

W. DOOTSON.
WATER-HEATER.

No. 187,605.

Patented Feb. 20, 1877.

Fig 1.

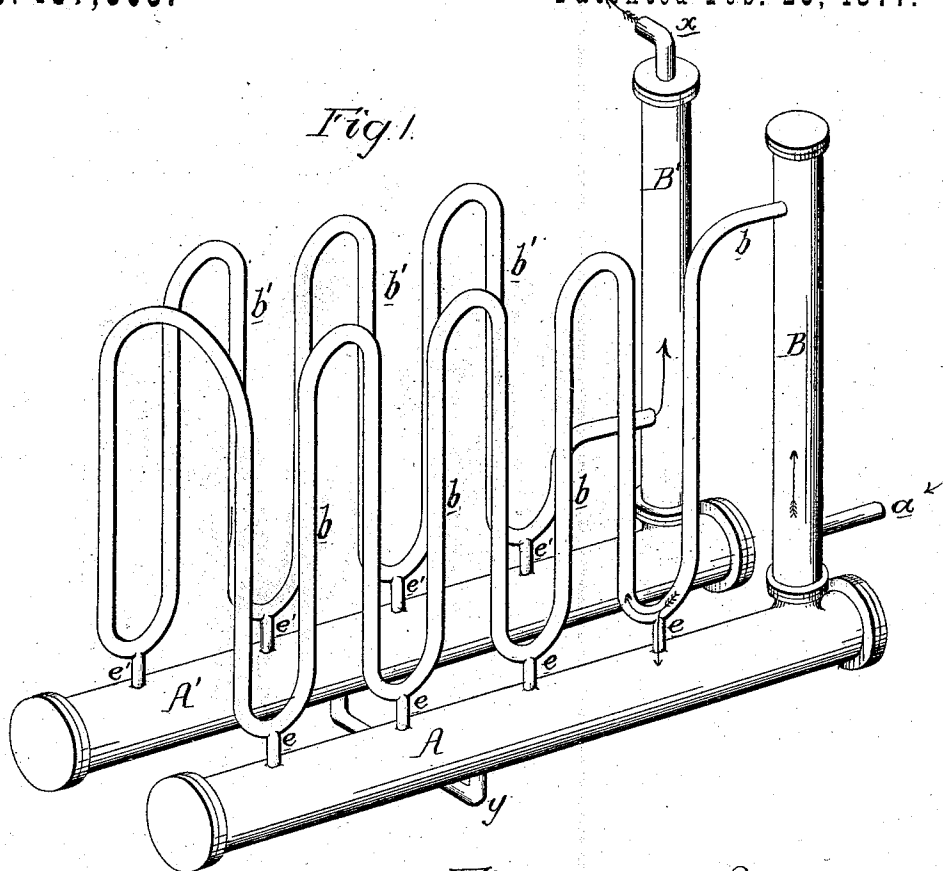
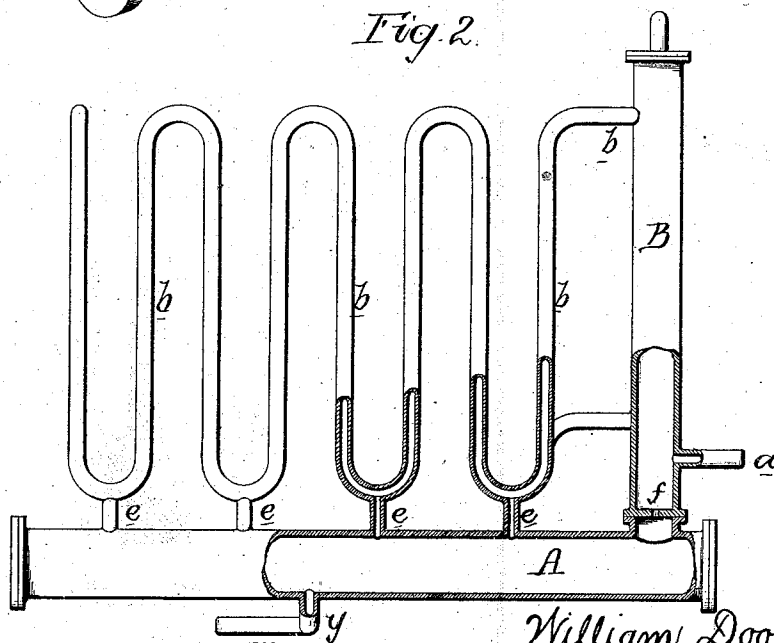


Fig 2.



Witnesses

John M. Deemer
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UNITED STATES PATENT OFFICE.

WILLIAM DOOTSON, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN WATER-HEATERS.

Specification forming part of Letters Patent No. 187,005, dated February 20, 1877; application filed January 22, 1877.

To all whom it may concern:

Be it known that I, WILLIAM DOOTSON, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Water-Heaters, of which the following is a specification:

The object of my invention is to construct a water-heating apparatus in passing through which the water will be deprived of the solid foreign matter which it holds in suspension.

In the accompanying drawing, Figure 1 is a perspective view of my improved water-heater; and Fig. 2, a side view, partly in section.

A and A' are two horizontal pipes, closed at the opposite ends. To the pipe A', near one end of the same, is secured a vertical tube, B', and to the pipe A a similar vertical tube, B.

Feed-water is admitted to the tube B, near the lower end of the same, through a pipe, a, and passes from the tube, near the upper end of the same, through a pipe, b, which is bent as shown, so as to form a series of united tubular columns, communicating at each lower bend, through a branch, e, with the pipe A. A pipe, b', forming another series of united tubular columns, forms a continuation of the pipe b, every lower bend of the said pipe b' communicating, through branches e', with the pipe A'. The water, after circulating through the bent pipes b b', is discharged into the tube B', near the lower end of the same, and is discharged from the said tube through a pipe, x.

The two horizontal pipes A A' communicate with each other through a transverse pipe, y, which has an outlet branch, m.

The above apparatus is to be placed in the flue of a steam-boiler in such a position that a proper degree of heat may be imparted to it without detracting from that required for generating steam. The flue at the rear end of the boiler, for instance, would be a good location for the apparatus, as the products of combustion, after performing their steam-generating duties, will impinge against the heater before they pass off to the chimney.

It should be understood that the communication f, between the tube B and pipe A, that between the tube B' and pipe A', and the communication between the bends of the pipe b b' and the said pipes A A', are so small that while they will not interfere with the free circulation of the water from the tube B, and through the bent pipes b b' to the tube B', they are large enough for the passage of particles of solid foreign matter, which enter and are trapped in the pipes A A', which are in reality mud-drums, and from which the contents may be discharged from time to time through the pipe m.

The water may pass directly from the pipe a into the bent pipes b b', and may be forced directly (that is to say, without first entering the pipe B') into the boiler or other device in which it is to be used; but I prefer to have a pipe of large capacity for the water to enter before it reaches the bent pipe, and for the water to pass into before it reaches the distributing-pipe.

There may be but one bent pipe b, and one pipe or mud-drum A; or there may be more than two mud-drums, and two sets of bent pipes. The capacity of the apparatus will, in fact, depend in a great measure upon the size of the boiler to be fed, and upon that of the flue in which the apparatus has to be placed.

I claim as my invention—

1. The combination, in a feed-water heater, of the mud-drum A with the vertical bent pipe b, each lower bend communicating with the said drum, as specified.

2. The combination of the vertical tubes B B' with the bent pipes b b', the mud-drums A A', communicating-pipes e e', and inlets and outlets, all substantially as set forth.

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

WILLIAM DOOTSON.

Witnesses:

HERMANN MOESSNER,
HARRY SMITH.