(No Model.)

C. V. KERR.

BOILER SETTING.

No. 525,907. Patented Sept. 11, 1894.

Fig 1

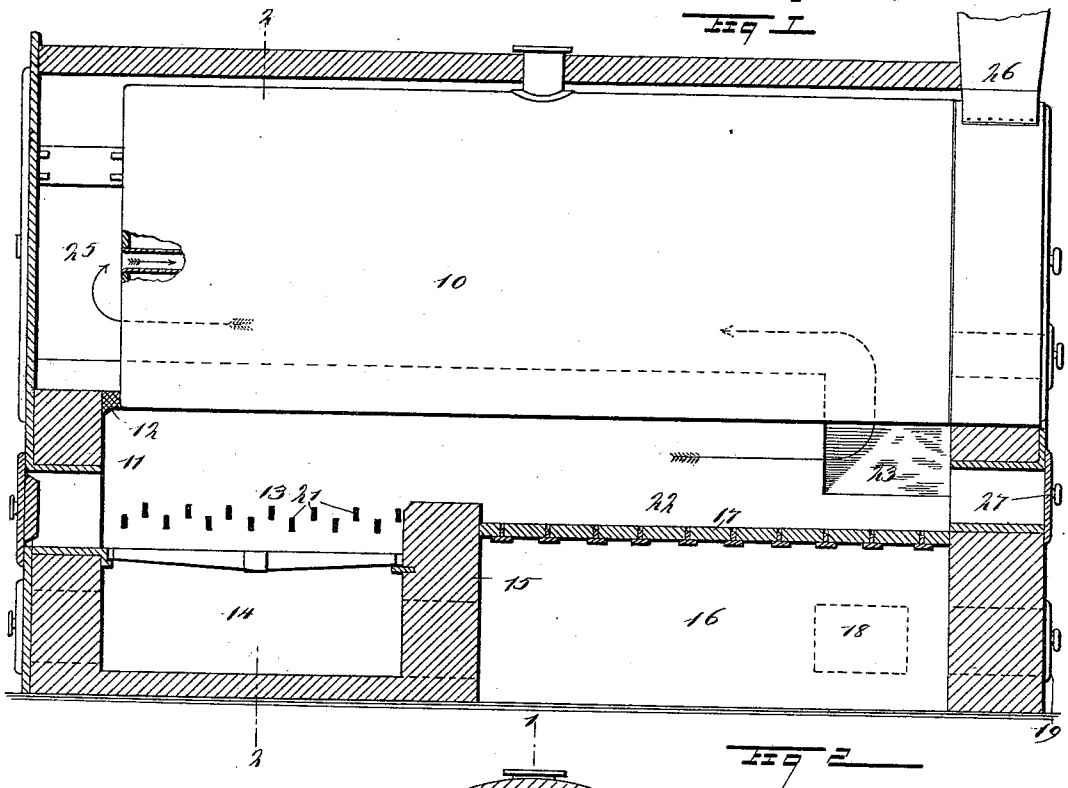
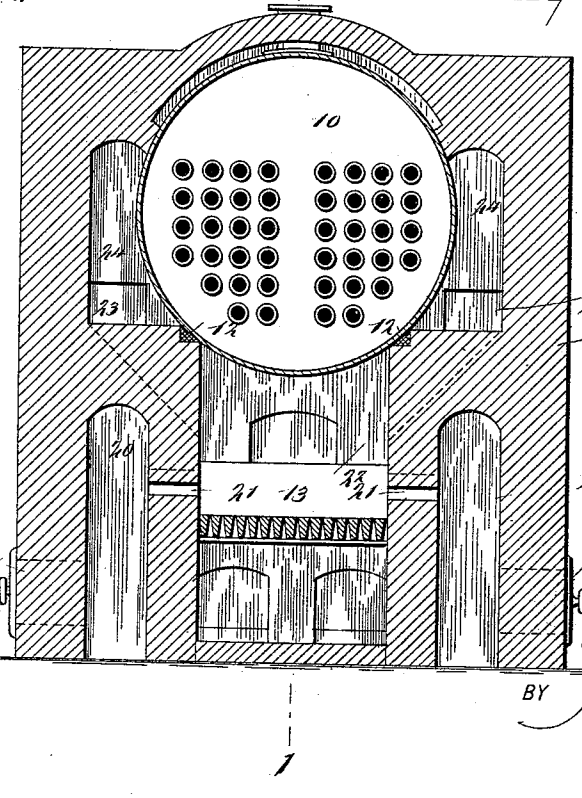


Fig 2



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CHARLES V. KERR, OF FAYETTEVILLE, ARKANSAS.

BOILER-SETTING.

SPECIFICATION forming part of Letters Patent No. 525,907, dated September 11, 1894.

Application filed September 19, 1893. Serial No. 485,817. (No model.)

To all whom it may concern:

Be it known that I, CHARLES V. KERR, of Fayetteville, in the county of Washington and State of Arkansas, have invented new and useful Improvements in Boiler-Settings, of which the following is a full, clear, and exact description.

My invention relates to improvements in boiler settings, and the object of my invention is to construct the setting and furnace of a boiler in such a way that the flames will be carried twice the length of the boiler before entering the boiler tubes, and will be applied to the bottom and sides of the boiler in such a way as to produce an even heat, and to utilize all of the heat before the smoke enters the stack. In this way great efficiency is produced and economy of fuel assured.

To these ends, my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in both views.

Figure 1 is a longitudinal section on the line 1—1 of Fig. 2, of a boiler and setting showing my improvements; and Fig. 2 is a cross section on the line 2—2 in Fig. 1.

The boiler 10 is a common form of horizontal tubular boiler, and any suitable boiler may be used in connection with my improved setting, and it is mounted in substantially the usual way in masonry 11, but the arrangement of flues in the masonry is novel and will be hereinafter described. The boiler rests upon bearings 12 which are elastic and incombustible, being made of some such material as asbestos, and this makes a tight joint which prevents the flames or gases from passing upward except at places provided for such passage.

The boiler furnace has the usual fire-box 13 and ash pit 14, which are provided with the customary doors, and behind the bridge wall 15 of the boiler furnace is an air space 16 which is separated from the combustion chamber by the horizontal floor or partition 17, and the air space 16 may be connected with the outer air by means of a door 19 placed in the rear wall of the furnace. In the sides of the furnace are doors 18 which may be opened to admit air which passes forward in the spaces 20 made in the side walls of the furnace, and from these spaces lead inward flues or openings 21 which deliver into the fire-box 13 just above the grate, and consequently when there is a fire in the furnace the draft will cause the air to flow in through the said flues 21, and the air mingling with the gases of the furnace will promote complete combustion and effect a saving of fuel.

From the fire-box 13 the flames and smoke pass rearward through the flue 22, which is arranged centrally beneath the boiler, and at the rear end of the boiler the smoke and flames pass laterally through the side openings 23 into the side flues 24, which are made on opposite sides of the boiler and extend longitudinally along the sides, terminating at the front end in the smoke box 25, which is arranged in substantially the usual manner so as to be in direct communication with the boiler tubes. From the rear end of the boiler the smoke passes to the stack 26, and it will be observed that as the flames travel, first, the entire length of the boiler through the flue 22, secondly, the length of the boiler through the flues 24, and thirdly, through the boiler tubes, the heat will be effectually utilized so that nothing but smoke will pass out of the stack, and as a result, steam may be very quickly and cheaply generated. At the back end of the flue 22 is a door 27, arranged in the furnace wall, to enable the flue to be easily cleaned when necessary. It will be observed that the air which passes through the side spaces or flues 20 and thence through the flues 21 to the fire box, will be thoroughly heated before it is delivered into the fire box, and will therefore mingle effectually with the gases of the fire box, and cause the latter to be quickly consumed. It will be seen too, that the heat is applied evenly to three sides of the boiler as well as to the tubes, and thus great efficiency is produced.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination of a boiler and setting, the latter having a smoke box, a flue extending from the fire box to the other end of the boiler along the bottom of the boiler, a central air

space arranged below the bottom flue and communicating with the fire box below the grate, lateral air spaces or flues arranged longitudinally of the said central space and communicating with the fire box above the grate, and side flues extending from the end of the said bottom flue to the smoke box along the outer side surfaces of the boiler, whereby the products of combustion are caused to travel twice the length of the boiler along the outer surface thereof before entering the boiler tubes, substantially as specified.

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Witnesses:
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