(No Model.)

4 Sheets—Sheet 1.

T. E. McNEILL.

STEAM BOILER.

No. 489,712. Patented Jan. 10, 1893.

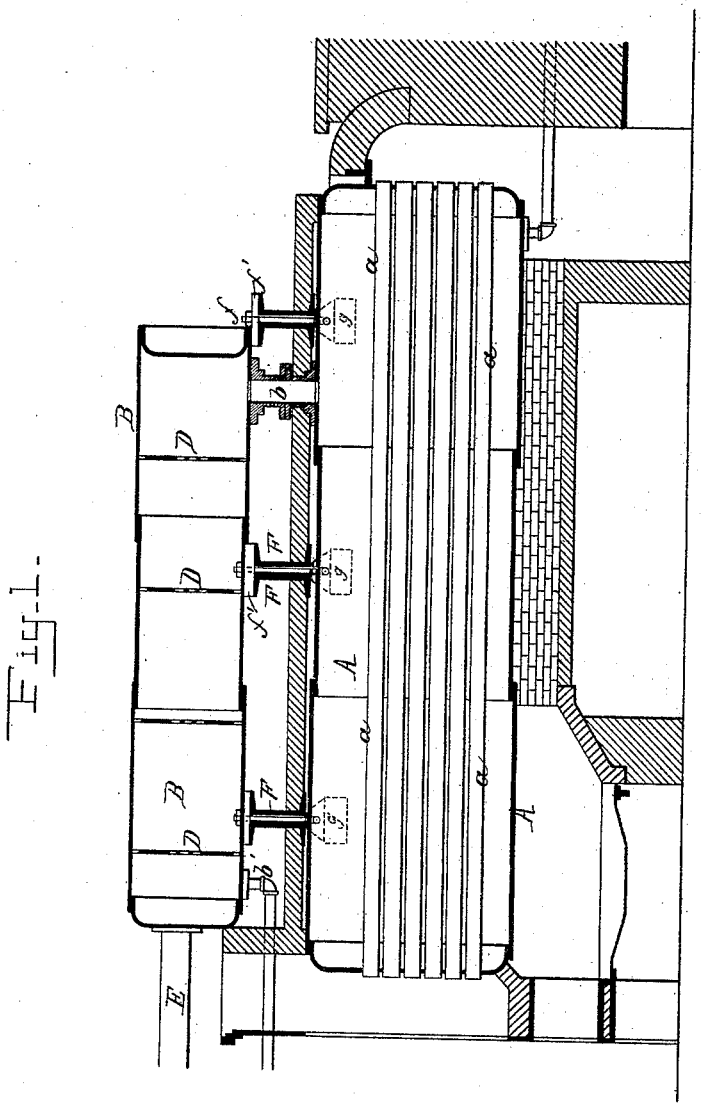


Fig. 1.

WITNESSES:
George Baumann
James Gracey

INVENTOR
Thomas E. McNeill
BY
Howson and Howson
his ATTORNEYS

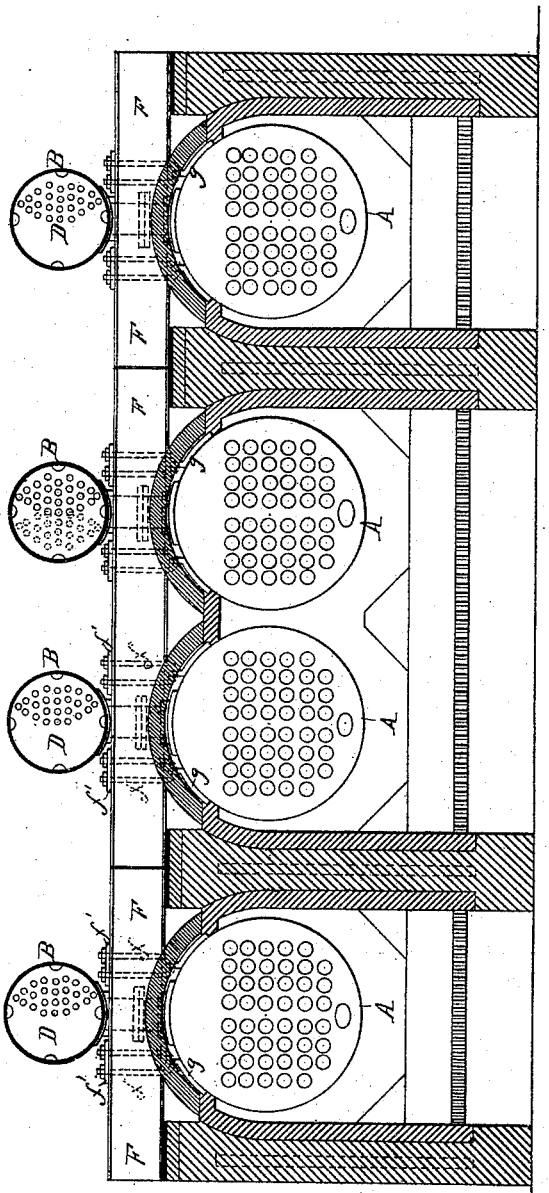
(No Model.) 4 Sheets—Sheet 2.

T. E. McNEILL.

STEAM BOILER.

No. 489,712. Patented Jan. 10, 1893.

Fig. 2.



WITNESSES:

George Baumann

James Graeer

INVENTOR

Thomas E. McNeill

BY

Howson and Howson

his ATTORNEYS

(No Model.)

4 Sheets—Sheet 3.

T. E. McNEILL.

STEAM BOILER.

No. 489,712. Patented Jan. 10, 1893.

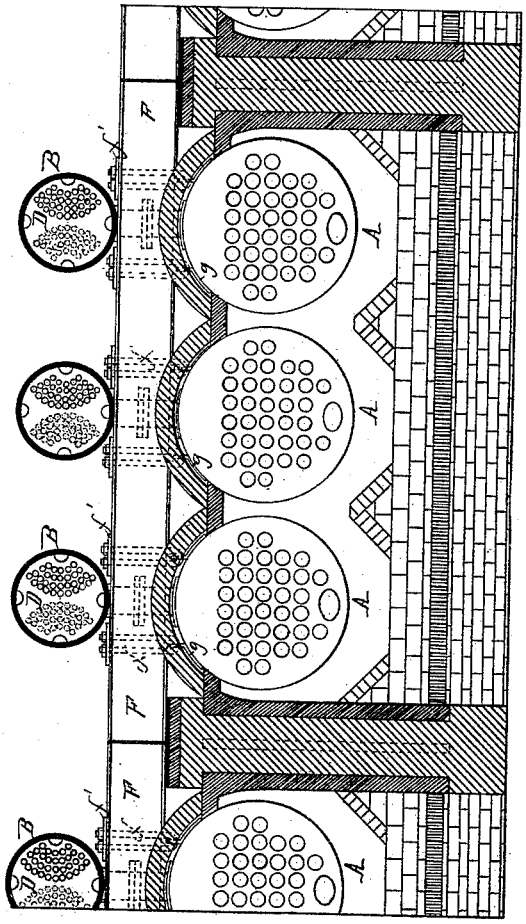


Fig. 3.

WITNESSES:
George Baumann
James Gracey

INVENTOR
Thomas E. McNeill
BY
Howson and Howson
his ATTORNEYS

(No Model.)

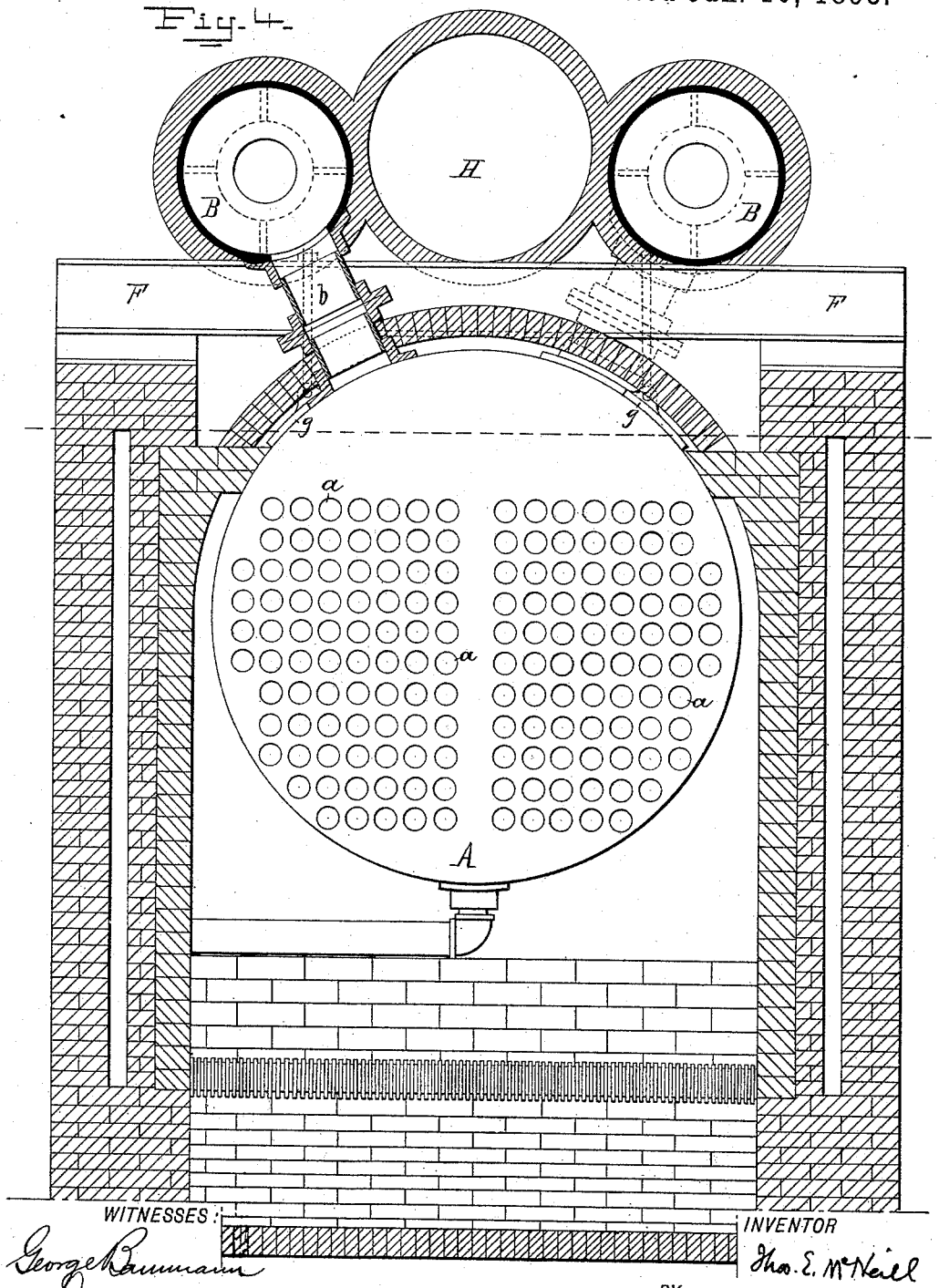
4 Sheets—Sheet 4.

T. E. McNEILL.

STEAM BOILER.

No. 489,712. Patented Jan. 10, 1893.

Fig. 4.



WITNESSES:

George Baumann

James Gracey

INVENTOR

Thos. E. McNeill

BY

Hawkins and Hawkins

his ATTORNEYS

UNITED STATES PATENT OFFICE.

THOMAS E. MCNEILL, OF NEW YORK, N. Y.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 489,712, dated January 10, 1893.

Application filed December 31, 1891. Serial No. 416,626. (No model.)

To all whom it may concern:

Be it known that I, THOMAS E. MCNEILL, a citizen of the United States, and a resident of New York city, New York, have invented certain Improvements in Steam-Boilers, of which the following is a specification.

My invention consists of an improved construction of horizontal tubular boiler designed mainly with a view to simplicity and economy of construction and to the production of dry steam economically and under all conditions.

In the accompanying drawings, Figure 1 is a longitudinal section of my improved horizontal tubular boiler; Fig. 2 is a transverse section of the same; Fig. 3 is a transverse section of a modification; and Fig. 4 is a transverse section of another modification.

The detailed construction of the body or main part A of my horizontal tubular boiler may be varied to some extent, but I construct and arrange it so that the water line shall be quite high and for that purpose I put in a large number of fire tubes *a* carrying them up to a high point in the height of the boiler. There is thus left between the water line and the top of the shell of the boiler a comparatively small steam space, in fact only sufficient to serve as a conduit for the steam, for I provide a separate steam drum B over the top of the steam generating part of the boiler, and outside the combustion chamber of the furnace. This steam drum B runs longitudinally with the boiler and is connected with the latter at one end through a pipe or pipes *b* of sufficient capacity. The interior of this drum is provided throughout its length with a suitable number of baffle plates D of any convenient construction. By thus constructing the steam drum B to lie longitudinally with the boiler I am enabled to provide within a limited vertical height, a drum of sufficient capacity by reason of its length to serve as a thorough separator, and also as a storer of steam.

In Figs. 1, 2 and 3, I have shown these plates as constructed with perforations arranged on the right and left hand sides of the successive plates alternately. In the construction shown in Fig. 4 the successive baffle plates are shown as having alternately a central perforation and peripheral openings.

Whatever the form of the baffle plates, it is important that the longitudinal drum should have its steam outlet E at the opposite end from that at which it receives the steam from the generating part of the boiler, so that the steam in passing through the drum shall be caused to take a more or less circuitous course or be sufficiently retarded to permit of the deposit and retention of the entrained water. This water can be carried back into the boiler either through the steam tube *b* or by a separate return pipe *b'*, which is connected to the generating part of the boiler below the water line. It will be understood that these boilers may be set singly in the brickwork, as shown at the right and left of Fig. 2, or they may be arranged in battery of two (as shown at the center of Fig. 2) or three (Fig. 3) or more, as desired. In any case I prefer to suspend the boilers in the brickwork by the means illustrated in the drawings, and consisting of transverse channel beams or I-beams F supported on the brick walls, with links or bolts *f* passing between adjacent beams and supported upon blocks *f'* on the upper side of the beams F. The lower ends of the bolts are engaged with lugs *g* riveted to the boilers. This manner of suspending the main generating part of the boiler permits of a large freedom for expansion and contraction and a full exposure of the main part of the exterior of the shell to the action of the products of combustion, as will be readily understood from examination of the drawings. The steam drum may be conveniently supported upon the tops of the beams.

Where the generating part of the boiler is made of large diameter it may be desirable to use two steam drums B, and in that case I prefer to arrange them as shown in Fig. 4, with or without an intermediate space which may be utilized for the formation of a return smoke flue H. Each of those longitudinal drums is in communication at one of its ends only with the boiler while it has its steam outlet at its opposite end and is provided with intermediate baffle plates. As indicated in the drawings I prefer to have one of the longitudinal steam drums in communication through the tube *b* at one end of the generating part of the boiler, while the other

drum B is in communication through its tube *b* with the other end of the boiler.

I claim as my invention

1. A horizontal tubular boiler, having a steam drum separate from the steam generating part, but longitudinal therewith, outside the combustion chamber, and in communication at one end with said steam generating part and having its steam outlet at the other, with intermediate baffle plates, substantially as described.

2. A horizontal tubular boiler having a longitudinal steam drum separate from the steam generating part but in communication therewith at one end and having a steam outlet at its other end and intermediate baffle plates in combination with transverse beams from which the generating part is suspended and upon which the steam drum rests, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS E. McNEILL.

Witnesses:
EDITH J. GRISWOLD,
JAMES GRACIE.