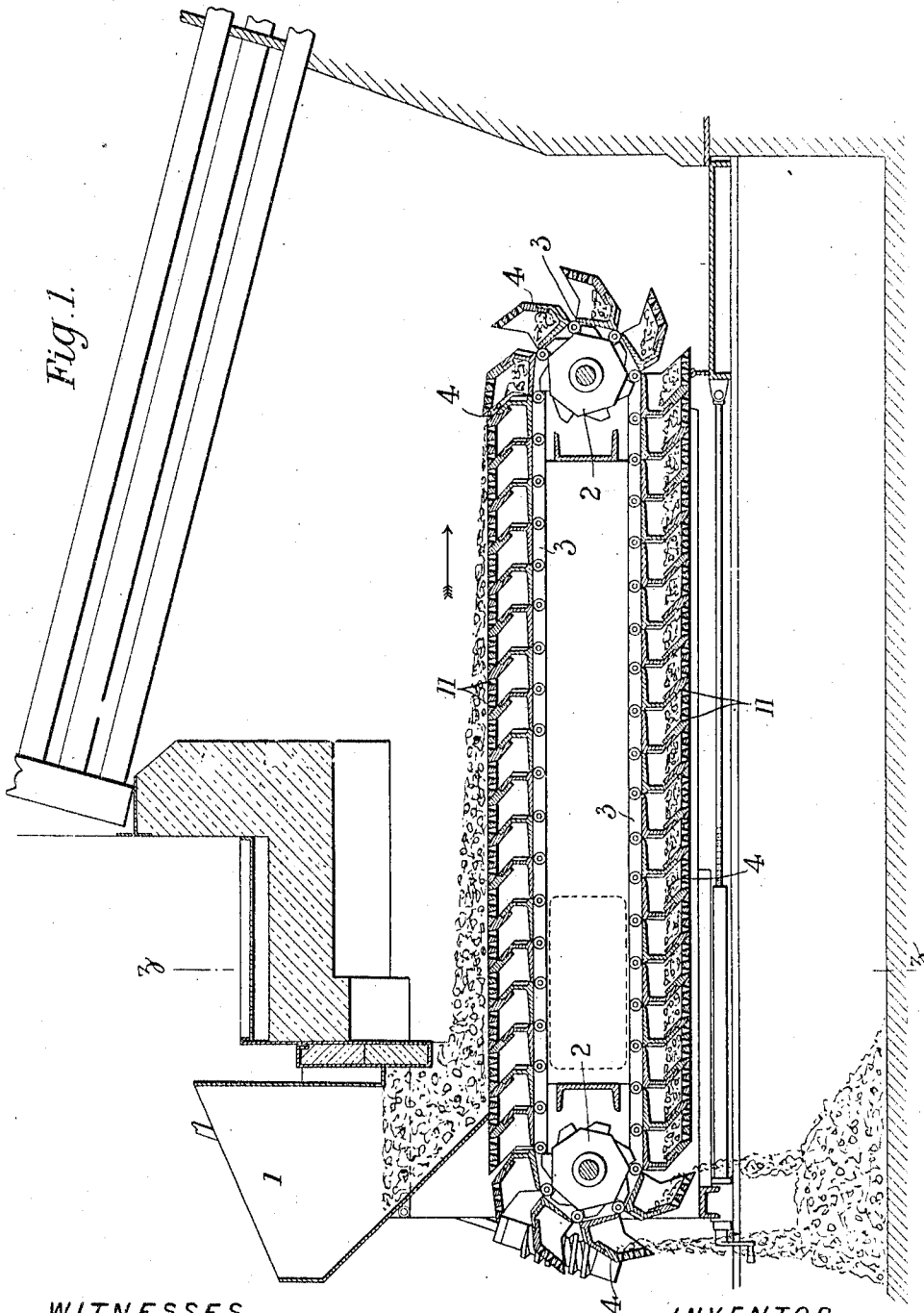


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MECHANICAL STOKER.
APPLICATION FILED FEB. 23, 1910.

970,868.

Patented Sept. 20, 1910.

2 SHEETS—SHEET 1.



WITNESSES.

H. H. Bunkel

Milton Ottenberg

INVENTOR.

W. R. Wood

by John Freeman Watson & Co. Inc.
1047

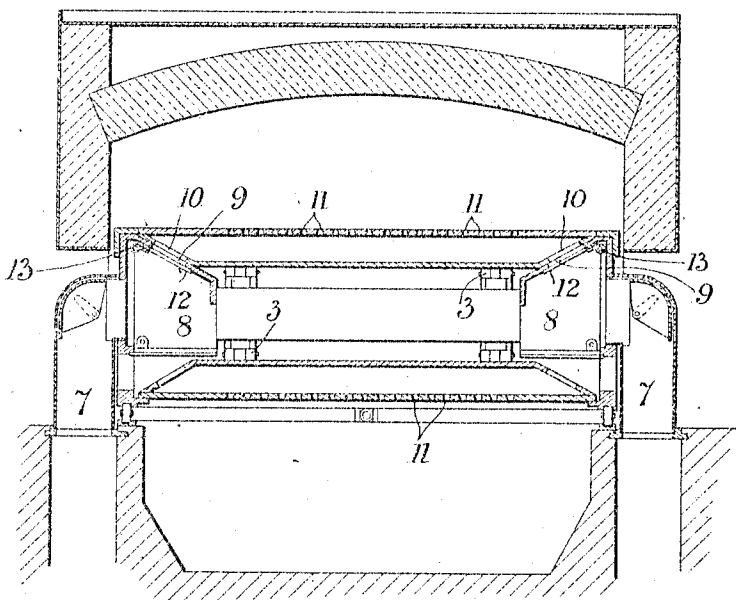
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2 SHEETS-SHEET 2.

Fig. 2.



WITNESSES.

W. H. Hunkel
Milton Ottenberg.

INVENTOR.

W. R. Wood
by Foster, Freeman, Watson & Co.
Attys

UNITED STATES PATENT OFFICE.

WILFRED ROTHERY WOOD, OF LONDON, ENGLAND.

MECHANICAL STOKER.

970,868.

Specification of Letters Patent. Patented Sept. 20, 1910.

Application filed February 23, 1910. Serial No. 545,476.

To all whom it may concern:

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

Among other proposals that have been made for feeding fuel furnace chambers may be mentioned a construction in which endless chains formed of pivoted links are 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 remove the unconsumed fuel or refuse which passes thence to the ash pit. In such construction the air to support the combustion is usually if not always supplied by induced or natural draft entering through the ash pit and passing up between the links of the endless chains.

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, and to partially obviate this drawback it has been proposed to place an inclined plate or series of plates at or near the rear of the furnace beneath the chains and by regulating their angle of opening either with relation to the chains or to fixed plates to limit or increase the amount of air which will pass through the chains at those points, and various other proposals have been made for regulating the relative amounts of air passed to different sections of furnace grates.

According to my prior British Specification No. 13334 of 1907 it is proposed to employ as the grate surface complete box or channel sections linked together and which may be conveniently formed of a bottom section carrying the link an upright section formed in one therewith and an attached angle section secured to the upright section the outer end of the attached section being adapted to pass just over the upright section next in order thus forming open ended boxes when the channels are traveling horizontally and with such construction not only is a practically even grate surface obtained but when the channel sections are traveling

around the inner sprocket wheel any small dust which may have possibly crept in will be discharged by gravity from the then open side of the box, the top sections of which are provided with holes for the admission of air to the fuel while the lower sections are provided with one or more end openings corresponding with longitudinal slots in a fixed draft box which slots can be more or less closed by pivoted longitudinal plates capable of being operated by lever and crank connections from outside the boiler wall.

The above construction is efficacious for the purpose intended but in many cases where the distance from the front to the back of the grate is 3 to 6 or more meters in length it is difficult to remove the ash and any unburned fuel from the back of the ash pit and this drawback is overcome according to the present invention by so constructing the channel sections that when they open at the back of the furnace the ash and any unburned fuel will fall into the open channels which will then close and carry the ash and unconsumed fuel to the front of the ash pit where on the channel sections opening the refuse will be discharged. In other words by reversing the direction of the top plate shown in my prior British specification it is possible to deliver the ash and unburned fuel at the front of the ash pit instead of at the rear.

In the accompanying drawing:—Figure 1 is a side sectional elevation of a traveling grate according to this invention, and Fig. 2 is a cross section on *z z* of Fig. 1.

As shown in the drawing, 1 is the hopper, 2 the sprocket wheels carrying the endless chains shown in Figs. 1 and 2 as consisting of links 3 from which project T or channel pieces 4 which in conjunction with piece 4 on the link next in order forms the top or outer face or fuel carrying surface when traveling horizontally. T or channel pieces 4 have the bottom flange turned up at the ends and pieces cut out to make with the link next in order an opening or port 10 for the air inlet as hereafter described, or the entire channel piece taken as a whole may be made as a single casting.

The air to support combustion is shown as entering from pipes 7 into draft boxes 8 passing thence through openings 9 to ports 10 in the grate bars and thence through openings 11 to the fuel.

The amount of air passing to ports 10 may be governed by a plate or gate pivoted near the front of draft box 8 and raised or lowered at the inner end by any suitable connections, or as shown in the drawings the plate or gate 12 may be tapered and hinged at the side 13 so that when lowered full draft is open throughout all the top channels and when raised as shown in Fig. 2 is full open near the front and gradually decreases the air inlet toward the rear where it is practically closed.

With the construction shown it will be noted that beneath the outer face of the top of each channel is an inclosed air chamber traveling with the link and receiving and delivering the air as it travels to the rear of the furnace.

When the channel sections reach the inner sprocket wheel 2 they will separate and the bulk of the ash and unburned fuel will fall into the channel section next in front of that just opening and as the parts again come into a horizontal plane they close and carry forward the inclosed ash or unburned fuel and discharge same at the front of the ash pit as the channel sections open on going around the front sprocket wheel.

What is claimed is:—

1. In traveling grate stokers of the class described a fuel carrying surface formed by the upper plates of a series of contacting channel sections, means for so separating and closing the contacting channel sections at the inner and outer ends of the furnace that the ash and unburned fuel will be caught within the channel sections at the inner end and delivered at the outer end of the furnace.

2. In traveling grate stokers, endless chains channel sections adapted to contact carried thereby, means for admitting air at the ends of the sections, means for so opening and closing the channel sections at the inner and outer ends of the furnace that the ash and unburned fuel will be caught within the sections at the inner end and delivered at the outer end of the furnace.

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.