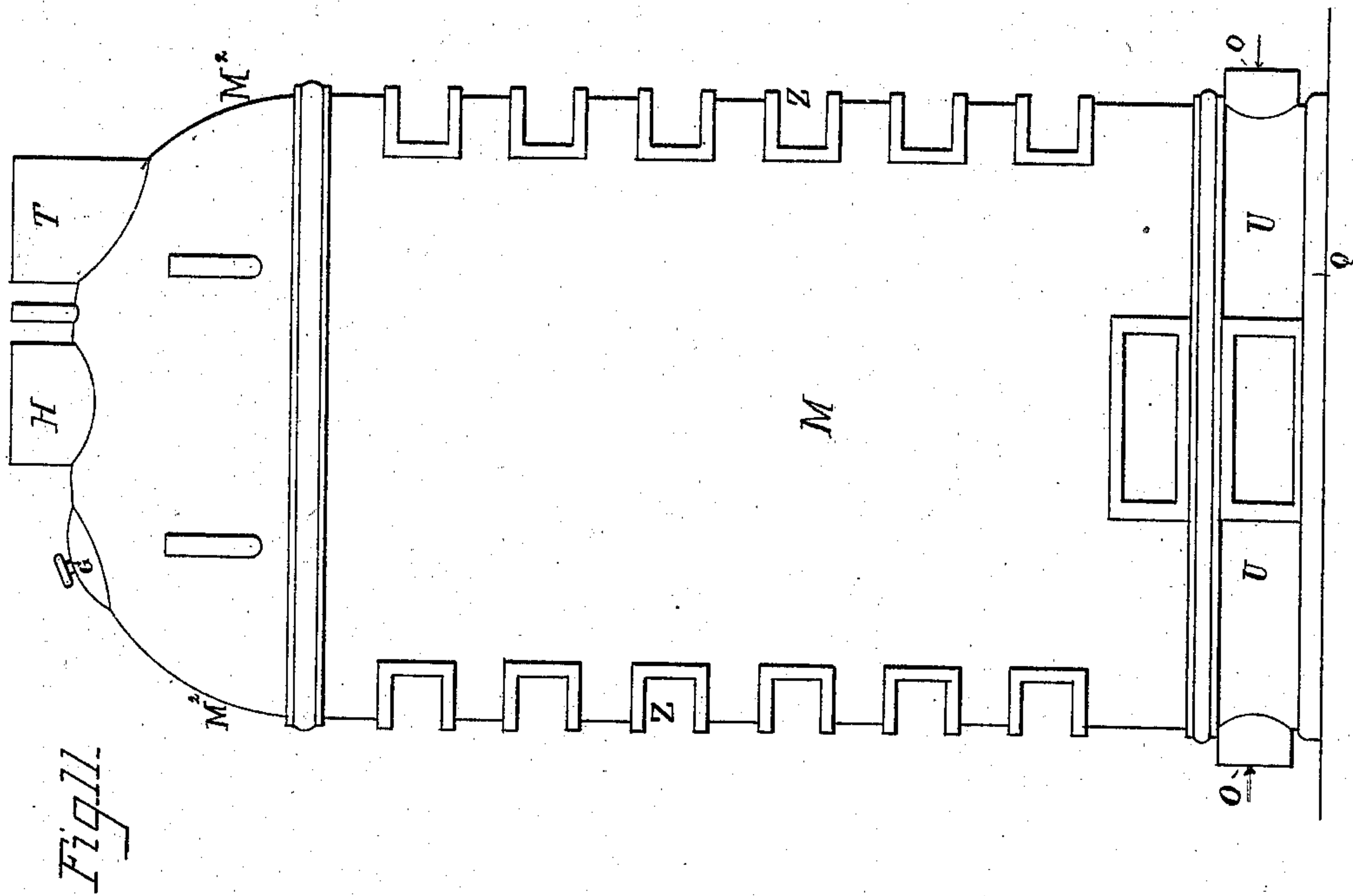
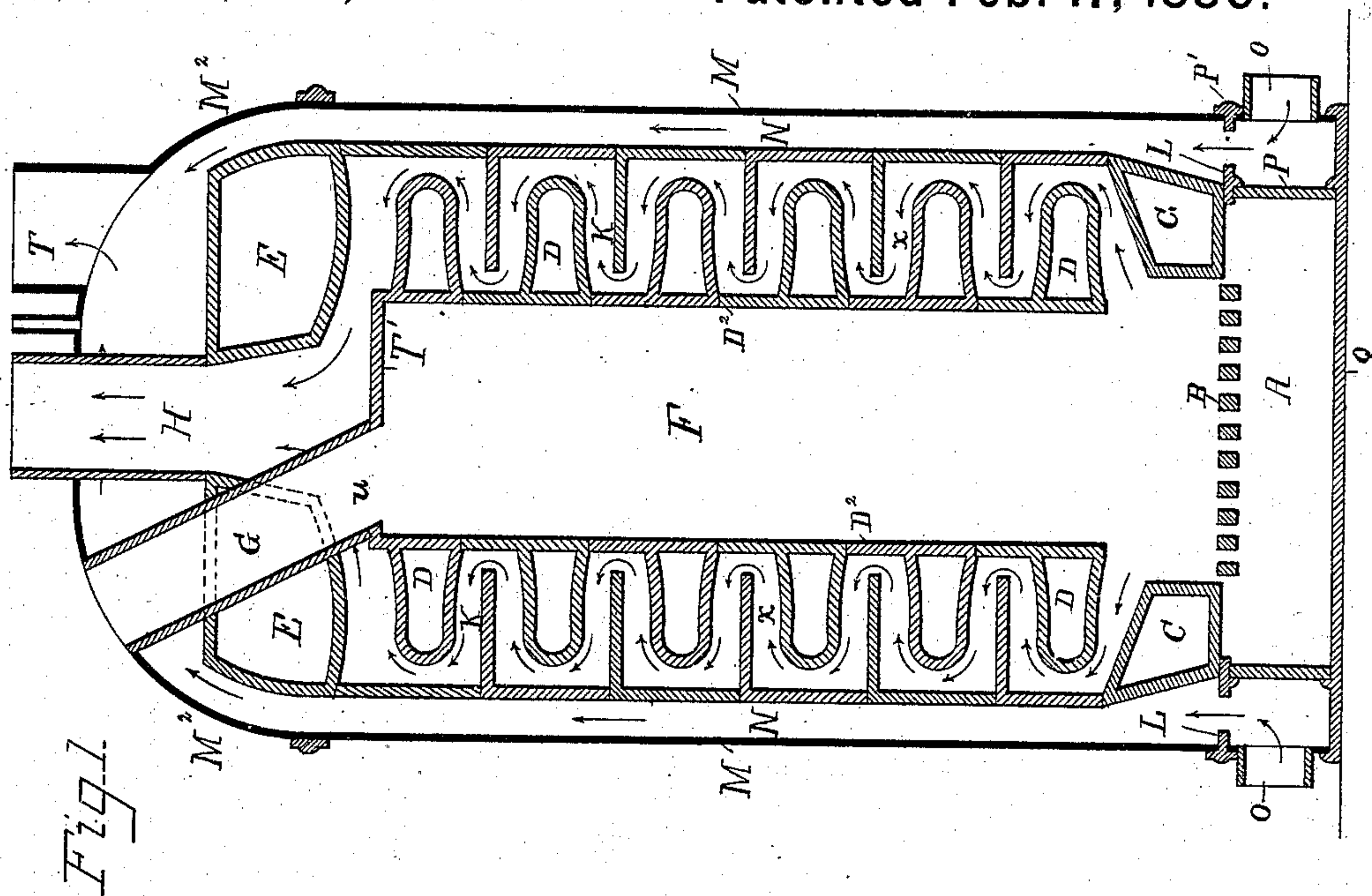


W. C. WREN.
Steam-Heater.

No. 224,569.

Patented Feb. 17, 1880.



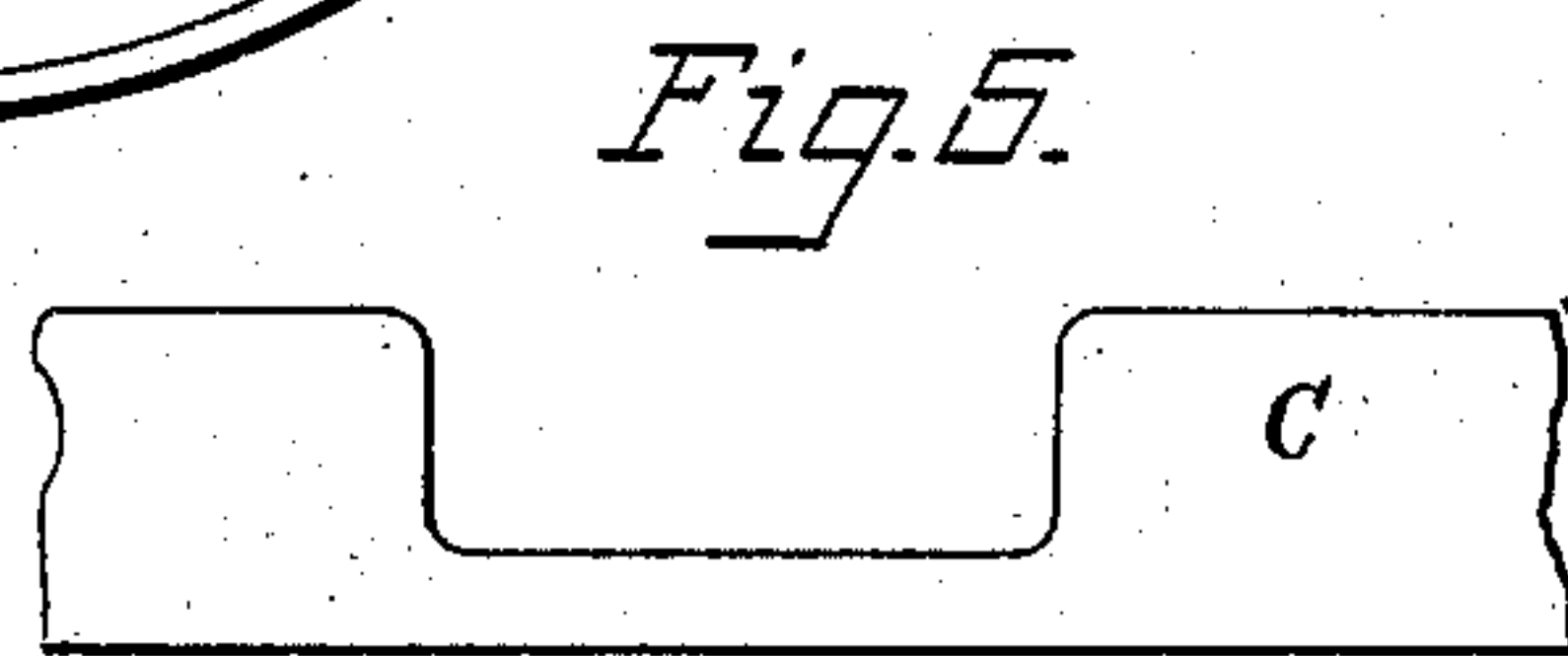
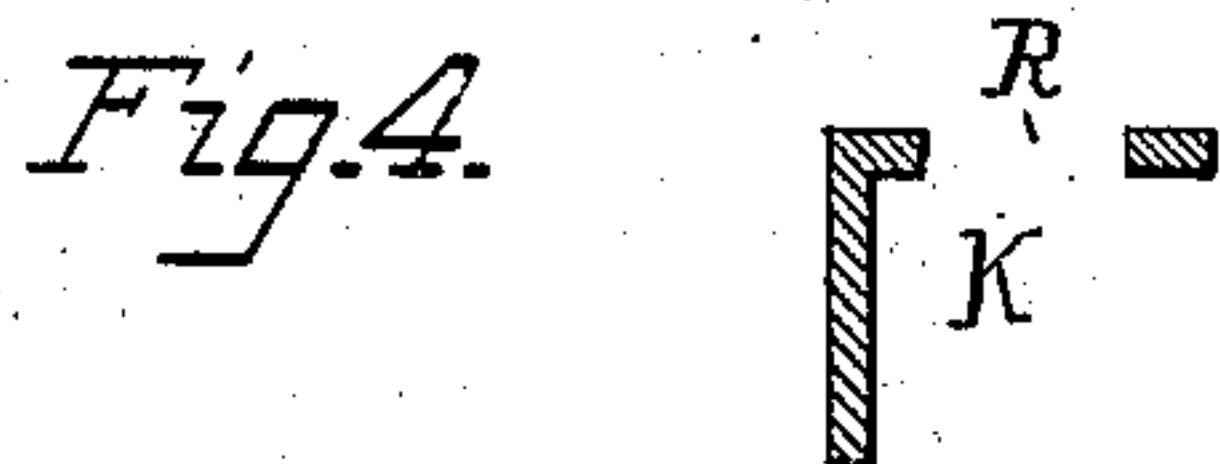
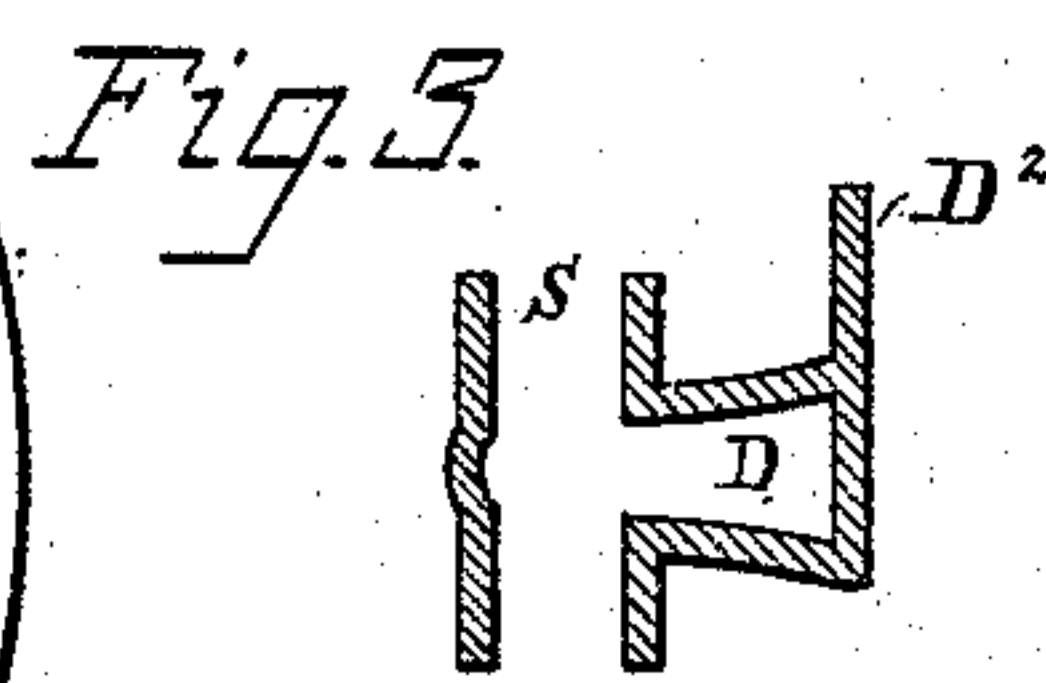
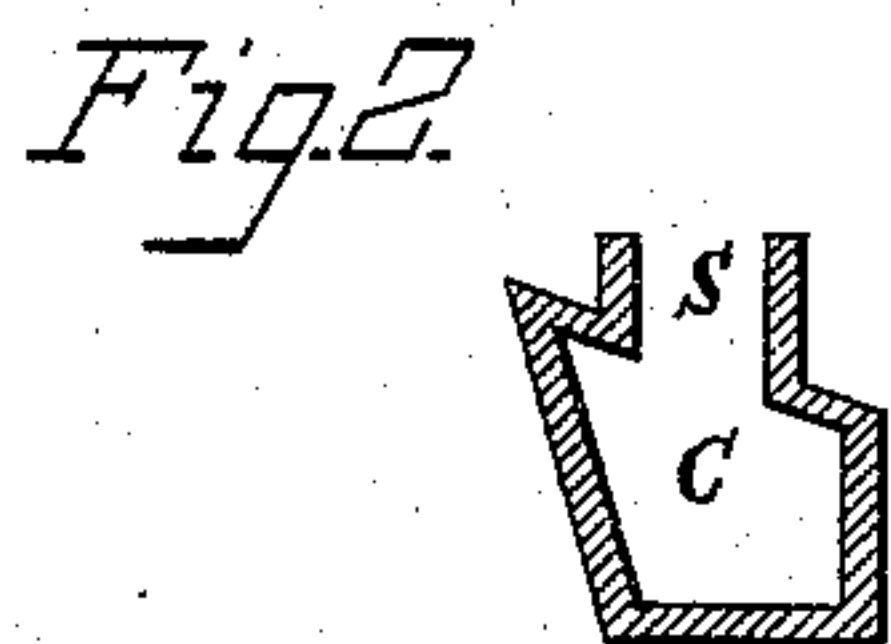
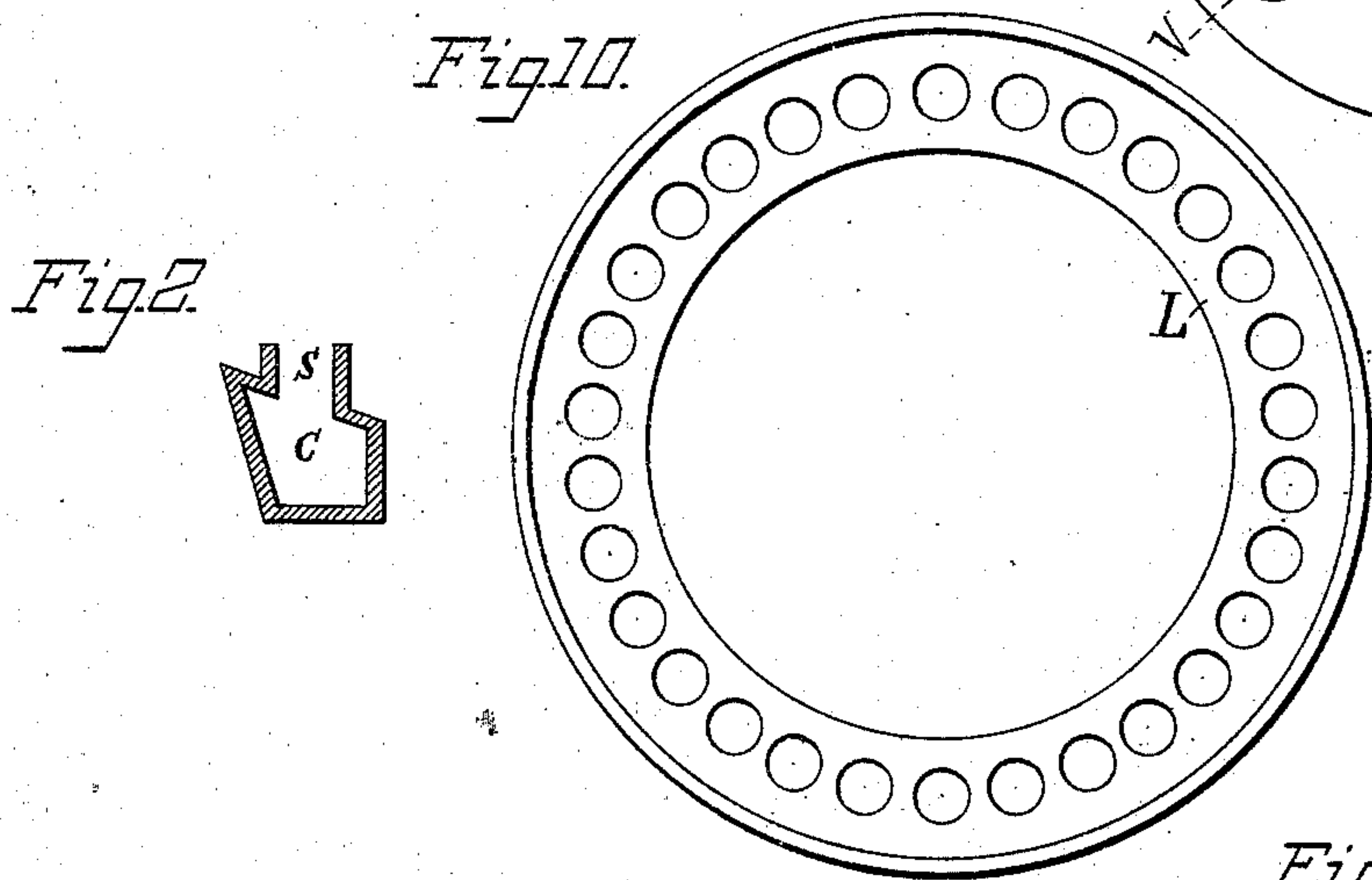
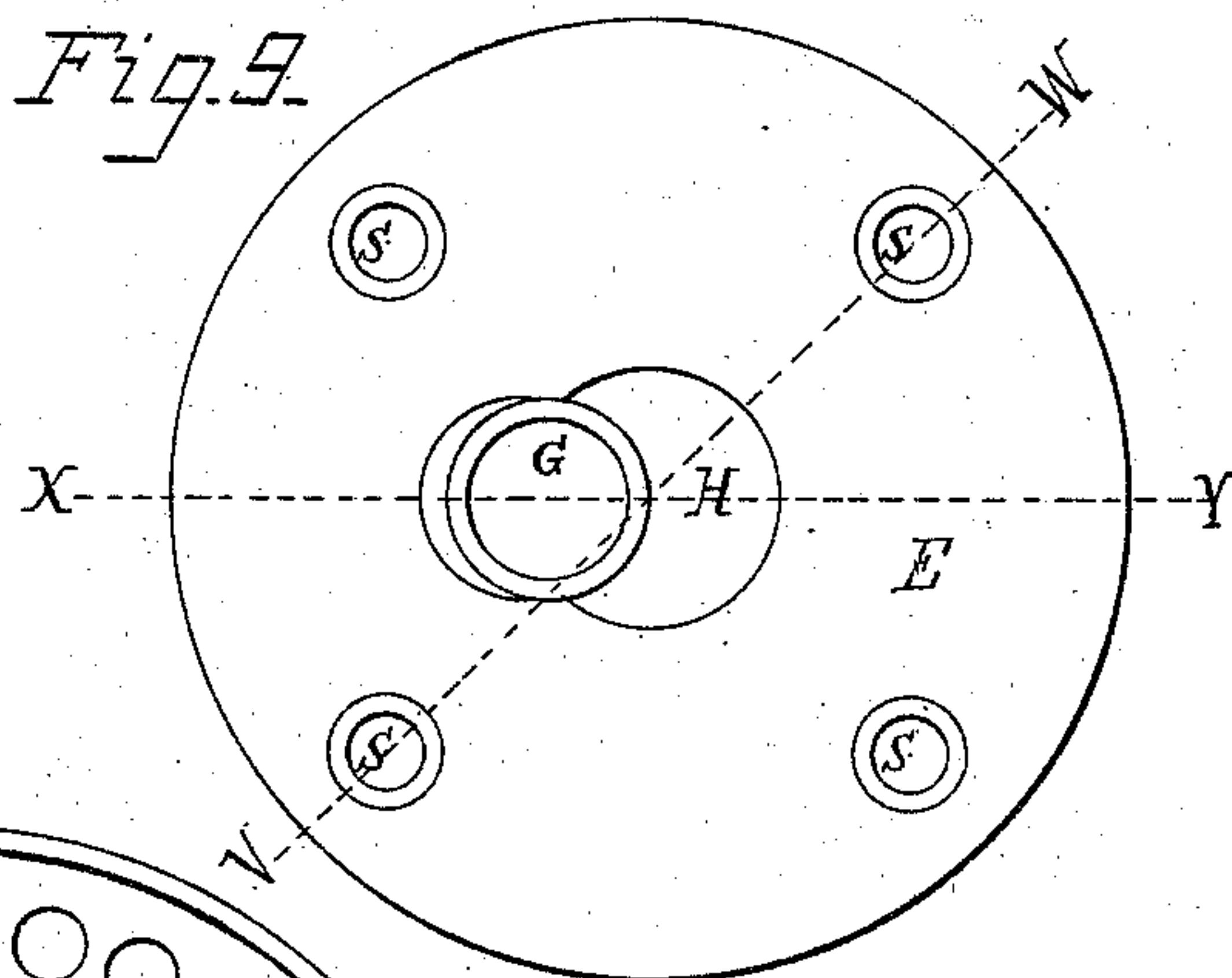
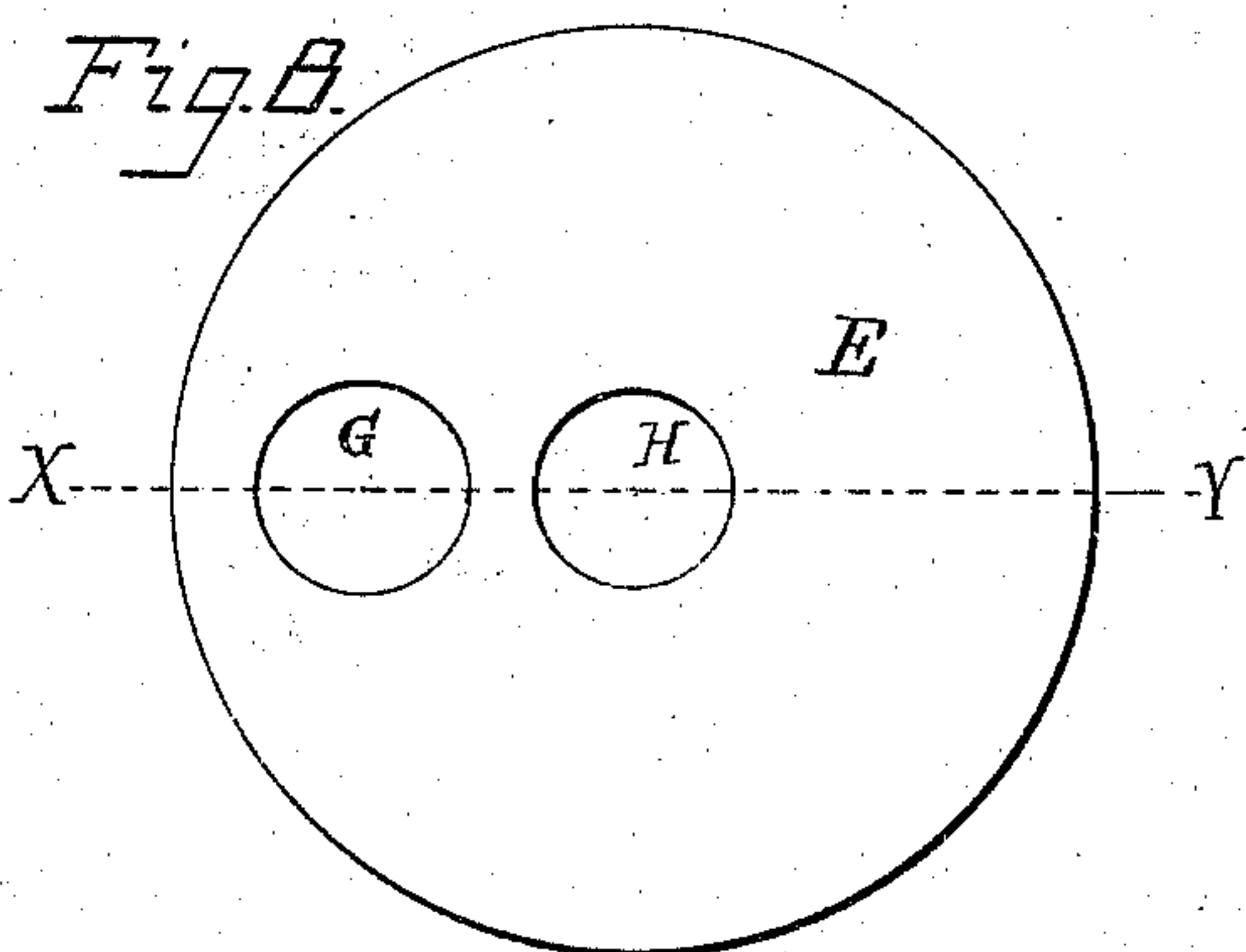
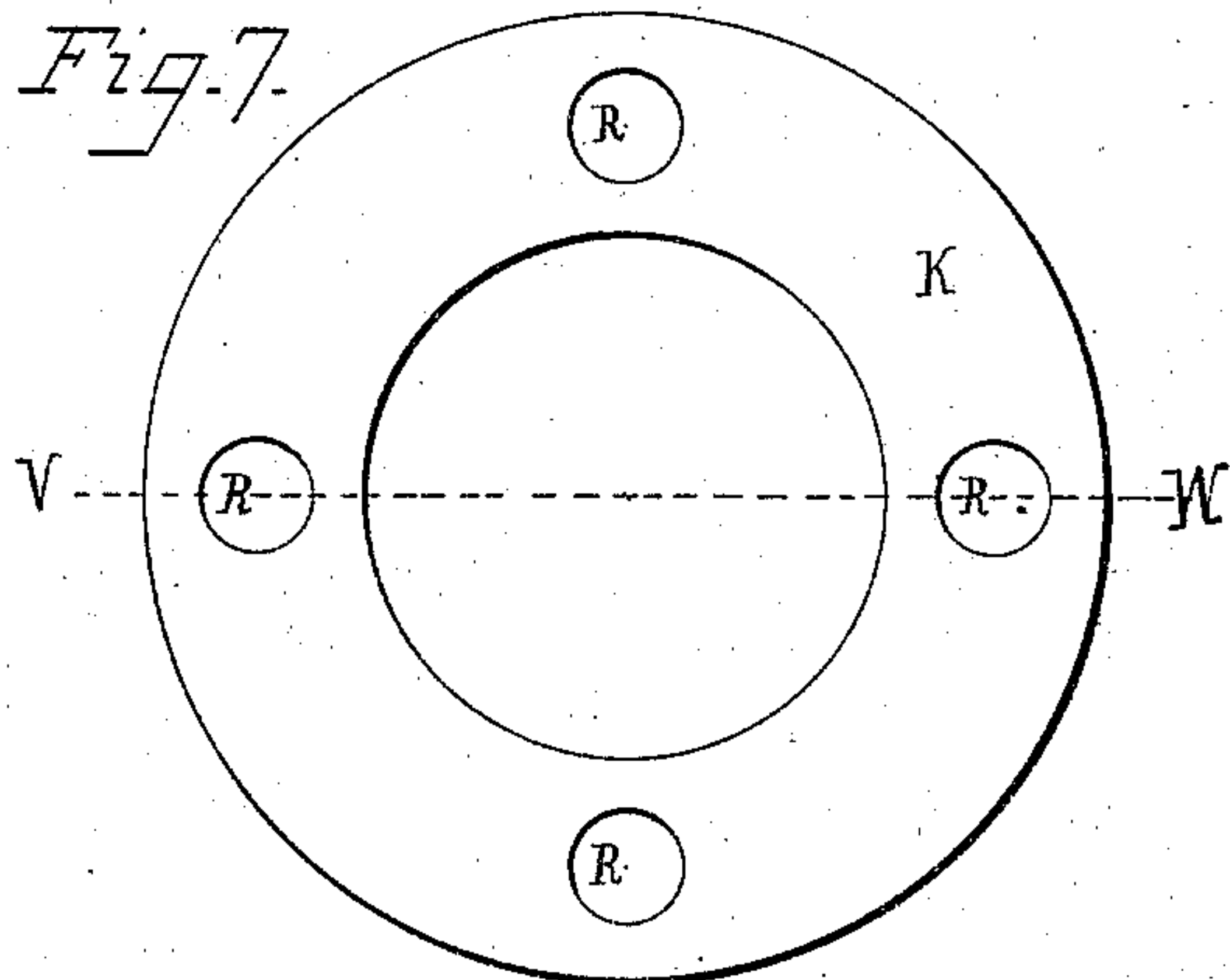
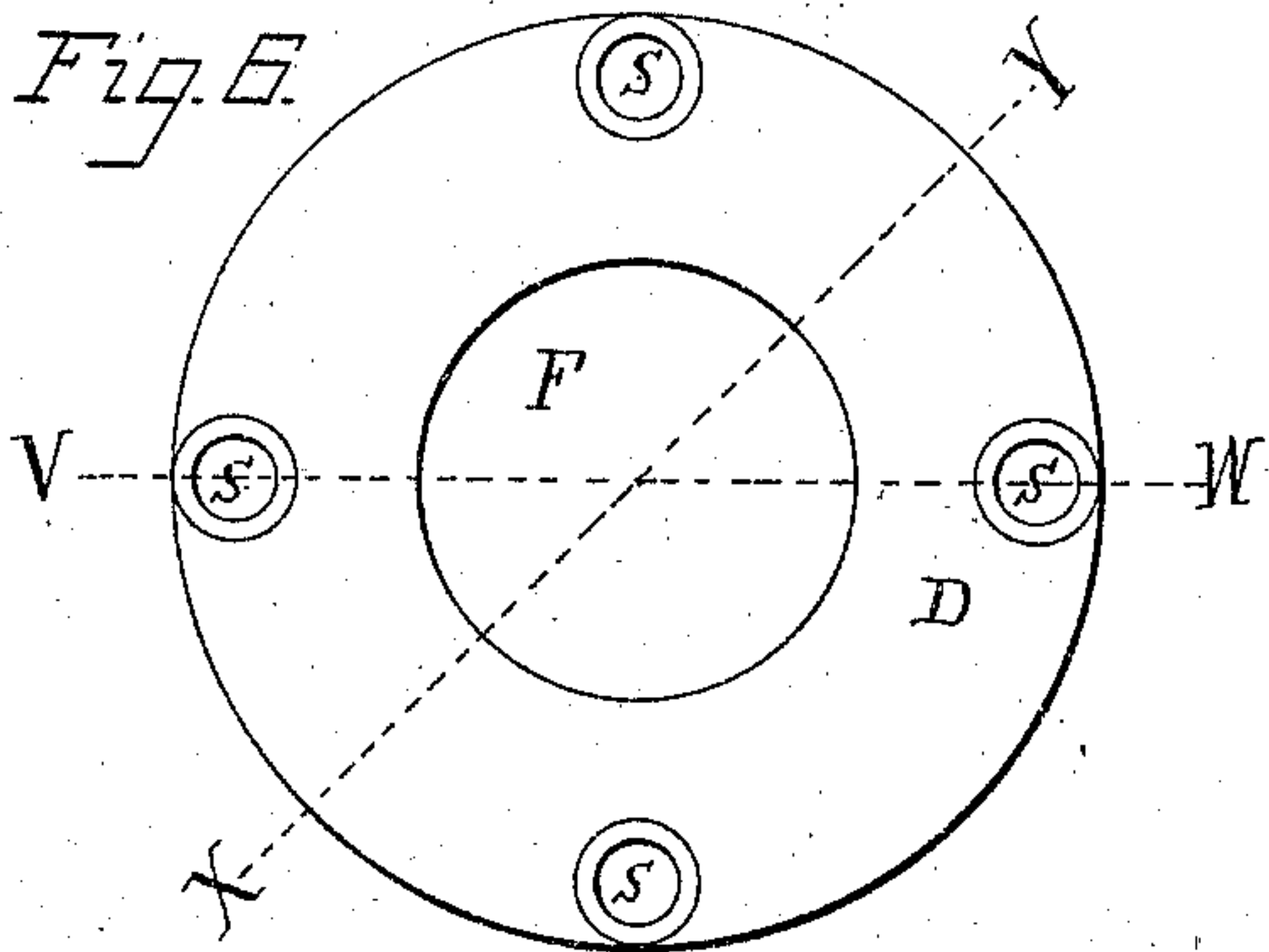
Attest:
C. A. Cooper.
William Paxton.

Inventor:
W. C. Wren
By his atty
Charles E. Martin

W. C. WREN.
Steam-Heater.

No. 224,569.

Patented Feb. 17, 1880.



Attest:
Courtney A. Cooper.
William Radlow.

Inventor:
W. C. Wren
By his attorney
Charles E. Johnson

UNITED STATES PATENT OFFICE.

WILLIAM C. WREN, OF BROOKLYN, NEW YORK.

STEAM-HEATER.

SPECIFICATION forming part of Letters Patent No. 224,569, dated February 17, 1880.

Application filed December 20, 1879.

To all whom it may concern:

Be it known that I, WILLIAM C. WREN, of the city of Brooklyn, county of Kings, and State of New York, have invented a certain new and useful Steam-Heating Boiler and Heater Combined; and I declare the following to be a full and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon, said drawings making part of this specification.

Like letters of reference refer to like parts in each of the figures of the accompanying drawings.

My invention relates to an apparatus designed to generate steam at a low pressure for heating buildings, and at the same time the apparatus will supply dry heat for heating a part of the same building.

Figure 1 is a vertical section, through the center of the apparatus, on the line $x y$, Fig. 6. Figs. 2, 3, 4 are vertical sections, on the line $v w$, of separate rings composing the interior of the apparatus, (marked, respectively, C, D, and K.) Fig. 5 is a broken section of the hollow fire-pot ring C, showing the piece in front taken out for the door. Fig. 6 is a plan view of one of the hollow rings D, showing the pipes S, by which the rings D are joined together. The pipe S can be made as shown, cast on the rings as parts thereof, one-half the length of the pipe required on each side of the ring, and the necessary length cast on the fire-pot ring C, and the same on the steam-drum E. The joints can be faced, or a nipple can be inserted, or an ordinary cup-and-socket joint can be used. Fig. 7 is a plan view of the right-anglering K, showing the holes R, through which the pipes S pass when the said rings are in position. Fig. 8 is a plan of the steam-drum E. Fig. 9 is an inverted plan of the steam-drum E. Fig. 10 is a plan view of the top ring, L, of the base. Fig. 11 is an outside view of the apparatus complete, Z being small doors for cleaning purposes.

The various parts of the apparatus being put together, one piece on the top of the other, as shown by Fig. 1, so that the pipes S, as shown in Figs. 2, 3, and 9, shall be directly over one another and connecting with each other, and the right-angle rings K in place,

as shown, Fig. 1, the pipes will pass through the holes in the horizontal parts of the rings K, and the pipes S will form communications between the annular rings D, the annular fire-pot ring C, and the steam-drum E. If the hollow rings D are made as shown in the section Figs. 3 and 1, with a flange, D^2 , extending from the same, then when all the rings are placed in position they will together form a vertical tube through the center of the heater, that can be used as a fuel-magazine.

When the last ring D that is required to complete the height of the boiler is put in position the circular space in the center of the ring D must be closed by a cap, T' , having an opening, u , to communicate with the feed-pipe G.

The pipe G, Fig. 1, extends through the steam-drum E and through the dome M^2 of the external casing, M.

The outer casing rests on the top plate, L, of the base, which consists of said top plate, a bottom plate, Q, and annular plates $P P'$, the former inclosing the ash-pit A below the grate B, and the latter having air-openings O, through which air can pass to the space N, between the vertical wall formed by the flanges of the rings K and the external casing, M.

The products of combustion passing upward from the fire-place flow through the chambers $x x$, round the hollow projecting portions of the rings D, and in contact with the flanged rings K, heating both. The water in the rings D is thus heated, the steam passing to the radiators. The flanged rings K maintain the heated gases in contact with the rings D, but also convey the heat to the air in the chamber N, thus affording a supply of heated air.

Suitable pipes lead from the steam-drum to the radiators. The chambers inclosed by the fire-pot ring C and the hollow rings D are to be filled with water through suitable inlet-pipes.

The heated air will take the course all around the boiler indicated by the arrows in the space N, and can be conducted to suitable registers from the outlet T.

If it is not desirable to take the air from the place in which the apparatus is situated for the last-named purpose, and it is desirable to draw the fresh air from the outside, I then put another casing around the ash-pit, which I

have marked U, as shown in Fig. 11 and section of same at Fig. 1, said casing U having one or both inlets marked O.

When the air is brought from the outside of the course a suitable conductor must be connected with the inlets O.

I claim—

1. The hollow rings D, constructed with hollow external projections and annular flanges, adapted to each other and combined in a furnace, as set forth.

2. The flanged annular rings K, constructed and adapted to each other and combined in a

furnace with the rings D and casing, substantially as set forth.

3. The combination of the flanged rings D, flanged rings K, base, and steam-drum E of a furnace, substantially as set forth.

4. The combination, in a furnace, of the rings D and K, steam-drum, base, and casing M, arranged to form a chamber, N, substantially as set forth.

W. C. WREN.

Witnesses:

L. SCHMIDT,
JAS. ARMIN.