

(No Model.)

A. M. LEMKE & R. WESTON.
PIPE BOILER.

No. 584,641.

Patented June 15, 1897.

Fig. 1.

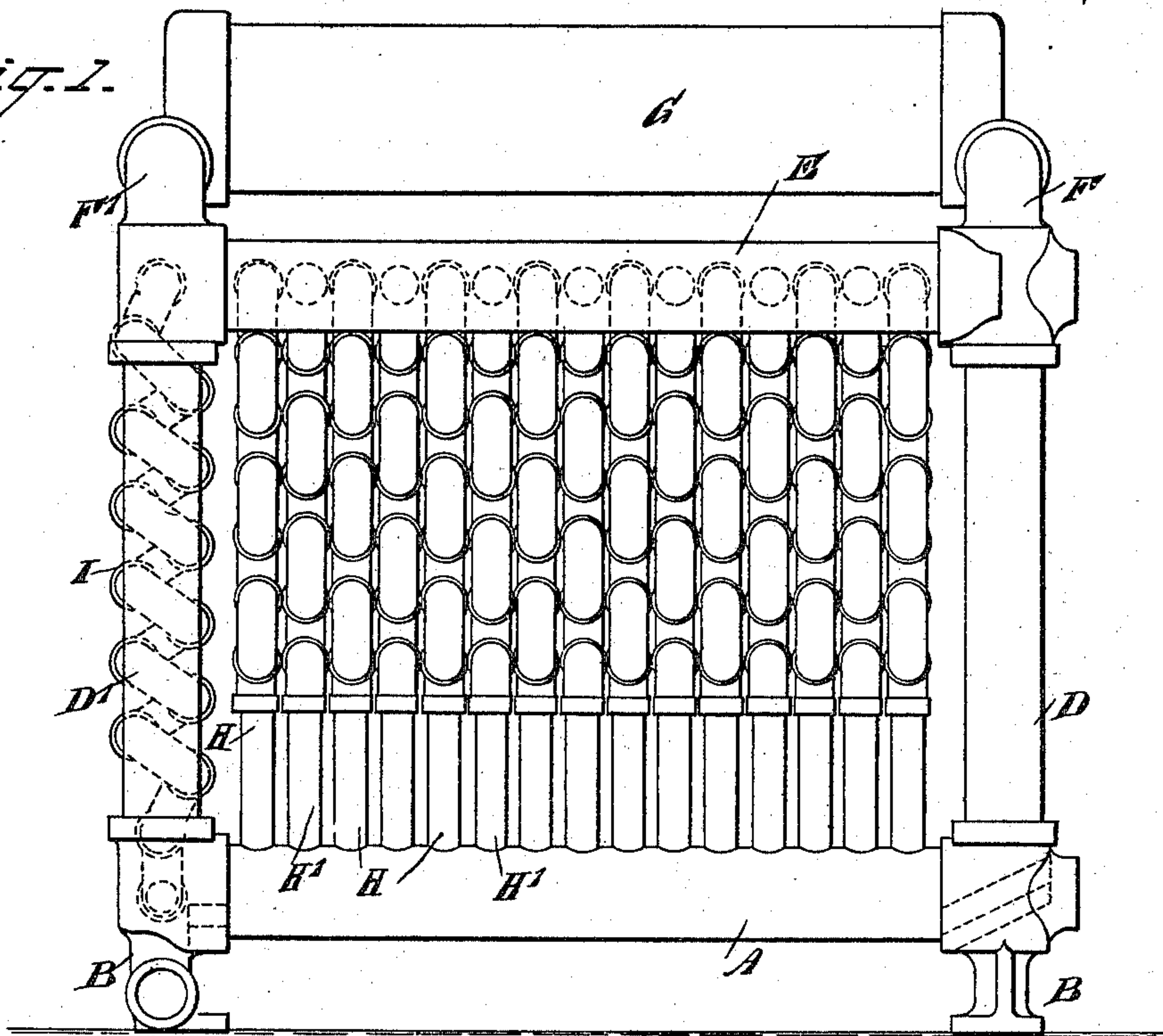
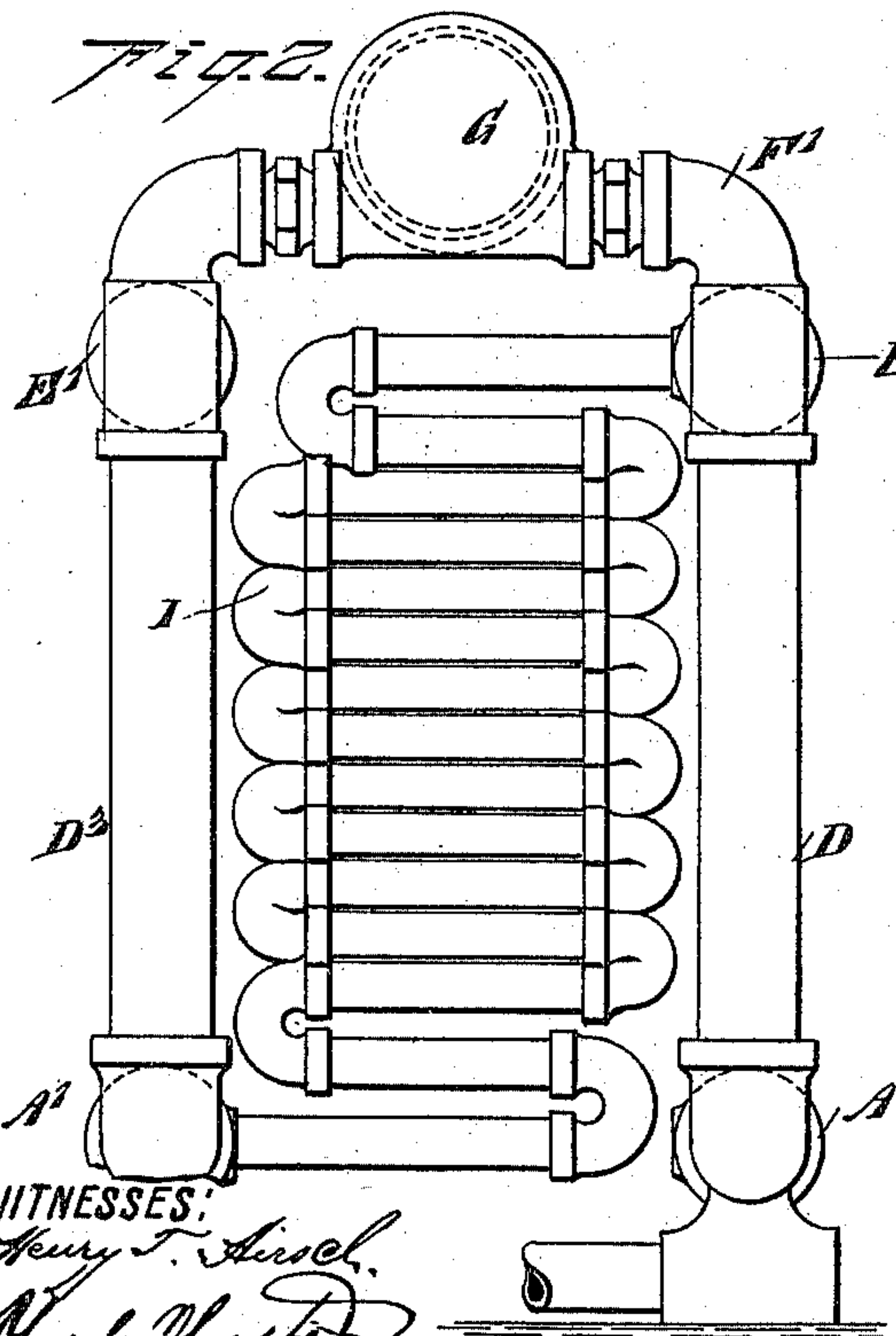


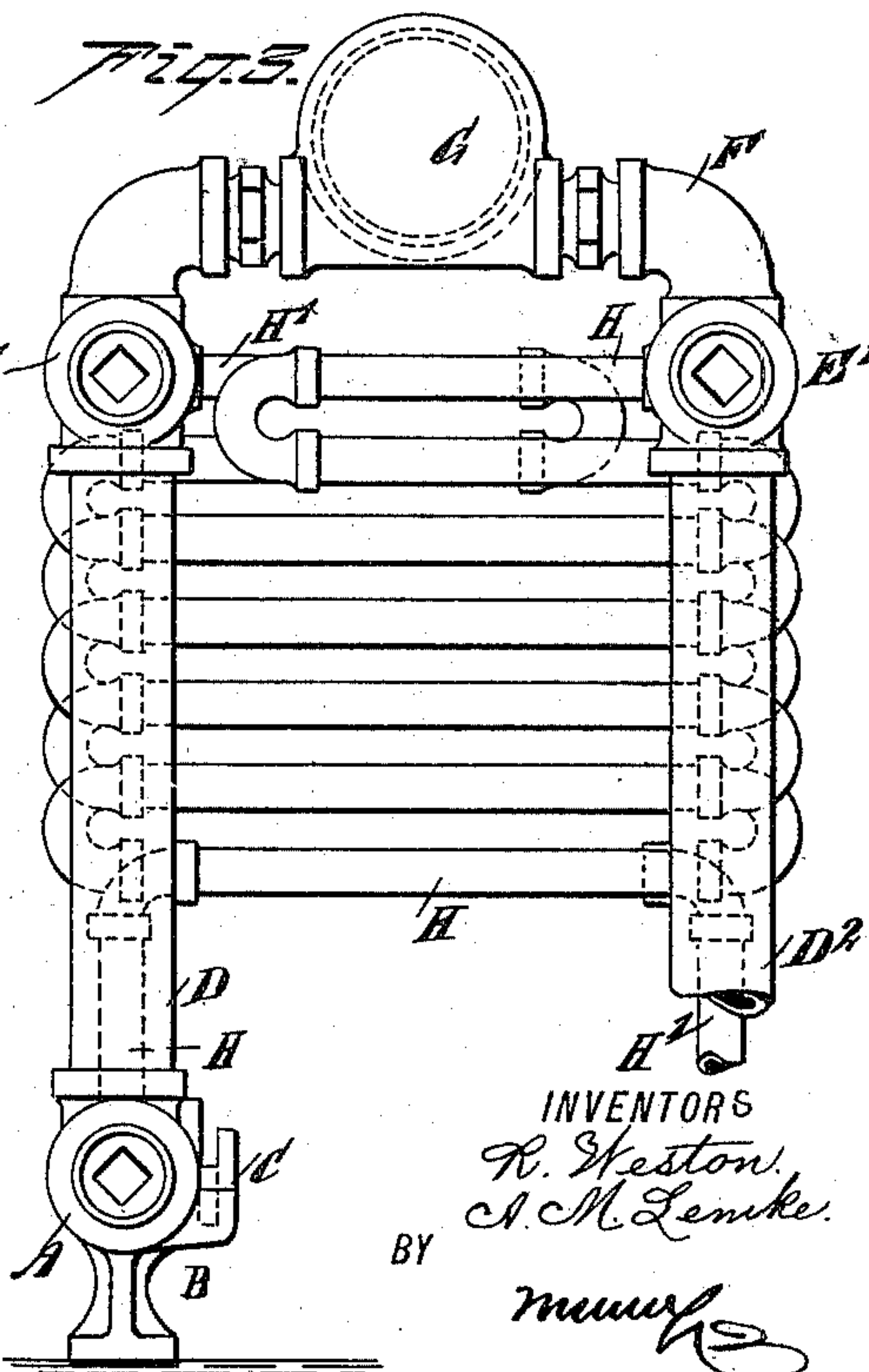
Fig. 2.



WITNESSES:

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Fig. 3.



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ALEXANDER M. LEMKE AND ROWLAND WESTON, OF SAGINAW, MICHIGAN.

PIPE-BOILER.

SPECIFICATION forming part of Letters Patent No. 584,641, dated June 15, 1897.

Application filed May 23, 1896. Renewed April 30, 1897. Serial No. 634,619. (No model.)

To all whom it may concern:

Be it known that we, ALEXANDER M. LEMKE and ROWLAND WESTON, of Saginaw, in the county of Saginaw and State of Michigan, have invented a new and Improved Pipe-Boiler, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved pipe-boiler which is simple and durable in construction and arranged to insure a perfect circulation of the water and a proper generation of dry steam.

The invention consists principally of water-drums supporting water-legs extending upwardly and carrying at their upper ends separating-drums, the drums being connected with each other by transverse connections, and a steam-dome supported by said transverse connections.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

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 side elevation of the improvement. Fig. 2 is a rear end elevation of the same, and Fig. 3 is a front end elevation of the same.

The improved boiler is provided with two longitudinally-extending water-drums A A', mounted on suitable legs B, adapted to rest on a proper foundation for the boiler. The legs B are provided with suitable supports C for carrying the grate of the boiler.

From the ends of the drum A extend vertically the water-legs D D', and similar water-legs D² D³ extend upwardly from the ends of the other drum A'. The two water-legs D D' are connected with each other at their upper ends by a separating-drum E, and a similar drum E' connects the upper ends of the water-legs D² D³ with each other. The separating-drums E E' are connected with each other at their front and rear ends by transversely-extending connections F F', connected with and supporting a longitudinally-extending steam-drum G, adapted to receive the steam generated in the drums and legs above described.

In order to establish a rapid circulation between the water-drums and the separating-drums, we provide coils of pipe H H', arranged alternately throughout the length of the boiler between the said sets of water-legs D D² and D' D³. The coils H are connected at their lower ends with the drum A, and the upper ends of said coils discharge into the drum E', located diagonally opposite the drum E. The coils H' connect the drums A' A² with each other, so that the water can circulate vertically in the water-legs D D' D² D³ and in an oblique direction through the sets of coils H H', connecting diagonally opposite drums with each other.

The lower horizontal runs of the several coils H H' are located a suitable distance above the grate to form a fire-box, and the rear end of the latter is closed in by a coil of pipe I, connected at its lower end with the drum A' and at its upper end with the drum E.

In order to prevent escape of heat between the runs of the coil I, we preferably arrange the same in a zigzag form, as indicated in Fig. 1.

It will be seen that by the arrangement described a perfect circulation of the water is insured, so that steam is quickly generated, and the dry steam can readily pass to the dome G, from which suitable connection is made with the engine or other motor to be driven by the steam generated in the boiler.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. A boiler, comprising water-drums supporting vertically-disposed legs, separating-drums arranged over the water-drums and supported on the said water-legs, connections between said separating-drums, a steam-dome carried by and connected with said connections, sets of coils of pipe connecting one water-drum with the obliquely-located separating-drum, and a coil of pipe arranged at the rear of the boiler and connecting a water-drum with a separating-drum, the said coil of pipe forming a back wall for the fire-box, substantially as specified.

2. A boiler, comprising water-drums supporting vertically-disposed water-legs, separating-drums arranged over the water-drums and supported on said water-legs, transverse

connections connecting the front and rear
ends of said separating-drums with each
other, a steam-dome carried by and connected
with said connections, alternately-arranged
5 sets of coils of pipe for connecting one water-
drum with the obliquely-located separating-
drum, and a coil of pipe having runs arranged
zigzag at the rear end of the boiler, to form a

back wall for the fire-box, substantially as
shown and described.

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Witnesses:

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