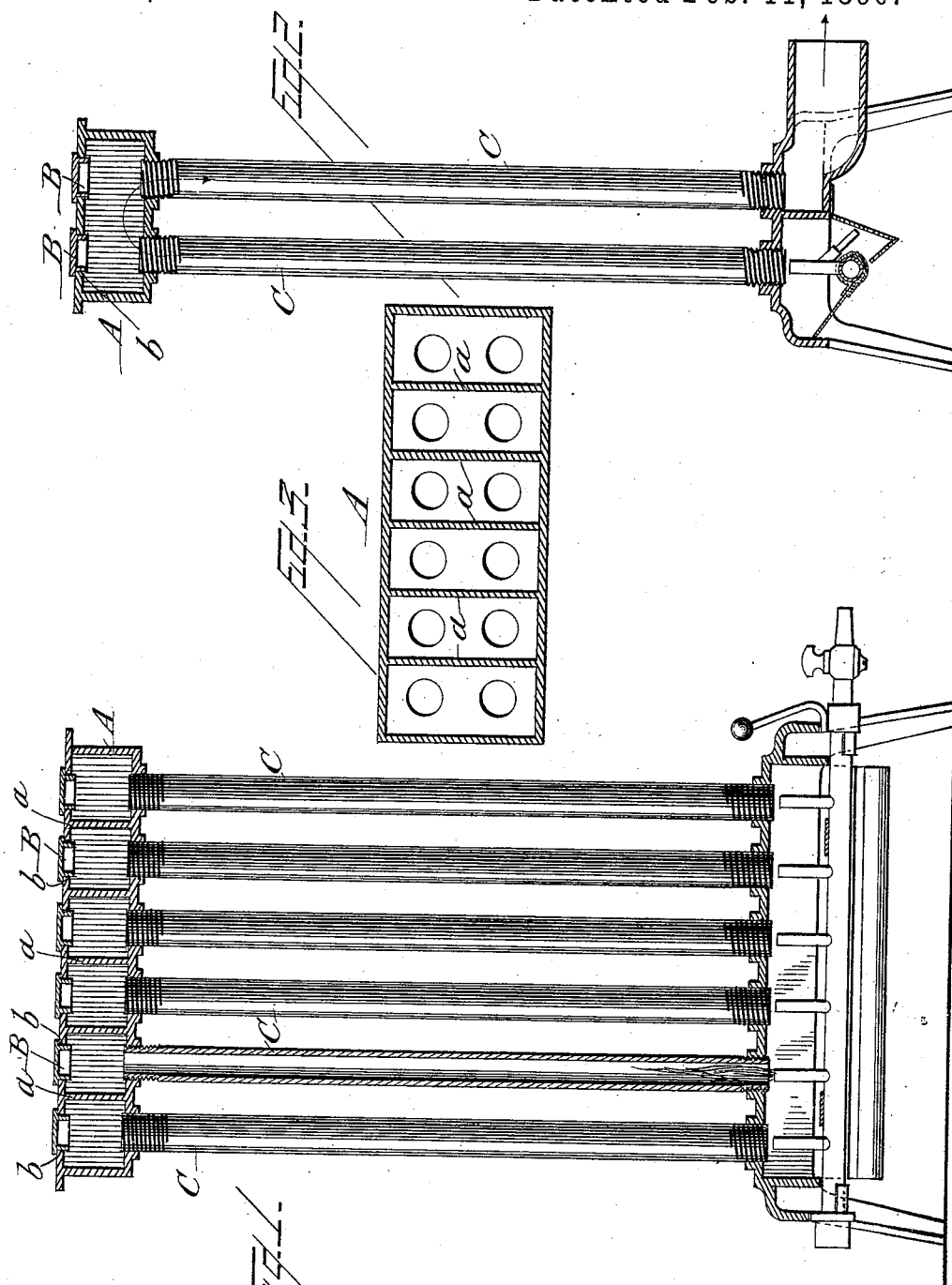


(No Model.)

J. JOHNSON & E. H. PACKER.
RADIATOR.

No. 421,000.

Patented Feb. 11, 1890.



Attest
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att'y

UNITED STATES PATENT OFFICE.

JONATHAN JOHNSON AND EDMUND H. PACKER, OF LOWELL, MASSACHUSETTS.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 421,000, dated February 11, 1890.

Application filed October 25, 1889. Serial No. 328,133. (No model.)

To all whom it may concern:

Be it known that we, JONATHAN JOHNSON and EDMUND H. PACKER, citizens of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have
5 invented certain new and useful Improvements in Radiators; 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
10 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.

15 This invention relates to improvements in that class of radiators in which gas is used as a fuel, the object being to provide a radiator-head which shall simplify the construction by doing away with the complicated connections between the upper ends of the pipes,
20 and also to provide a means for preventing injury to the radiator which might be caused by explosions of gas and air in the flues.

25 The invention has further for its object the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

30 In the accompanying drawings, in which similar letters of reference designate corresponding parts, Figure 1 is a longitudinal vertical section of the device. Fig. 2 is a transverse vertical section, and Fig. 3 is a horizontal section of the radiator-head.

35 Referring to the drawings by letter, A designates the radiator-head formed of one solid casting. The interior of the head is divided into several compartments, entirely distinct from each other, by the partitions *a*. These
40 partitions extend transversely across the head, giving an apartment to each pair of radiator-pipes, a back and a front pipe forming the pair.

45 In the top of each apartment are the holes *b*, one over the top of each pipe. In these holes are seated the buttons *B*. The object of these disks will be explained later on.

The radiator-head is secured to the bottom by the flues *C*. These flues are threaded at

both ends with right-hand threads. The base 50 and top are suitably tapped for their reception. The flues *C* are first screwed into the head. The threaded portion is long enough to allow the pipes to be screwed far enough into the chambers as to project a considerable distance into them. After all the pipes 55 have been screwed in they are set upon the base, each pipe in its respective hole. They are then screwed in place. This turning in of the pipes will also turn them out of the head an equal distance to that which they enter the base. The extra distance, however, which the pipes project into the head will allow them to be turned out enough for them to securely engage with the base. 65 If the flues and head should become filled with a mixture of gas and air, and this exploded, the disks *B* will be thrown off and allow the force of the explosion to exhaust itself without damaging the radiator. 70

It is intended that this radiator be used in connection with the fender shown and described in the application for a patent filed by us September 25, 1889, Serial No. 324,994.

It has been found that those radiators in which elbows having pop-valves are used are too expensive. The object of this invention and that above mentioned is to simplify that construction and still retain the qualities sought for. 75 80

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

A radiator-head cast in one piece, having compartments entirely separated from each other, formed for each pair of flues by vertical transverse partitions, said compartments having two openings directly over the flues, and the disks seated in said openings, substantially as and for the purpose specified. 85 90

In testimony whereof we affix our signatures in presence of two witnesses.

JONATHAN JOHNSON.
EDMUND H. PACKER.

Witnesses:

AUSTIN K. CHADWICK,
GEO. J. CARNEY.