H. KURTENACKER.

FURNACE.

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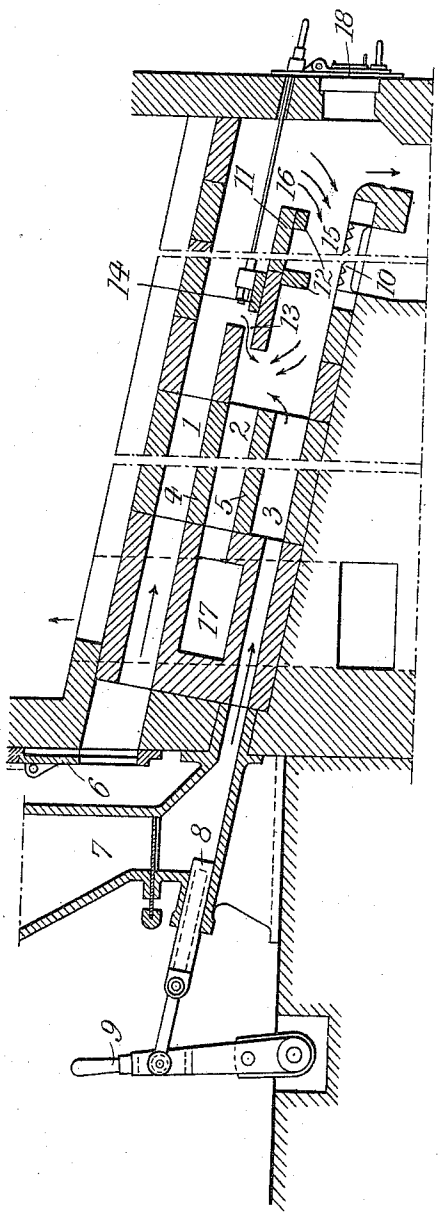
964,656.

Patented July 19, 1910.



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UNITED STATES PATENT OFFICE.

HERMANN KURTENACKER, OF BERLIN, GERMANY.

FURNACE.

964,656. Specification of Letters Patent. **Patented July 19, 1910.**

Application filed March 9, 1909. Serial No. 482,385.

To all whom it may concern:

Be it known that I, HERMANN KURTENACKER, a subject of the King of Prussia, residing in Berlin, German Empire, have invented new and useful Improvements in Furnaces, of which the following is a specification.

This invention relates to a furnace for boilers and similar devices, in which a superior combustion is obtained, while the products of combustion are freed from smoke and dust.

The accompanying drawing represents a longitudinal section of a boiler furnace embodying my invention.

The furnace, which is preferably located between and underneath two boilers, is composed of fire proof material and slopes downward from front to rear. It is provided with three superposed channels 1, 2, 3, divided by partitions 4, 5, which are of such a length that channels 1 and 3, communicate at their rear end with the rear end of channel 2. The fresh air enters the front of top channel 1, which is controlled by valve 6, while the fuel enters the front of bottom channel 3, through a hopper 7. The discharge of the fuel from the hopper into channel 3, is controlled by a plunger 8, operated by lever 9. After clearing the lower end of channel 3, the fuel is carried to the grate 10 which is preferably made of stone. Above grate 10 there is arranged a baffle plate 11 having depending ribs 12 that direct the inflowing air of combustion toward the grate. Intermediate baffle plate 11 and partition 4 there is a throat 13, the area of which may be controlled by a damper 14 slidable on plate 11. Upper channel 1 communicates at its rear open end through throat 13 with the rear open end of channel 2, and also with the front of the fire chamber 15, while a second communication between channel 1 and the back of fire chamber 15 is formed at the rear end of plate 11, as at 16. Central channel 2 communicates at its forward end with a pocket 17 which is closed in front and, in turn, communicates with the boilers by lateral passages, (not shown). The stoking is effected from the rear of bottom channel 3, through a door 18.

Owing to the heat radiated from middle channel 2, the volatile constituents of the fuel, descending along channel 3, will be gasified and meet the fresh air streaming toward it in the opposite direction. This fresh air enters channel 1, and in flowing rearward, its temperature is raised by the heat radiated from the middle channel. The air thus pre-heated, flows around both ends of plate 11 into fire chamber 15, to here cause combustion. The products of combustion, together with the volatile constituents of the fuel which rise from the grate, enter middle channel 2, together with the secondary fresh air admitted by throat 13 from top channel 1. From pocket 17 the gases of combustion travel sidewise toward the boilers.

I claim:

A furnace having an upper air channel, a lower fuel channel, a central channel communicating at its rear end with the upper and lower channels and adapted to convey away the products of combustion, a fire chamber at the rear end of the lower channel, a baffle plate above the fire chamber, and a damper for controlling the communication between the upper air channel and the central channel.

Signed by me at Berlin, Germany, this 24th day of February 1909.

HERMANN KURTENACKER.

Witnesses:
HENRY HASPER,
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