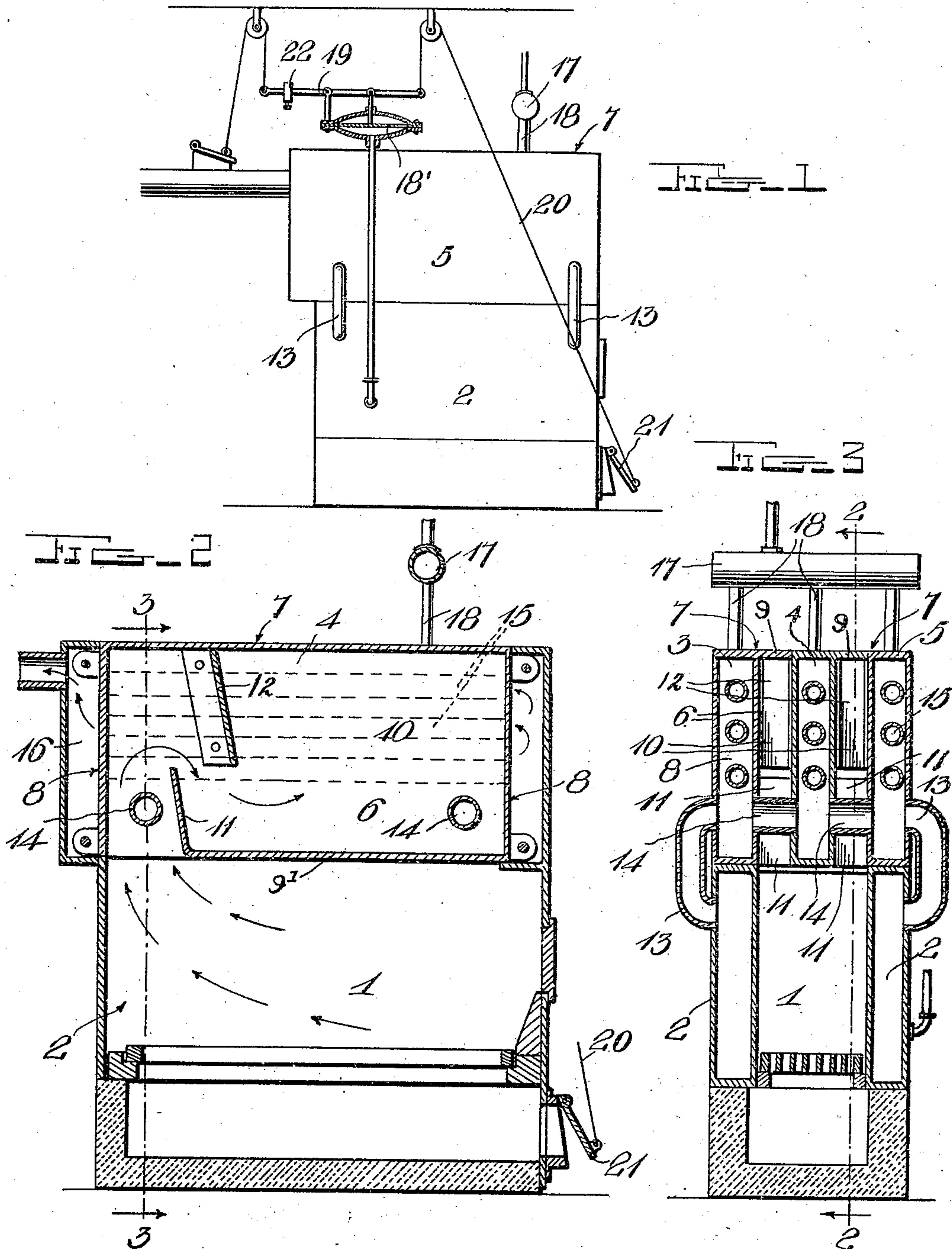


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STEAM BOILER.  
APPLICATION FILED JULY 7, 1909.

956,383.

Patented Apr. 26, 1910.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

JUSTIN M. LORD AND CHARLES H. JONES, OF ST. JOHNSBURY, VERMONT.

STEAM-BOILER.

956,383.

Specification of Letters Patent.

Patented Apr. 26, 1910.

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*To all whom it may concern:*

Be it known that we, JUSTIN M. LORD and CHARLES H. JONES, citizens of the United States, residing at St. Johnsbury, in the county of Caledonia and State of Vermont, have invented certain new and useful Improvements in Steam-Boilers; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a steam boiler, and has for its object to provide a simple and economical device of this kind by means of which the maximum amount of steam may be generated with the minimum amount of fuel.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is a side elevation of a furnace embodying our improvements. Fig. 2 is a longitudinal section of Fig. 1. Fig. 3 is a vertical transverse section taken on line 3—3 of Fig. 2.

Referring to the drawings for a more particular description of the invention, 1, indicates the fire box and 2, the water jackets. The boiler is made in three rectangular sections 3, 4, and 5, respectively, each comprising side, top and end walls, 6, 7, and 8, respectively, and the inner side walls of two of the sections having the side and bottom spacing flanges 9 and 9', respectively, whereby the sections are held in spaced relation to provide the longitudinal heat passages 10. The front ends of the bottom spacing flanges are bent up, as at 11, to provide for the passage of the heat between the sections, while the heat passages 10, are provided with deflectors 12, to control and to retard the course of the heat therethrough, the upwardly bent portions of the bottom spacing flanges also form deflectors which assist in retarding the heat.

The outer sections 3 and 5 are connected with the opposite water jackets by the return pipes 13, while communication is effected between the outer sections and the intermediate sections by the pipe sections 14. A series of longitudinal heat flues 15, pass through each section of the boiler, through which the products of combustion pass be-

fore passing out of the smoke flue 16. A steam dome 17, communicates with the several boiler sections 3, 4, and 5, by means of the vertical pipes 18. The pressure is automatically controlled by the diaphragm 18', which communicates with the steam dome and carries the pivoted operating bar 19, the free end of which is connected with a chain 20, connected in turn with the ash-pit door 21. The free end of the bar 19, is provided with a weight 22, which may be so set that the diaphragm will raise the free end of the bar at any desired pressure when the ash-pit door will be permitted to close and the draft cut off.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claims.

Having thus described our invention, what we claim is:

1. A steam boiler comprising a furnace, water jackets at opposite sides thereof, a boiler comprising a plurality of hollow spaced sections, spacing flanges at the tops and bottoms of the intermediate and one of the outer sections to provide spaces, forming heat passages, between the outer and intermediate sections, portions of the lower spacing flanges at the rear end of the furnace being bent up to provide openings for the ingress of the products of combustion into the heat passages, a longitudinal series of heat flues passing through each of the boiler sections, means for communication between the boiler sections, means of communication between the outer boiler sections and the water jackets, and a steam dome communicating with the boiler sections.

2. A device of the class described comprising a furnace, water jackets at opposite sides thereof, a boiler comprising a plurality of hollow spaced sections, spacing flanges at the tops and bottoms of the intermediate and one of the outer sections to provide spaces, forming heat passages, between the sections, a series of heat flues passing through each of the boiler sections, deflectors in the heat passages between the boiler sections, tubes



at opposite ends of the furnace between the  
outer and intermediate boiler sections to es-  
tablish communication between the same and  
other tubes between the outer boiler sections  
5 and the water jackets, and a steam dome  
communicating with the boiler sections.

3. A steam boiler comprising a furnace,  
water jackets at opposite sides thereof, a  
boiler comprising a plurality of hollow  
10 spaced sections mounted on the water jackets,  
a series of heat flues passing through each  
of the boiler sections, spacing flanges at the  
tops and bottoms of the intermediate and  
one of the outer sections to provide spaces,  
15 forming heat passages, between the sections,

the rear ends of the bottom flanges being  
bent up to form openings, and the remain-  
ing portions being imperforate, whereby the  
products of combustion that enter the heat  
passages are caused to pass to the front of 20  
the furnace before passing into the front  
ends of the heat flues in the boiler sections.

In testimony whereof we have hereunto  
set our hands in presence of two subscribing  
witnesses.

JUSTIN M. LORD.  
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Witnesses:

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