

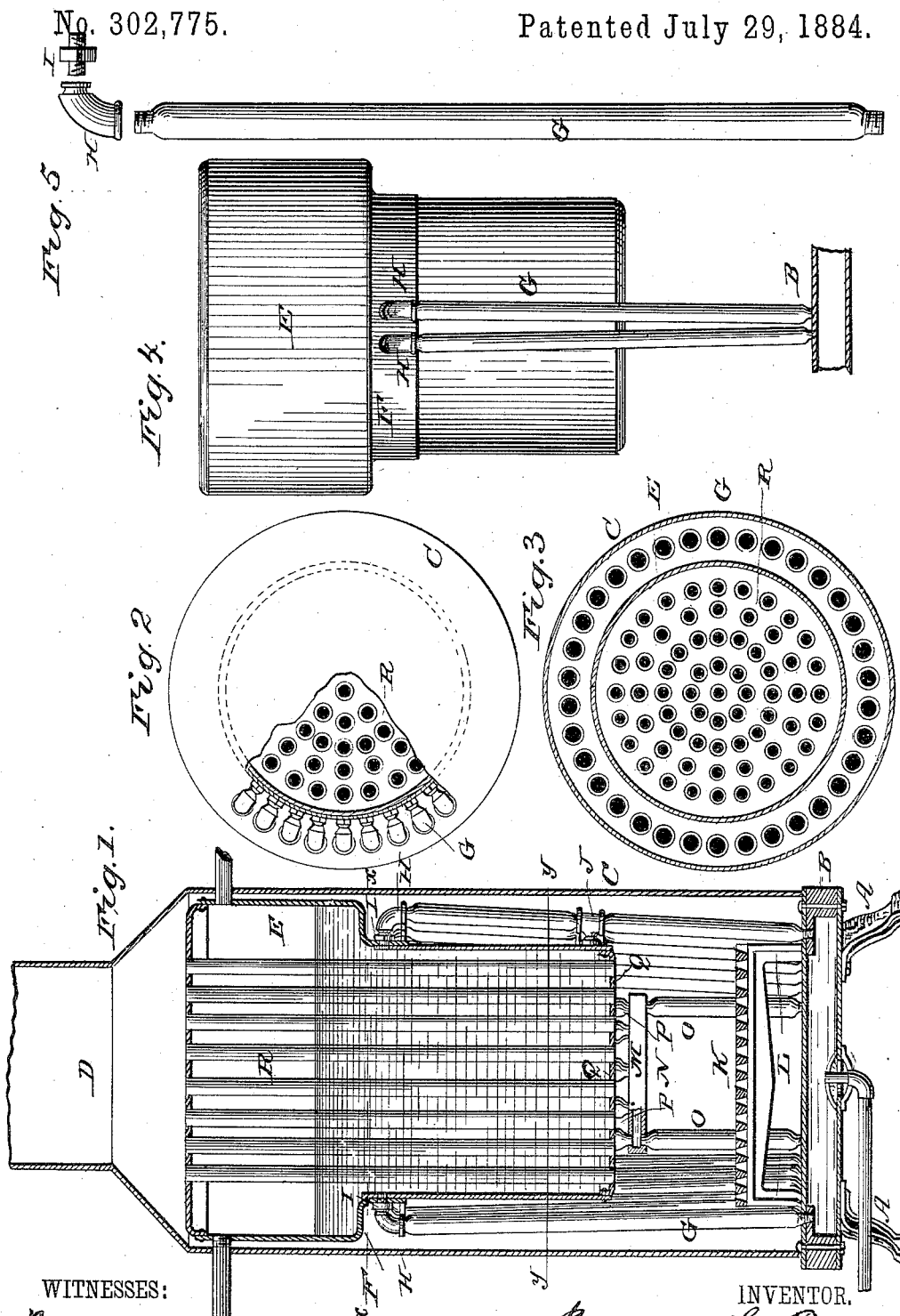
(No Model.)

R. S. PUTNAM.

STEAM BOILER.

No. 302,775.

Patented July 29, 1884.



WITNESSES:

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UNITED STATES PATENT OFFICE.

RANSOM S. PUTNAM, OF PLAINWELL, MICHIGAN.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 302,775, dated July 29, 1884.

Application filed May 27, 1884. (No model.)

To all whom it may concern:

Be it known that I, RANSOM S. PUTNAM, a citizen of the United States, and a resident of Plainwell, in the county of Allegan and State of Michigan, have invented certain new and useful Improvements in Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a vertical sectional view of my improved steam boiler or generator. Fig. 2 is a sectional view taken on the line *xx* in Fig. 1. Fig. 3 is a horizontal sectional view on the line *yy* in Fig. 1. Fig. 4 is a side view of the portion of the boiler which forms the water-chamber and steam-dome, showing several of the exterior tubes in position; and Fig. 5 is a detail view, on a larger scale, of one of the said tubes, showing the means for connecting it with the dome.

The same letters refer to the same parts in all the figures.

This invention relates to steam-boilers; and it has for its object to provide a boiler in which the fire-box shall be formed of a series of water tubes or flues connecting a water-base with the body of the dome or boiler.

It consists in the improved construction and arrangement of parts, which will be hereinafter fully described, and particularly pointed out in the claim.

In the drawings, A A designate legs supporting a suitably-constructed water-base, B.

C is the outershell or casing of my improved boiler, the upper end of which terminates in the smoke-stack D.

E designates the dome or body of the boiler, which is located within the shell or casing C, and which is constructed with a shoulder or flange, F.

G G designate a series of tubes or flues, the lower ends of which are screwed into the upper side of the water-base at the periphery of the latter, the said tubes being so arranged as to form a complete circle except at the front, where sufficient space is left to afford room for a fire-door. The upper ends of the

said tubes are connected with the boiler proper, below the flange of the latter, by means of elbow-joints H and right and left hand threaded nipples I, the construction of which is clearly shown in Fig. 5 of the drawings. Several of the said tubes are also connected with the lower end of the boiler by means of T-joints J. (Shown in Fig. 1.)

K is a suitably-constructed grate, mounted upon legs L, which elevate it a sufficient distance above the water-base upon which the said grate is placed to afford room for the ashes and to admit draft. The said grate is circular in shape, and is fitted neatly in the fire-box, which is formed by the tubes G, the latter being set sufficiently close together for this purpose and yet so far apart that they shall be completely enveloped by flame.

M is a water-casing arranged above the opening N, which is reserved for the fire-door, and having its ends connected with the water-base by means of short tubes O. The upper side of the said water-case is connected with the boiler by means of tubes or flues P, which correspond with the tubes G, as indicated in Fig. 1 of the drawings.

Suitable means are provided for admitting water into the boiler and for taking the steam from the latter, and a suitable safety-valve may likewise be provided; but these parts are not herein claimed.

The bottom of the boiler, designated by letter Q, forms the crown-sheet, and it is connected with the top of the boiler by means of the flues R, which form the fire-flues, and through which the products of combustion pass from the fire-box in an upward direction and out through the smoke-stack D.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed. Its advantages will also be readily appreciated by those skilled in the art to which it appertains. Mud and sediment contained in the feed-water will settle in the water-base, from which it may be easily removed through a suitable hand-hole.

Owing to the construction of my improved boiler, heat is greatly economized and steam may be generated in a short time and at a rapid rate.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

In a steam boiler or generator, the combination of a water-base, a vertical boiler having an annular flange or shoulder, a circular series of tubes or flues connecting the said water-base with the boiler below the flange of the latter, several of said tubes being also connected directly with the lower end of the boiler, a grate provided with suitable legs and supported up-

on the water-base within the fire-box, and a suitable casing terminating in a smoke-stack at its upper end, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

RANSOM S. PUTNAM.

Witnesses:

A. CHURCHILL ROBERTS,
BRONSON SCHOONMAKER.