

C. E. HEARSON.
Argand-Burners.

No. 153,896.

Patented Aug. 11, 1874.

FIG. 1

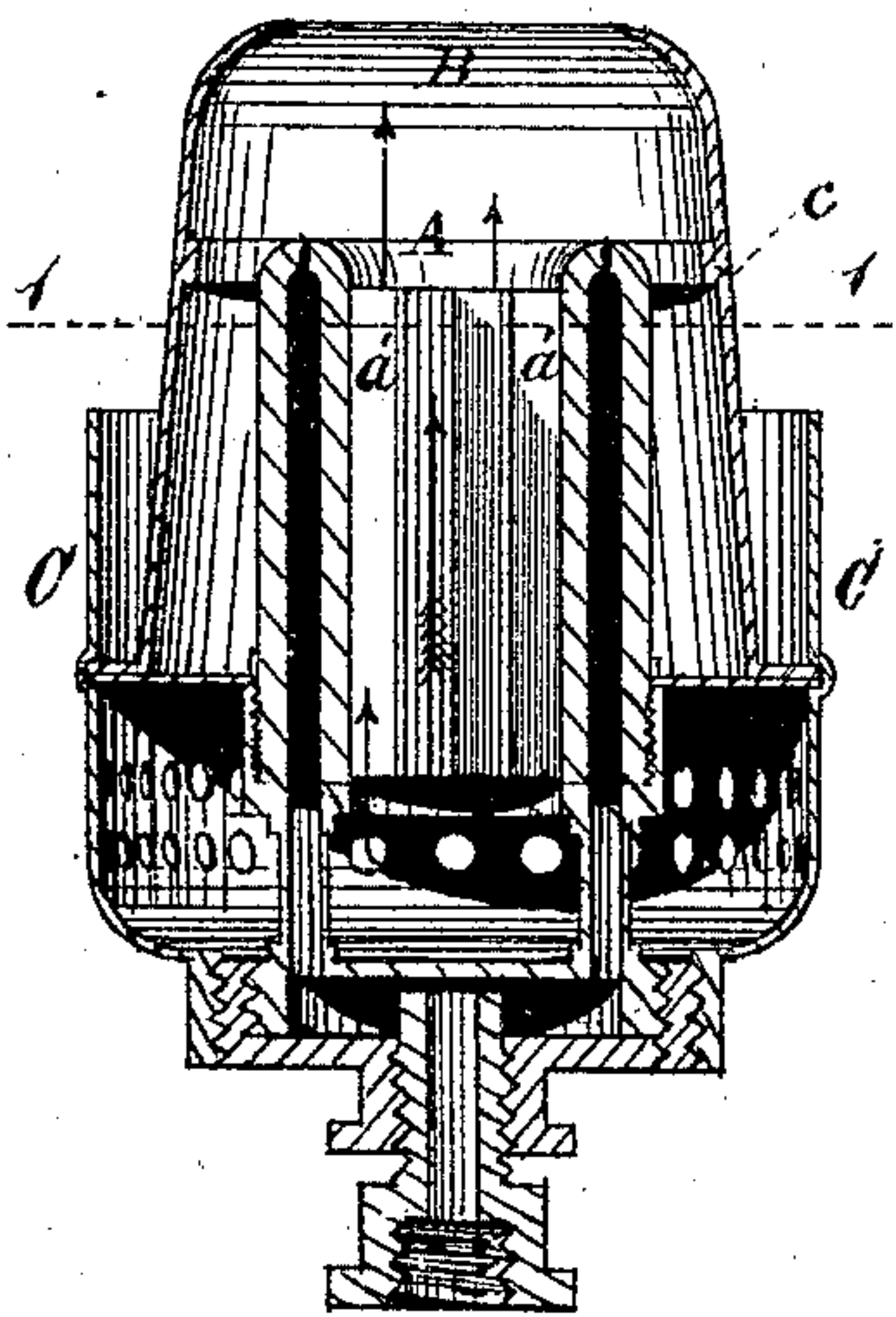


FIG. 7

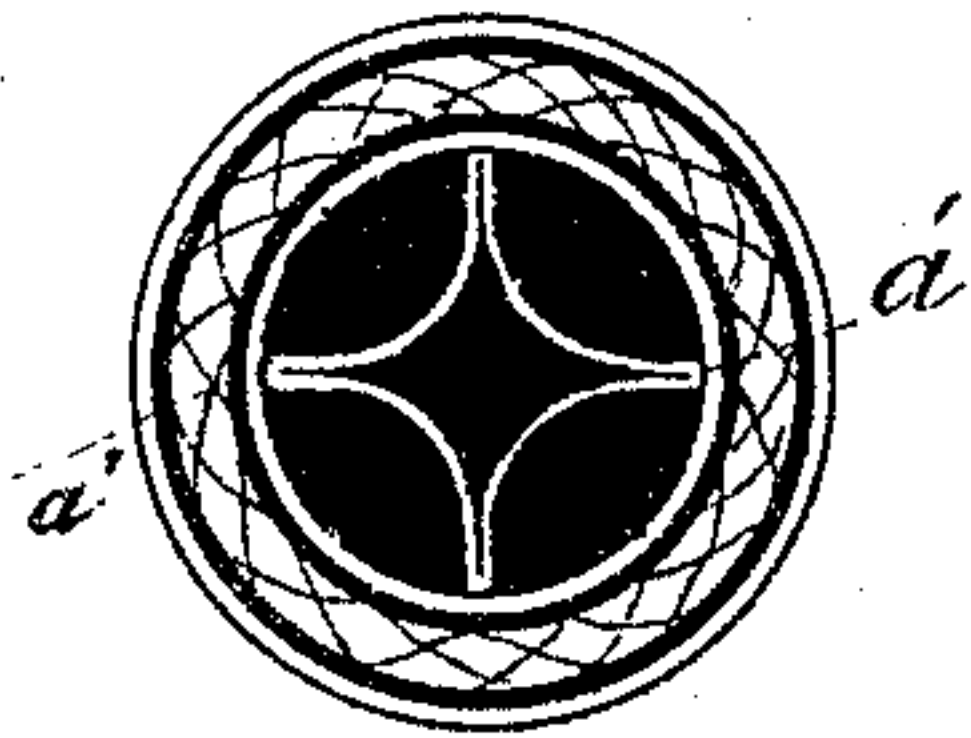


FIG. 2

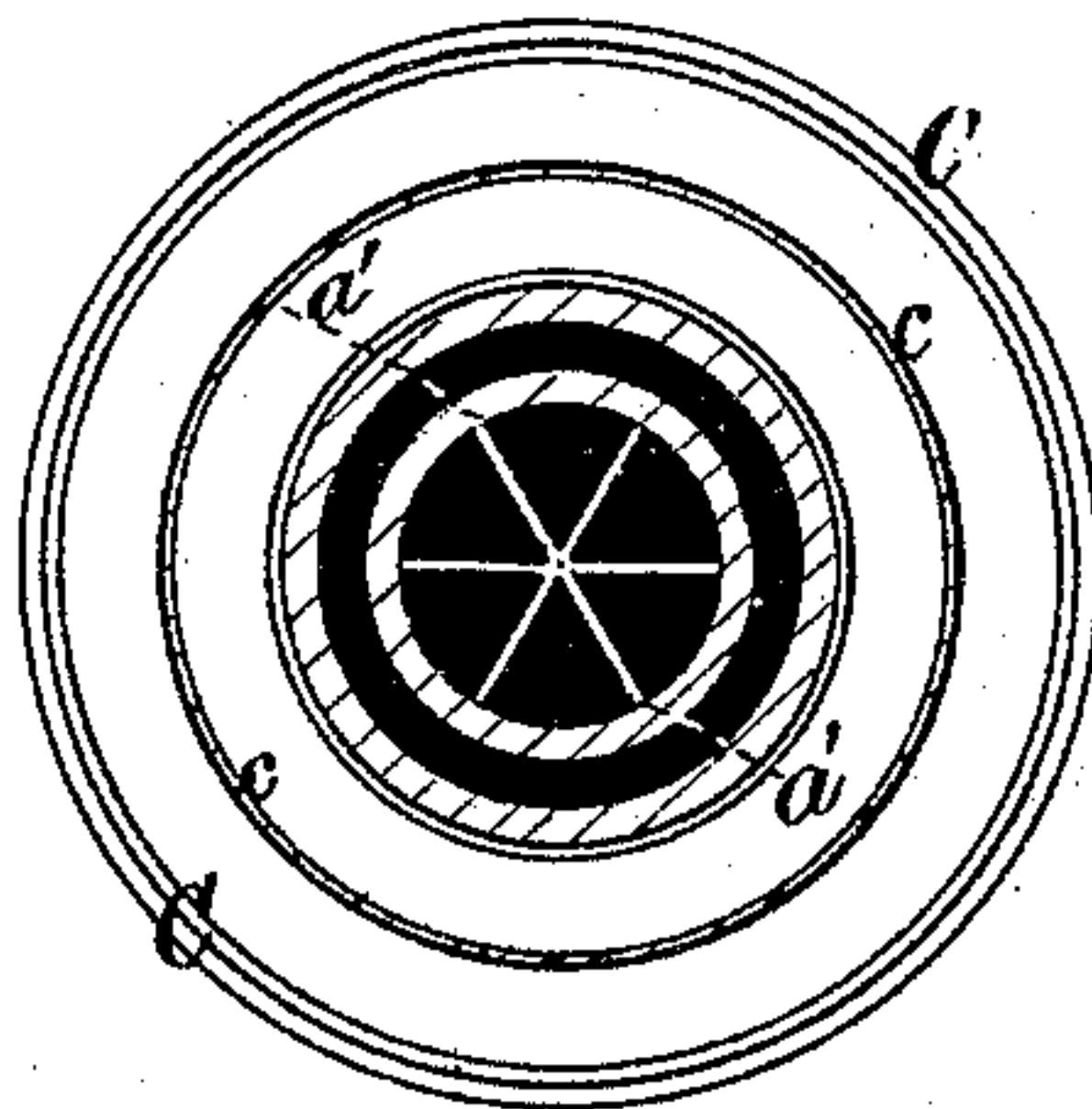


FIG. 6

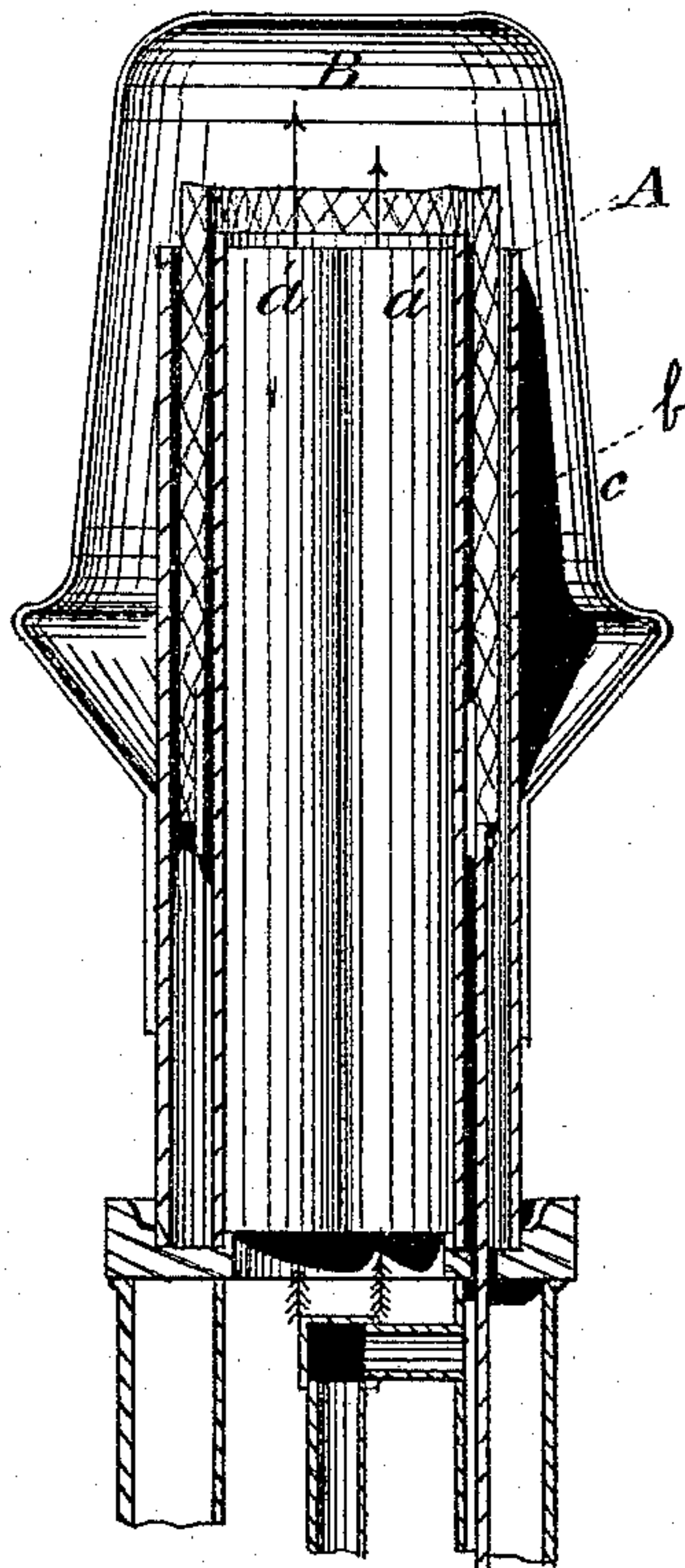


FIG. 15

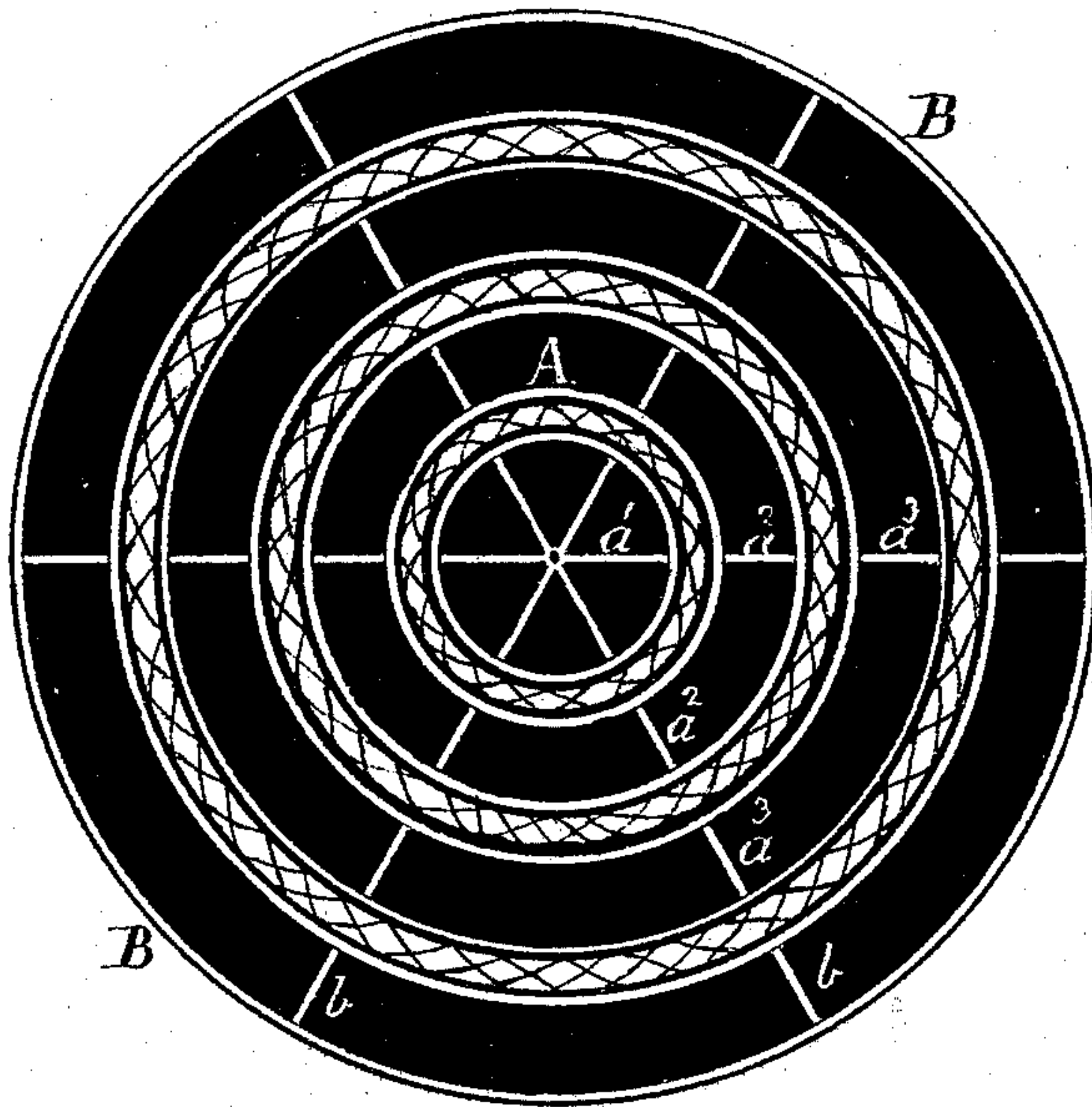
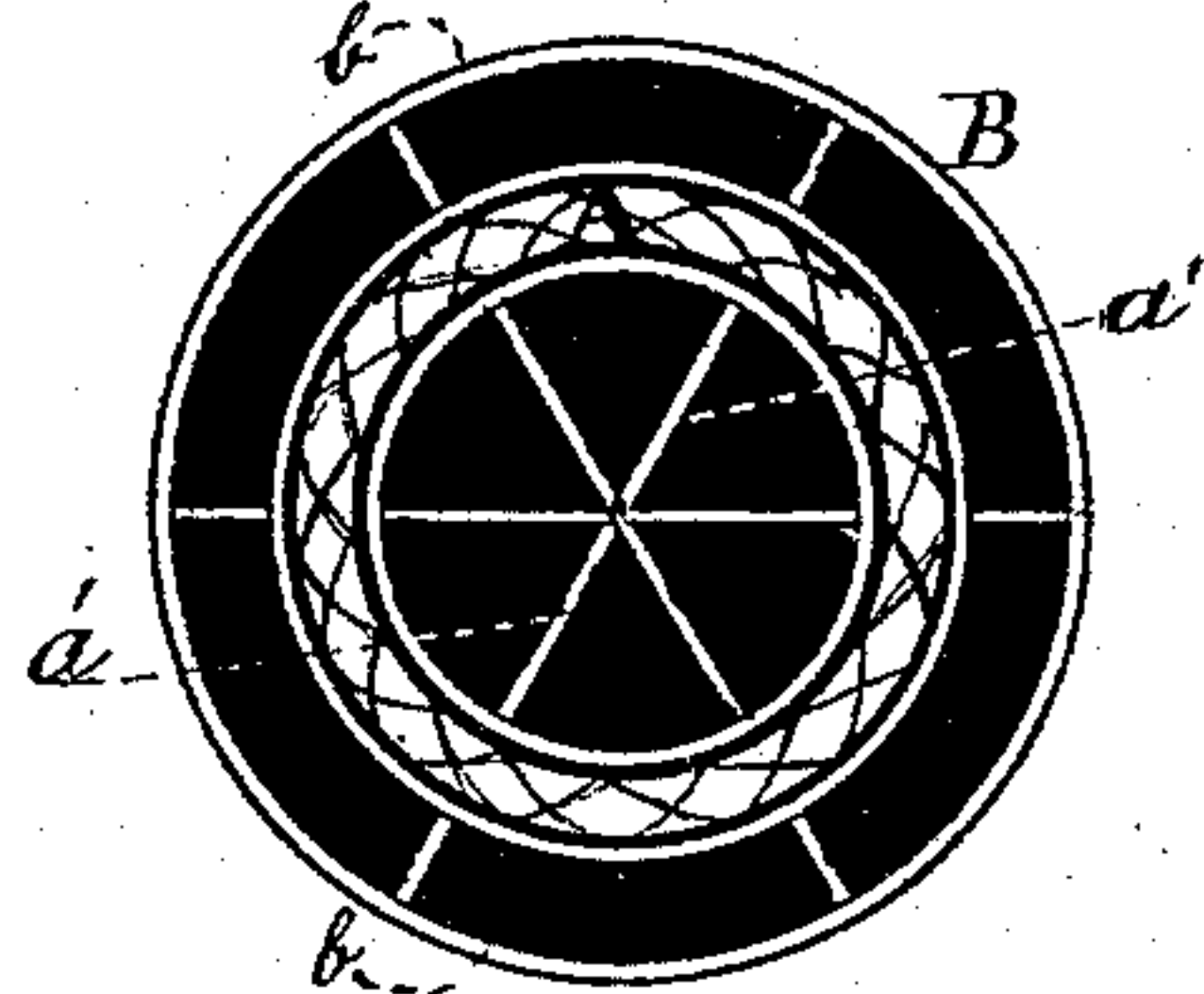


FIG. 14



Witnesses
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FIG. 3

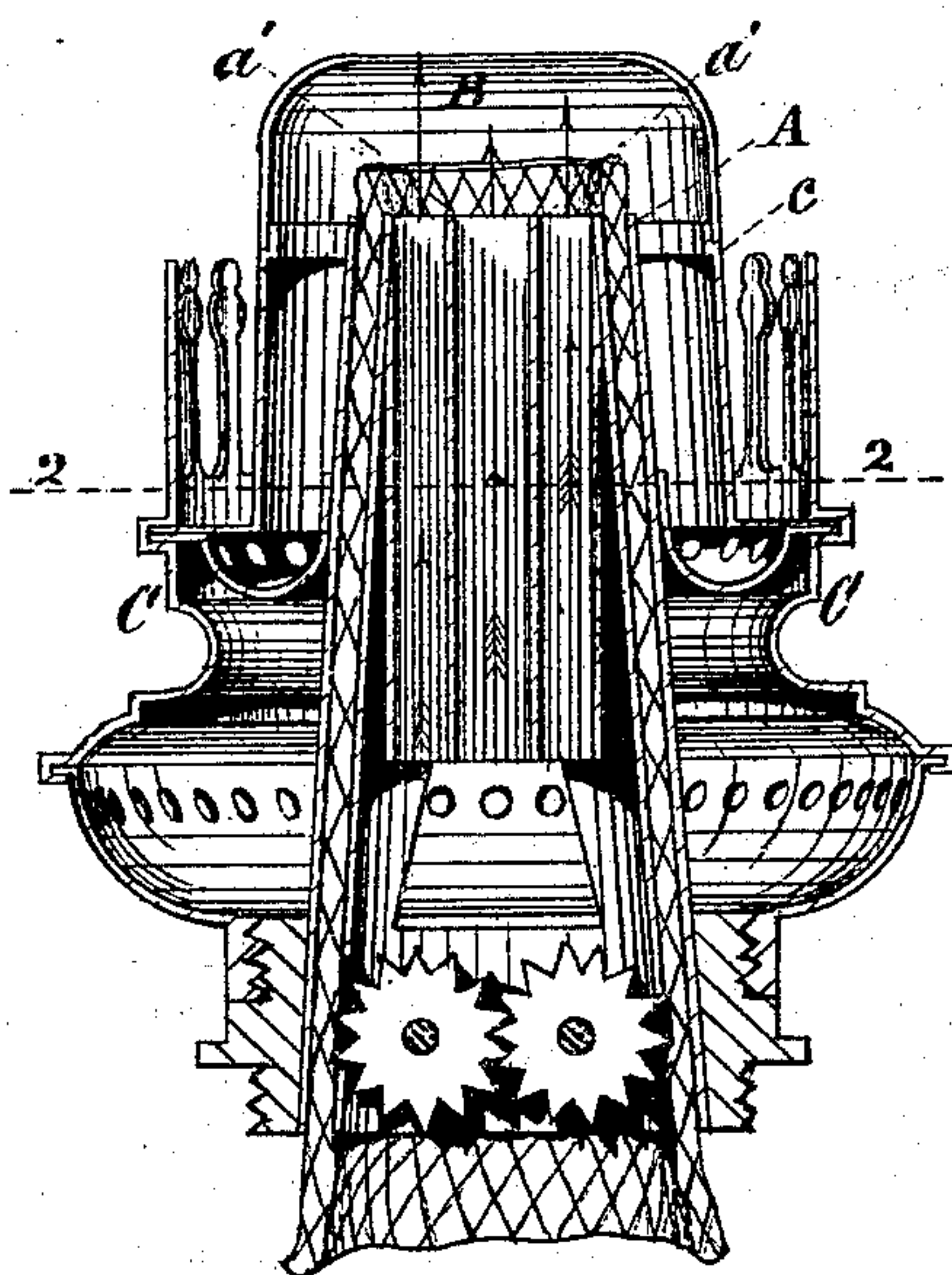


FIG. 5

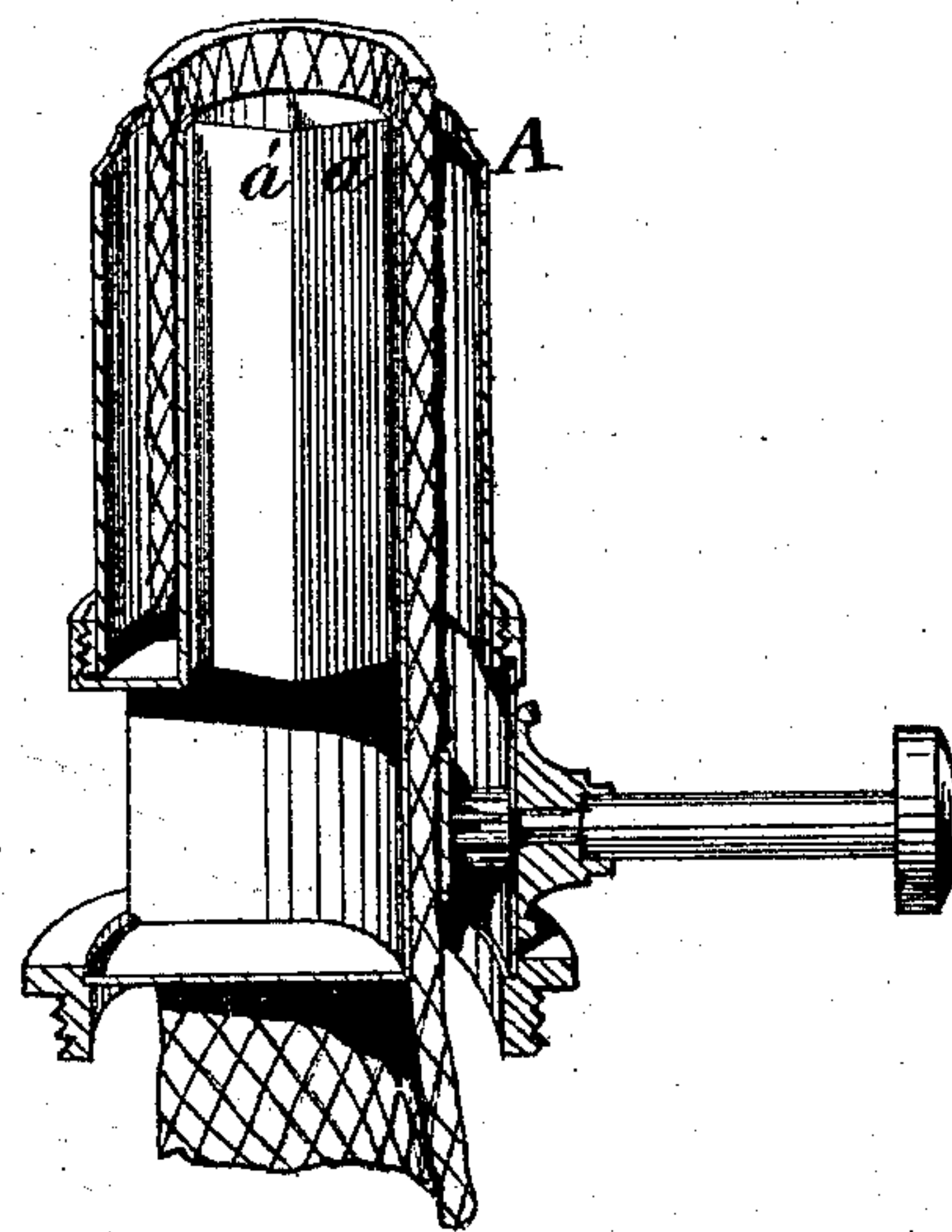


FIG. 4

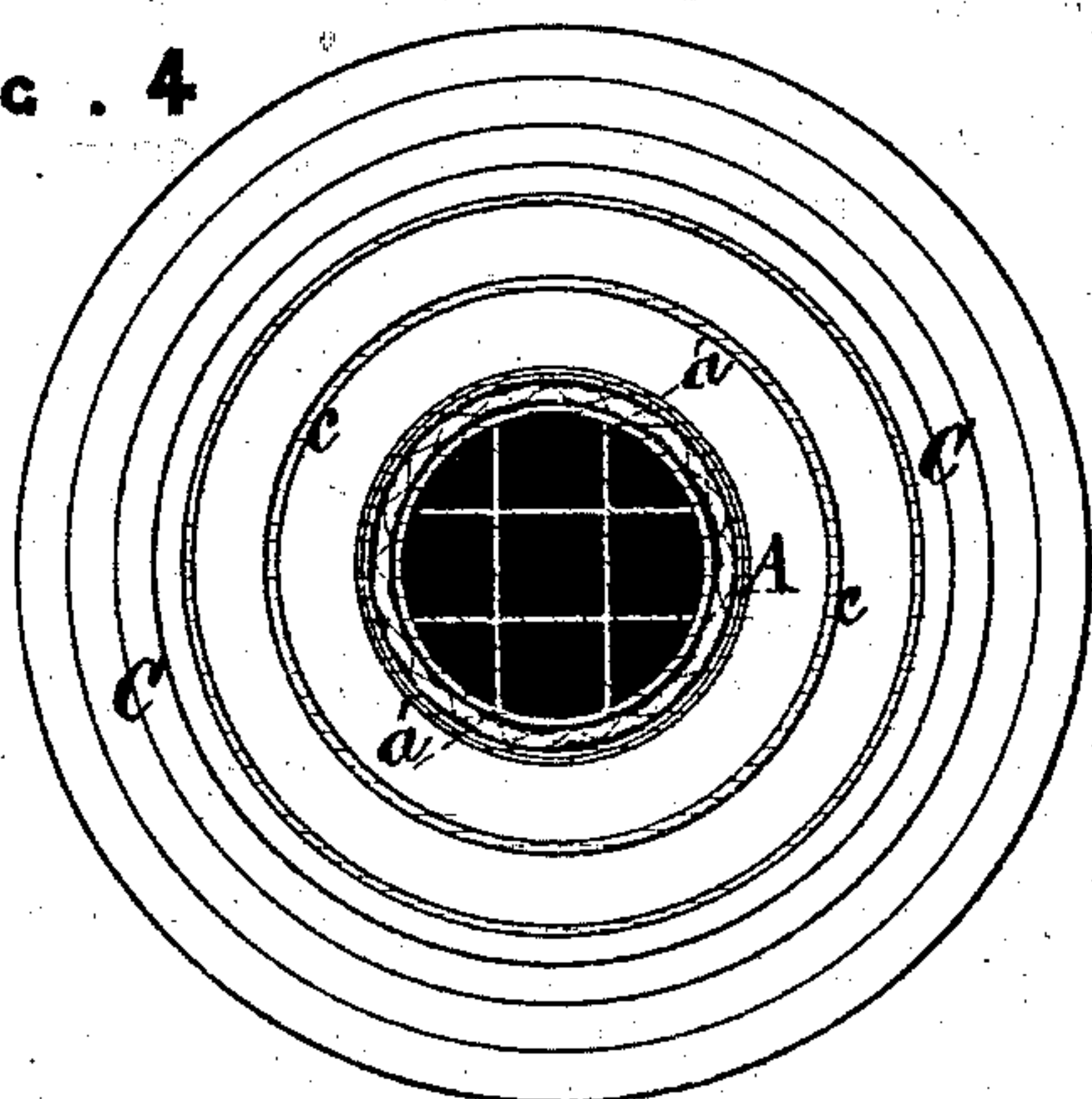


FIG. 8

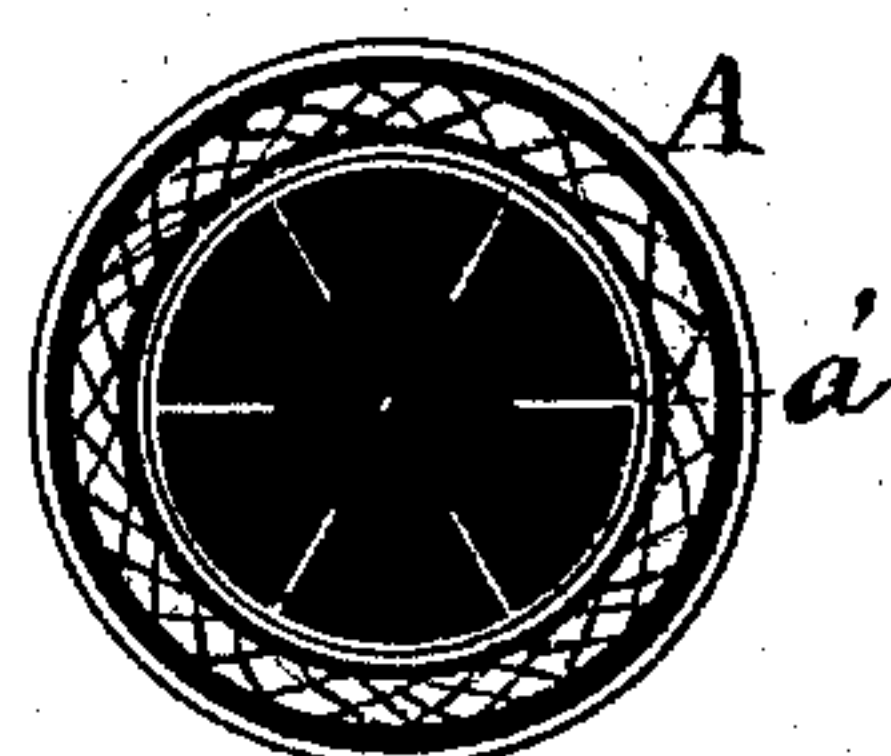


FIG. 9

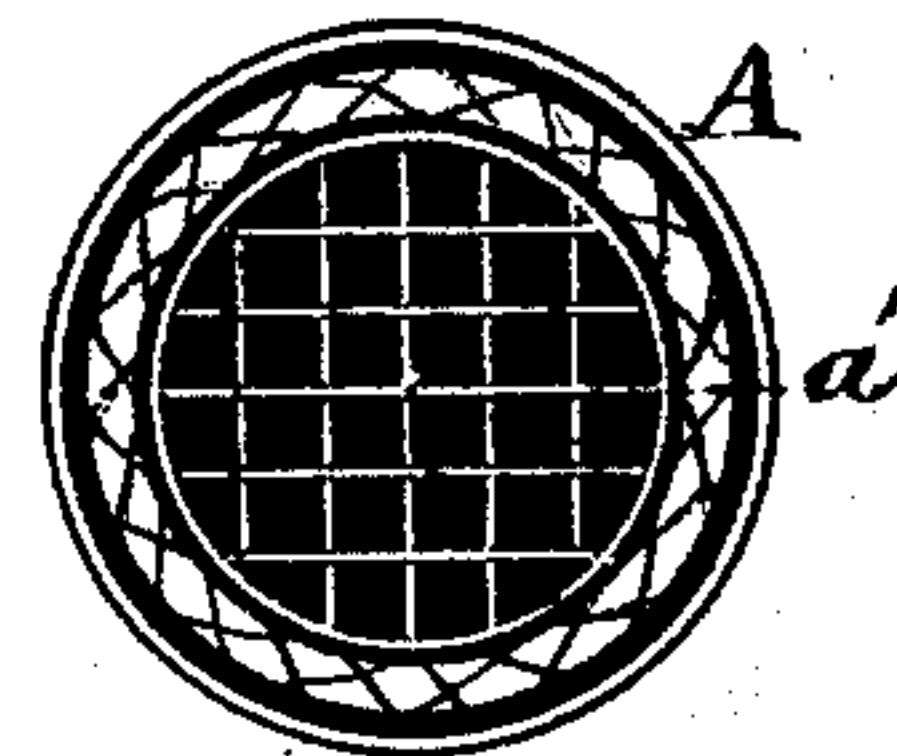


FIG. 10

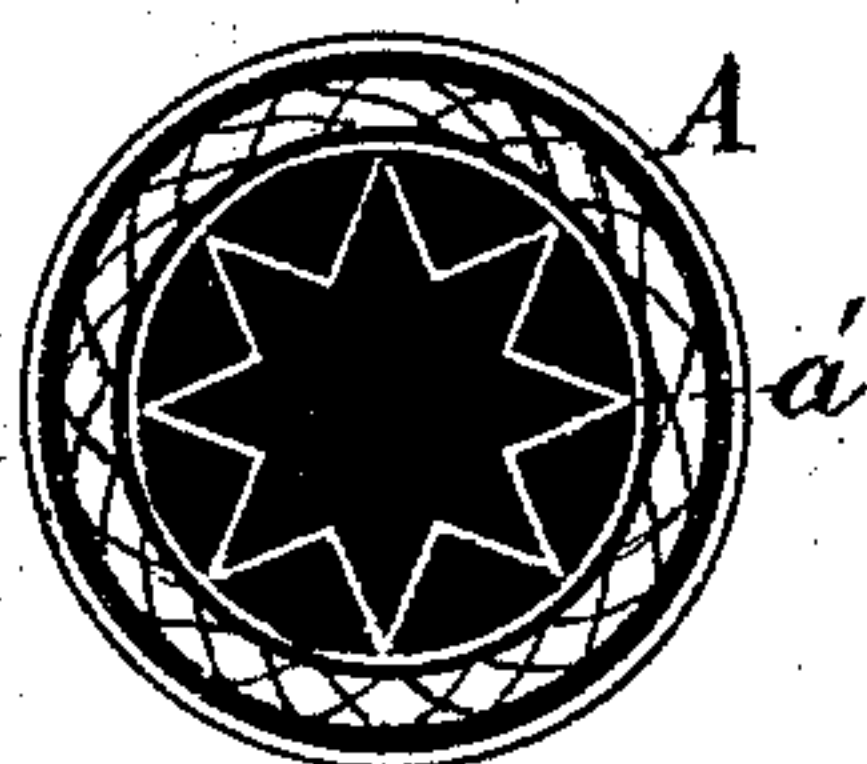


FIG. 11

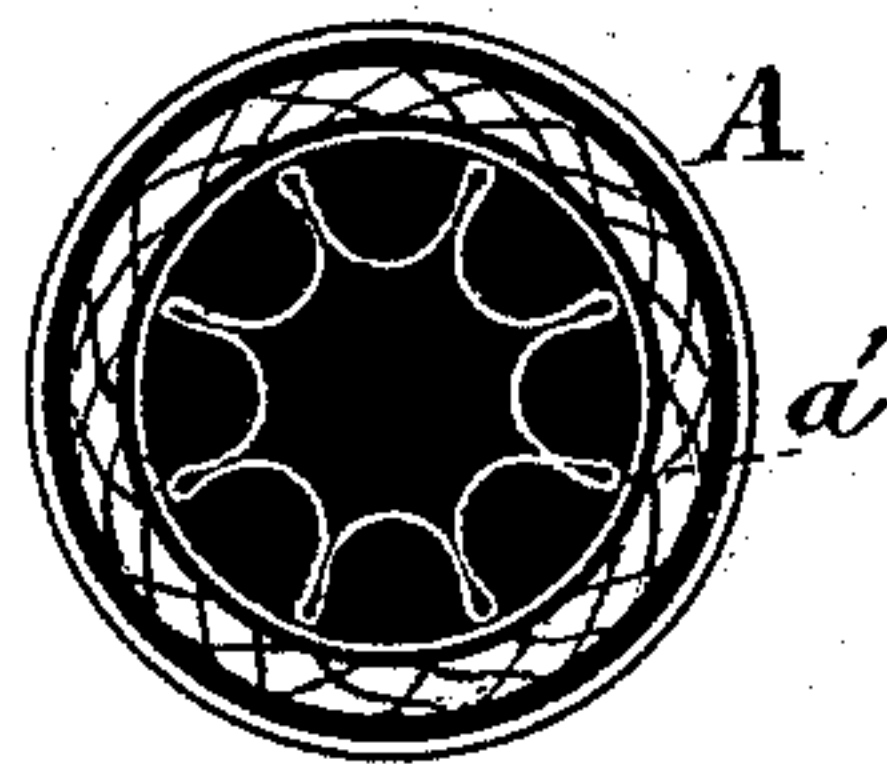


FIG. 12

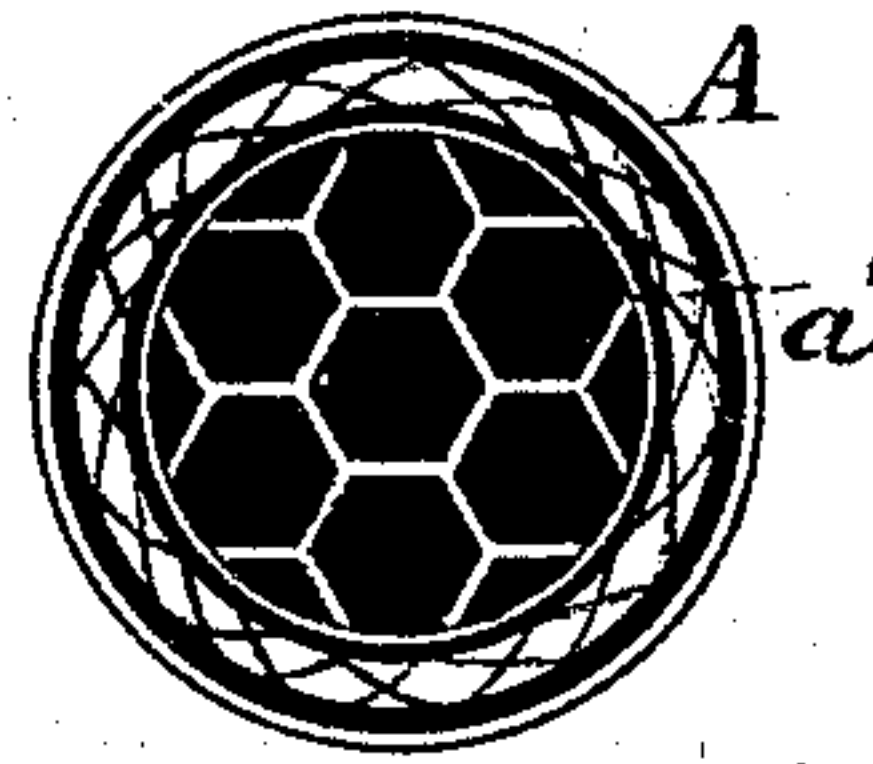
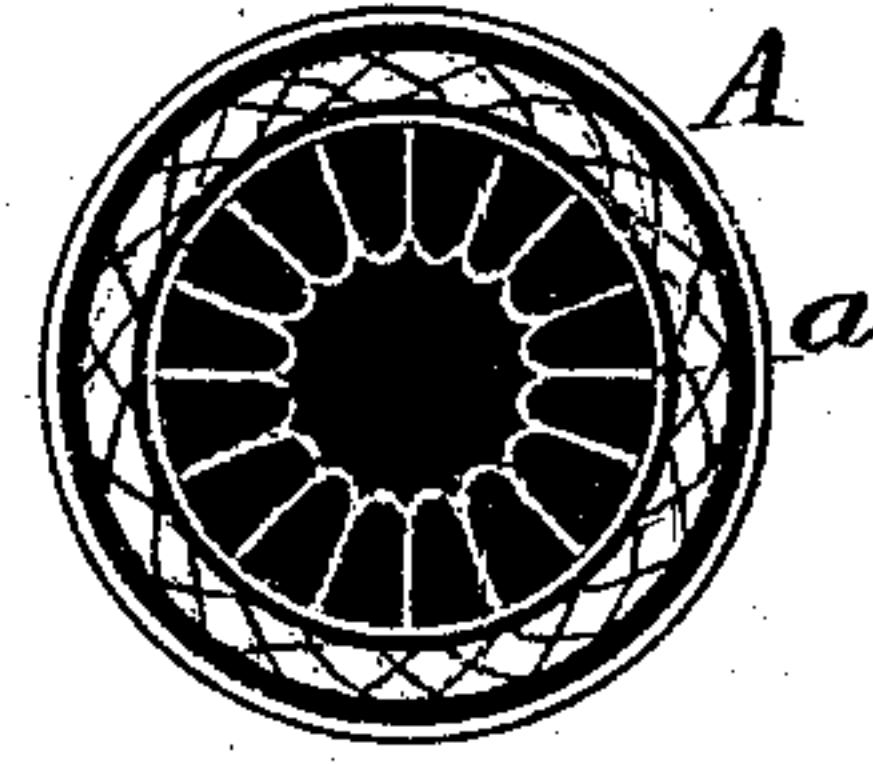


FIG. 13



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES EDWARD HEARSON, OF LONDON, ENGLAND.

IMPROVEMENT IN ARGAND-BURNERS.

Specification forming part of Letters Patent No. **153,896**, dated August 11, 1874; application filed May 28, 1874.

To all whom it may concern:

Be it known that I, CHARLES EDWARD HEARSON, of No. 30 Millman Street, Bedford Row, London, in the county of Middlesex, England, iron-monger, have invented certain Improvements in Argand-Burners for burning coal-gas or other illuminating-gas, and animal, vegetable, and mineral oils, of which the following is a specification:

My invention relates to certain improvements in argand-burners for burning gas, oils, &c.; and its object is to so construct such a burner as to effect a more perfect combustion of the oil or gas, and to obtain a steadier and larger flame, than has heretofore been attained in burners of this class as ordinarily constructed.

The use of the circular or argand burners of ordinary construction is attended by many disadvantages, the principal of which are, that the flame is unsteady, rendering the light injurious to the eyes, and allowing a portion of the gas to pass off unconsumed, or causing imperfect combustion of the oil when such burners are used upon lamps; and also that such burners, when made larger than seven-eighths of an inch in diameter, cannot be used with advantage.

My invention is designed to overcome these defects; and it consists in constructing the interior air-passage and the passage between the wick or gas tube and the cap or dome usually employed with such burners with vertical diaphragms or partitions, which divide said passages into a series of vertical air shafts or passages, which communicate with the external atmosphere at their lower ends, and with the burner at their upper ends, to support the combustion of gas or oil. My invention also consists in constructing the burner of a series of concentric gas-passages or wick-tubes, with air-spaces between them, and providing said air-spaces with vertical diaphragms or partitions, as described, for the purpose of forming vertical passages for the air in said spaces.

Figure 1 is a vertical section of a gas-burner furnished with vertical diaphragms and a dome or cap according to my invention. Fig. 2 is a transverse section of the same through the line 1 1, Fig. 1. Figs. 3, 4, 5, 6, and 7 show the

invention as applied to oil-lamps. Fig. 3 is a vertical section, and Fig. 4 a transverse section through the line 2 of Fig. 3, of the burner of the ordinary German student's lamp with my invention applied to the same. Fig. 5 is a vertical section of a burner for burning the volatile hydrocarbons. Fig. 6 is a vertical section of the burner of a "moderator" lamp, and Fig. 7 is a plan of said burner without cap or dome. Figs. 8, 9, 10, 11, 12, and 13 are sectional views of a burner, showing different arrangements of the diaphragms or partitions. Fig. 14 is a transverse horizontal section of a burner with the dome attached, showing clearly the vertical partitions in the inner tube, and the partitions between said tube and the dome; and Fig. 15 is a transverse section of a burner constructed with alternate concentric wick-tubes and annular air-spaces provided with the vertical partitions. This form of lamp is designed particularly for light-houses and other purposes where a large and brilliant light is required.

Similar letters of reference indicate like parts in all of the figures.

A represents the inner or central tube, provided with a series of vertical diaphragms or partitions, $a^1 a^1$, extending from the top of said tube to the bottom, or nearly to the bottom, of the same, as shown. B represents the dome or cap, and $b b$ the vertical partitions in the annular air-passage between said dome and inner tube.

I prefer to arrange all of the diaphragms radially from the center of the inner tube, although they may be differently arranged in the inner tube, as shown in Figs. 4, 9, 10, 11, 12, and 13.

In Fig. 15 the burner is represented as constructed of a series of concentric wick-tubes with alternate annular air-spaces, provided, each, with the diaphragms $a^1 a^2 a^3$. The burner is provided with a cap, B, as usual; and in the space between the dome and the cap I arrange the diaphragms $b b$, as in the other modifications of my burner. C represents the chimney-holder, which may be made in any of the ordinary styles applicable to this variety of lamp. The burner may be fitted with the other attachments in ordinary use, and which it is not necessary to describe.

The air-passages thus formed both inside and outside of the wick or gas tube effectually prevent all lateral currents of air, the draft being directed, in perpendicular lines, directly to the point of combustion. By this means a steady and perfect light is obtained, which will be clear and free from smoke, and which will not injure the eyes, as is the case with all burners of this class as heretofore constructed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An argand-burner constructed with vertical partitions in the central tube, and in the

space between said tube and the dome or cap of the burner, for the purpose of supplying the air, on both sides of the flame, in vertical currents, to prevent flickering and smoking, as herein set forth.

2. The combination of a series of concentric wick-tubes with alternate annular air-spaces, provided with vertical diaphragms or partitions, for the purpose of directing the air to the flame in vertical currents, as herein described.

CHAS. EDWD. HEARSON.

Witnesses:

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G. S. RECKNELL.