

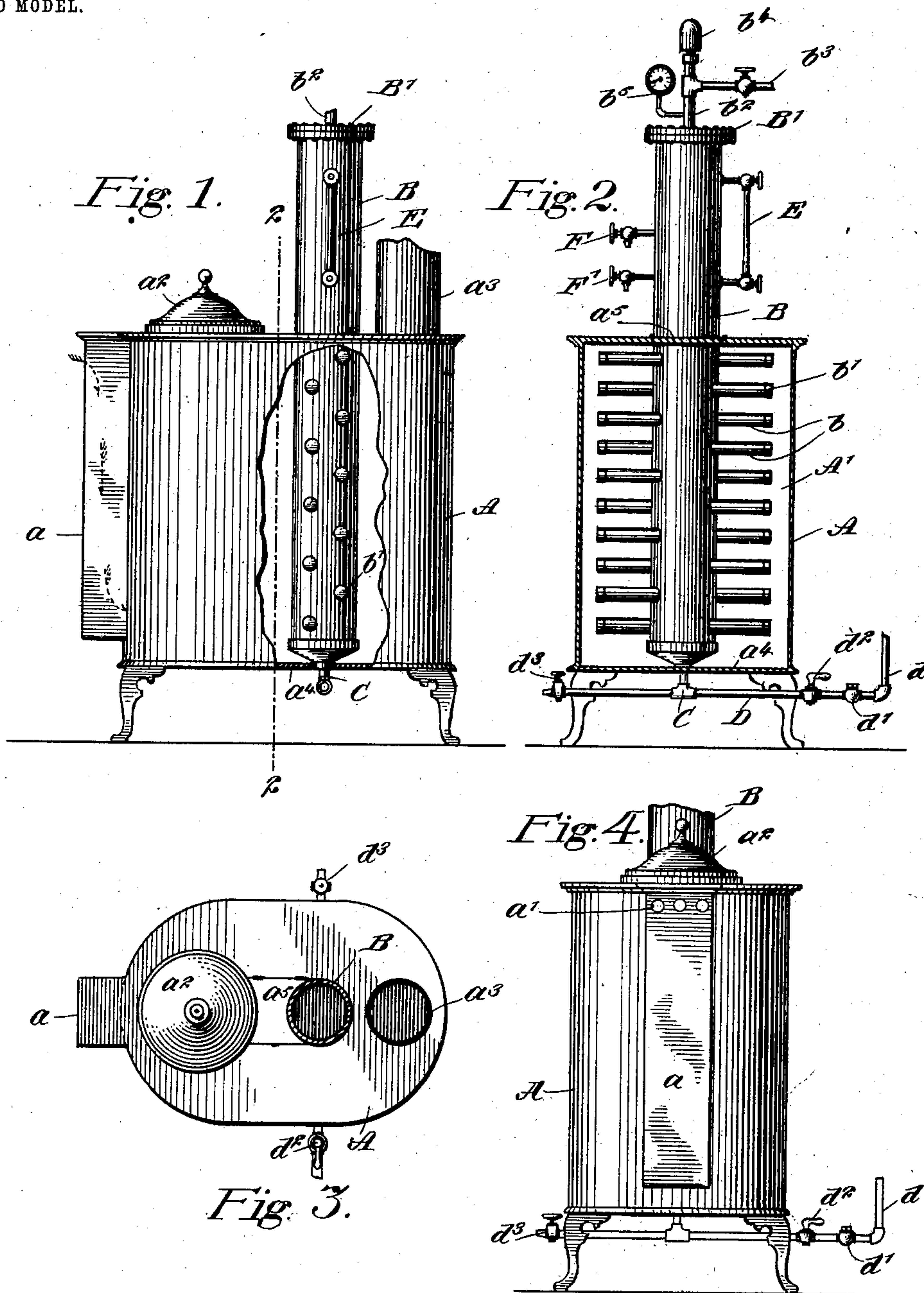
No. 733,747.

PATENTED JULY 14, 1903.

O. R. RAND, JR.
HEATER AND STEAM GENERATOR.

APPLICATION FILED OCT. 3, 1902.

NO MODEL.



WITNESSES:

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UNITED STATES PATENT OFFICE.

OSCAR RIPLEY RAND, JR., OF SMITHFIELD, NORTH CAROLINA.

HEATER AND STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 733,747, dated July 14, 1903.

Application filed October 3, 1902. Serial No. 125,791. (No model.)

To all whom it may concern:

Be it known that I, OSCAR RIPLEY RAND, Jr., a citizen of the United States, and a resident of Smithfield, in the county of Johnston and State of North Carolina, have invented a new and Improved Combined Heater and Steam-Generator, of which the following is a full, clear, and exact description.

My invention is more particularly intended for use by farmers who grow tobacco; and my object is to provide a heater and steam-generator of improved construction by means of which the necessary degree of heat or moisture may be maintained in the tobacco-barn or pack-house during or after the curing of the tobacco to maintain the proper condition of the atmosphere as required by the tobacco at different stages.

The convenience and efficiency of my invention will be readily apparent to the practical tobacco grower. The following specification will therefore be mainly confined to a particular description of the novel construction and arrangement of parts, and the claims will define the scope of the invention.

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

Figure 1 is a broken side elevation of a combined heater and steam-generator constructed in accordance with my invention. Fig. 2 is a transverse sectional elevation, the section being taken on the line 2 2 of Fig. 1. Fig. 3 is a plan view with the parts in section, and Fig. 4 is a front view of the heater-shell.

A shell A forms the body of the heater, and a stand-pipe B the boiler. The shell A has an exterior air-box a extending vertically at the front, the upper end having air-inlets a' , and at the lower end said box communicates with the interior of the shell for supplying air to the fire, this arrangement serving to heat the air before it enters the furnace the better to support combustion. A suitable fuel-opening is provided in the top of the shell near the front and is normally closed by a cover a^2 , while at the rear of the shell is arranged the offtake a^3 for the products of combustion.

The stand-pipe B is preferably located in

the shell A at a point back of the center and is provided with lateral tubes b on each side, the outer ends of the tubes having caps b' . The stand-pipe and tubes thus arranged form the back of the furnace-chamber or fire-box A' .

The lower end of the stand-pipe is supported on the bottom a^4 of the shell A and connects by suitable connections at C with the pipe D, which ranges below the shell, said pipe at one end, d , being connected in practice with an inspirator (not shown) and having a check-valve d' and cut-off valve d^2 , while the opposite end, d^3 , of the pipe D beyond the coupling C forms a blow-off.

Near the upper end the stand-pipe B above the shell A is provided with a water-gage E and gage-cocks F F'. The head B' of the stand-pipe is secured by a flange-coupling and carries a pipe b^2 , having a steam-outlet pipe b^3 , and is equipped with the usual safety-valve b^4 and steam-gage b^5 .

In the top of the shell A, between the stand-pipe B and the fuel-inlet, is an opening which is normally closed by a lid a^5 . Thus when said lid is raised, the cover a^2 of the inlet removed, and the coupling C disconnected the stand-pipe, with its described appurtenances, may be removed for cleaning or repairs by turning the stand-pipe and slipping it forwardly and upwardly.

The apparatus affords a convenient and efficient means for generating steam which may be discharged to maintain the desired moisture for certain stages in the treatment of the tobacco, and the furnace may be caused to generate a gentle heat or a very high heat when needed, as the fire-box, it will be observed, has considerable capacity. The apparatus also may be used to extinguish a fire occurring in the drying-room by filling said room with steam.

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

1. A combined heater and steam-generator, comprising a shell forming a furnace, and a stand-pipe therein having lateral tubes and forming the rear wall of the fire-chamber of the heater, said pipe extending at its upper end through the shell to the exterior of the heater and projecting above the latter.

2. The combination with a shell having space at the front for a fire, an exterior air-box at the front leading to said fire-space, and an outlet-flue at the back, of a stand-pipe
5 at a point back of the center of the shell, and having laterally-projecting tubes, said stand-pipe extending above and being removable through the top of the shell.

3. The combination with a shell, having a
10 space forming a fire-box, of a boiler in the form of a stand-pipe removably held in the shell, the lower end of the boiler having a water-inlet extending through the bottom of the shell and a water-pipe connecting with
15 said inlet, the upper end of the stand-pipe having directly connected therewith a water-gage and gage-cocks, and being provided with a steam-outlet.

4. The combination with the shell having a

fire-space at the front, a fuel-opening in the
20 top, a second opening extending rearward from the fuel-opening, and an offtake at the rear for the products of combustion, of a boiler in the form of a stand-pipe, removably
25 held in said shell to extend above the shell adjacent to said second opening, and having laterally-projecting tubes at the opposite sides, whereby the pipe and tubes form the back of the fire-box, and a closure for said
30 second opening.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OSCAR RIPLEY RAND, JR.

Witnesses:

ALLEN K. SMITH,
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