(No Model.) 3 Sheets—Sheet 1.

P. A. NEPILLY.

FIRE BOX FOR LOCOMOTIVES.

No. 261,474. Patented July 18, 1882.

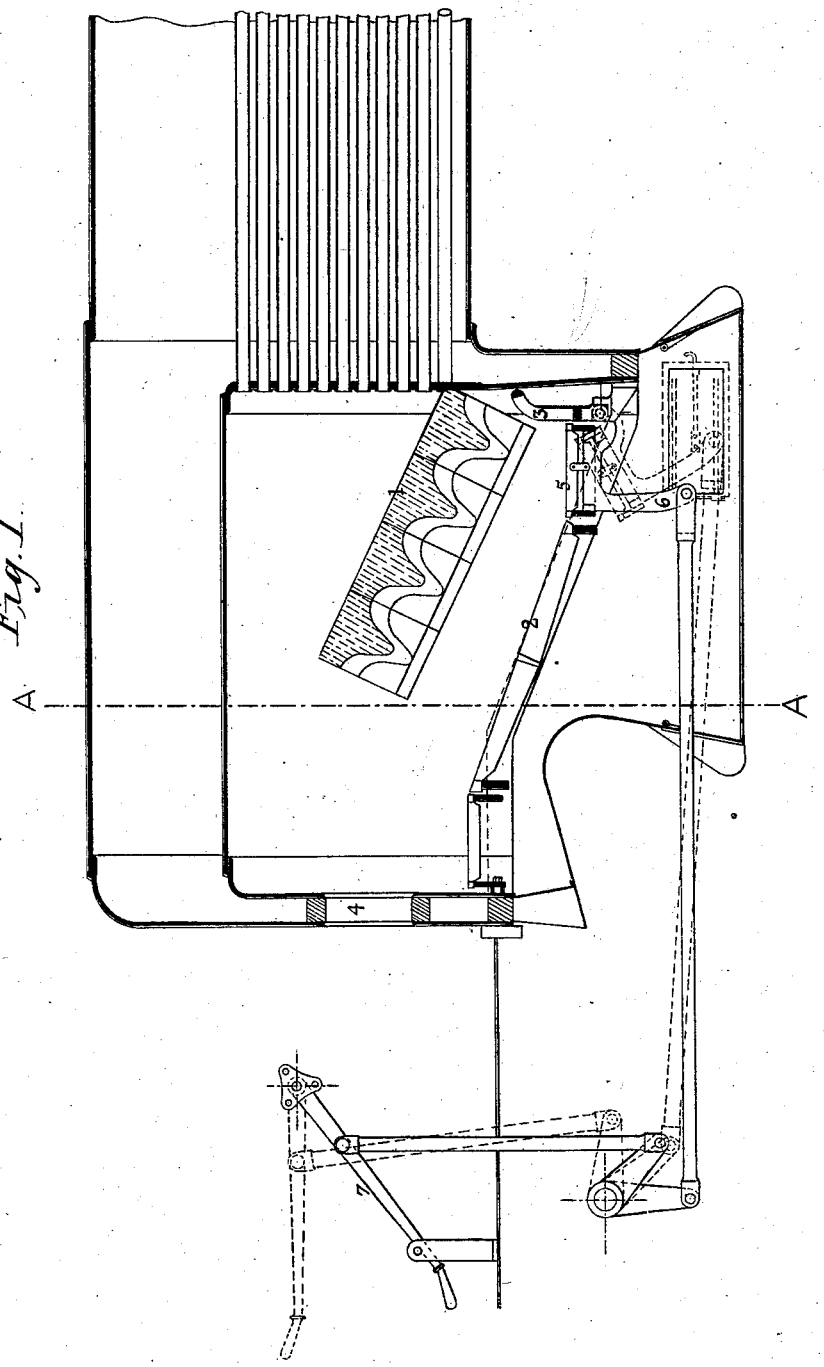

Fig. 1.

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Inventor:
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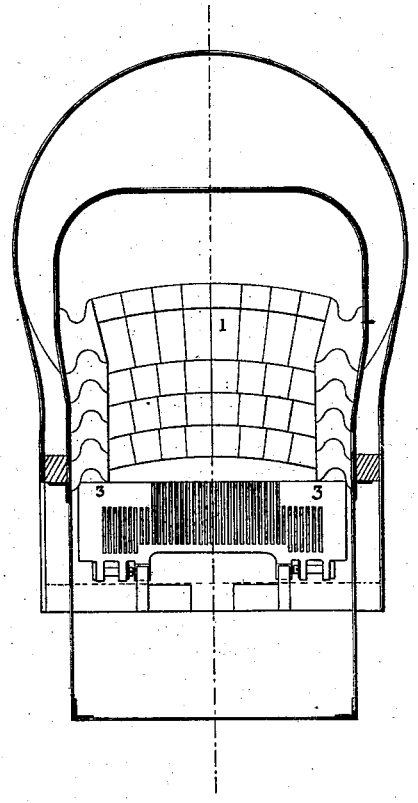
FIG. 2.



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P. A. NEPILLY.

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FIG. 3.

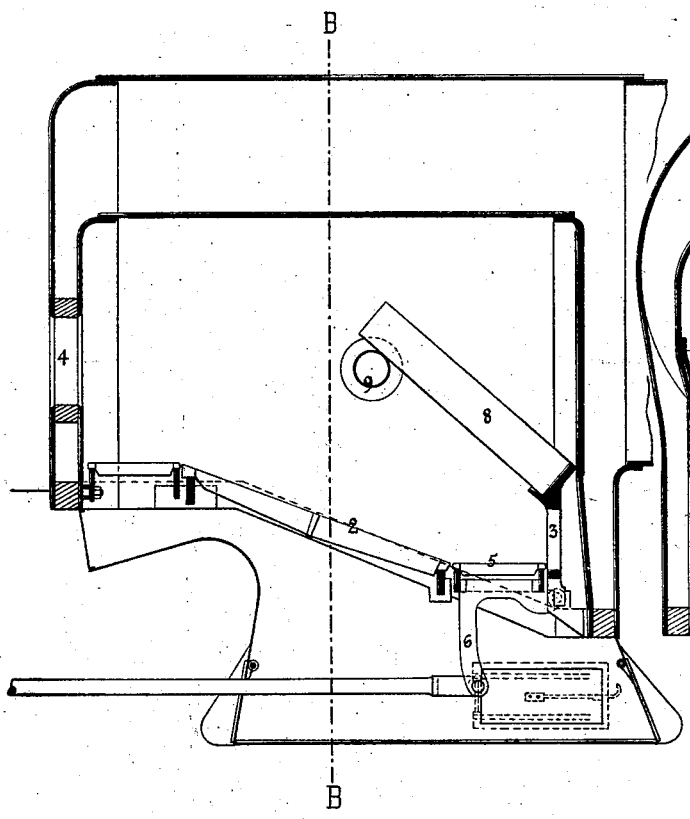
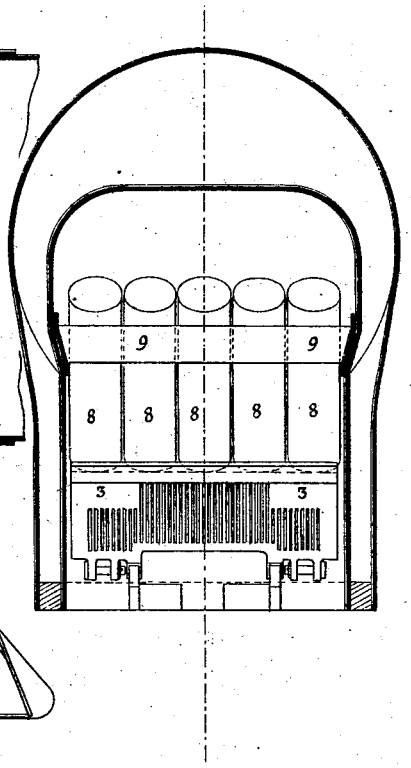


FIG. 4.



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UNITED STATES PATENT OFFICE.

PAUL AUGUST NEPILLY, OF SAARBRÜCKEN, GERMANY.

FIRE-BOX FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 261,474, dated July 18, 1882.

Application filed March 7, 1882. (No model.) Patented in Germany July 23, 1880, No. 12,855, and April 23, 1881, No. 15,597; in Austria-Hungary February 18, 1881, No. 40,571 and No. 5,019; in France December 20, 1881; in Belgium December 22, 1881, and in Italy January 3, 1882, No. 13,762.

To all whom it may concern:

Be it known that I, PAUL AUGUST NEPILLY, engineer of the Royal Prussian State Railway, in Saarbrücken, German Empire, have invented certain new and useful Improvements in Fire-Boxes for Locomotives; and I hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

In locomotive-furnaces as at present constructed the lighter part of the fuel or coal dust is carried away from the furnace into the flues and chimney under the action of the draft of air, whereby it leaves the furnace before it has produced its useful effect. Besides, it clogs the flues of the boiler, which require frequent cleaning. Moreover, the walls of the furnace are thereby heated to a considerable extent and cause damage which may put the locomotive out of working order.

I have devised a construction of furnaces which, while obviating the above-mentioned inconveniences, will allow of a more powerful draft by a greater admission of air, producing a more complete combustion of the fuel, and tending at the same time to increase the amount of heat emitted in the furnace. It consists in the special arrangement of an improved fire-screen, conjointly with an arrangement of fire-grates.

In order that my improvements may be clearly understood and readily put into practice, I will describe them in detail conjointly with the four figures of the three accompanying drawings, in which—

Figure 1 is a longitudinal section of a locomotive-furnace to which my improvements are applied, and Fig. 2 a section of Fig. 1 through the line A A. Fig. 3 is a longitudinal section of a furnace wherein the said improvements are modified; and Fig. 4 is a cross-section of Fig. 3 through the line B B.

In the main arrangement, shown in Figs. 1 and 2, 1 is a screen, made of fire-brick or other fire-proof material, which is placed in an inclined position above a common fire-grate, 2.

3 is a grating for the inlet of air, and 4 is the door or opening for charging the furnace with fuel.

5 is a movable fire-grate, which may be operated by the driver, for the removal of clinkers. It is conveniently secured to the framing of the furnace, and has at its lower part a downward-projecting arm, 6, which is connected to a series of levers, the latter, 7, of which is placed on the driver's stand, where it may be operated according to the requirements. Upon falling the clinkers are received in the ash-pit, and are removed at any subsequent period through a suitable side door, (shown partly in dotted lines.)

As will be seen in the transverse section, Fig. 2, the screen is composed of several blocks of fire-proof material, which preferably assume a vaulted form, with a smooth upper surface and rounded cross-ribs at their under surface, as shown in the drawings. These blocks may have angular projections instead of rounded ones at their under surface. The said screen may be set in any suitable manner in the fire-box upon suitably-formed wedges placed on each side, the walls of the fire-box being preferably inclined, so as to wedge the screen properly and safely when once set; or the screen may be as broad as the inner width of the fire-box, and in such case it may rest upon a longitudinal bearing on each side, or upon one or more transverse bearings, made also of fire-proof material. In either case the screen bears with its lower inclined end against the back wall of the fire-box, below the tubes.

A modification of the above-described arrangement consists, as shown in Figs. 3 and 4, in the shape and constitution of the screen, as well as in the manner of securing the same, the rest of the parts being the same as previously described. In this modification the screen is composed of rollers 8, made of fire-proof material, resting at their lower ends upon the continuation of the grate 3 for the inlet of air.

9 is a transverse pipe, made of iron or other heat-resisting metal, which is open at each end,

and secured water-tight into the walls of the fire-box, so as to allow the water in the boiler to circulate through this pipe, thus affording a relatively larger increase of surface for the heating of the water, while serving at the same time to support the fire-proof screen. In this latter arrangement greater facility is obtained for exchanging the rollers constituting the screen whenever it may be needed.

The vertical grate 3 can be used in stationary boilers with the same advantage as in locomotive-boilers.

I claim as my invention—

1. A boiler-furnace having a fire-screen of fire-proof material made with a series of rounded ribs at its under surface, an inclined grate, and a rear vertical grate, 3, substantially as and for the purposes set forth.

2. A boiler-furnace having a fire-screen of fire-proof material, and with a series of rounded ribs at its under surface, an inclined grate, a rear vertical grate, and a dumping-grate, substantially as shown and described.

3. A boiler-furnace having a fire-screen with a series of rounded ribs on its under surface, a main grate, a rear vertical grate, 3, a dumping-grate, and a horizontal coking-grate, substantially as shown and described.

PAUL AUGUST NEPILLY.

Witnesses:
L. WEBER,
G. NEINEIPLY.