

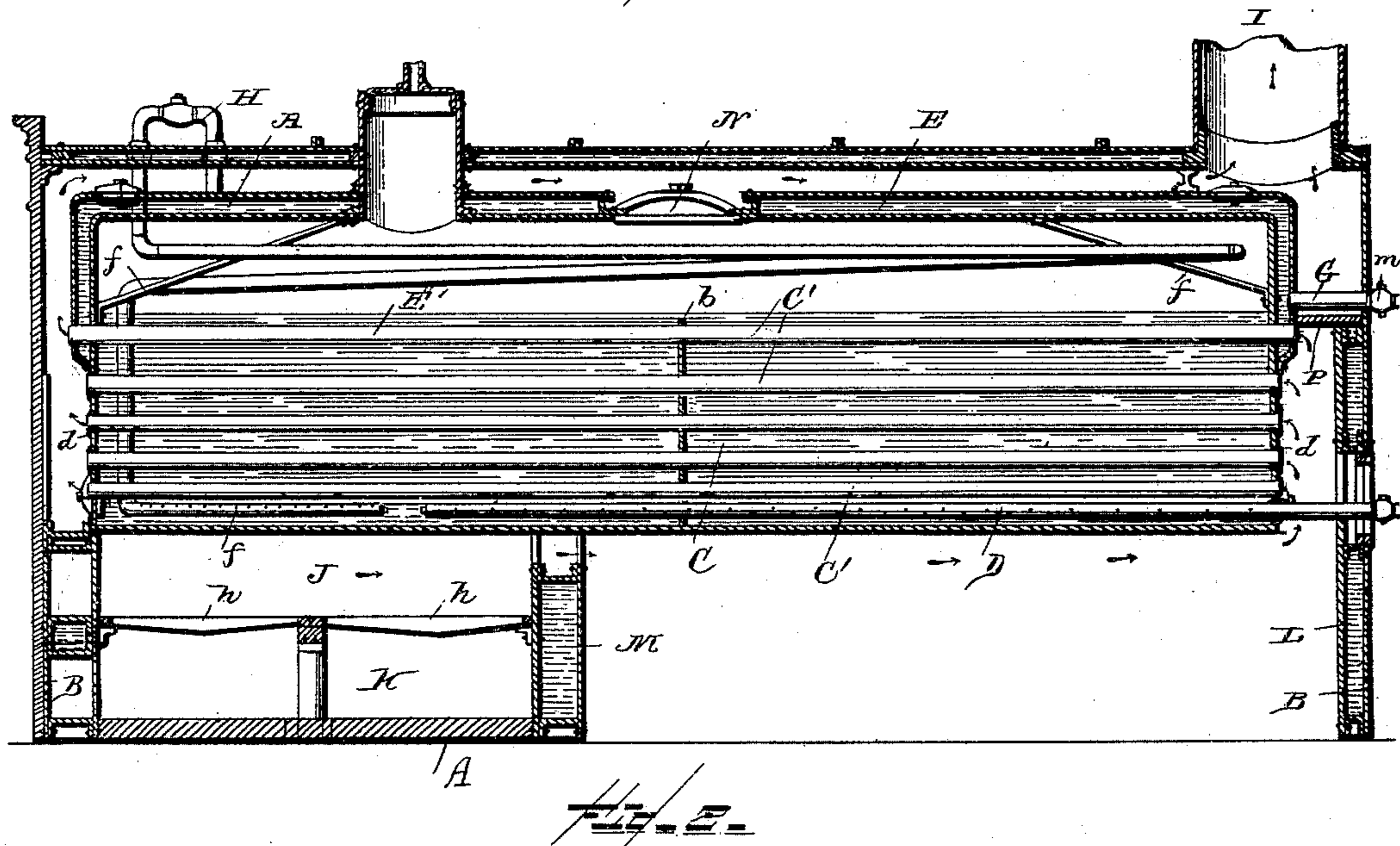
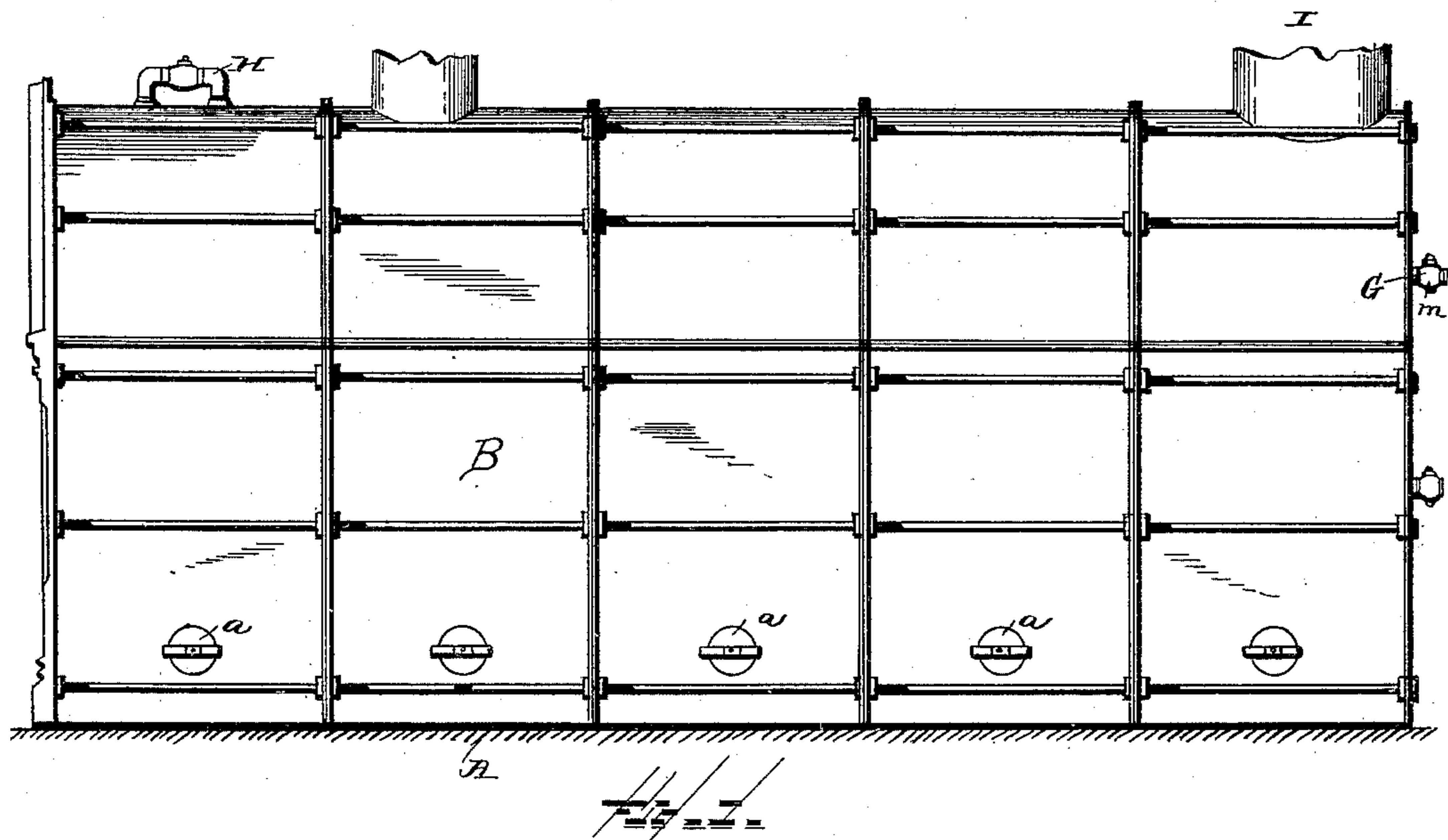
(No Model.)

2 Sheets—Sheet 1.

W. M. GLASSON.
STEAM BOILER.

No. 408,343.

Patented Aug. 6, 1889.



Witnesses

Albert Spiden,
R. H. Luck,

Inventor

William M. Glasson
By *His Attorney*
Franklin D. Hong

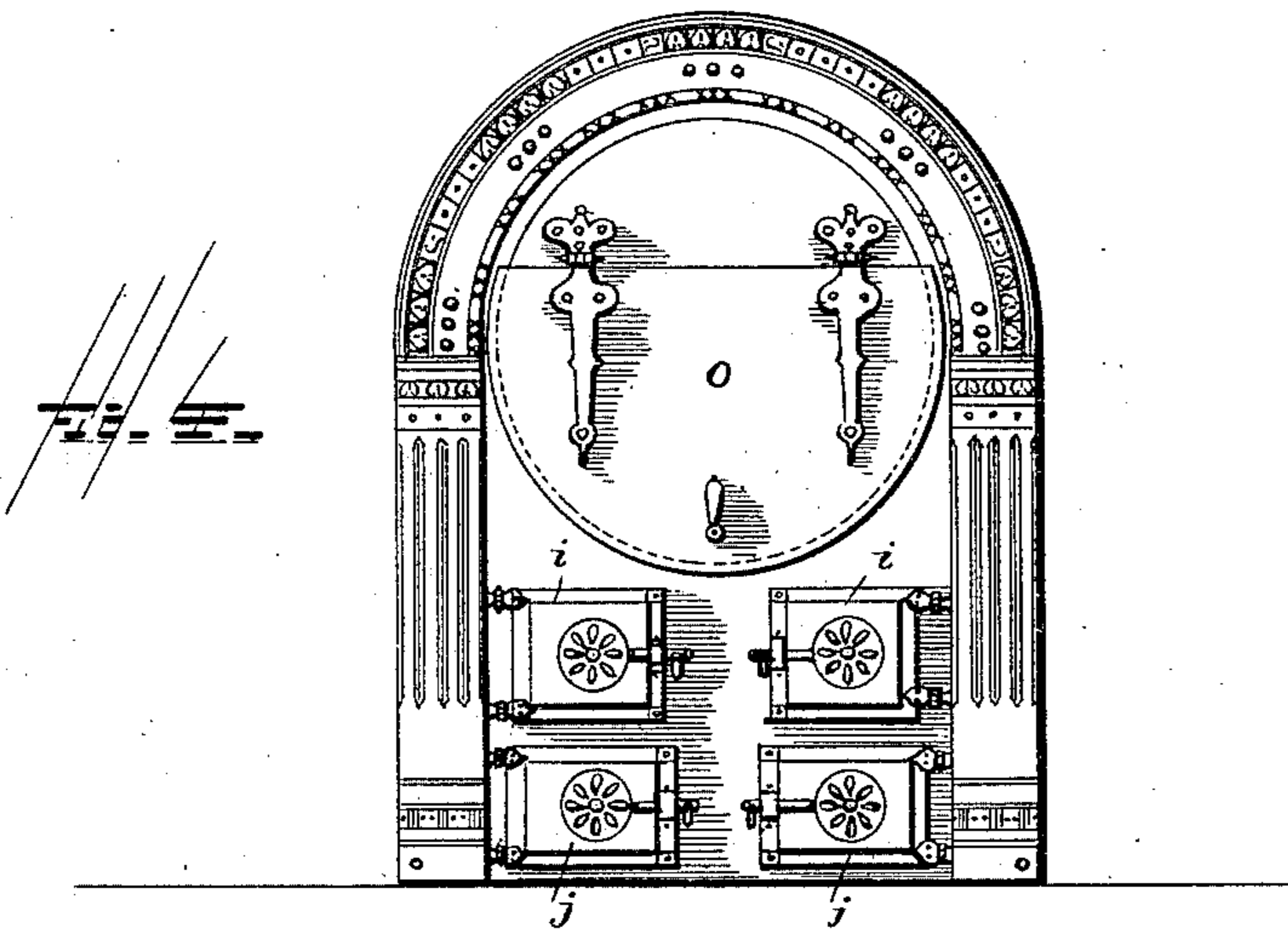
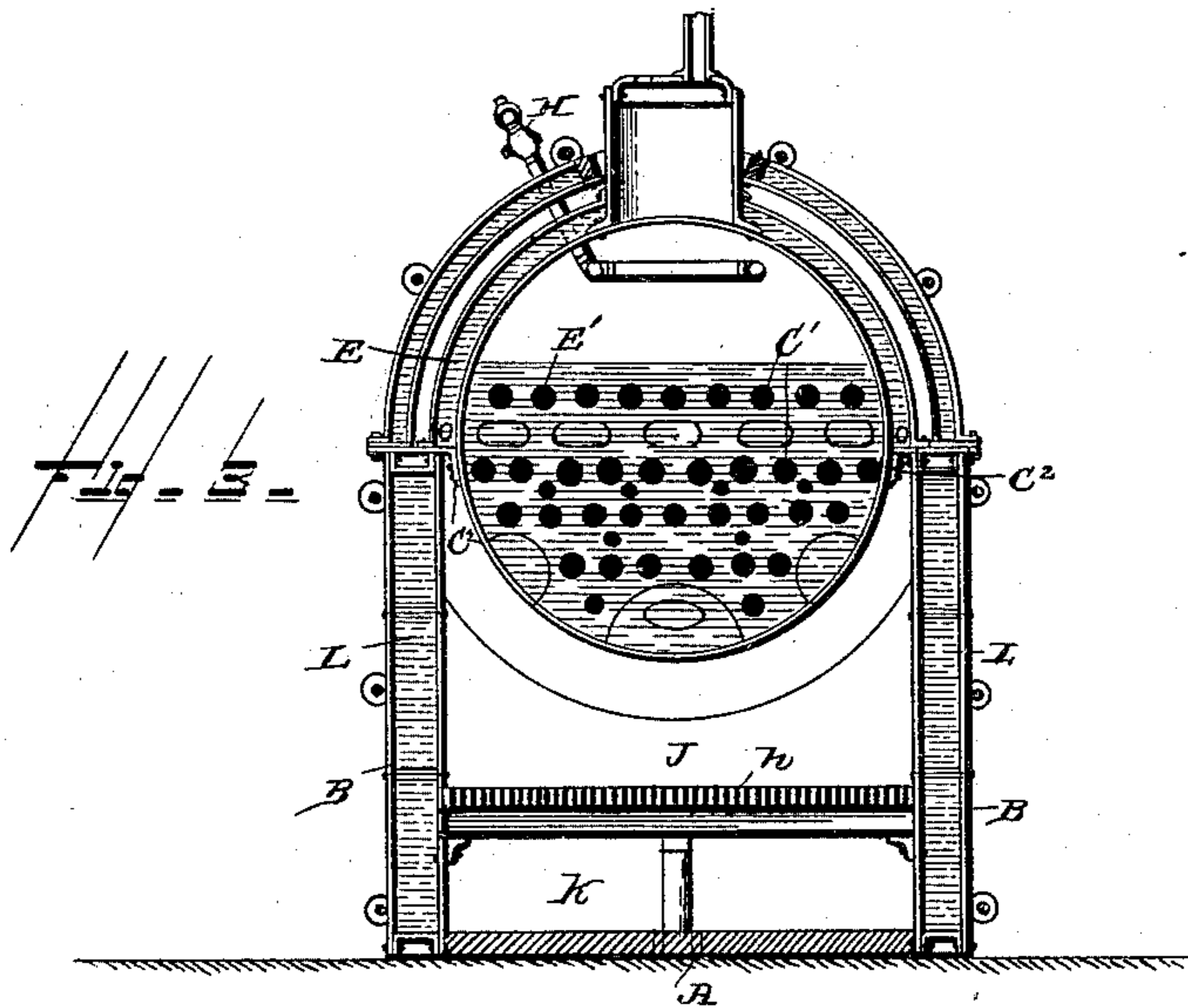
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UNITED STATES PATENT OFFICE.

WILLIAM M. GLASSON, OF SOCORRO, TERRITORY OF NEW MEXICO.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 408,343, dated August 6, 1889.

Application filed May 8, 1889. Serial No. 309,988. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. GLASSON, a citizen of the United States, residing at Socorro, in the county of Socorro and Territory of New Mexico, have invented certain new and useful Improvements in Steam-Boilers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in steam-boilers; and it has for its objects to improve upon prior devices of this character, to provide a water-compartment around the top and sides of the boiler below the water-line, and to otherwise improve upon the construction of steam-boilers.

The novelty resides in the peculiar combinations and in the construction, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the drawings, and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a side elevation of a boiler constructed in accordance with my invention. Fig. 2 is a central longitudinal section. Fig. 3 is a transverse section, and Fig. 4 is a front elevation, of the same.

Reference now being had to the details of the drawings by letter, A designates the base and B the outer vertical walls provided with suitable holes *a* for the purpose of cleaning out the water jackets or compartments and removing sediment when occasion may require. These holes are covered by means of suitable covers, as shown.

C is the boiler provided with longitudinal flues C', which are open at the ends and are supported between their ends within the boiler by means of the support *b*.

D is the blow-off tube or pipe extending along the bottom of the boiler, preferably one inch from its bottom, and perforated upon

its under side in order to remove the sediment when desired.

E is a water compartment or jacket surrounding the boiler and extending below the water-line thereof. It is secured to the boiler by means of flanges or angle-irons C² and suitable securing means, as riveting. The angle-irons or flanges of the water-compartment are riveted to the main sheet of boiler and the sheet of compartment riveted to said angle-irons or flanges, said angle-irons forming the bottom of water-compartment and the support of the boiler. On its side walls are water-pockets for the extreme length of the same.

The upper row of tubes E' are extended through the walls of the water-compartment and one inch from the bottom of the same. The top tiers of flues are safety-flues of the boiler. If the water gets below the flues and the flues burst, the water in the compartment will protect the main sheet of boiler from burning and prevent a boiler-explosion from low water. The top end of the boiler is stayed by means of diagonal stays *f*.

G is a water-inlet pipe connected with a suitable source of supply, and emptying into the water-compartment, as shown.

H is a feed-pipe connected to the water-compartment A of the boiler, entering through the top of the boiler and secured to the sheets thereof, and passing around the boiler on the inside thereof, and extending a short distance along the bottom of the boiler, and is preferably perforated, as shown, so as to provide a spray feed within the boiler.

I is a smoke-stack providing an outlet for the products of combustion.

J is a fire-box provided with a grate *h*, and K is the ash-pot, said fire-box and ash-pot being provided with suitable feed or fire doors *i* and *j*, as shown.

L is the outer water jacket or compartment entirely surrounding the boiler and extending down upon all sides of the furnace. The feed-pipe of the boiler is provided with suitable valve *m*, as shown.

M M are suitable supports for the boiler, on which the angle-irons or flanges *n* of the water-compartment rest.

N is the man-hole head of the boiler.

O is a suitably-hinged door at the end of

the furnace to provide access to the flues of the boiler when necessary.

P is the flue-plate on the back end or side of the boiler to direct the draft and products of combustion through the flues.

It will be seen from the above description that I provide a boiler that will have at least one-half more heating-surface than any boilers now in use, for its heating-surface extends along the bottom of the boiler and up the sides and along the bottom of the water-compartment, thence through the flues and up the entire end, thence along the top and sides down to the protecting-sheets of the bottom of the inner water-compartment of the boiler the entire length of the same, and this boiler will be stronger than any boiler that is now in use on account of the double sheets on the top and sides and ends down below the water-line of the boiler. If the water gets below the flues in the boiler, the water in the compartment will protect the sheets of the boiler from burning, as the water in the compartment will be below the top tier of flues on the outside, and will so protect the sheet from burning.

The arrows represent the draft or heating surface of the boiler. The water in compartment on top of the boiler will not affect the steam in the boiler, as the water will be nearly at a boiling-temperature forced in by the steam-pump from the outside water-pockets, and by the extra length of its heating-surface it will consume at least seventy-five per cent. more of smoke than any boiler that is now in use without a smoke-consumer, for this boiler can be built of any desired length with perfect safety, as the weight of the boiler will rest on its side walls or water-jackets for the extreme length of the same. This boiler is entirely surrounded by water-compartments.

What I claim as new is—

1. The combination, with the boiler and its tubes, of the water-compartment surrounding the same and extending below the water-line, the upper row of tubes being extended through said water-compartment, substantially as shown and described.

2. The combination, with the boiler, of the water-compartment around said boiler and secured thereto below the water-line, and the upper set of tubes extended through the ends of the boiler and through the ends of the water-compartment and one inch from the horizontal portion thereof, substantially as shown and described.

3. The combination of the boiler with its water-compartment, of the tubes extended through the end of the boiler and through the ends of the water-compartment, and the outer water jacket or compartment surrounding said boiler and the furnace, as shown and described.

4. The combination of the boiler with its water-compartment, of the tubes extended through the ends of the boiler and through the ends of the water-compartment, and the outer water jacket or compartment surrounding said boiler and the furnace, as shown and described, and the blow-off pipe extending the full length of boiler and one inch from the bottom of same, with holes in bottom of said pipe to receive the sediment that may be lying on the bottom of boiler and the boiler surrounded by water.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM M. GLASSON.

Witnesses:

JOHN S. SNIFFEN,
A. D. COON.