

No. 872,291.

PATENTED NOV. 26, 1907.

H. V. BRADY.
STEAM BOILER.

APPLICATION FILED MAY 9, 1907.

3 SHEETS—SHEET 1.

Fig. 1.

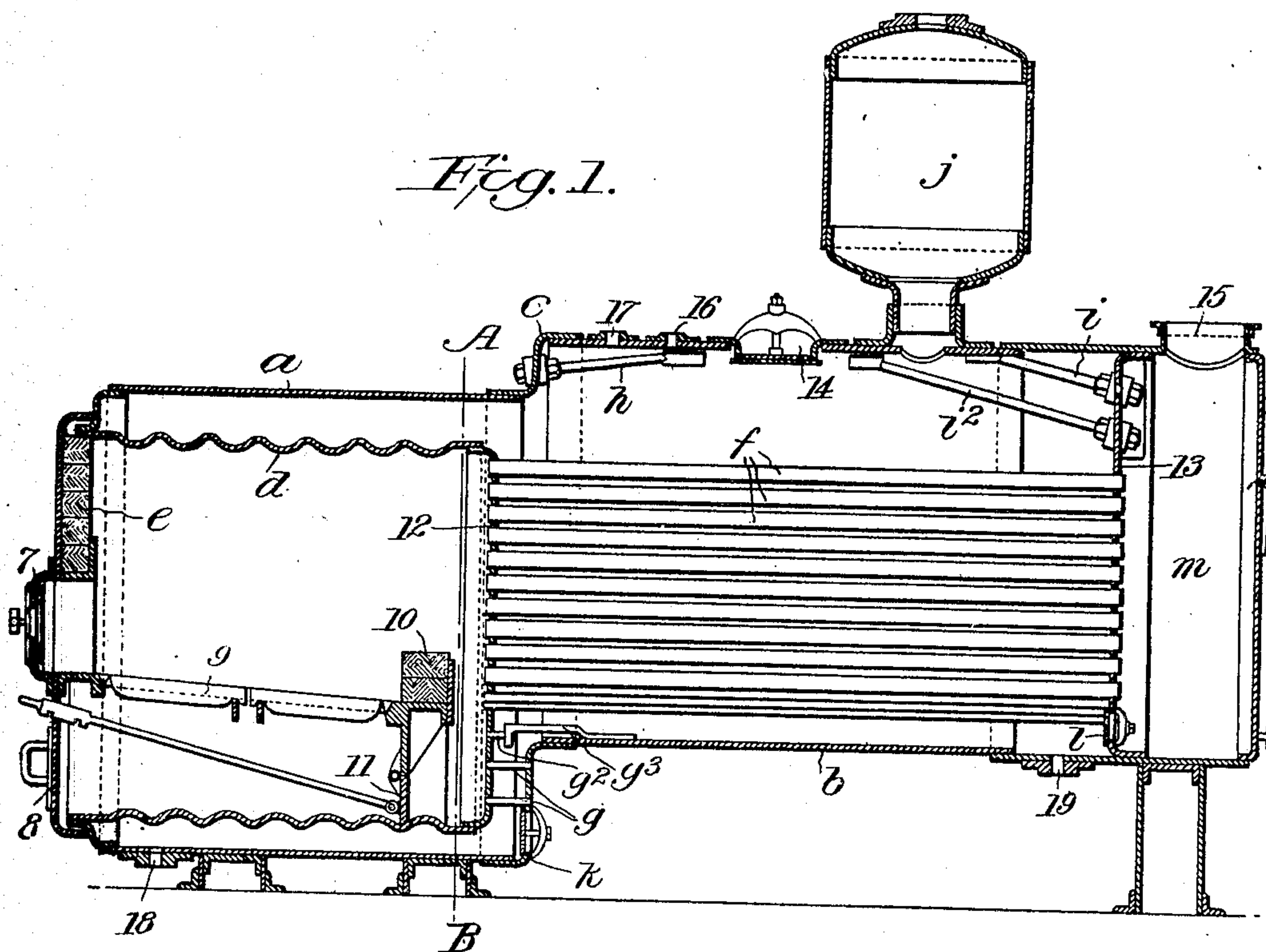
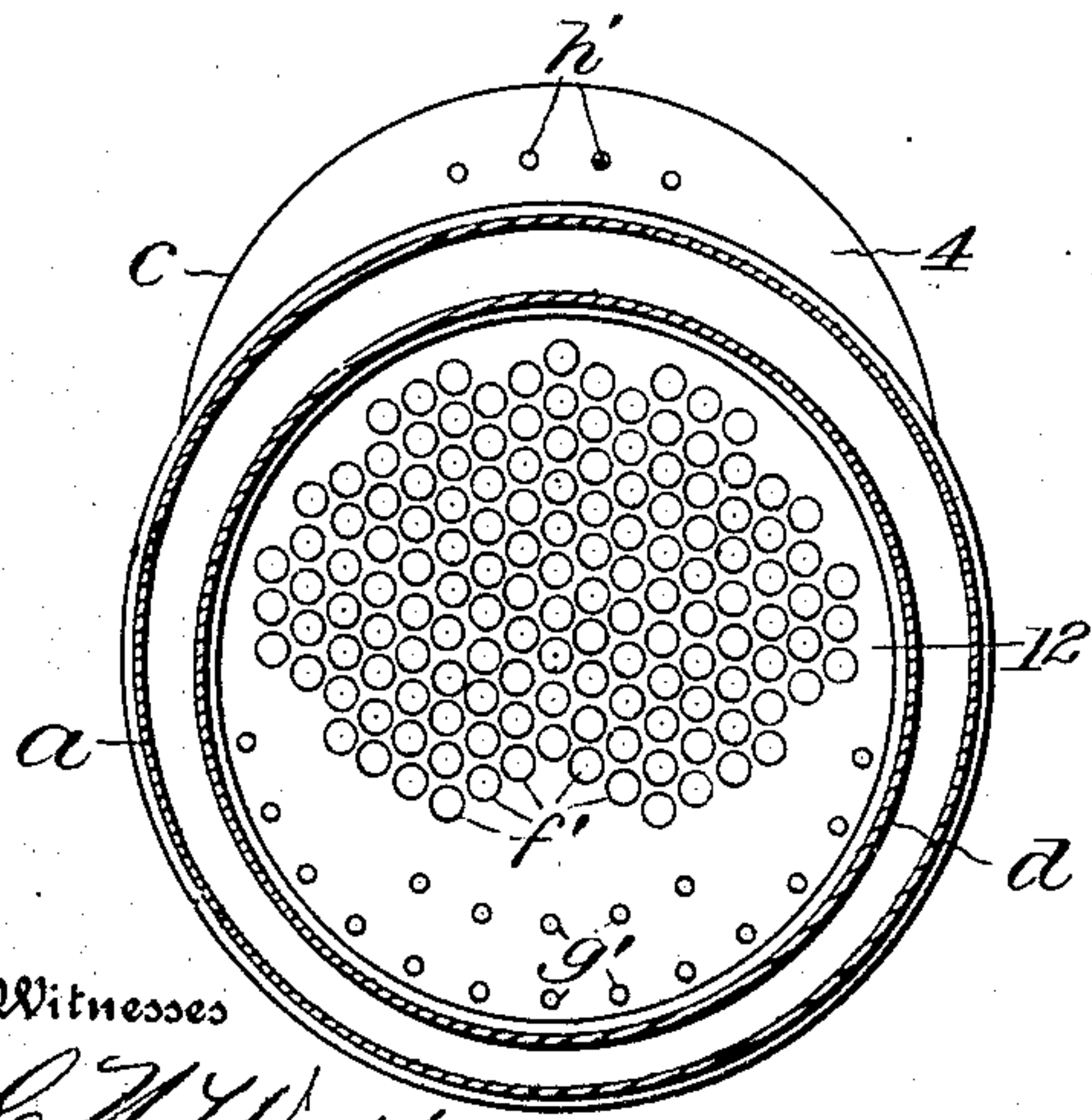


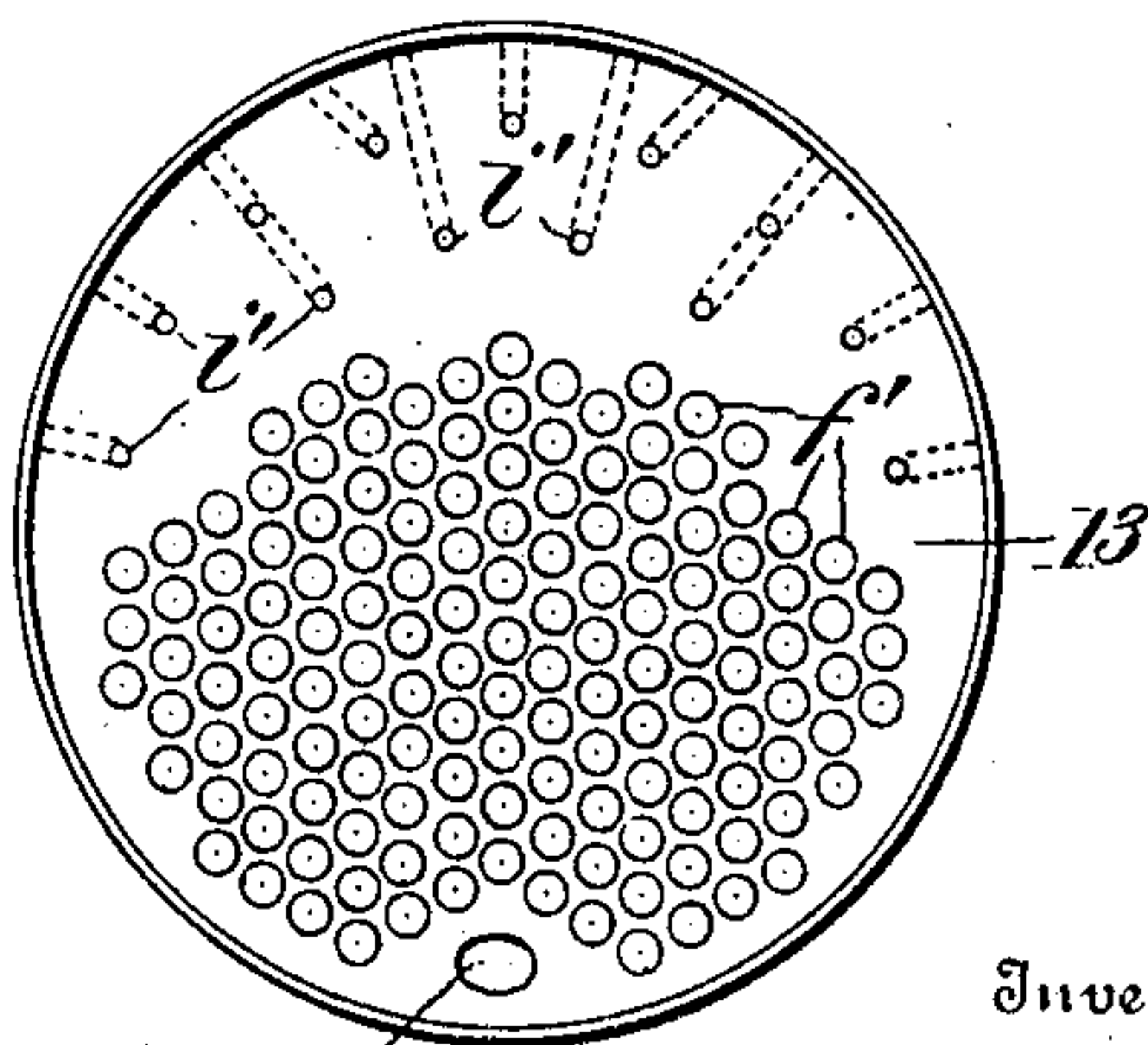
Fig. 2.



Witnesses

C. M. Walker,
Gertrude Manning.

Fig. 3.



Inventor

Harry Vincent Brady

By

R. E. Swin,

Attorney

No. 872,291.

PATENTED NOV. 26, 1907.

H. V. BRADY.
STEAM BOILER.
APPLICATION FILED MAY 9, 1907.

3 SHEETS—SHEET 2.

Fig. 4.

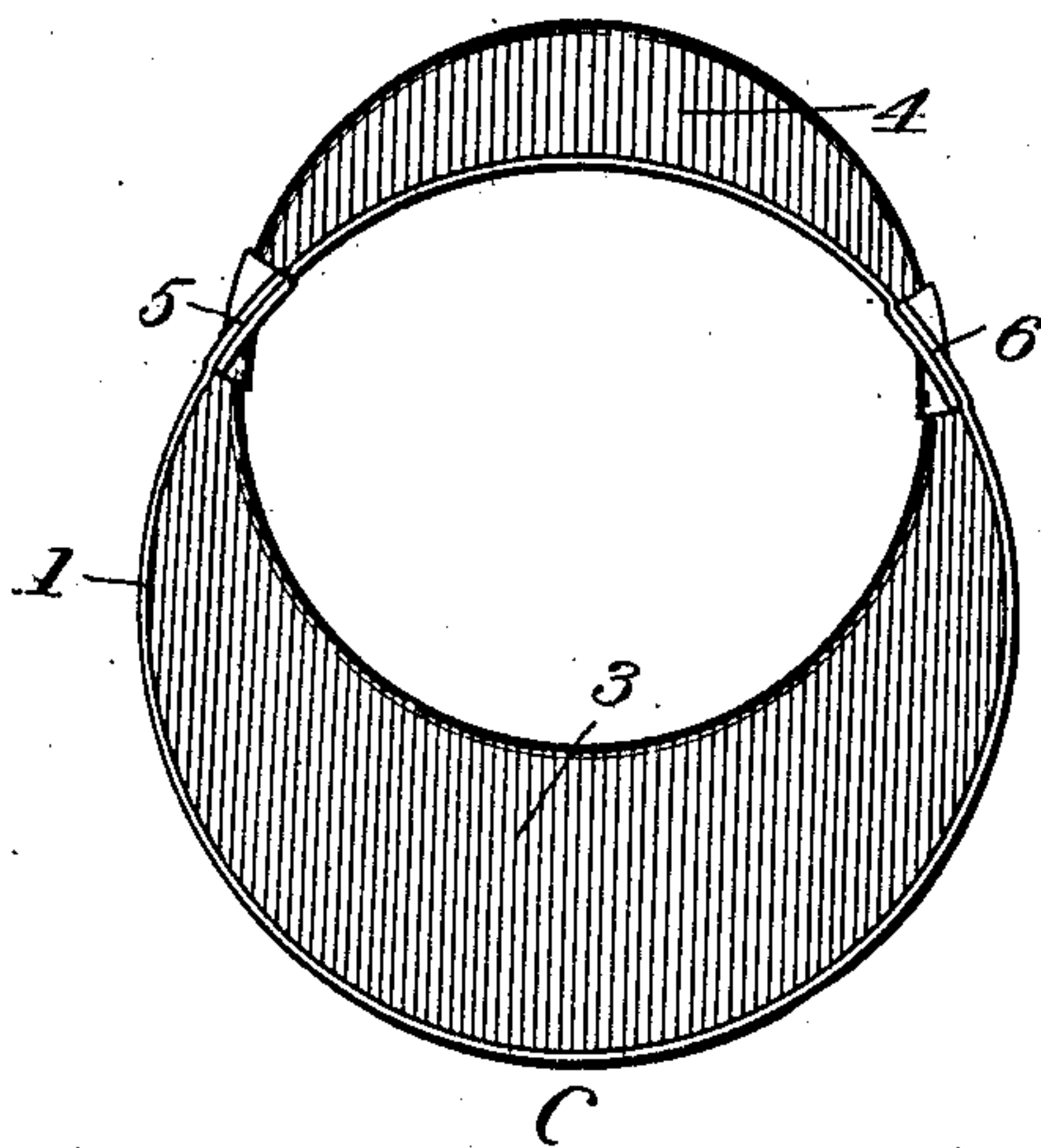


Fig. 5.

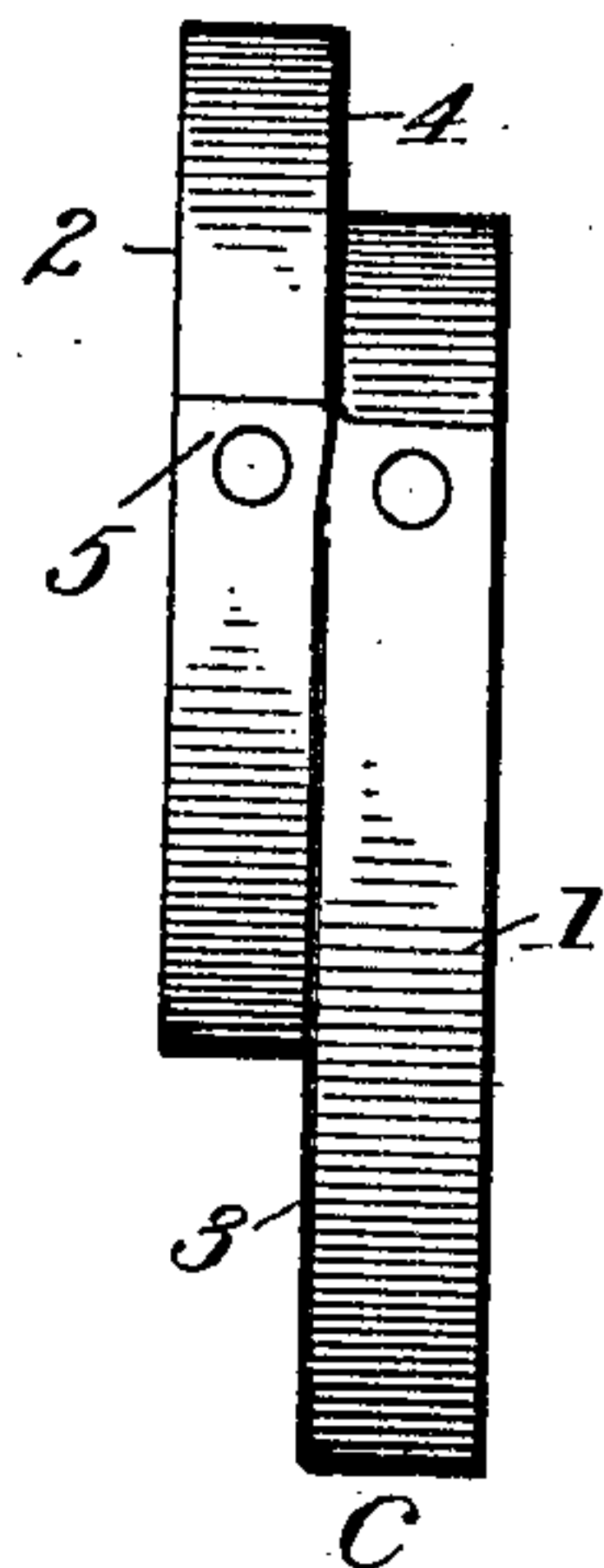
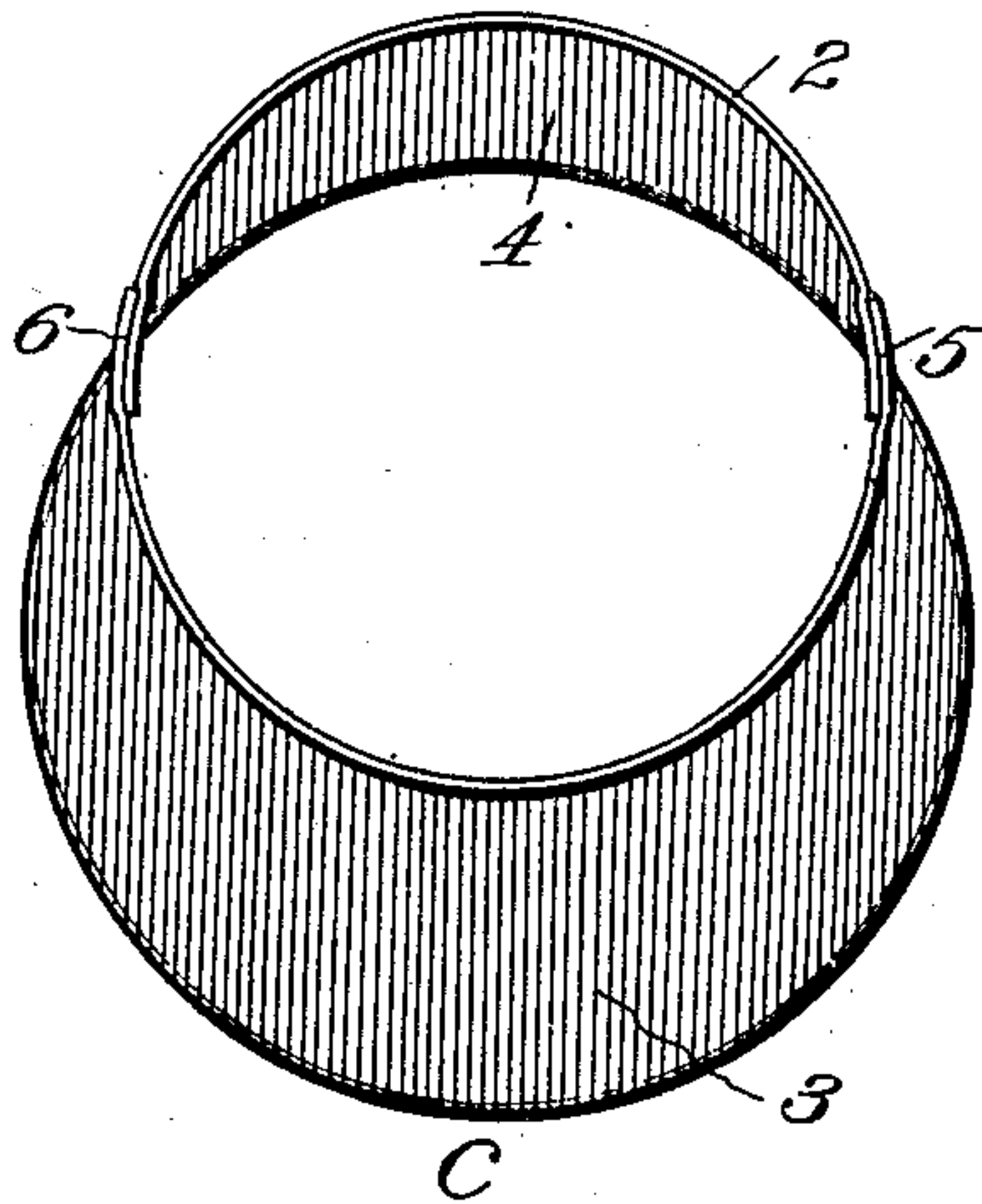


Fig. 6.



Witnesses

C. H. Walker,
Gertrude Manning.

Inventor

Harry Vincent Brady

By

R. L. Davis,

Attorney

No. 872,291.

PATENTED NOV. 26, 1907.

H. V. BRADY.
STEAM BOILER.

APPLICATION FILED MAY 9, 1907.

3 SHEETS—SHEET 3.

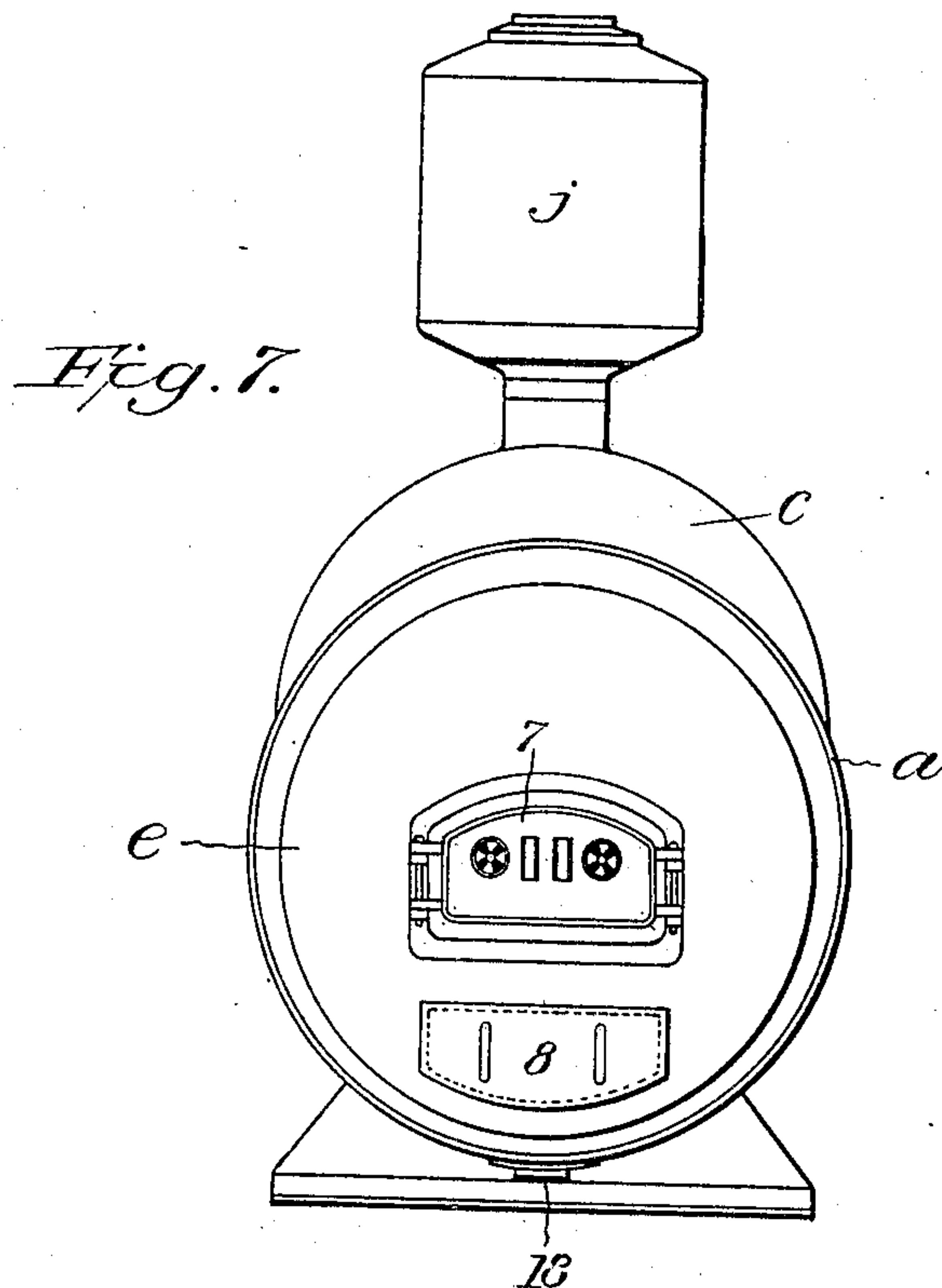
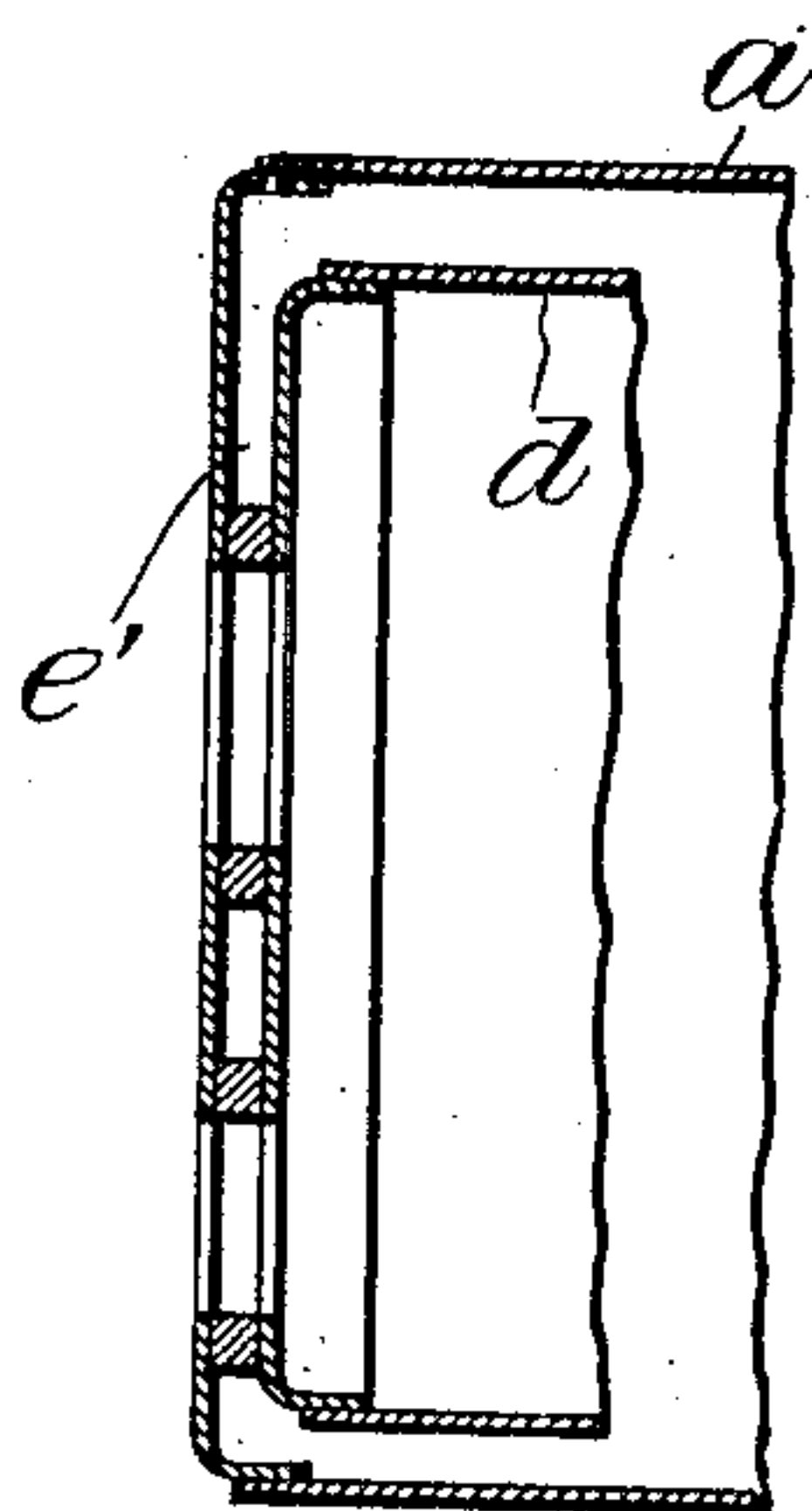


Fig. 8.



Witnesses

C. N. Walker.

Gertrude Manning.

Inventor

Harry Vincent Brady

By

W. L. Davis,

Attorney

UNITED STATES PATENT OFFICE.

HARRY VINCENT BRADY, OF AMHERST, NOVA SCOTIA, CANADA.

STEAM-BOILER.

No. 872,291.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed May 9, 1907. Serial No. 372,811.

To all whom it may concern:

Be it known that I, HARRY VINCENT BRADY, a subject of the King of Great Britain, and a resident of Amherst, Nova Scotia, in the Dominion of Canada, have invented new and useful Improvements in Steam-Boilers, of which the following is a specification.

This invention relates to horizontal fire-tube boilers, and more particularly to improvements in the locomotive type of boiler for marine or portable use, and it consists in a furnace and barrel connection of novel construction and in certain novel combinations of parts hereinafter described and claimed.

The leading object of the invention is to provide for making the furnace shell of a boiler having any required offset, as well as the barrel of the same, round in cross section.

Other objects are set forth in the general description which follows:

Three sheets of drawings accompany this specification as parts thereof.

Figure 1 represents the improved boiler in vertical longitudinal medial section; Fig. 2 represents a fragmentary cross-section on the line A—B, Fig. 1, showing the furnace head; Fig. 3 is a view of the shell head with added dotted lines indicating the arrangement of stay bolts for supporting the dome; Fig. 4 is a face view of the furnace and barrel connection segregated; Fig. 5 is an edge view projected from Fig. 4; Fig. 6 is a view of the same connection showing its other face; Fig. 7 is a front view of the boiler as shown in Fig. 1; and Fig. 8 is a sectional detail showing a water front as an alternative of the fire-brick front shown in Fig. 1.

Like reference characters refer to like parts in all the figures.

The improved boiler includes a furnace shell, *a*, round in cross section, a cylindrical barrel, *b*, and a connection, *c*, by which the peculiar offset between such furnace shell and barrel is strongly formed, and the manufacture of the improved boiler is rendered practicable. Said connection *c* is segregated in Figs. 4, 5 and 6, which see. The same includes circular lap-joint rims, 1 and 2, fitted respectively to the adjoining ends of the furnace shell *a* and the barrel *b*, and lune-shaped offset portions, 3 and 4, integral with the respective rims. The whole may be cast in one piece of suitable metal; but I prefer to forge it in two parts united by lap joints, 5

and 6, secured by rivets and welding, either or both, in an approved way.

The furnace shell *a* contains a round fire-box, *d*, conveniently concentric with the shell, and preferably corrugated circumferentially as shown in Fig. 1. The circular furnace front may be either of the fire-brick construction shown in Figs. 1 and 7 at *e*, or of the water-front construction represented at *e'* in Fig. 8.

The fire and ash doors, represented respectively at 7 and 8, the grate, 9, bridge, 10, and ash-pit damper, 11, or their respective equivalents, may be of any known or improved construction.

The circular furnace head, 12, Figs. 1 and 2, forming part of the fire-box *d*, is pierced with the requisite fire-tube holes, *f'* Fig. 2, for the tubes, *f*, Fig. 1, in its upper portion, and beneath the same is provided with holes, *g'*, Fig. 2, for short stays, *g* and *g'*, Fig. 1, by which the fire-box *d* and the connection *c* are strongly united. One or more upper stays *g'* interact with stay pieces *g'*, Fig. 1, securely attached within the front end of the shell of the barrel *b*. The connection *c* is also united with the front end of the barrel *b* by oblique stay bolts, *h*, Fig. 1; being provided with holes, *h'*, Fig. 2, in its upper portion, 4, to accommodate them.

The space above the tube holes, *f'*, Fig. 3, in the shell head 13, segregated in Fig. 3, accommodates holes, *i'*, for an ample number of oblique stay bolts, *i* and *i'*, Fig. 1, by which the top of the barrel shell is effectively supported in the vicinity of a superposed drum, *j*.

The connection *c* and the shell head 13 are provided respectively with suitably capped hand holes, *k* and *l*, affording access to the spaces beneath the fire-box *d* and the tubes *f* respectively.

The top of the barrel *b* is further provided with a suitably capped hand hole, 14, Fig. 1, and with flanges, 15, 16 and 17, Fig. 1, for the uptake, the safety valve and other attachments; and the furnace *a* and barrel *b* are both provided at bottom with blow offs, 18 and 19, Fig. 1.

The smoke box, *m*, Fig. 1, together with the dome *j* and their accessories, and other necessary parts of the boiler which are not included in the claims hereto appended, may be of any known or improved construction, forming no part of the present invention.

The height of the longitudinal axis of the

barrel *b* above that of the furnace *a* may be greater or less than is represented in the drawings, as may be required; the shape of the round fire-box in longitudinal section may vary, and other like modifications will suggest themselves to those skilled in the art.

I claim as my invention:—

1. In a steam boiler, a furnace and barrel connection having lap-joint rims projecting on its front and rear sides respectively and offset portions integral with the respective rims.

2. In a steam boiler, a furnace and barrel connection having circular lap-joint rims projecting on its front and rear sides respectively and lune-shaped offset portions integral with the respective rims.

3. In a steam boiler, the combination of a furnace shell round in cross section, a barrel the longitudinal axis of which is higher than that of the furnace, and a connection comprising rims fitted to the adjoining ends of said furnace and said barrel respectively and offset portions at top and bottom.

4. In a steam boiler, the combination of a furnace shell round in cross section, a cylindrical barrel the longitudinal axis of which is higher than that of the furnace, and a connection comprising circular rims fitted to the adjoining ends of said furnace and said barrel respectively and lune-shaped offset portions at top and bottom.

5. In a steam boiler, the combination of a furnace shell round in cross section, a cylindrical barrel the longitudinal axis of which is higher than that of the furnace, an offset connection having rims fitted to the adjoining ends of said furnace shell and the barrel shell, and a round fire-box supported concentrically within said furnace shell.

6. In a steam boiler, the combination of a furnace shell round in cross section, a cylindrical barrel the longitudinal axis of which is higher than that of the furnace, an offset connection having rims fitted to the adjoining ends of said furnace shell and the barrel shell, a round fire-box supported concentrically within said furnace shell and constructed with the furnace head, a shell head parallel with said furnace head, and fire-tubes within the barrel extending through said heads.

7. In a steam boiler, the combination of a

furnace shell round in cross section, a cylindrical barrel the longitudinal axis of which is higher than that of the furnace, an offset connection having rims fitted to the adjoining ends of said furnace shell and the barrel shell, a round fire-box supported concentrically within said furnace shell and constructed with the furnace head, a shell head parallel with said furnace head, and horizontal fire-tubes within the lower portion of the barrel extending through said heads.

8. In a steam boiler, the combination of a furnace shell round in cross section, a cylindrical barrel shell the longitudinal axis of which is higher than that of the furnace, a connection between said shells having rims fitted to their adjoining ends respectively and offset portions located respectively below the barrel and above the furnace, a fire-box within said furnace shell constructed with the furnace head, and stay bolts uniting said head at bottom with the corresponding offset portion of said connection.

9. In a steam boiler, the combination of a furnace shell round in cross section, a cylindrical barrel shell the longitudinal axis of which is higher than that of the furnace, a connection between said shells having rims fitted to their adjoining ends respectively and offset portions located respectively below the barrel and above the furnace, a stay piece attached within the front end of the barrel, and stay bolts connecting said head with said stay piece.

10. In a steam boiler, the combination of a furnace shell round in cross section, a cylindrical barrel shell the longitudinal axis of which is higher than that of the furnace, a connection between said shells having rims fitted to their adjoining ends respectively and offset portions located respectively below the barrel and above the furnace, and stay bolts uniting the upper offset portion of said connection with the front end of the barrel, substantially as hereinbefore specified.

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

HARRY VINCENT BRADY.

Witnesses:

HENRY McCLEAVE,
W. B. CALHOUN.