

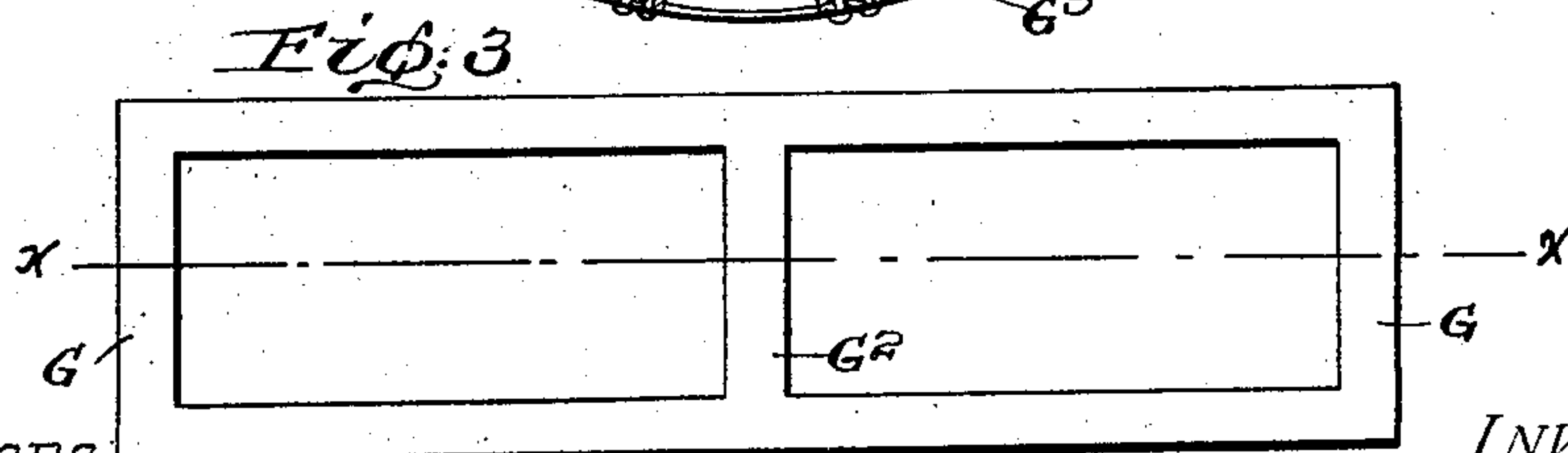
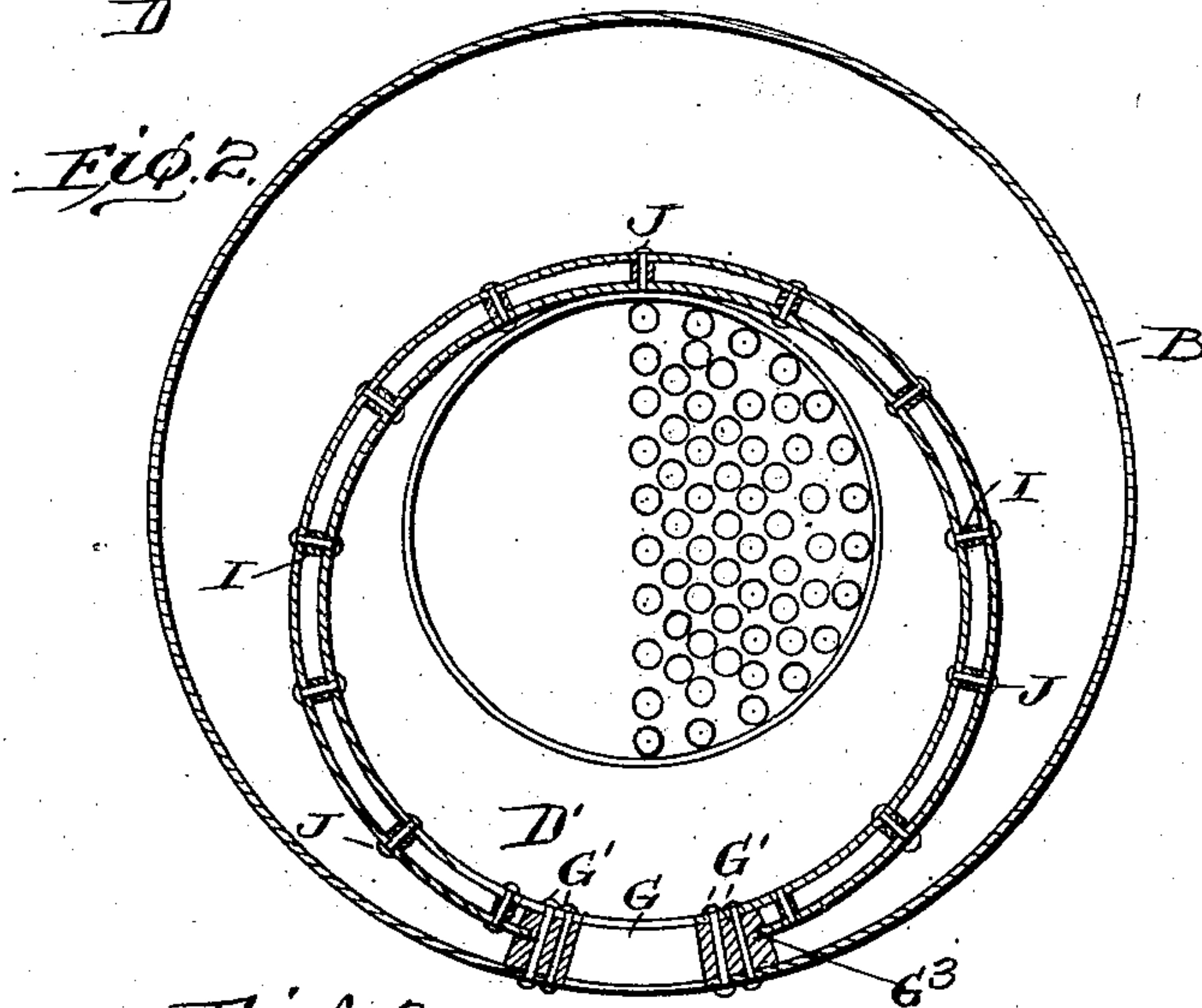
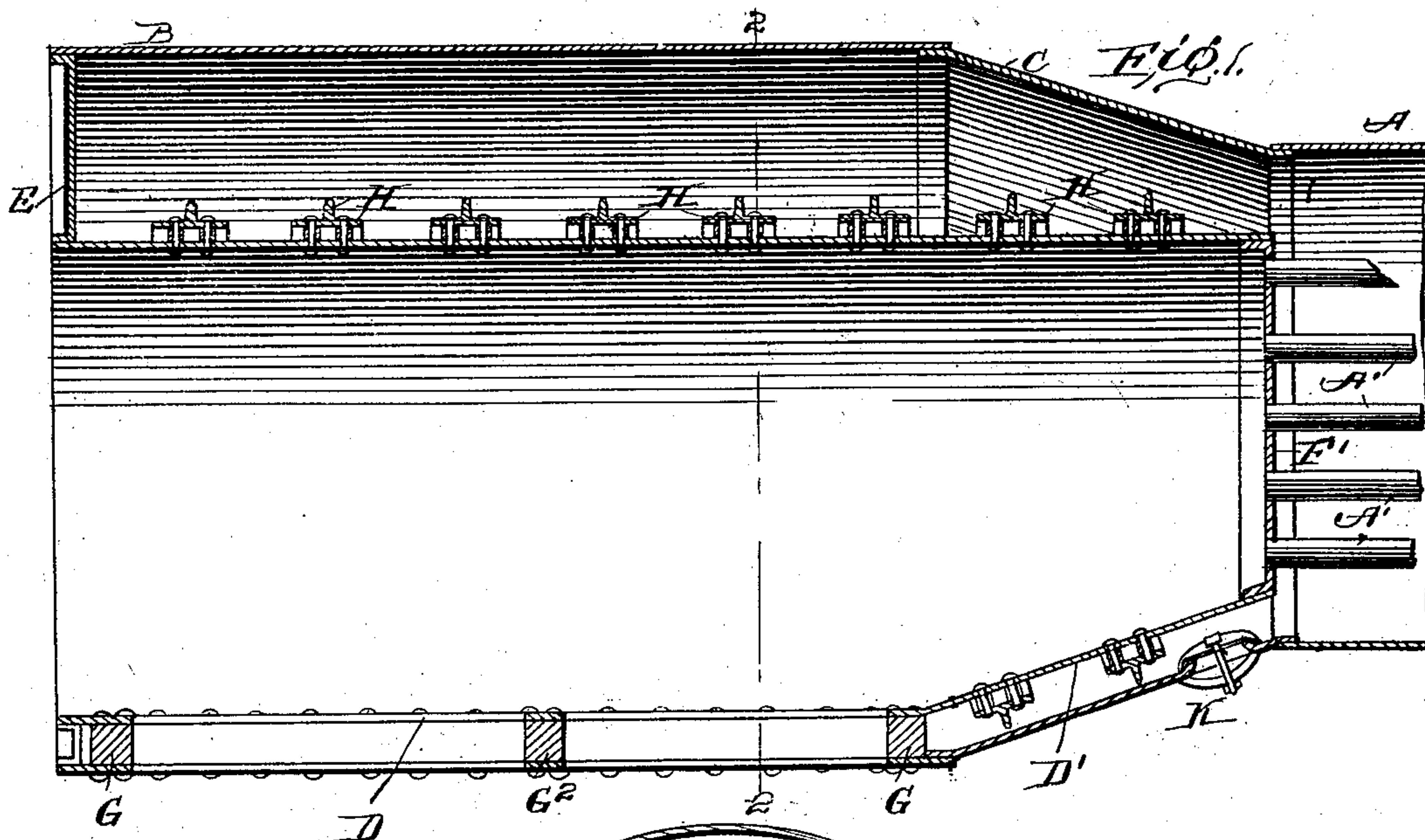
No. 750,087.

PATENTED JAN. 19, 1904.

F. T. CHASE.
STEAM BOILER.

APPLICATION FILED AUG. 3, 1903.

NO MODEL.



WITNESSES:

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FLOYD T. CHASE, OF SMITHVILLE, TEXAS.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 750,087, dated January 19, 1904.

Application filed August 3, 1903. Serial No. 168,046. (No model.)

To all whom it may concern:

Be it known that I, FLOYD T. CHASE, a citizen of the United States, residing at Smithville, in the county of Bastrop and State of Texas, have invented new and useful Improvements in Steam-Boilers, of which the following is a specification.

The invention relates to boilers of the class in which a cylindrical fire-box is placed in the rear portion of the boiler-shell; and its general object is to avoid evils common to boilers of that type and to secure certain advantages hereinafter set forth.

In the accompanying drawings, Figure 1 is an axial section of the rear end of a boiler made in accordance with my invention. Fig. 2 is a section of the same boiler on the line 2 2, Fig. 1. Fig. 3 is a plan view of a certain ring or frame supporting the fire-box and admitting air thereto.

The boiler-shell is horizontal and preferably consists of a cylindrical forward section A, containing ordinary tubes A', a larger fire-box section B of cylindrical form, and an intermediate section C of conical or tapering form, the three sections being, preferably, so arranged that their axes are in the same line, as shown. Within the rear portion of the shell is a fire-box, which when the boiler-shell is of the form shown consists of a cylindrical body D, extending from end to end of the boiler-section B, and a tapered portion D', forming an extension of the body and so arranged that its upper side is in the same straight line with the upper side of the body, while its lower side is substantially parallel to the lower side of the section C. The rear end of the fire-box is secured to a flange of the boiler-head E, and the forward end is closed by the flue-sheet F. Both shell and fire-box are cut away below nearly from end to end of the cylindrical portions to receive a heavy ring or frame G, which is overlapped by the marginal portions of both walls and whose thickness fixes the separation of these walls, which are secured to the ring by rivets G'. The ring is braced by a cross-bar G², and its longer edges are grooved at G³ to receive the flat ends of rings or ribs H, which pass around the fire-box and are everywhere held at a uni-

form distance therefrom by short tubes or thimbles I, through each of which passes a rivet J, uniting the rings and the fire-box walls. Each ring is provided with a medial rib upon its outer side, so that it is T-like in cross-section, this rib being narrowed as it approaches the ring or frame G. This frame G allows air to enter for supporting combustion, and in case the fuel used produces such solid matters permits the escape of ashes and cinders. Preferably the conical boiler-shell is provided with a manhole at K.

When fire-boxes of this class are corrugated, certain waters deposit scale in the corrugations, and such deposit prevents the proper heating of the water and also causes the inwardly-projecting ribs or corrugations to be overheated and rapidly destroyed, and at the same time this corrugated form makes repair extremely difficult. It is to be noted that in this case the fire-box is internally and externally a smooth sheet, affording no recesses in which deposits of solid matter are probable results, and that repairs—such as patches, for example—are very readily made. It is also obvious from the construction that the fire-box may be made unusually thin, since it not only has the strong cylindrical form, but it is given any desired strength by means of the rings or ribs. These ribs are, in effect, detached or so far distant from the fire-box wall that the water circulates freely, and there is no probability of deposits beneath them, while at the same time the fire-box wall is not thickened by them, and hence transmits heat uniformly, although it has all the strength which it would have were the ribs in contact with it throughout. Other advantages are the elimination of stay-bolts, uniform strength and transmission of heat, and low cost of both construction and maintenance.

What I claim is—

1. The combination with a fire-box adapted to lie within the water-space in a boiler-shell, of larger rings encircling the fire-box without touching the same, and connections joining each ring to the fire-box walls at short intervals.

2. A smooth cylindrical fire-box encircled by larger parallel rings whose centers are ap-

proximately in the axis of the fire-box, struts holding the rings at the proper distance from the walls of the fire-box, and rivets binding both rings and fire-box wall to said struts, respectively.

5 3. The combination with a boiler-shell having a small cylindrical front section, a larger cylindrical rear section, and a tapering or conical connecting-section, of a fire-box lying
10 within the last two sections slightly above the lower side thereof and having its body a smooth cylinder with its rear end secured to the boiler-head, rings larger than the fire-box encircling the same, thimbles holding the rings at the
15 proper distance from the fire-box walls, and rivets passing through the rings, thimbles and fire-box walls and binding the whole together.

20 4. The combination with the fire-box having a cylindrical body, of a ring or frame fitting the exterior of said body, rigidly united

thereto and extending approximately from end to end of the same, a boiler-shell inclosing the fire-box and fitting against the exterior of said frame and hermetically secured thereto throughout, ribs engaging the frame on one side, extending around the fire-box at some distance from its walls and engaging the opposite side of the frame, means for supporting the fire-box wall from many points of each ring, said shell and fire-box being cut away
25 to form openings registering with the interior of said frame. 30

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

FLOYD T. CHASE.

Witnesses:

A. BURLESON,
H. L. DICKSON.