

J. RIGBY.

GAS EXPANDER AND BURNER.

No. 365,633.

Patented June 28, 1887.

Fig. 3.

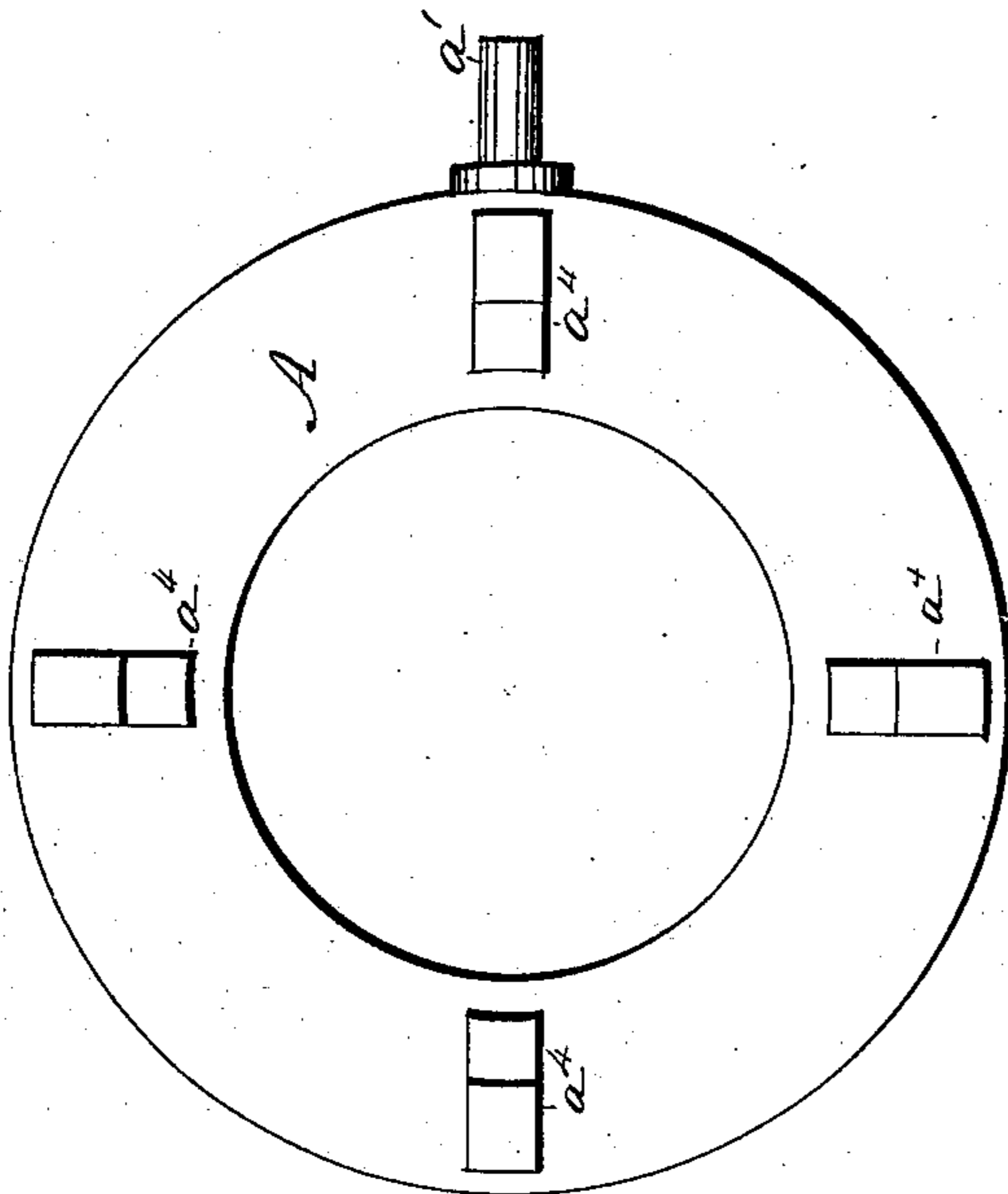


Fig. 4.

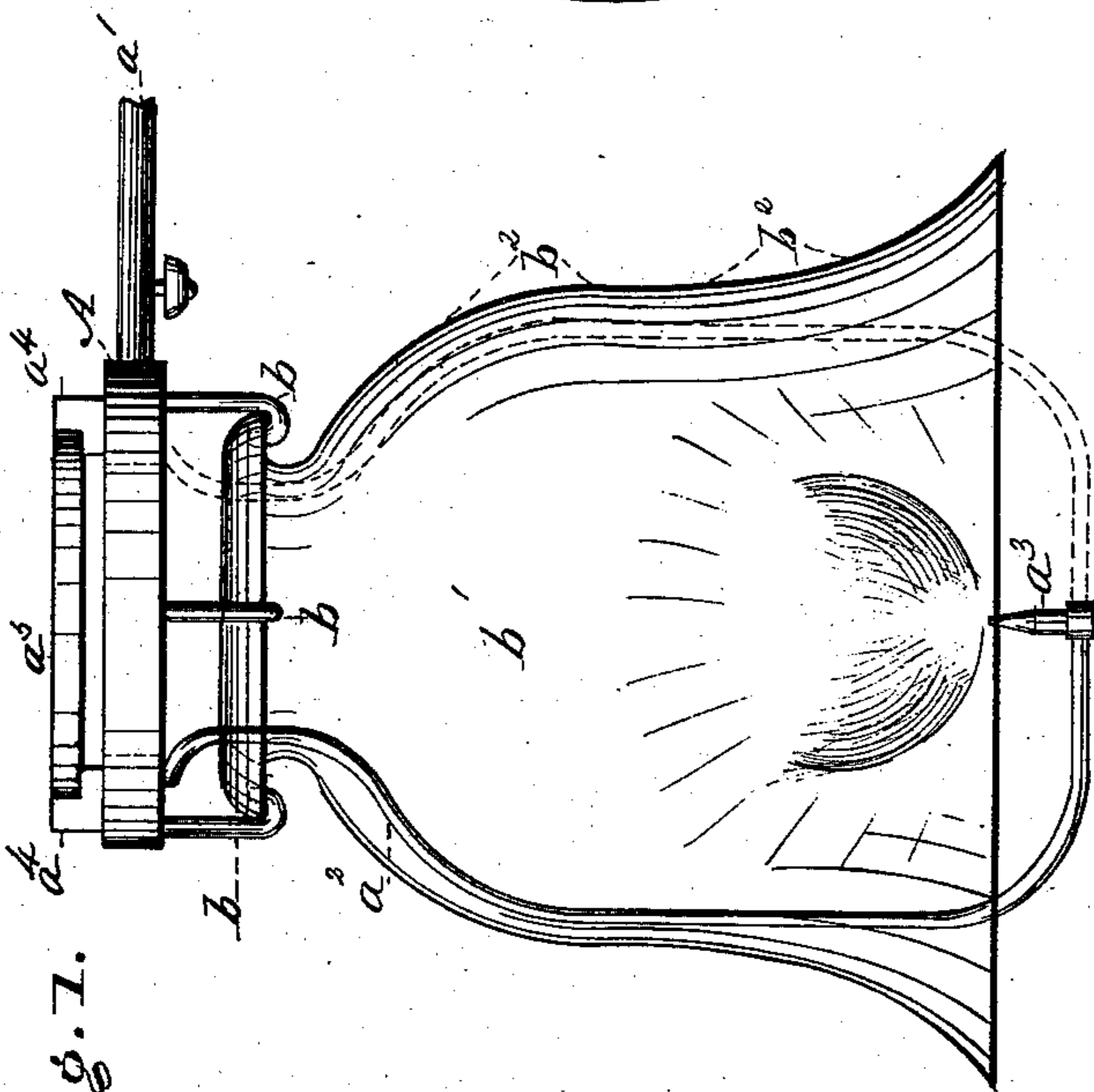
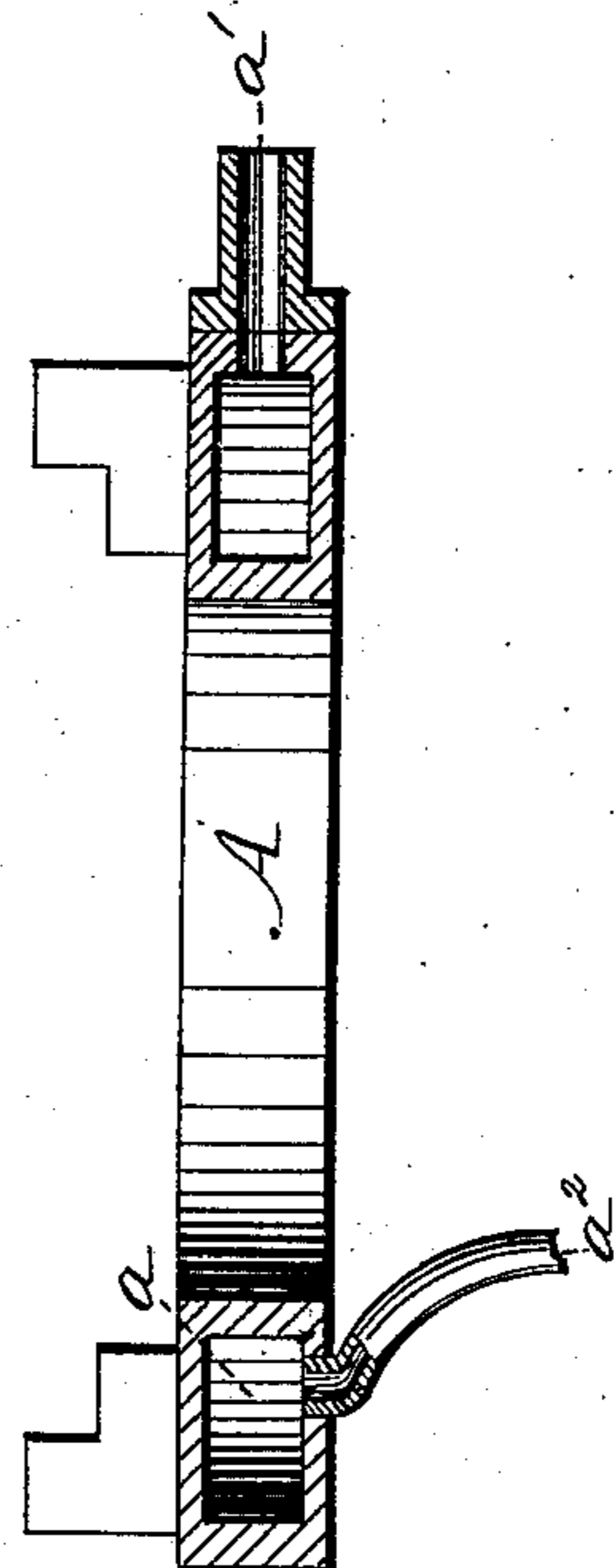
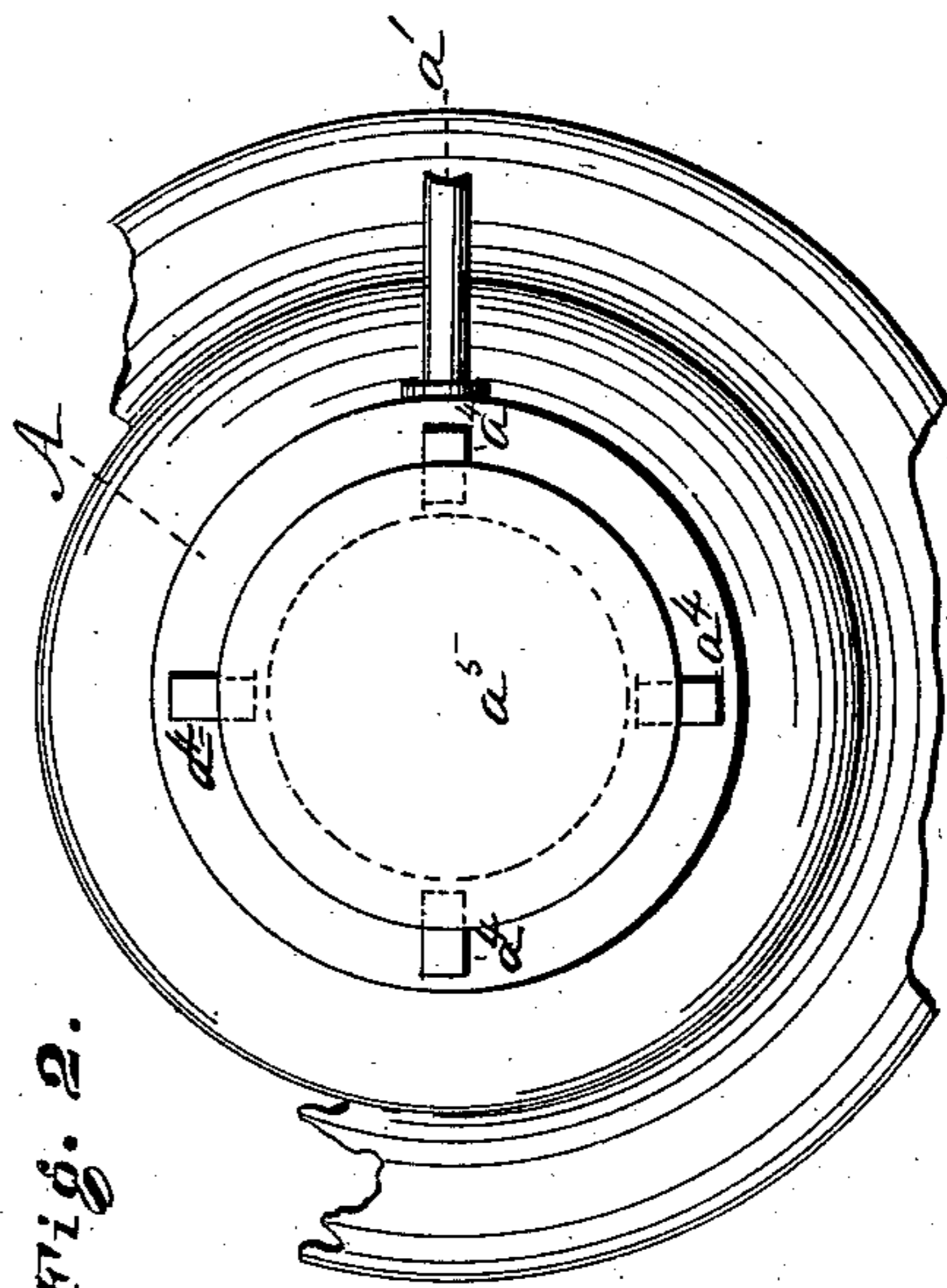


Fig. 1.

Fig. 2.



WITNESSES:

Mamie B. Stallings  
Theodore S. West

INVENTOR:

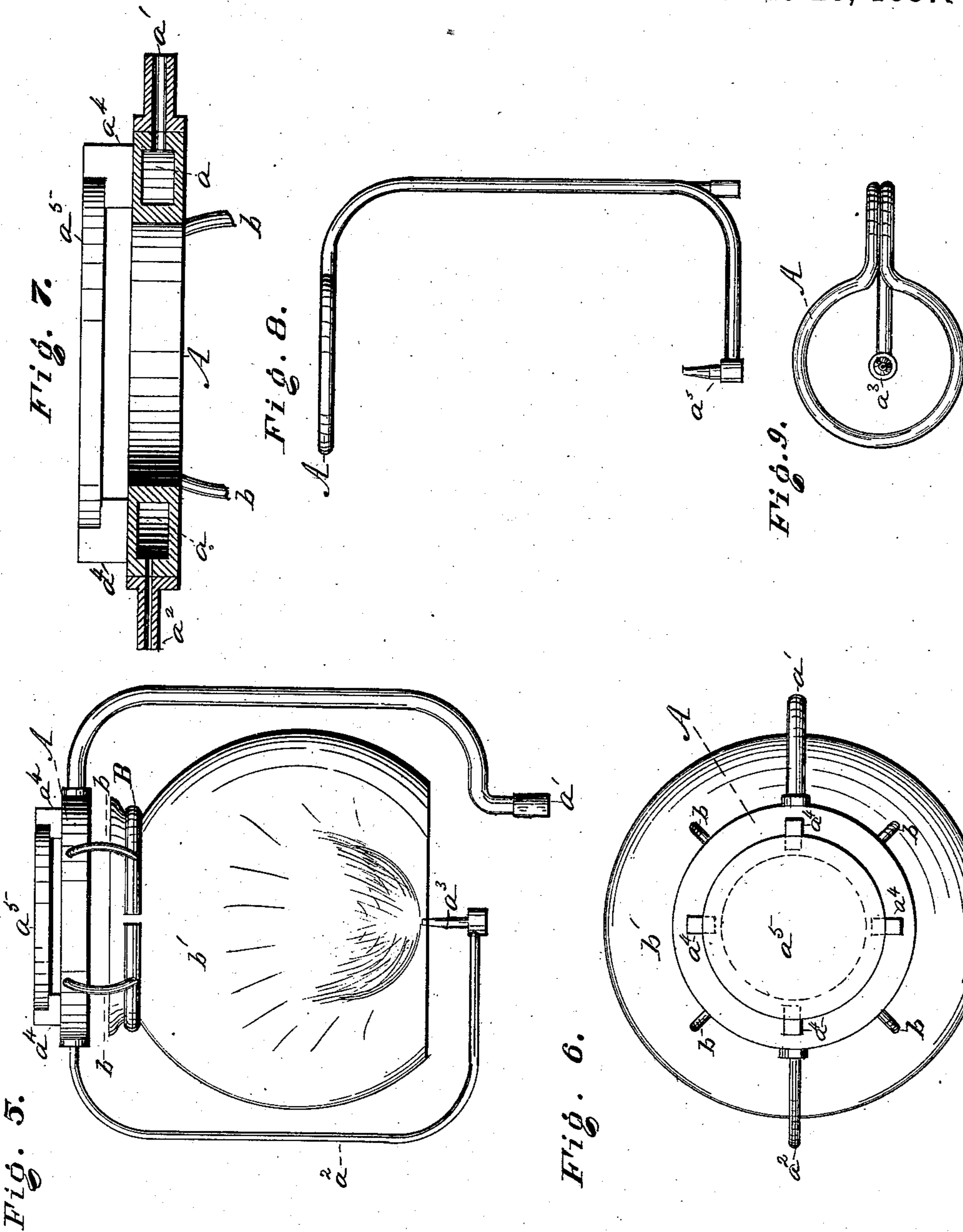
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# UNITED STATES PATENT OFFICE.

JAMES RIGBY, OF MONTREAL, QUEBEC, CANADA.

## GAS EXPANDER AND BURNER.

SPECIFICATION forming part of Letters Patent No. 365,633, dated June 28, 1887.

Application filed April 10, 1877.

*To all whom it may concern:*

Be it known that I, JAMES RIGBY, a citizen of the United States, now residing at Montreal, Quebec, Canada, have invented a new and useful Improvement in Gas Expanders and Burners; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to that class of apparatus or fixtures which are adapted for use in connection with a fixed gas taken from a main; and it consists in the construction, combination, and arrangement of parts, hereinafter described and claimed.

In the drawings, Figure 1 represents a side elevation of one form of my invention; Fig. 2, a plan view of the same; Fig. 3, a plan view of the ring or disk in which the heating-chambers are formed, and Fig. 4 a vertical longitudinal section of the same. Fig. 5 represents a side elevation of another form; Fig. 6, a plan view of the same; Fig. 7, a vertical longitudinal section through the chamber. Figs. 8 and 9 represent a side elevation and plan, respectively, of a modification in which the heating-chamber is formed in the pipe itself, and the reflector  $a'$ , with its supports and the shade-holder, constructed as shown in Fig. 5, is to be used in connection with the form of heating-chamber shown in Figs. 8 and 9.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and manner of operation.

A represents an annular casting or block, of any suitable size and proper material, which is provided with the inner chamber,  $a$ , as shown.

$a'$  represents the inlet-pipe, of comparatively large diameter, which is securely attached to the main fixtures in any proper manner.

$a^2$  represents the outlet-pipe, of comparatively small diameter, by means of which the gas is conveyed from the chamber  $a$  to the burner  $a^3$ , as shown.

$a^4$   $a^4$  represent standards of proper construction rising from the casting, and  $a^5$  a disk of suitable material—porcelain or mica being preferred—adapted to rest upon the standards,

as shown, the purpose of this construction being to reflect the rays of light, prevent the floating particles of carbon from rising to the ceiling, and reflect the rays of heat rising from the burner against the annular expander.

The casting A, it will be observed, is caused to overhang the burner in proper position to be advantageously acted upon by the heat.

The operation will be readily understood. When the gas is lighted, that portion of the pipe or the casting attached thereto which overhangs the burner will be acted upon by the direct rays of heat from the latter, and also by the rays reflected from the disk  $a^5$ . In consequence of this the pipe or ring becomes intensely hot and communicates its heat necessarily to the gas passing through the same to the burner. By this heating and reflex action the gas is both raised in temperature and expanded in volume, and hence it follows that when it is finally delivered for consumption it is brought more perfectly into contact with the oxygen, and, also, it is more perfectly consumed.

Some of the advantages resulting from this invention are as follows: The quantity of light obtained from a given amount of gas is largely increased. The construction is very simple, and it may be readily applied to existing fixtures at a reasonable cost.

If desired, instead of a disk, the pipe itself may be formed into a ring, as shown in Figs. 8 and 9.

The manner of and means for suspending the shade will now be described.

B represents an open ring, of elastic metal of proper size, which is adapted to inclose the neck of the shade for the purpose of supporting the same, it being readily attached thereto by springing the same into place, as shown.

$b$   $b$  represent hooks or links of any proper construction, by means of which the ring B is united above to the proper supports.

$b'$  represents the globe or shade, of any proper form, size, and suitable material.

If desired, the shade may be adapted to be supported directly by the hooks without a ring, as shown in Fig. 1.

If desired, also, the shade may be provided with reflecting-surfaces  $b^2$   $b^2$ , Fig. 1, for the purpose of throwing the light down upon

the objects beneath. The pipe leading to the burner may be brought down either outside of the shade, as shown in Fig. 5, or inside, as shown in Fig. 1.

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

1. A gas-expander and shade-holder consisting of an annular casting having lugs  $a^4$  and downwardly-projecting curved hooks provided with means for suspending the shade, an inlet and outlet pipe, and a heat and light reflector and carbon-arrester resting upon said lugs and secured centrally above the expander, 10 substantially as shown and described.

2. A gas-expander and shade-holder consisting of an annular casting having lugs  $a^4$  and downwardly-projecting curved hooks provided with means for suspending a bell-shaped shade, an inlet and outlet pipe, and a heat and light reflector and carbon-arrester resting upon said lugs and secured centrally above the expander, substantially as shown and described. 20

This specification signed and witnessed this 10th day of April, 1877.

JAMES RIGBY.

Witnesses:

MAMIE E. STALLINGS,

H. W. BEADLE.