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MECHANICAL STOKER.
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Fig. I.

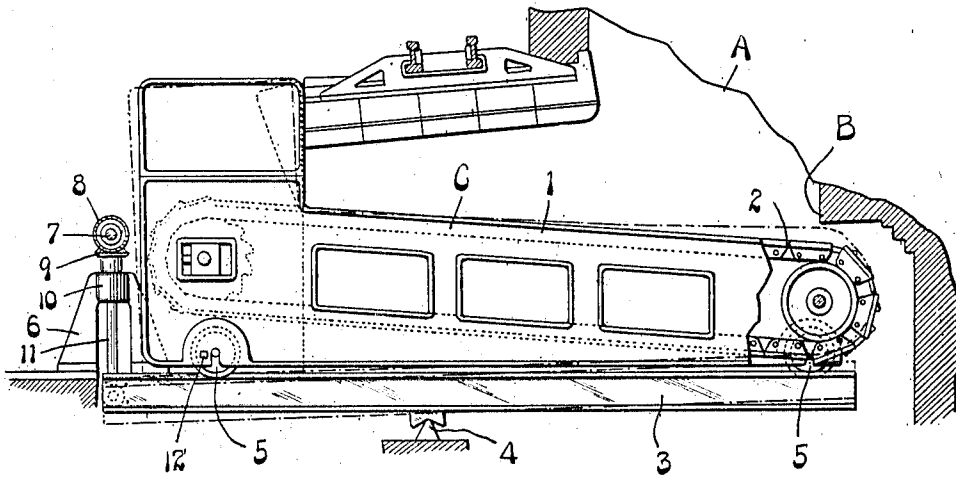
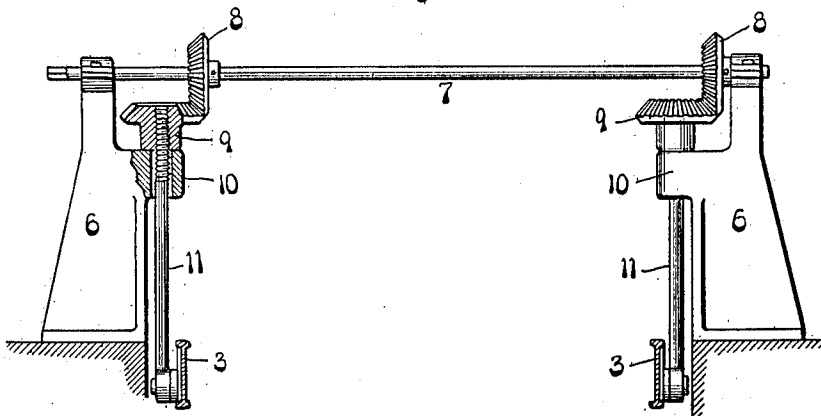


Fig. II.



Attest
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MECHANICAL STOKER.

1,031,254.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM M. DUNCAN, a citizen of the United States of America, and resident of Alton, in the county of Madison and State of Illinois, have invented certain new and useful Improvements in Mechanical Stokers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to mechanical stokers, and it has for its object to so mount a mechanical stoker within the combustion chamber of a furnace as to provide for the stoker being adjusted to a position that will prevent discharge of the residue from the fuel on the grate over the tail end of the stoker, and thereafter to a position permitting such discharge. By so mounting a stoker, I afford opportunity for the thorough consumption of the fuel supported by the traveling stoker grate, as distinguished from the incomplete combustion liable to occur where there is continued discharge of residue over the tail end of the stoker, and much unburned fuel is carried over with the residue.

Figure I is in part an elevation and in part a vertical section of my stoker and a portion of the furnace in which it is shown mounted. Fig. II is in part an elevation and in part a vertical section of means for tilting the stoker.

In the drawings:—A designates a portion of a furnace at the location of its combustion chamber, and which includes at the rear end of the combustion chamber an overhanging member B that may jut forwardly from the ordinary bridge wall.

1 designates the frame of a mechanical stoker C adapted to occupy the combustion chamber of the furnace A, and which supports the traveling stoker grate 2. The stoker, including its frame and traveling grate, may be of any ordinary usual construction, inasmuch as no invention *per se* is herein claimed for the stoker proper.

My improvement, generally considered, consists in the provision of means whereby the stoker C is tiltably supported to permit of the rear end of the stoker being elevated to a position that provides for the fuel and residue carrying portion of the stoker grate

being placed in juxtaposition to a surmounting element, such as that which will temporarily restrain the ashes, or other residue of combustion of fuel on the grate.

In the preferred form of my improvement, the stoker C is mounted upon a support or supports which may comprise a pair of rails 3, tiltably mounted intermediate of their ends on pivot devices 4 which may be of knife-edge, or other suitable form. The platform preferably comprises the rails 3, in order that the stoker may be moved thereon into and out of the furnace in which it is used, in which instance the stoker is shifted as a carriage which travels upon the rails, being furnished with track wheels 5 resting on said rails.

Any suitable means for tilting the stoker support may be provided, but I prefer to utilize the means illustrated in the drawings, which comprises the following parts: 6 designates standards located adjacent to the forward ends of the rails 3, and serving as supports for an operating shaft 7 which occupies a horizontal position in front of the stoker C. The shaft 7 has fixed to it bevel wheels 8 that mesh with bevel wheels 9 resting on ledge brackets 10 extending horizontally from the standards 6. 11 are connecting rods pivoted to the rails 3 and extending upwardly therefrom through the ledge brackets 10, the rods being threaded at their upper ends and located in the bevel wheels 9, thereby providing for the vertical adjustment of the rods, due to the operation of their screw threaded portions through said wheels when the wheels are rotated by the operating shaft 7. It will be apparent that when the operating shaft is turned in one direction, the rails 3 will be tilted, causing their forward ends to be lowered, and their rear ends to be elevated, whereas, when the shaft is rotated in the opposite direction, there will be reverse tilting of said rails.

As the front end of the stoker is much heavier than the rear end thereof, the track rails 3 are supported at their front ends by the connecting rods 11, the bevel wheels 9 being forced onto the ledges 10 by the weight of the front end of the stoker. The shaft 7 and bevel wheels 8 may be removed from the standards 6 to permit the removal of the stoker from the furnace.

From the foregoing, it will be readily un-

derstood that the entire stoker C may be so tilted as to place its traveling grate in close proximity to the member B of the furnace, and maintain it in such position, whereby a bank of residue from burning fuel will be produced on the grate in front of the element B. The bank of residue thus produced serves to retain the fuel on the grate in front of it until there is opportunity for complete combustion of the fuel as it is gradually fed toward the element B. Whenever the accumulation of residue becomes excessive, such residue may be readily discharged over the tail end of the stoker by tilting the stoker to move its rear end downwardly from the position seen in dotted lines Fig. 1 to the position seen in full lines, and immediately after the excess of residue has been discharged, the stoker may be returned to its former position to occasion the formation of a fresh bank of residue that will serve the same purpose as the previously existing bank.

The stoker illustrated in the drawings may be readily held from longitudinal movement on its support by any suitable means, the means shown comprising a pin 12 extending through the stoker frame and engaging one of the track wheels 5.

I claim:—

1. The combination with a furnace, of a tiltable mechanical stoker in the combustion chamber of said furnace, a tiltable platform supporting said stoker, the furnace being provided with an element located above the rear end of the stoker, into proximity with which the rear end of the stoker may be tilted to provide for the restraint of the load

on the stoker grate while said grate is in motion.

2. The combination with a furnace, of a wheeled stoker in the combustion chamber of said furnace, and tiltable track rails supporting said stoker whereby the rear end of the stoker may be raised and lowered, said furnace being provided with an abutment into proximity with which the rear end of said stoker may be moved to provide for said abutment serving as a barrier to the movement of the load on the stoker grate.

3. The combination with a furnace, of a wheeled stoker in the combustion chamber of said furnace, and tiltable supporting rails on which said stoker rests, a barrier element at the rear end of the combustion chamber of the furnace above said stoker, and means for tilting said rails to elevate the rear end of the stoker into proximity with the said barrier element whereby the said barrier element may restrain the movement of fuel over the tail end of the stoker.

4. The combination with a furnace, of a wheeled stoker in the combustion chamber of said furnace, track rails upon which the wheels of said stoker are mounted, means for locking said wheels, a pivotal support for said track rails, and means for rocking said track rails on said pivotal support, said furnace being provided with a fuel retarding abutment into proximity with which the rear end of the stoker may be moved.

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In the presence of—
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A. R. CROSSMAN.