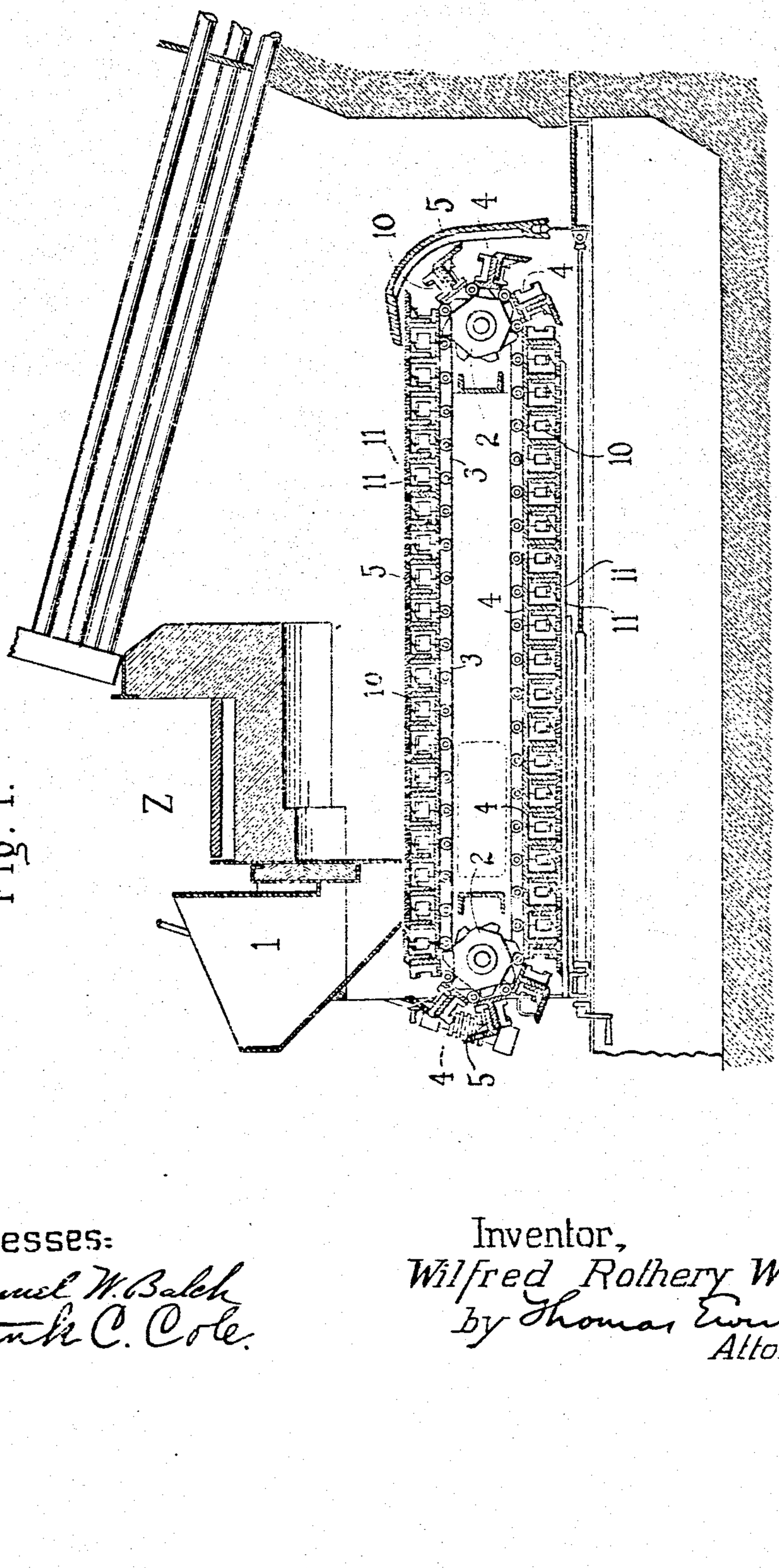

Fig. 1.

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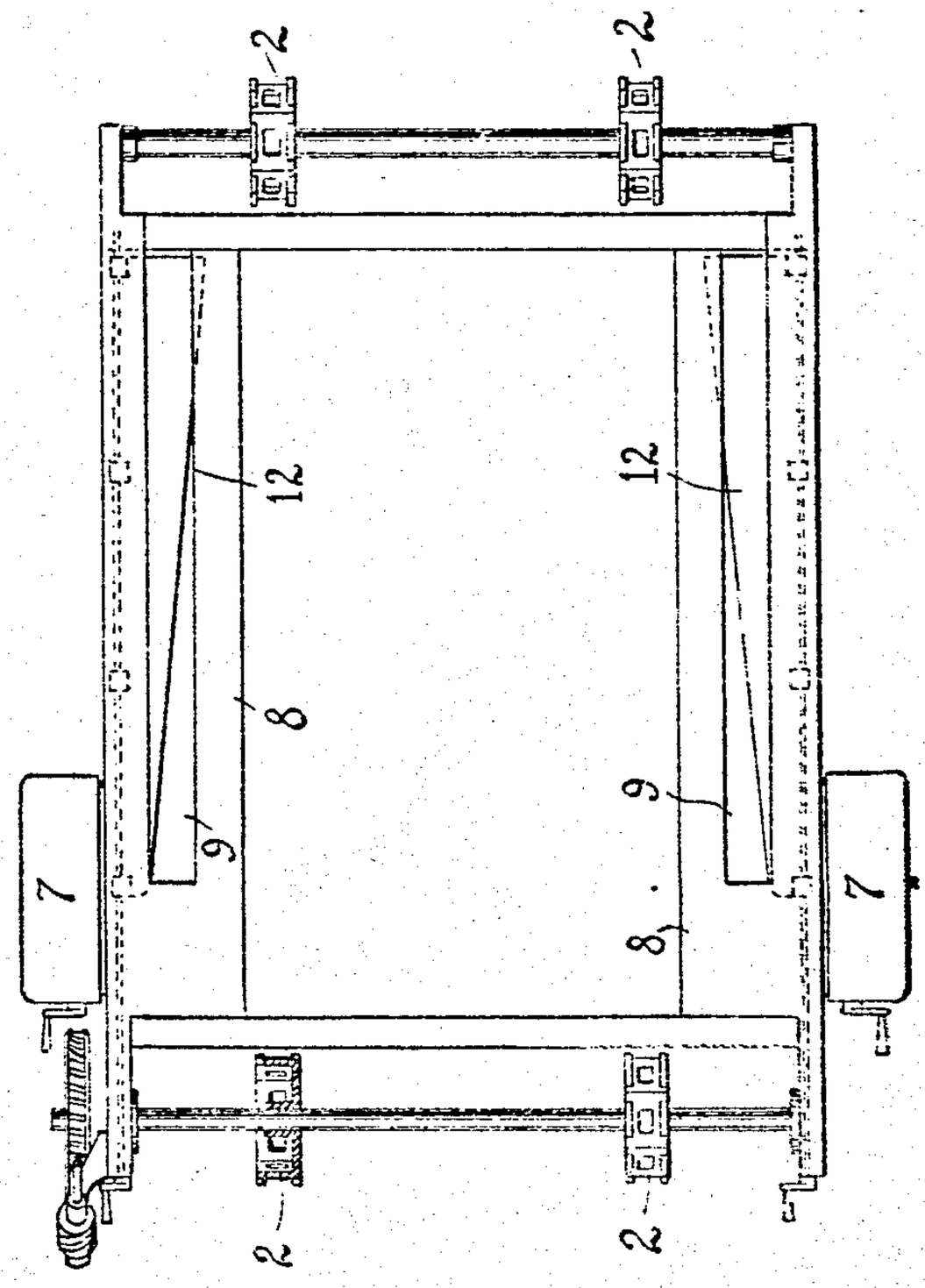
3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS--SHEET 3.

Fig. 3.

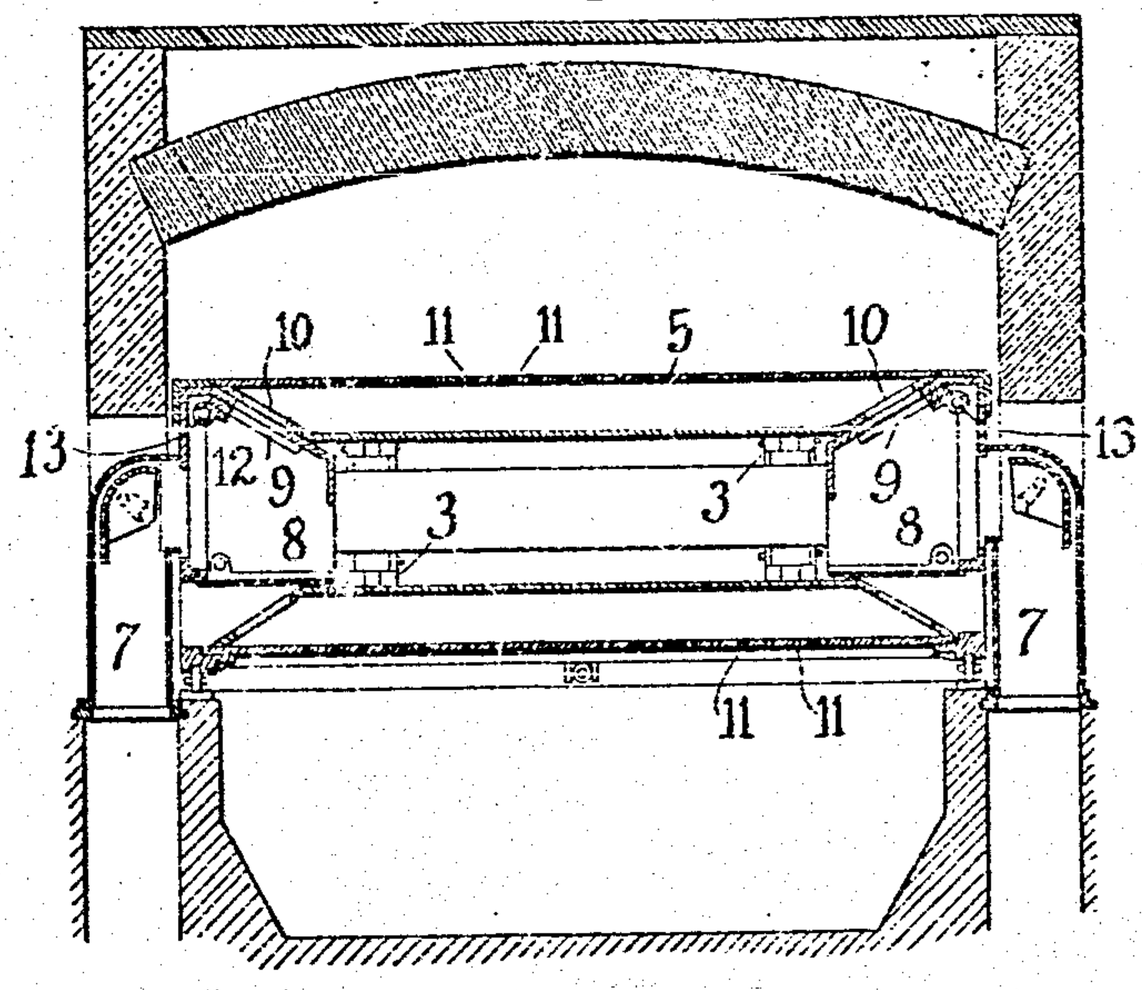


Fig. 4.

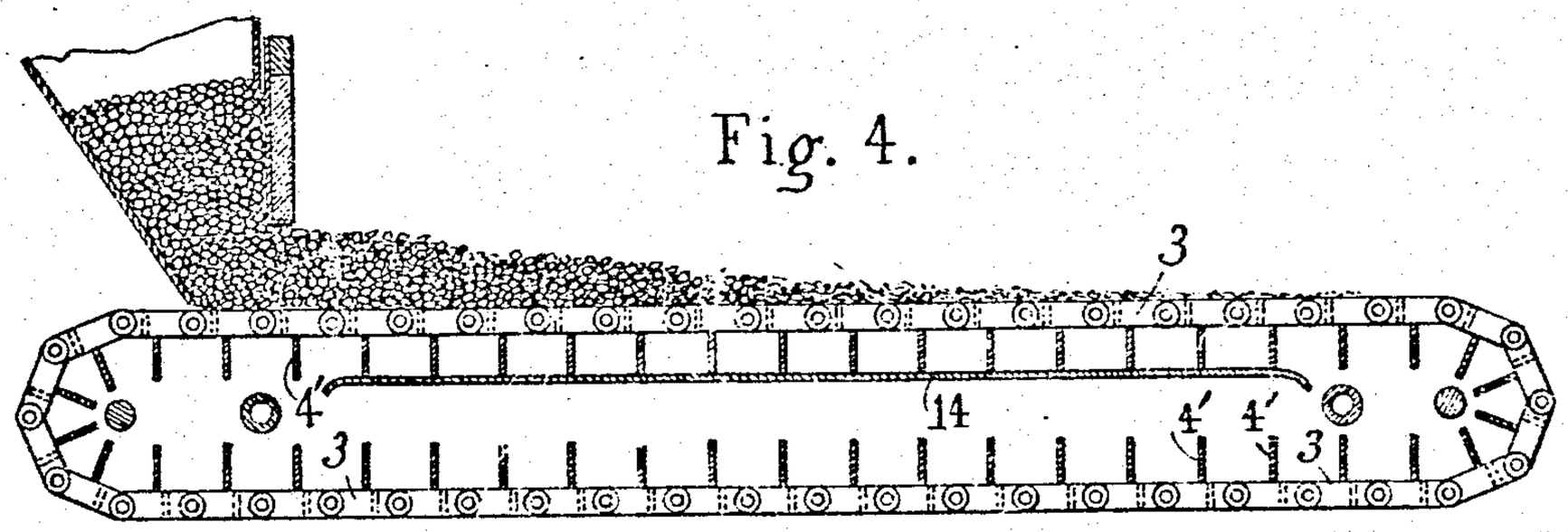
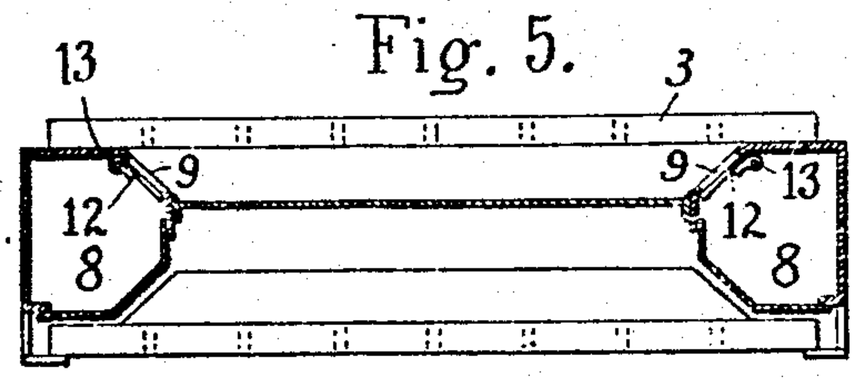


Fig. 5.



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UNITED STATES PATENT OFFICE

WILFRED ROTHERY WOOD, OF LONDON, ENGLAND. ASSIGNOR TO THE AMERICAN STOKER COMPANY, OF ERIE, PENNSYLVANIA, A CORPORATION OF NEW YORK.

MECHANICAL STOKER.

987,661. Specification of Letters Patent. Patented Mar. 21, 1911.

Application filed June 4, 1908. Serial No. 436,611.

To all whom it may concern.

Be it known that I, WILFRED ROTHERY WOOD, a citizen of the United States of America, residing at London, England, have invented a certain new and useful Improvement in Mechanical Stokers, of which the following is a specification.

This invention relates to a construction in which an endless chain formed of pivoted links is caused to pass from a sprocket wheel approximately beneath the fuel feed hopper to a second sprocket wheel at the back of the furnace where the chains encounter a stripper plate which removes the unconsumed fuel or refuse which passes thence to the ash-pit. The air to support combustion is usually if not always supplied by induced or natural draft passing out between the links of the endless chain. As the coal is naturally of greater depth and of closer texture, taken as a mass, at the feed end, than it is at the rear end after partial consumption and coking, difficulty has been experienced in securing equality of combustion and suitable distribution of air throughout the length of the fire-chamber.

To obviate this drawback is one of the objects of this invention.

Another object of the invention relates to a simple construction of traveling chain-grate whereby transverse air-boxes are provided under the grate.

In the accompanying three sheets of drawings which form a part of this application—Figure 1 is a sectional elevation of a furnace showing a stoker constructed in accordance with this invention. Fig. 2 is a plan view showing the draft boxes, the grate-bars being omitted. Fig. 3 is a cross section on the line Z—Z of Fig. 1. Figs. 4 and 5 are respectively a sectional elevation and a cross section of a modified form of endless chain-grate, in which the links are at the outer face.

In the form shown in Figs. 1 to 3 inclusive, there is a hopper 1 and sprocket wheels 2 2 carrying an endless chain-grate consisting of links 3 3 from which project T-pieces 4 4 to which on one side of each is attached an angle piece 5, which, in conjunction with the piece 4 on the link next in order, forms the top or outer face of a transverse air-box when traveling horizontally. All the parts described as connected with each link, or pair of links, may be made as a single casting. This results in a traveling chain-grate consisting of transverse box sections linked together formed of a bottom section carrying the link, an upright section cast therewith, and an attached angle section secured to the upright section, the outer end of the attached section being formed to pass just over the upright section of the links next in order when traveling horizontally, but when traveling around the inner sprocket wheel any small dust which may possibly have crept in will be discharged by gravity from the then open sides of the boxes. The top sections of the boxes are provided with holes or grate openings 11 for the admission of air to the fuel. The lower sections or T-pieces have their bottom flanges turned up at an angle at the ends and pieces cut out so that each will make with the sections next in order openings or ports 10 10 for the admission of air to the boxes. These ports are opposite longitudinal slots in fixed draft boxes 8 8.

The air to support combustion enters from pipes 7 7 into the draft boxes, passing thence through openings 9 9 to the ports in the transverse boxes of the chain-grate, and thence through the grate openings to the fuel. The amount of air passing to the ports in the transverse boxes may be governed by plates or grates 12 12 hinged in each of the draft boxes and raised or lowered by suitable lever and crank connections from outside the furnace wall. Each plate or gate is tapered so that when raised full draft is open only to the transverse boxes near the front and gradually decreases the opening into the boxes toward the rear where it is practically closed. When the plate is lowered full draft is open to all of the boxes which underlie the fuel.

In the construction illustrated in Figs. 4 and 5 depending plates 4′ 4′ are fastened to or form part of the links and pass over a fixed plate 14 while carrying the fuel forward. The chain-grate and depending plates form with the fixed plate transverse air-boxes which are carried forward with the grate. The air inlets to the boxes thus formed are governed as before described.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a furnace, the combination with an endless traveling chain-grate having a series of transverse air-boxes in communication

with the grate openings, of a draft box having a port parallel with the line of travel of the grate and communicating with the transverse air-boxes of the grate, and a tapered gate decreasing the width of the port toward the rear whereby the air admitted to the transverse air-boxes may be decreased toward the rear, substantially as described.

2. In a furnace, the combination with an endless traveling chain-grate, of a series of plates depending therefrom, a fixed plate over which the depending plates are caused to be passed, whereby transverse air-boxes are formed which are carried forward with the grate, a draft box having a port parallel with the line of travel of the grate and communicating with the transverse air-boxes of the grate, and a tapered gate decreasing the width of the port toward the rear, whereby the air admitted to the tranverse air-boxes may be decreased toward the rear, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILFRED ROTHERY WOOD.

Witnesses:
B. HENDERSON,
H. C. WOODCRAFT.