A. T. Lackland,

Steam-Boiler Fire-Box.

No. 42,383. Patented Apr. 19, 1864.

Fig. 1.

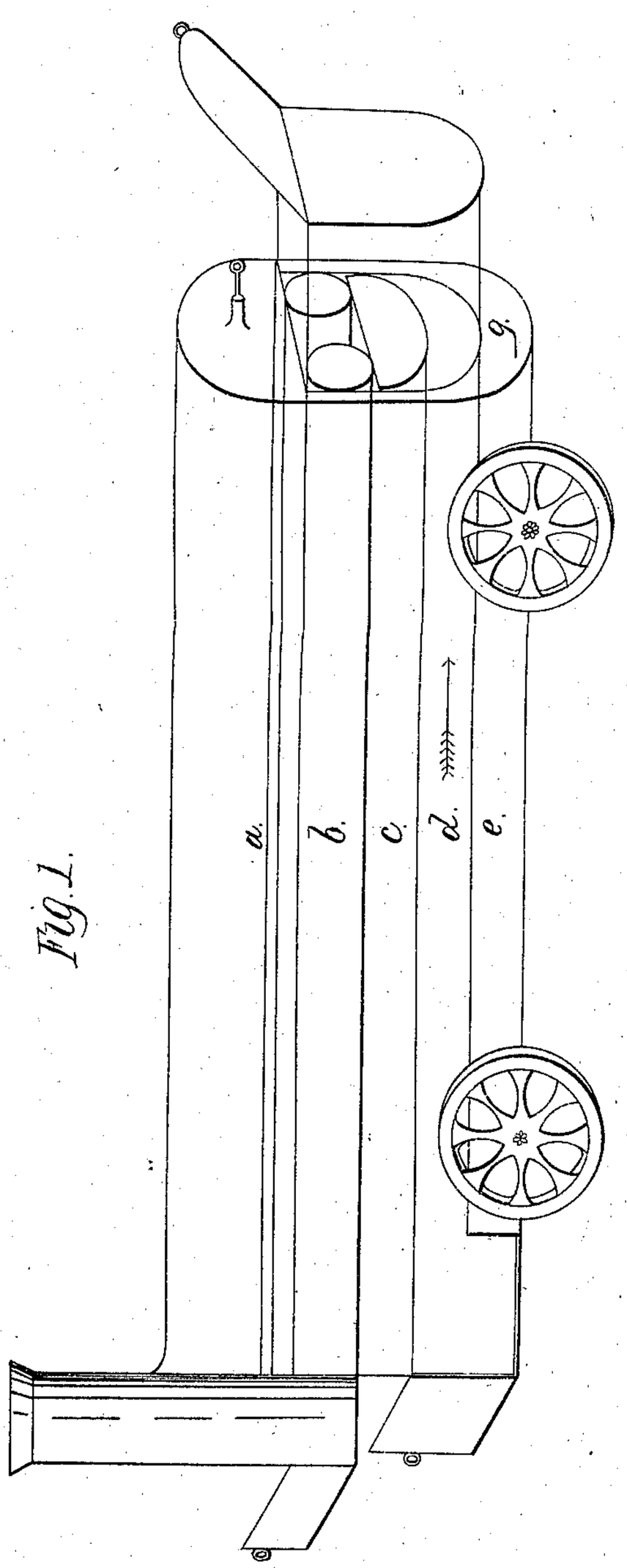


Fig. 3.

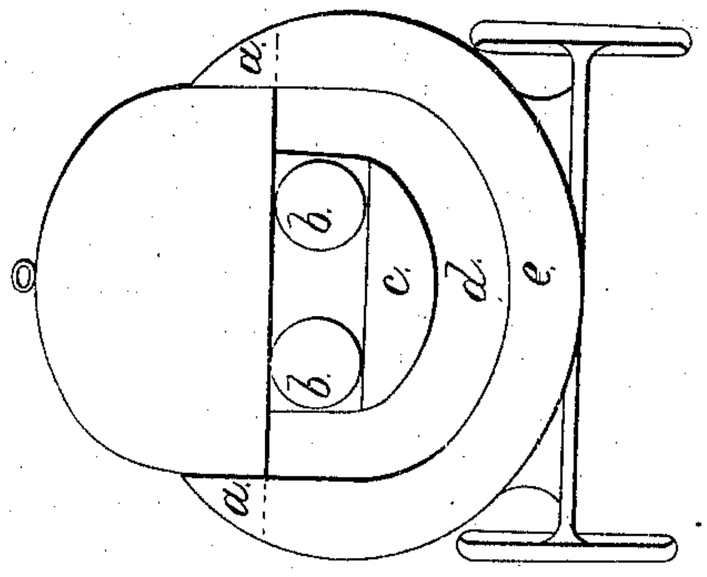


Fig. 4.

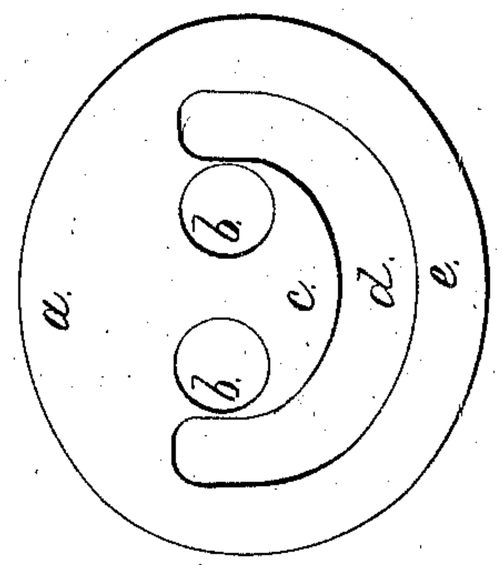
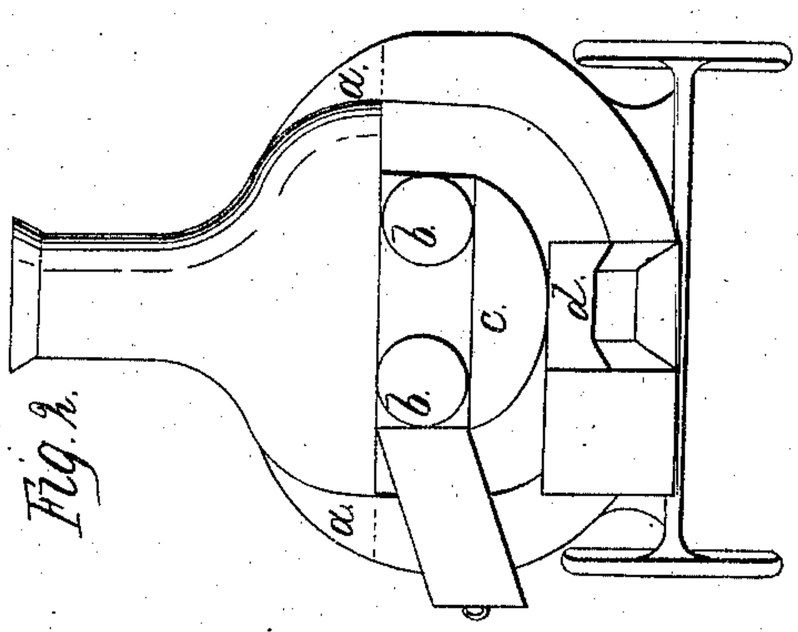


Fig. 2.



Witnesses:
Isaac M. Lopas,
W. F. Daugherty.

Inventor:
A. T. Lackland

UNITED STATES PATENT OFFICE.

AUGUSTUS T. LACKLAND, OF ST. CHARLES, MISSOURI.

IMPROVEMENT IN STEAM-BOILERS.

Specification forming part of Letters Patent No. **42,383**, dated April 19, 1864.

To all whom it may concern:

Be it known that I, A. T. LACKLAND, of St. Charles, in the county of St. Charles, in the State of Missouri, have invented a new and useful Improvement in Steam-Boilers; and I do hereby declare that the following is a full and exact description thereof.

The nature of my invention consists in the arrangement of the furnace for the fire inside of the boiler in such a manner that the flames pass through the boiler and return back through a flue or flues to the chimney in front, instead of passing under the boiler, as in the old plan. The form of my boiler is such that it saves nearly all of the heat of the fire, very little being lost by radiation, the boiler itself forming every part of the furnace, except the grates at the bottom and the doors in front; and the water in the boiler of course being all around the fire, except at the grates and fire-doors, a greater surface is exposed to the fire, so that the water can be heated with less fuel than in any other way.

To enable others skilled in the art to make and use my boiler, I will proceed to describe its construction.

I apply to it gage-cocks, safety-valves, and other usual appendages of ordinary boilers. The fire goes in the front of the boiler at *d* and passes through the boiler to the hind end, and returns through the flue or flues *b* to the chimney in front. The flue or flues *b* is surrounded by water *a* and *c*. *e* is water under the furnace, except where the grates are. The water *a*, *c*, and *e* all connects in the boiler, as you see from the center cut or cross-section of the boiler in Figure 4. The water *a*, *c*, and *e* surrounds the furnace *d* and the flues *b*, as in Fig. 4, so that the fire acts upon no part of the boiler but what has water in it, (the boiler.)

Fig. 1 is a perspective view; Fig. 2, a front view. Fig. 3 is the hind end view; Fig. 4, a center cut or cross-section of the middle part of the boiler, a small man-head under the fire-door at *g*, and a mud-valve under the boiler, if necessary.

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

The arrangement of the furnace-flue *d*, return-flues *b b*, and the water-jacket surrounding the furnace. substantially as shown and described.

AUGUSTUS T. LACKLAND.

Witnesses:
ISAAC W. COPES,
W. F. DOUGHERTY.