

E. L. Jones,

Feed Water Heater.

No. 111,215.

Patented Jan. 24, 1871.

Fig. 1.

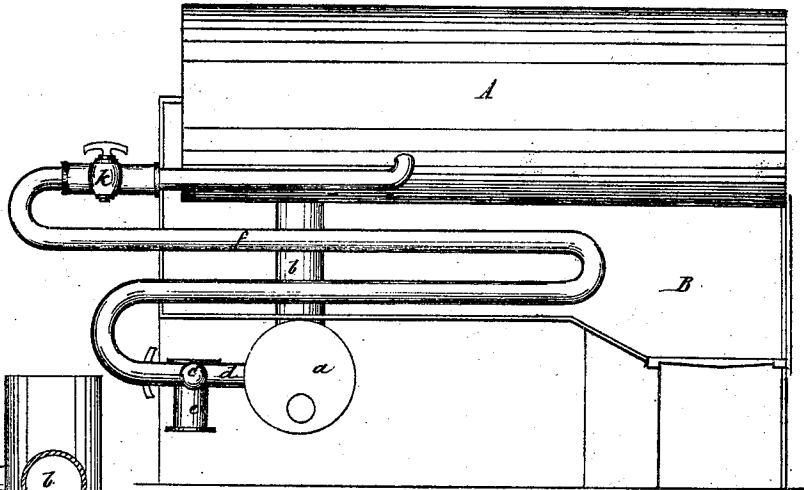


Fig 3

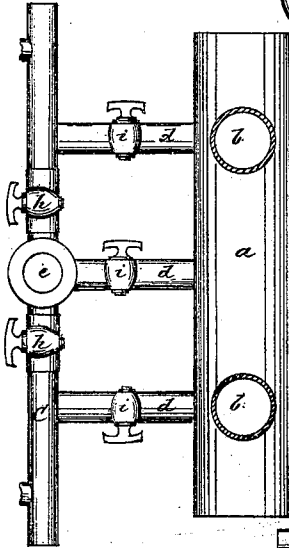
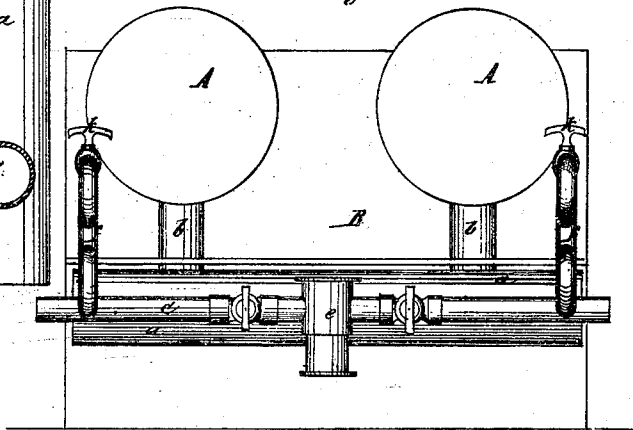


Fig. 2



Witnesses:

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United States Patent Office.

EDWARD L. JONES, OF MEMPHIS, TENNESSEE.

Letters Patent No. 111,215, dated January 24, 1871.

IMPROVEMENT IN COMBINED FEED-WATER HEATERS AND CIRCULATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, EDWARD L. JONES, of Memphis, in the county of Shelby and State of Tennessee, have invented a new and useful Improvement in Feed-water Heaters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a side elevation;

Figure 2, a rear elevation; and

Figure 3, a plan view of the drum, receiving-pipe, and connecting-pipes.

This invention relates to certain improvements in that class of feed-water heaters for steam-boilers in which a pipe or pipes are arranged to traverse the furnace-chamber, through which pipes water is supplied to the boiler by a force-pump.

The said improvements consist in the arrangement, hereinafter described, of a drum, placed below the heating-chamber, and connected with the boiler by a vertical pipe or pipes; a pipe placed parallel, and about at the same level, with said drum, and connected therewith by horizontal tubes; and one or more pipes, coiled or serpentine in form, connecting the boiler and the aforesaid parallel pipe, and traversing, intermediately, the furnace-chamber.

Referring to the drawing—

A A are boilers, and

B, the furnace beneath the boilers.

A transverse drum, *a*, suitably supported beneath the furnace B, is connected with the boilers by vertical pipes, *b*.

A pipe, *c*, placed parallel with and in rear of the drum *a*, is connected therewith by horizontal cross-tubes, *d*.

The pipe *c* is provided with a vertical cross-tube, *e*, through which water forced by the pump enters.

Serpentine pipes, *f*, connect the boiler A and pipe *c*, said serpentine pipes traversing the furnace-chamber, and, when a fire is burning therein, receiving a portion of the caloric that would otherwise be wasted, but which, by this arrangement, is utilized to the

heating of the water within the pipes *f*, and the more speedy generation of steam.

The pipe *c* is furnished with cocks, *h*, one at each side of the central tube *e*.

The cross-tubes *d* are each provided with a cock, *i*, and cocks *k* are placed, one in each serpentine pipe *f*. When these cocks are all open, whatever water is contained in the apparatus seeks a level in the drum and pipes, the cross-tube *e* being provided with a valve which prevents water from escaping thereat.

At the time of starting a fire in the furnace, the cocks should all be open, in order that the pipes *f* may be filled and receive the first heating, the steam generated by which rises to the boiler, enters the same below the water-line, and, consequently, assisting to raise steam enough in the boilers to start the pumps by which water is supplied. As soon as the pumps are in operation, the cocks *i* of the cross-tubes *d* should be closed, in order that the water may be forced through the serpentine pipes *f* into the boilers. But, in case of fracture of one or more of these pipes, or if they stand in need of repair, the cocks *h* of the pipes *c* and the cocks *k* should be closed, and the cocks *i* opened, in order that water may be forced through the drum *a* into the boiler.

In case of accident to the pumps, the valves should all be opened in order that the serpentine pipes may be filled, so as not to be injured by fire. The cocks *k* are to prevent the escape of water from the boiler when the pipes get out of order.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

The arrangement of the drum *a*, vertical pipes *b*, straight pipe *c*, cross-tubes *d*, cocks *h*, *i*, and *k*, and serpentine pipes *f*, with the boiler and furnace, as specified.

EDWARD L. JONES.

Witnesses:

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