C. A. CLARK.

Steam-Boilers.

No. 152,275. Patented June 23, 1874.

Fig: 1.

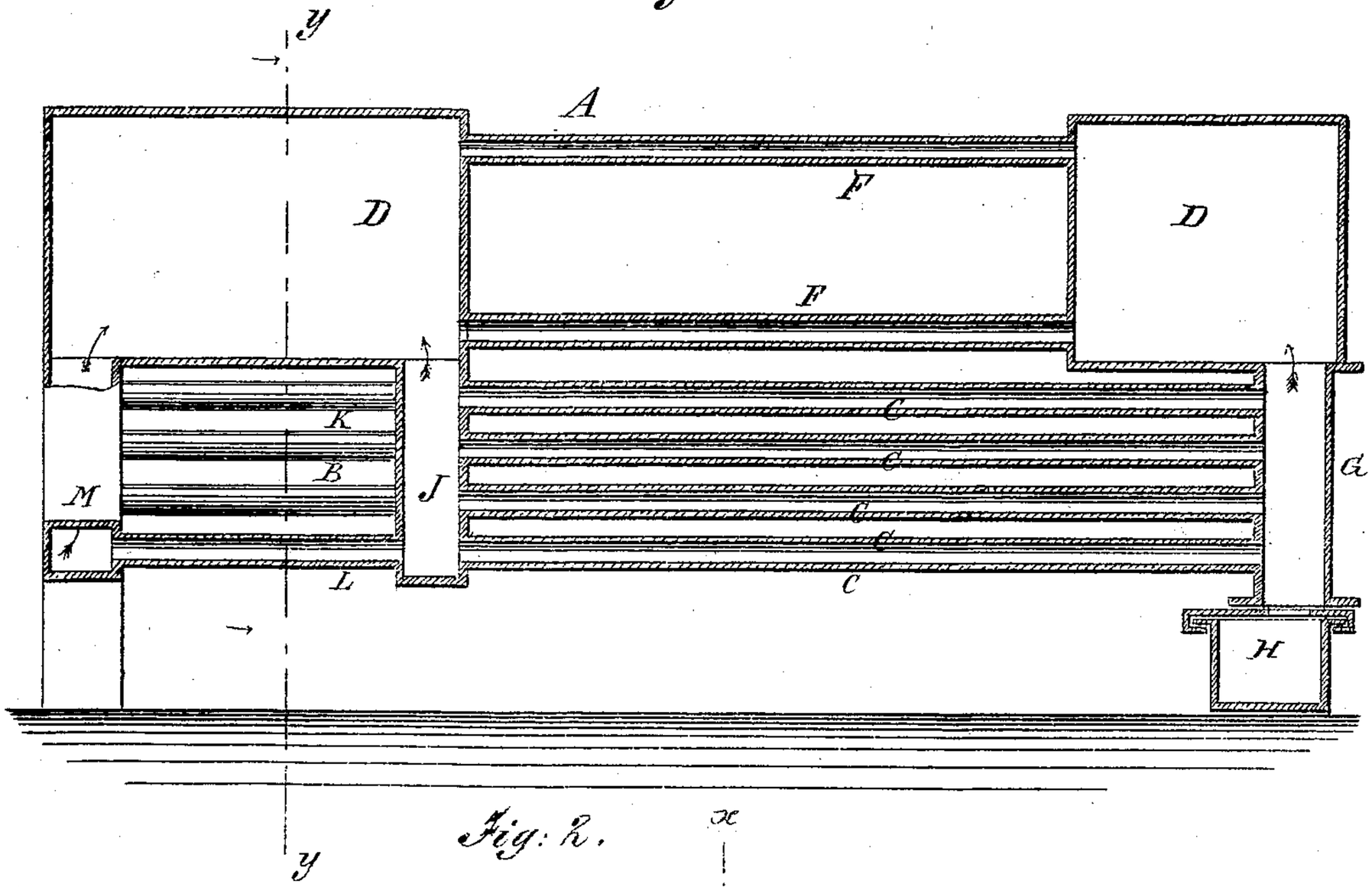
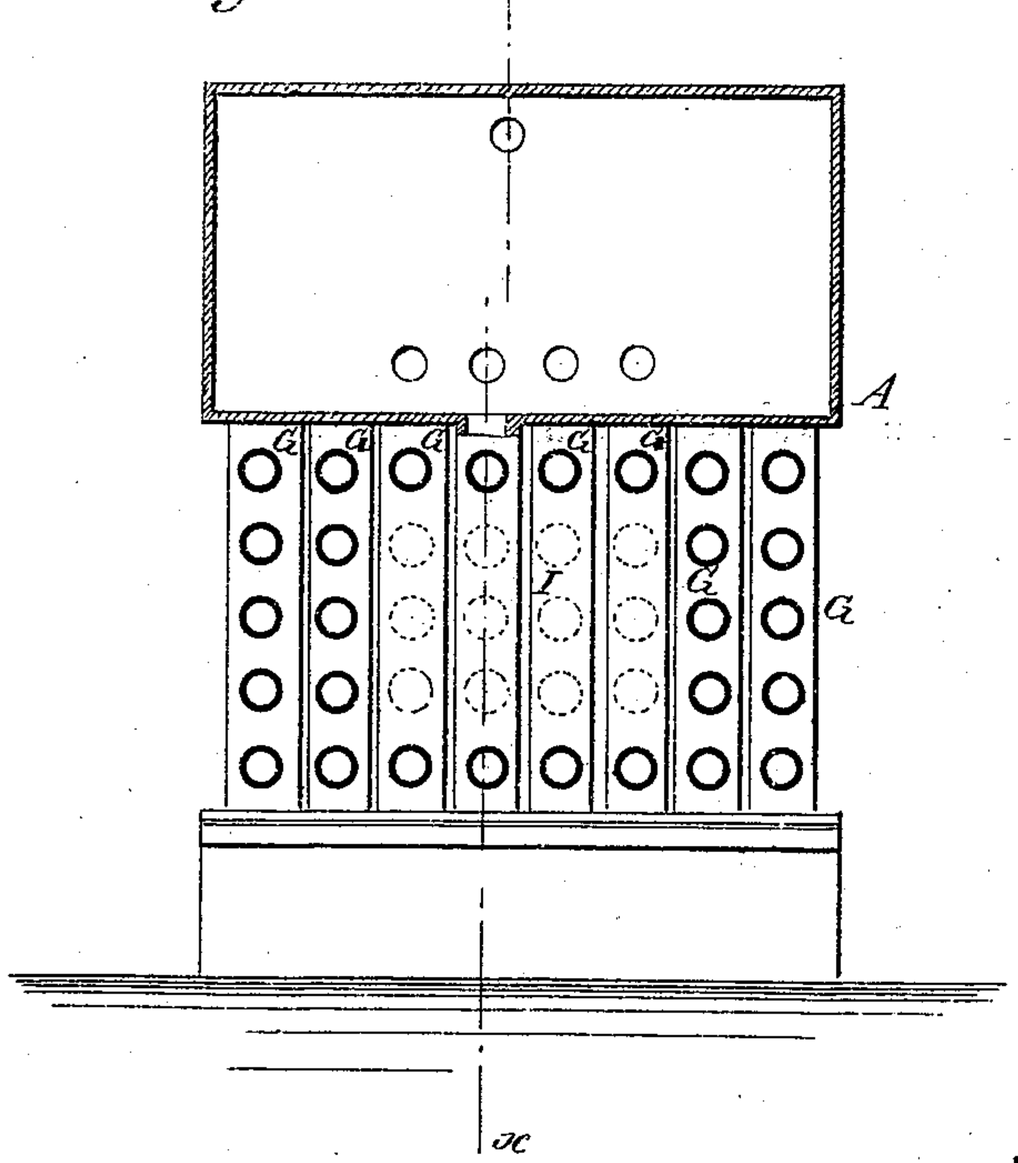


Fig: 2.



WITNESSES:

Chas. Nida.

Augnick

INVENTOR:

C. A. Clark

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CARLOS A. CLARK, OF BLOOMFIELD, IOWA.

IMPROVEMENT IN STEAM-BOILERS.

Specification forming part of Letters Patent No. **152,275**, dated June 23, 1874; application filed April 4, 1874.

To all whom it may concern:

Be it known that I, CARLOS A. CLARK, of Bloomfield, in the county of Davis and State of Iowa, have invented a new and useful Improvement in Tubular Steam-Boilers, of which the following is a specification:

The invention will first be fully described, and then pointed out in the claim.

In the accompanying drawing, Figure 1 is a vertical longitudinal section of the boiler taken on the line *x x* of Fig. 2. Fig. 2 is a vertical cross-section of Fig. 1 taken on the line *y y*.

Similar letters of reference indicate corresponding parts.

A is the boiler. B is the furnace. C represents water-tubes. D D are steam domes or chambers above the generating-tubes C, being at opposite ends of the boiler, and connected by the steam-tubes E near their bottom, and by the steam-tube F at their top, so that the steam-pressure is equalized. G are vertical tubes at the back end of the boiler, (seen in Fig. 2,) with which the generating-tubes C connect. These tubes G discharge the steam from the generating-tube into the rear steam-dome D. H is the mud-box. The sediment of the water settles from the tubes into this box, (which is in communication with the vertical tubes,) from which it is discharged by the "blow-off" cock. The bridge-wall of the furnace is composed of vertical tubes J, which discharge into the forward dome D. The central portion of the generating-tubes (seen in dotted lines in Fig. 2) connect with the bridge-wall tubes. The crown and fire-bottom of the furnace consist of short tubes K L, which connect with the vertical tubes J, and with the tubular furnace-door frame M, which frame also communicates with the front dome D. The outside tubes C (at the right and left of the furnace) are attached to front corner tubes, which also connect with the front dome.

For burning coal or fine fuel, a grate may be used over the bed-tubes of the furnace. The feed-pump may be attached to the mud-box or to any of the lower tubes of the boiler. The steam may be used from the upper tube F, or from either of the domes, as may be found most convenient.

The boiler will be surrounded by a suitable arch so that the tubes will be surrounded by the gaseous products of combustion. The water, being thus divided up and brought into near contact with the fire and heat, will readily be converted into steam, which will find its way into the steam-dome.

With this boiler fuel may be utilized to the greatest extent. No large body of water is to be heated, and danger of explosion is far less than with ordinary boilers.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

A boiler constructed with two steam-domes, D D, connected with each other by tubes E F, and with horizontal steam-generating tubes by vertical tubes J G, as and for the purpose specified.

CARLOS A. CLARK.

Witnesses:

AMOS STECKEL,

B. T. ELLIOTT.