

(No Model.)

C. W. CLAYBOURNE.
OIL BURNER.

No. 562,576.

Patented June 23, 1896.

Fig. 1.

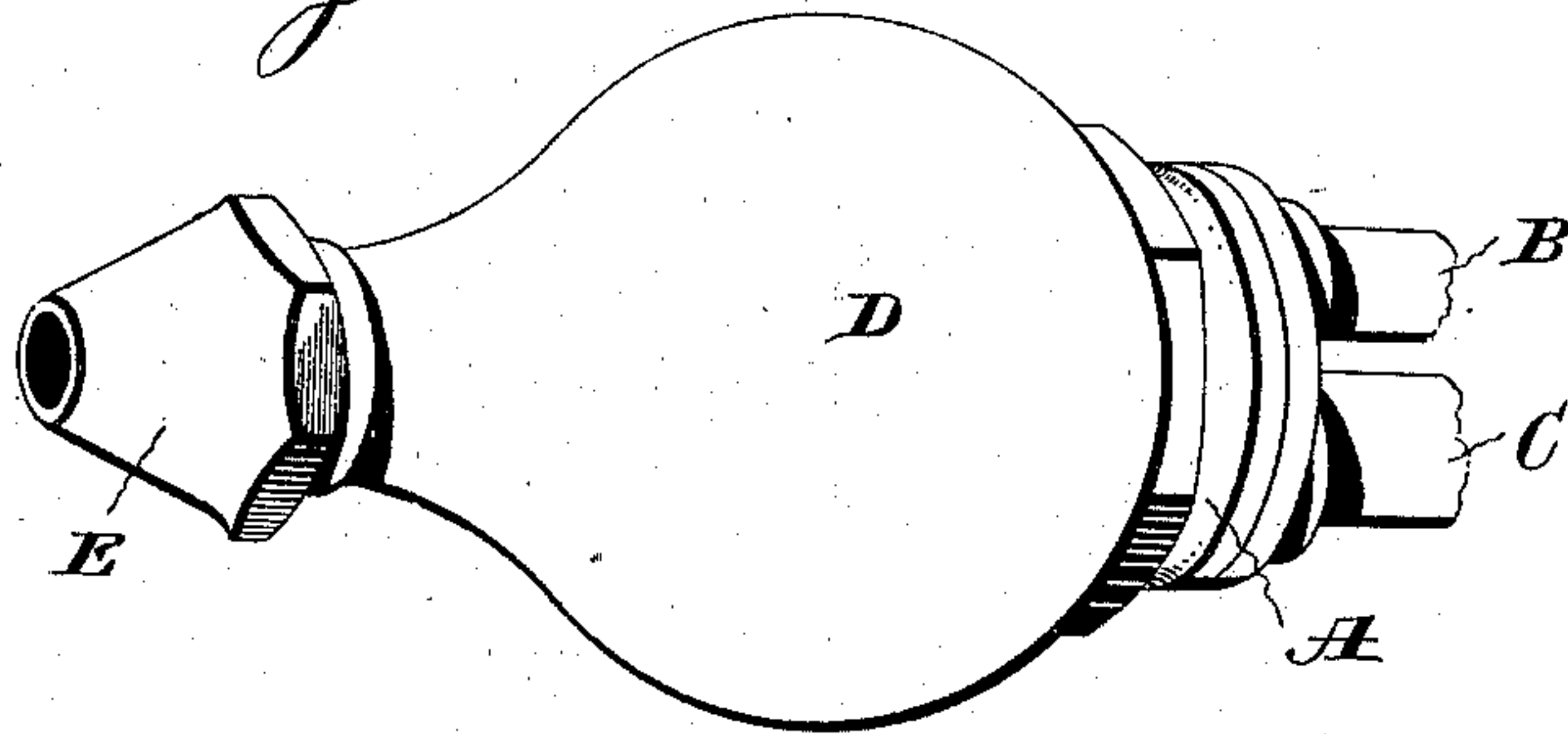


Fig. 2.

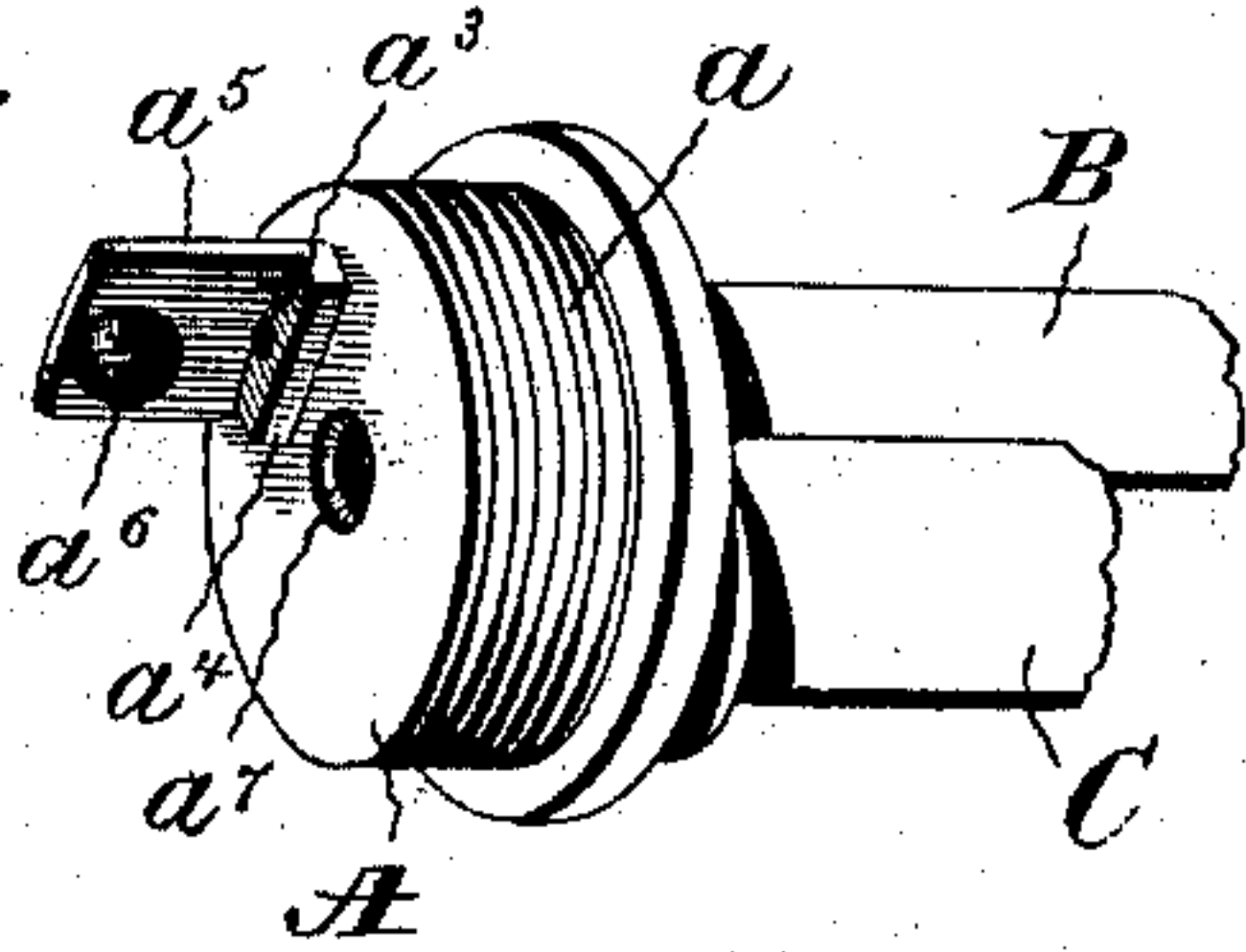


Fig. 3.

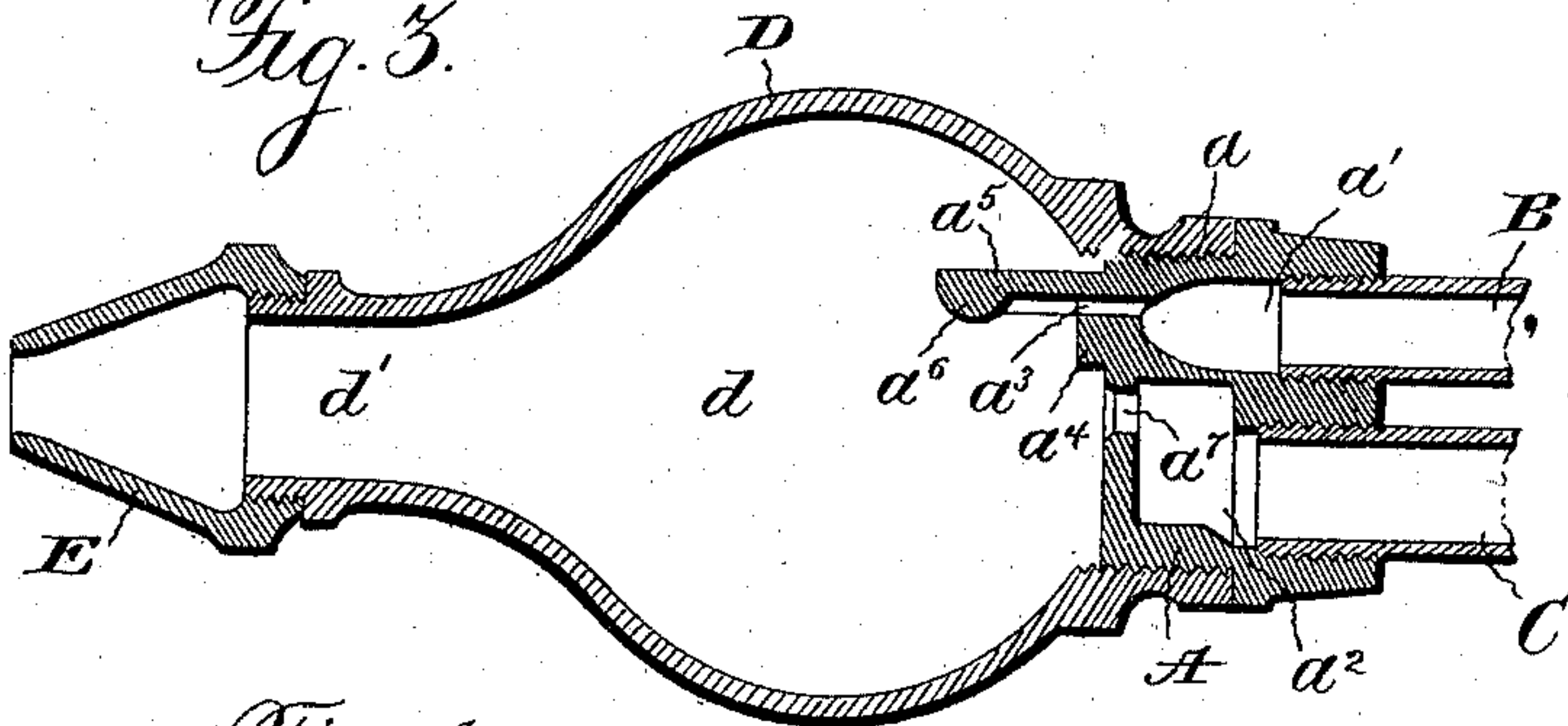
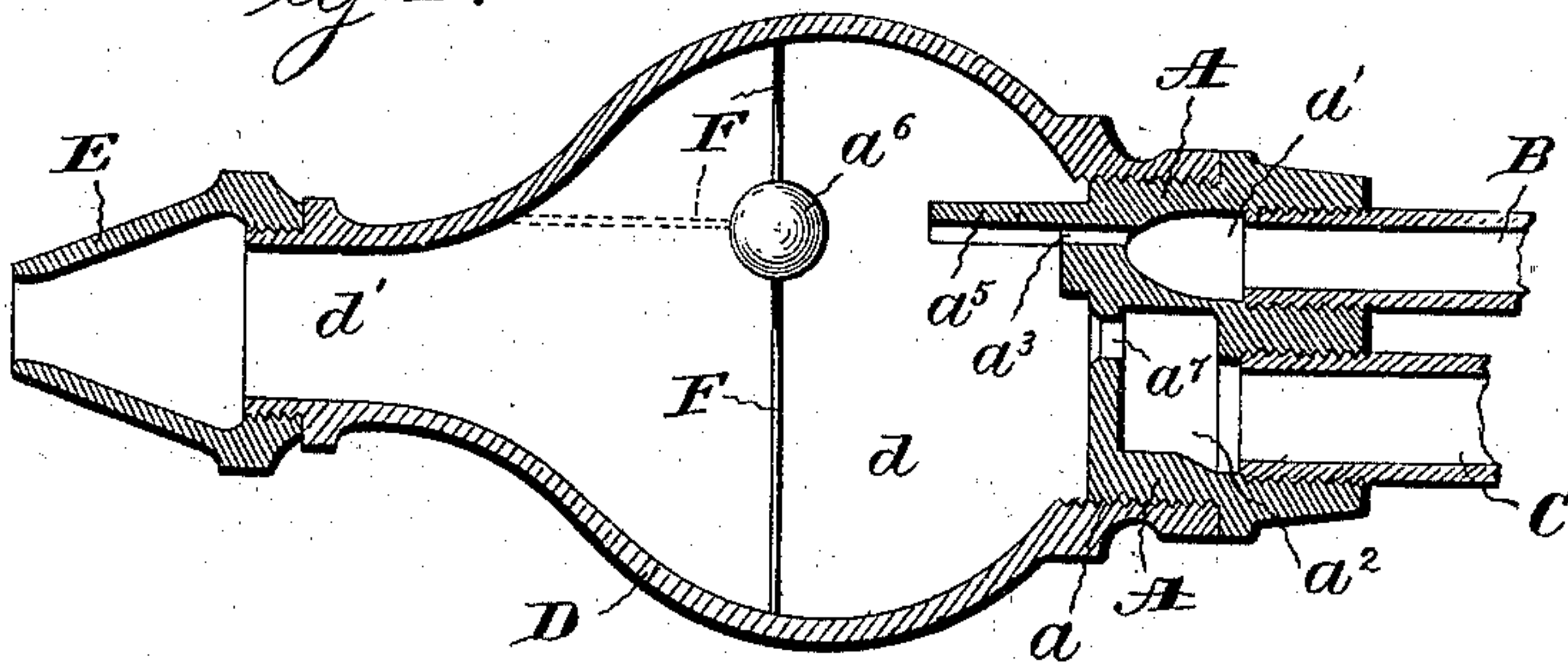


Fig. 4.



Witnesses:
Jas. E. Hutchinson.
Henry C. Hazard.

Inventor.
C. W. Claybourne, by
C. Lindbergh Russell, his attys

UNITED STATES PATENT OFFICE.

COLIN W. CLAYBOURNE, OF INDIANAPOLIS, INDIANA.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 562,576, dated June 23, 1896.

Application filed July 30, 1894. Serial No. 518,947. (No model.)

To all whom it may concern:

Be it known that I, COLIN W. CLAYBOURNE, a citizen of the United States, residing at Indianapolis, in the county of Marion, and in the State of Indiana, have invented certain new and useful Improvements in Oil-Burners; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my burner. Fig. 2 is a like view of the body of the burner from its front end, the mixing-chamber being removed. Fig. 3 is a vertical longitudinal section of said burner, and Fig. 4 a like view showing a different means for supporting the spherical oil-atomizing device.

Letters of like name and kind refer to like parts in the several figures.

The object of my invention is to provide a hydrocarbon-burner in which the oil will be most perfectly atomized; and to this end said invention consists in the burner constructed substantially as and for the purpose herein-after specified.

In the carrying of my invention into practice, I employ a cylindrical body A, which is provided with peripheral thread a , and opening into it from its rear end are two cavities a' and a^2 , into which are screwed the threaded ends of two pipes B and C, respectively. The inner portion of the upper cavity a' is made conical or tapering, and from its small end an opening a^3 , quite small in diameter, passes through the front end of the body A, and through a boss a^4 , which is provided at such point, and from which, immediately above the opening a^3 , projects a lip or plate a^5 . The latter is straight and extends horizontally forward, parallel with the axis of the openings a' and a^2 , and at its front edge on its under side has a semispherical or convexly-curved boss a^6 , that is in the path of and will be struck by fluid issuing from the opening a^3 .

A small opening a^7 extends from the lower cavity a^2 through the front wall of the body A, at the center of the latter, and said opening a^7 has an area several times that of the opening a^3 .

The threaded exterior portion of the body A is screwed into the rear end of a nozzle D, that immediately in front of said body is

globular or bulb-like in form and then decreases in diameter toward its front end, and within which is formed a chamber d , that at its rear end expands suddenly to about twice the diameter of the front end of the body A and from thence decreases in size until it terminates in an opening d' of comparatively small diameter. Said opening d' may form the discharge or mouth of the nozzle, or a smaller discharge-opening may be provided by the employment of a conical or tapering tip E, that is interiorly threaded at its rear end to engage thread on the exterior of the nozzle D, and whose front end has an opening several times smaller than the opening d' . The tip E can be readily applied and removed from the nozzle.

In the use of my burner the pipes B and C are connected, respectively, with a supply of oil and steam, and the latter simultaneously admitted to the burner. As the oil passes into the chamber d it impinges upon the convex surface of the semispherical boss a^6 , and, as will be readily seen, is radiated therefrom downward and laterally, and thus meets to the best possible advantage the steam flowing through the opening a^7 , so that its complete atomization and perfect mingling with the steam are effected. The atomizing of the oil is materially promoted by the boss a^6 by reason of the great diverging or radiating effect of its convex surface.

Instead of attaching the boss a^6 to and supporting it from the plate a^5 , it may be located away from said plate and otherwise supported, as shown, for instance, in Fig. 4, where it is given the form of a complete sphere or globe, and is attached to a light rod or wire F, that extends diametrically across the bulb and is supported thereby in line with the opening a^3 . Of course a semispherical device can be supported in this way as well as a spherical or globular one, and with a view to avoiding any possible interference to the action of the fluid within the burner-chamber, the rod or wire F can be placed horizontally, as indicated in dotted lines in Fig. 4, and be entirely upon the side of the ball a^6 opposite the oil-opening a^3 .

Compressed air instead of steam can be used, and when air is employed it is preferably introduced into the burner at the same

pressure as the oil, and it is also preferable to employ a tip E, having a smaller discharge opening or mouth than is used where steam is employed.

5 Having thus described my invention, what I claim is—

1. As an improvement in oil-burners, the mixing-chamber, an opening for the admission of a fluid under pressure, an opening for
10 the admission of oil, a plate projecting outside of but adjacent to the oil-opening, and in a direction in line therewith, and a convexly-curved surface, in line with the oil-opening to be impinged upon by the oil and
15 the same thereby radiated into the fluid issuing from the fluid-opening, substantially as and for the purpose specified.

2. As an improvement in oil-burners, in combination with a mixing-chamber, an opening for the admission of a fluid under pressure, an opening for the admission of oil, a
20 plate extending into the mixing-chamber at

one side of and in a direction in line with the oil-opening, and a spherically-curved boss upon such plate in line with the oil-opening, 25 substantially as and for the purpose shown.

3. As an improvement in oil-burners, the combination of a mixing-chamber, an opening for the admission of a fluid under pressure, an opening for the admission of oil to
30 one side of the other opening, a plate projecting alongside of and in line with the oil-opening, on the side opposite the other opening, and a boss on such plate having a convexly-curved surface in line with the oil- 35 opening, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of July, A. D. 1894.

COLIN W. CLAYBOURNE.

Witnesses:

W. H. PALMER,

J. T. CLAYBOURNE.