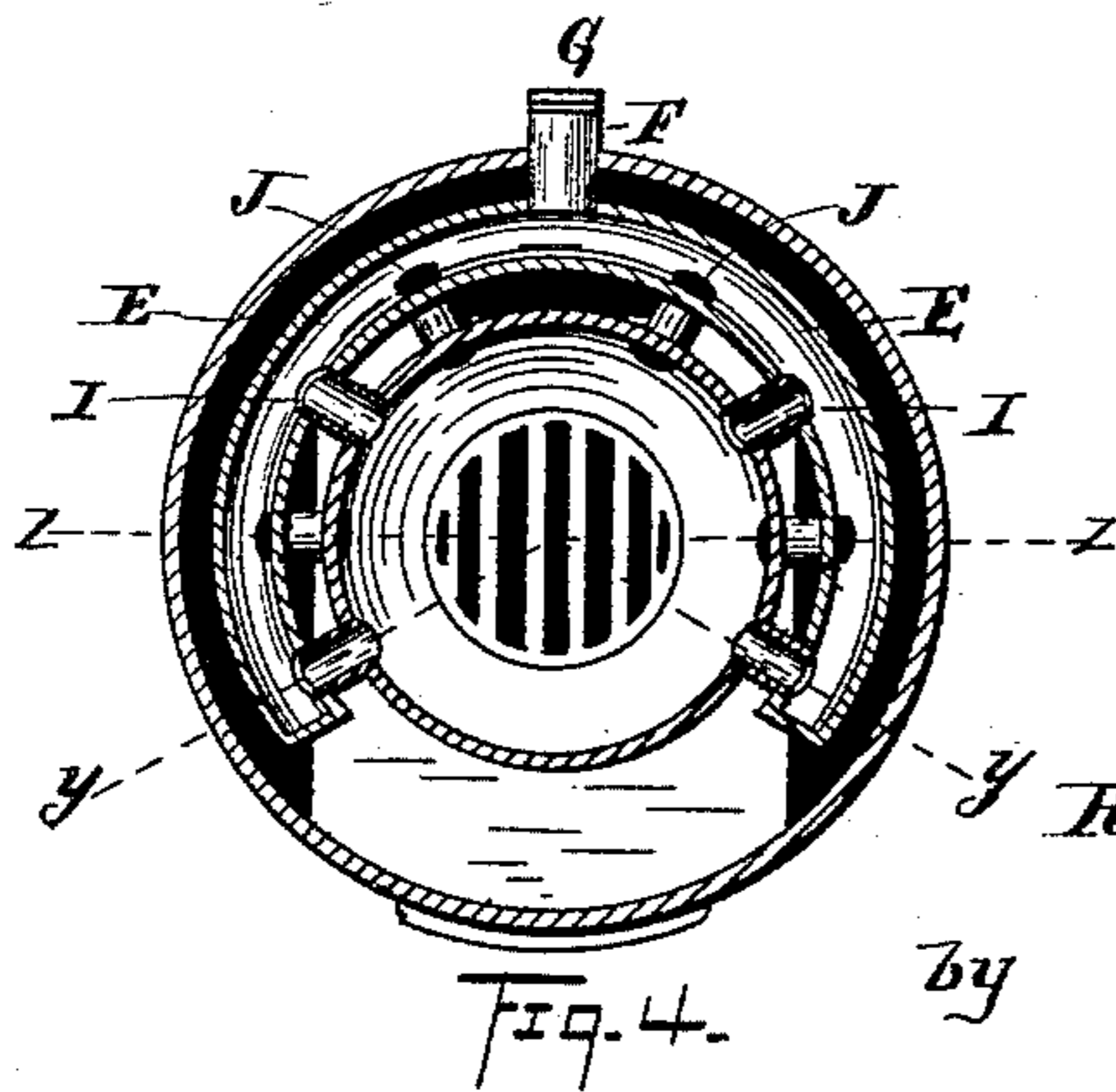
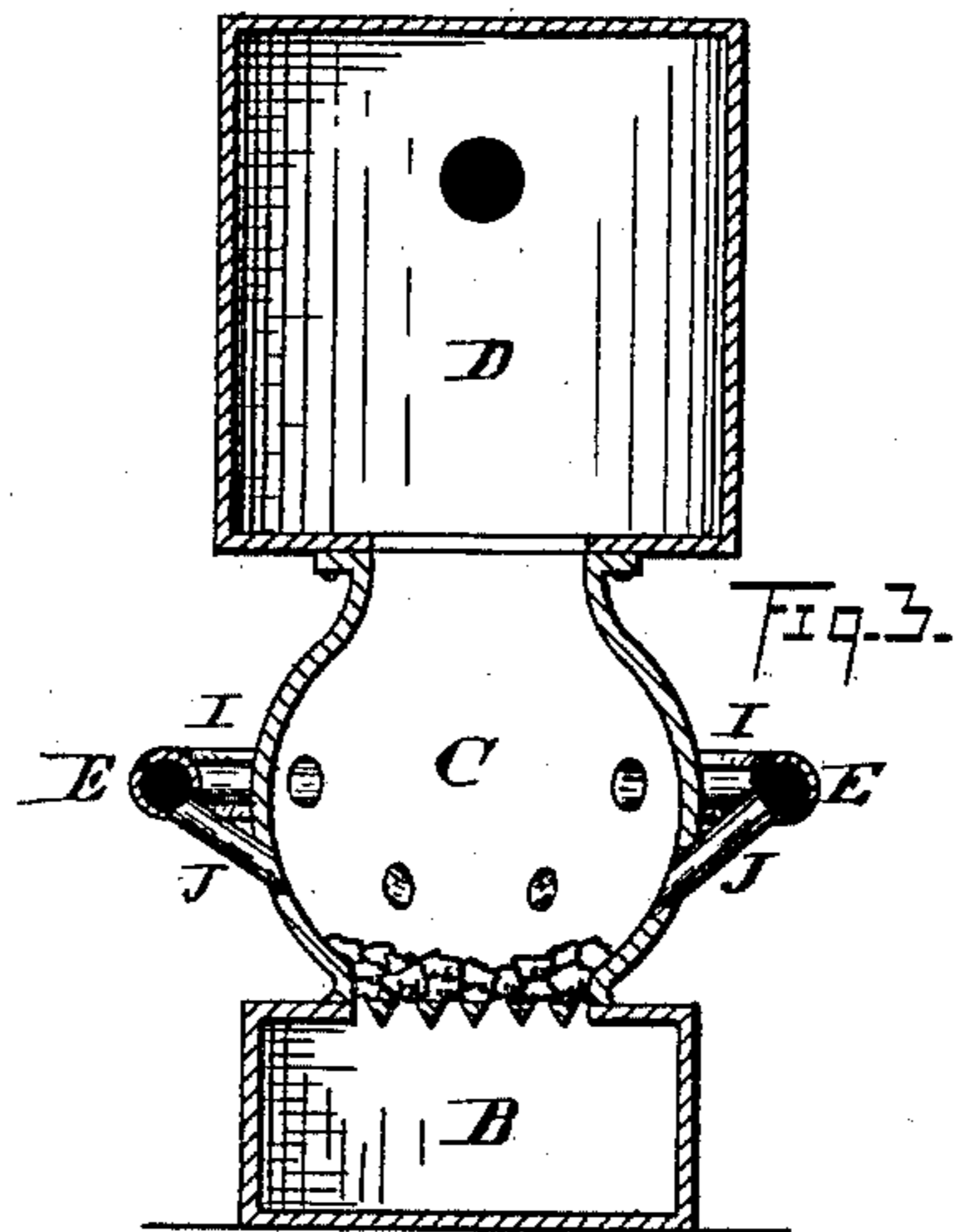
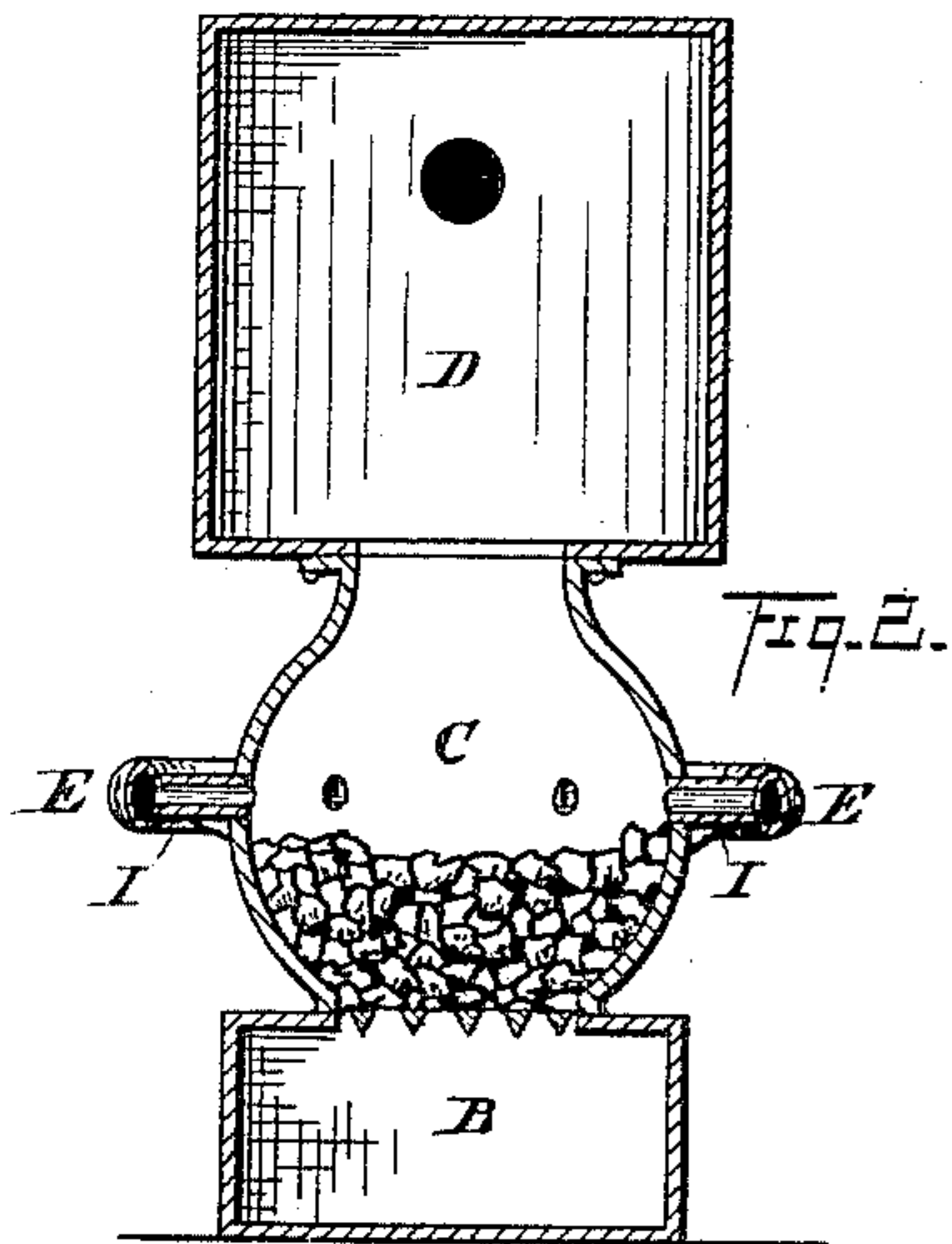
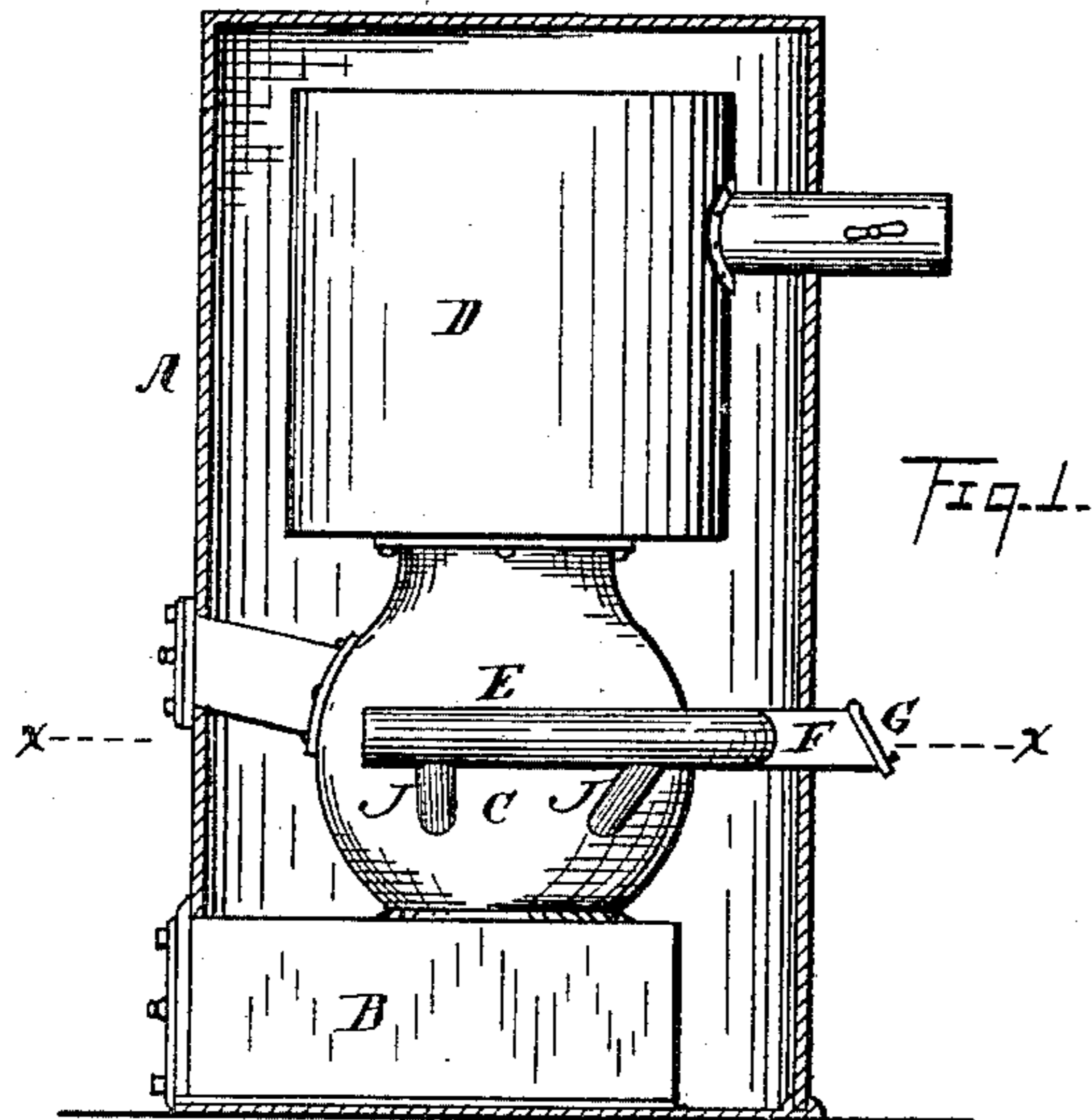


(No Model.)

R. A. MAY.
HEATING FURNACE.

No. 442,292.

Patented Dec. 9, 1890.



Witnesses.

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UNITED STATES PATENT OFFICE.

RUDOLPH A. MAY, OF AKRON, OHIO.

HEATING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 442,292, dated December 9, 1890.

Application filed April 21, 1890. Serial No. 348,862. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH A. MAY, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Heating-Furnaces, of which the following is a specification.

My invention has relation to improvements in heating-furnaces in which bituminous coal is used; and the object of my invention is to provide new and improved devices for furnishing a surface draft for the burning fuel.

My invention consists in the peculiar and novel arrangement of parts hereinafter fully described, and then specifically pointed out in the claims, reference being had to the accompanying drawings, which are a part of this specification.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is an elevation of a furnace embodying my invention, with the outer case shown in vertical central section; Fig. 2, a vertical section of the same at the line *y y* of Fig. 4; Fig. 3, a vertical section at the line *z z* of Fig. 4, showing auxiliary air-tubes; and Fig. 4, a horizontal section of a furnace embodying my invention at the line *x x* of Fig. 1, and showing both direct and auxiliary air-tubes.

In the drawings, A is the outer case; B, the ash-pit; C, the fire-pot, and D the combustion-chamber.

Nearly surrounding the fire-pot B is a hollow tubular segment E, connected with a tube F, which projects through the case A and is closed by a gate G. Short tubes I extend from the inner periphery of the tubular segment E through and into the fire-pot C, above the ordinary surface of the fuel. Interposed between the tubes I are auxiliary tubes J, which extend from the segment E through and into the fire-pot C, below the plane of the tubes I. By this arrangement I introduce atmospheric air in a large volume across the fire-pot from a series of pipes disposed about the fire-pot to unite with the products of com-

bustion arising from the fuel. The openings of the auxiliary tubes J are below the ordinary surface of the burning fuel, as shown in Fig. 2, and deliver a draft of air into the body of fuel below its surface, thereby creating a more perfect combustion than with either set of tubes alone, the effect of the auxiliary tubes being to keep the fuel constantly supplied with air, and thus when bituminous coal is used, for which this furnace is especially adapted, driving off the bituminous portion in the form of a highly-heated gas, which, encountering the air from the upper set of tubes at the surface, is completely consumed, while the body of coal from which the gas has been driven is converted into a mass of glowing coke.

I claim as my invention—

1. In a heating-furnace, the combination, with the fire-pot, of a segmental tube outside of, concentric with, and nearly surrounding the same, having two sets of branch tubes, one set arranged to enter the fire-pot directly above the surface of the fuel and the other set arranged to enter it below said surface, substantially as shown, and for the purpose specified.

2. In a heating-furnace, the combination, with the fire-pot and a segmental tube outside of, concentric with, and nearly surrounding the same, having two sets of branch tubes, one whereof enters the fire-pot directly above the surface of the fuel and the other below said surface, of a branch tube extending from said segmental tube outside of the furnace-case to provide air to said segmental tube, and provided with a door by which the amount of air may be shut off or regulated, substantially as shown, and for the purpose specified.

In testimony that I claim the above I hereunto set my hand.

RUDOLPH A. MAY.

In presence of—

C. E. HUMPHREY,
C. P. HUMPHREY.