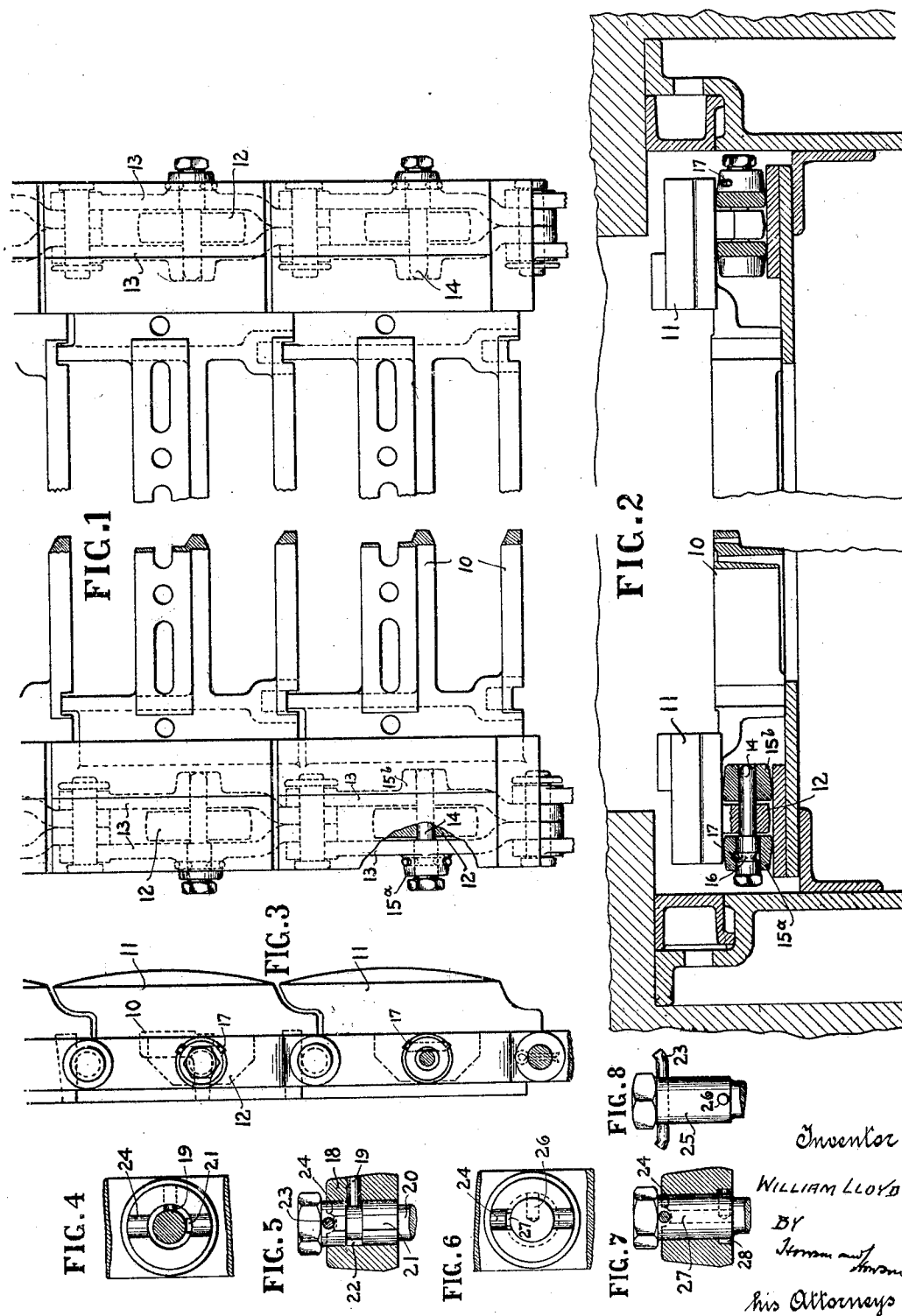


1,368,172.

Patented Feb. 8, 1921.



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UNITED STATES PATENT OFFICE.

WILLIAM LLOYD, OF HAZLETON, PENNSYLVANIA, ASSIGNOR TO COXE TRAVELING GRATE COMPANY, OF PORT CARBON, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

TRAVELING GRATE.

1,368,172.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM LLOYD, a citizen of the United States of America, residing at Hazleton, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Traveling Grates, of which the following is a specification.

My invention relates to traveling grates and particularly to grates of the type comprising transverse grate bars supported at each end by endless chains, the object of my invention being to provide an improved device for fastening the grate bars to the chains in such manner that they may be readily attached and detached for repairs or replacement during the operation of the grate.

In the accompanying drawing,

Figure 1 is a plan of portion of the grate partly broken away;

Fig. 2 is a broken cross section thereof;

Fig. 3 is a side elevation, partially in section;

Fig. 4 is a cross section and Fig. 5 is a longitudinal section through portion of a fastening device of modified construction;

Figs. 6 and 7 are similar views of a further modification; and

Fig. 8 is a partial side elevation of the bar pin alone.

In the operation of traveling grates of the automatic stoker type, it is not infrequently necessary to repair or replace a grate bar or the fuel-supporting keys carried thereby, and it is highly desirable that the mounting of the grate bars on the supporting chains shall be such that the bars can be quickly detached from the chains as they round the sprocket at the end of their return travel. The present invention provides means accessible wholly from the outer sides of the grate, by which the connecting means between the grate bars and the supporting chains may be readily disengaged to free the grate bar from the chain and permit its removal for repairs or quick replacement by a perfect bar while the grate is in motion. It is thus unnecessary to interrupt the operation of the furnace.

In the accompanying drawing I have shown a grate bar of the general type used in the Coxe grates, and comprising a central, depressed web portion 10 terminating in end

blocks 11, which overlies and rest upon the supporting chains. I have omitted from the drawing the dovetail rib carried by the web 10 and the grate bar keys mounted on the rib and extending between the end blocks 11, since they do not enter into the subject matter of the present invention. Each end block 11 is provided with a depending lug 12 which lies between the opposite sides of the link 13 and is secured in position by a bar pin 14, which passes through registering holes in the sides of the link and lug. In order to reinforce the link at the bearing point of the pin 14, each member of the link is provided with a boss or hub 15^a—15^b. In the present construction, the several holes in the lug 12 and links 13 are plain, and the pin 14 passes freely into inserted position. In order to hold it against escape, the enlarged head end of the pin is grooved at 16, while the hub 15^a of the outer side member of the link is pierced horizontally to receive a soft metal lock pin 17, which, in inserted position, engages the channel 16 in the head end of the bar pin. By offsetting the ends of this lock pin 17, its accidental escape from the hub 15^a is prevented, while, at the same time, it is readily straightened at one end and driven out when it is desired to remove the bar pin 14. It is obvious that as soon as the lock pin 17 is driven out, the bar pin 14 may be withdrawn and the grate bar lifted from the chain.

In Figs. 4 and 5, I have shown a modified construction in which the bar pin is connected to the chain by a bayonet slot joint. To this end, the hub 18 of the outer link member is provided with a stud 19 which projects into the bore of the hub. To permit the bar pin 20 to enter into full engagement with the link, its enlarged head end is longitudinally slotted at 21 and circumferentially channeled at 22. On the insertion of the pin 20, the slot 21 must be brought into register with the stud 19, which then slides through the slot into the channel 22. In order to prevent the bar pin from accidental escape, it is then turned through an angle of 90° and a cross pin 23 driven through a hole therein and engaging a groove 24 formed in the outer face of the hub 18. When it is desired to remove the grate bar from the chain, it is only necessary to drive out the cross pin 23, turn the bar pin 20

through an angle of 90° to bring its slot 21 into register with the stud 19, and then pull it out.

In Figs. 6, 7, and 8, the same type of connection is made in another way by providing the bar pin 25 with a projecting stud 26 and correspondingly channeling the hub 27 of the outer link 13 to permit the stud 26 to pass all the way therethrough, or as far as an internal groove 28 cut in the inner face thereof, the latter form being preferable inasmuch as it protects the pin 26 against wear or injury by the depending lug 12. After the stud 26 has been passed through into the circumferential channel 28 and rotated through an angle of 90°, the cross pin 23 may be inserted and engaged in the groove 24, as in the previous construction, thus holding the bar pin against accidental escape.

The several constructions shown are of particular advantage in that they require no threading of either the bar pin or bores of the outer hubs of the chain links, which not only adds to the expense of manufacture, but has the practical disadvantage that, under operating conditions, the threads may become rusted together and the unscrewing of the bar pin thereby rendered difficult. Various other means for accom-

plishing the same result will readily occur to those skilled in the art which do not, however, depart from what I claim as my invention.

I claim:

1. In a traveling grate, a chain having a hub link, a grate bar having a lug engaging said hub link, said lug and link being pierced in register at the hub of the link, together with a bar pin passed freely through the hub of said link and chain lug from the outer side of the chain, and means engaging the hub of the link and freely accessible from the outer side of the chain for holding the bar pin in engaging position.

2. In a chain grate, a supporting chain having a link provided on its outer side face with a projection, a grate bar having a depending lug associated with said link, a bar pin freely piercing said link and lug from the outer side of the grate to secure the bar to the chain, together with a locking pin freely engaging said bar pin and projection and readily insertible and removable from said outer side of the grate to hold the bar pin against escape.

In testimony whereof I have signed my name to this specification.

WILLIAM LLOYD.