

(No Model.)

3 Sheets—Sheet 1.

C. T. HAM.  
TUBULAR LANTERN.

No. 285,408.

Patented Sept. 25, 1883.

Fig. 1.

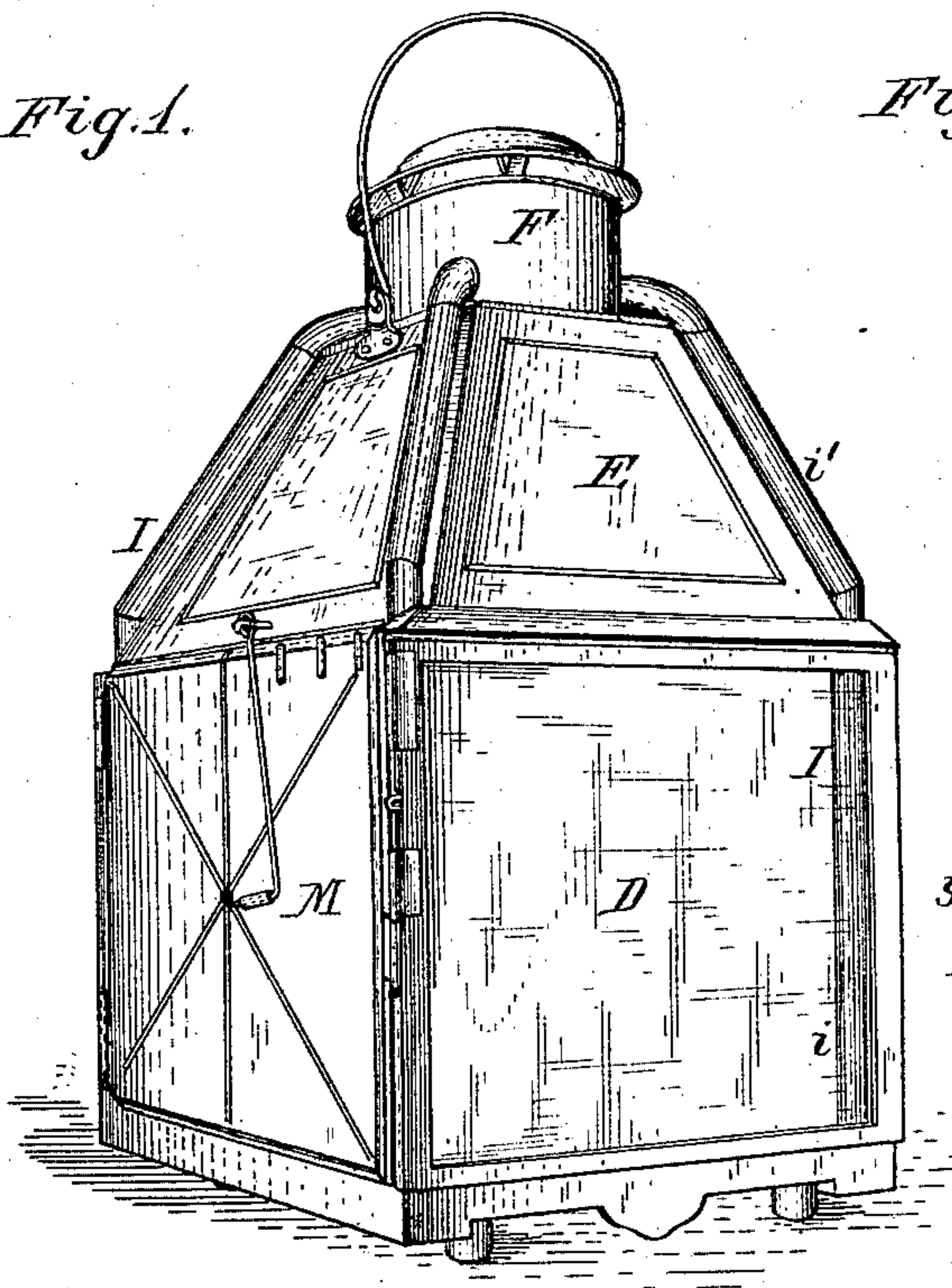


Fig. 2.

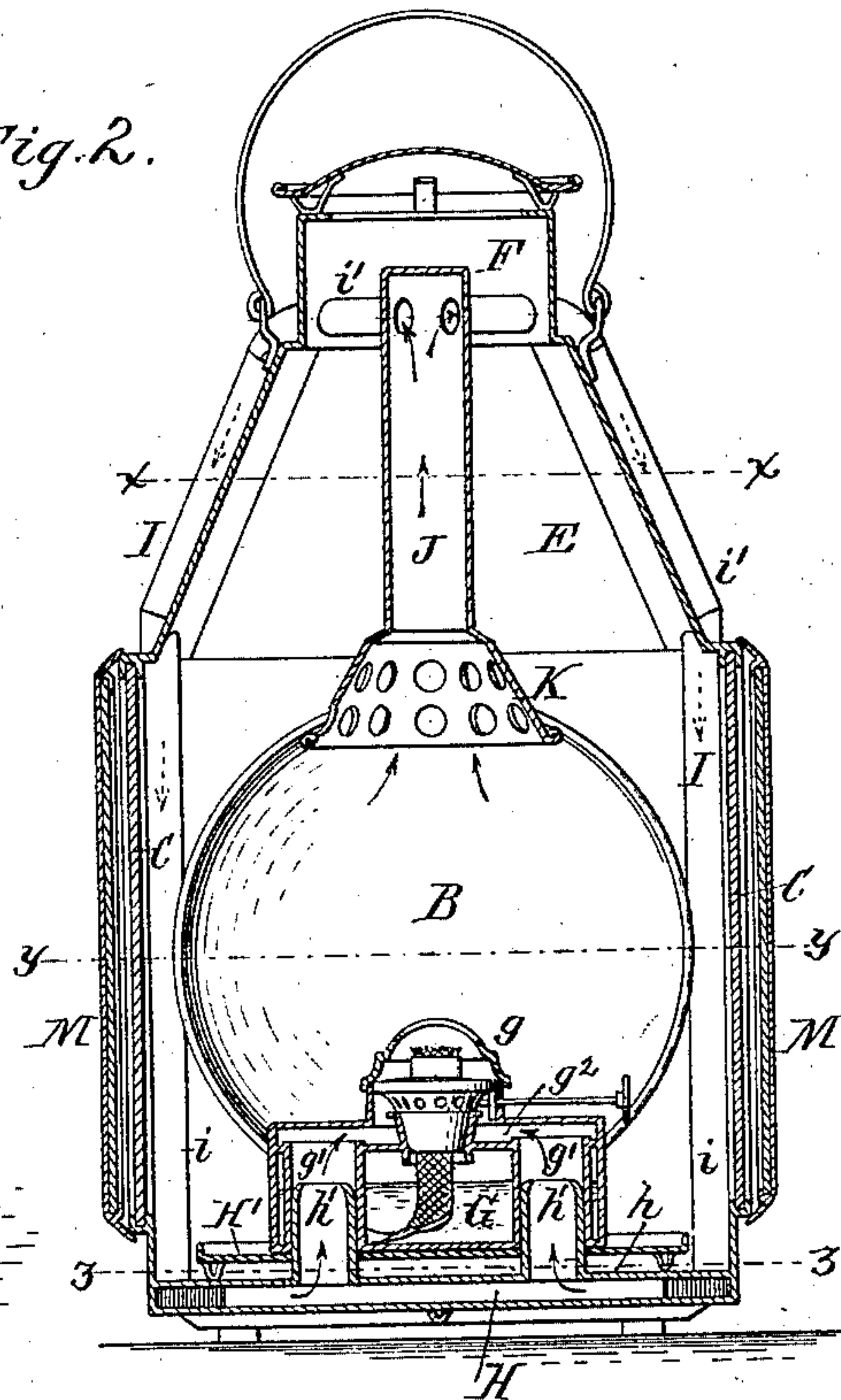


Fig. 3.

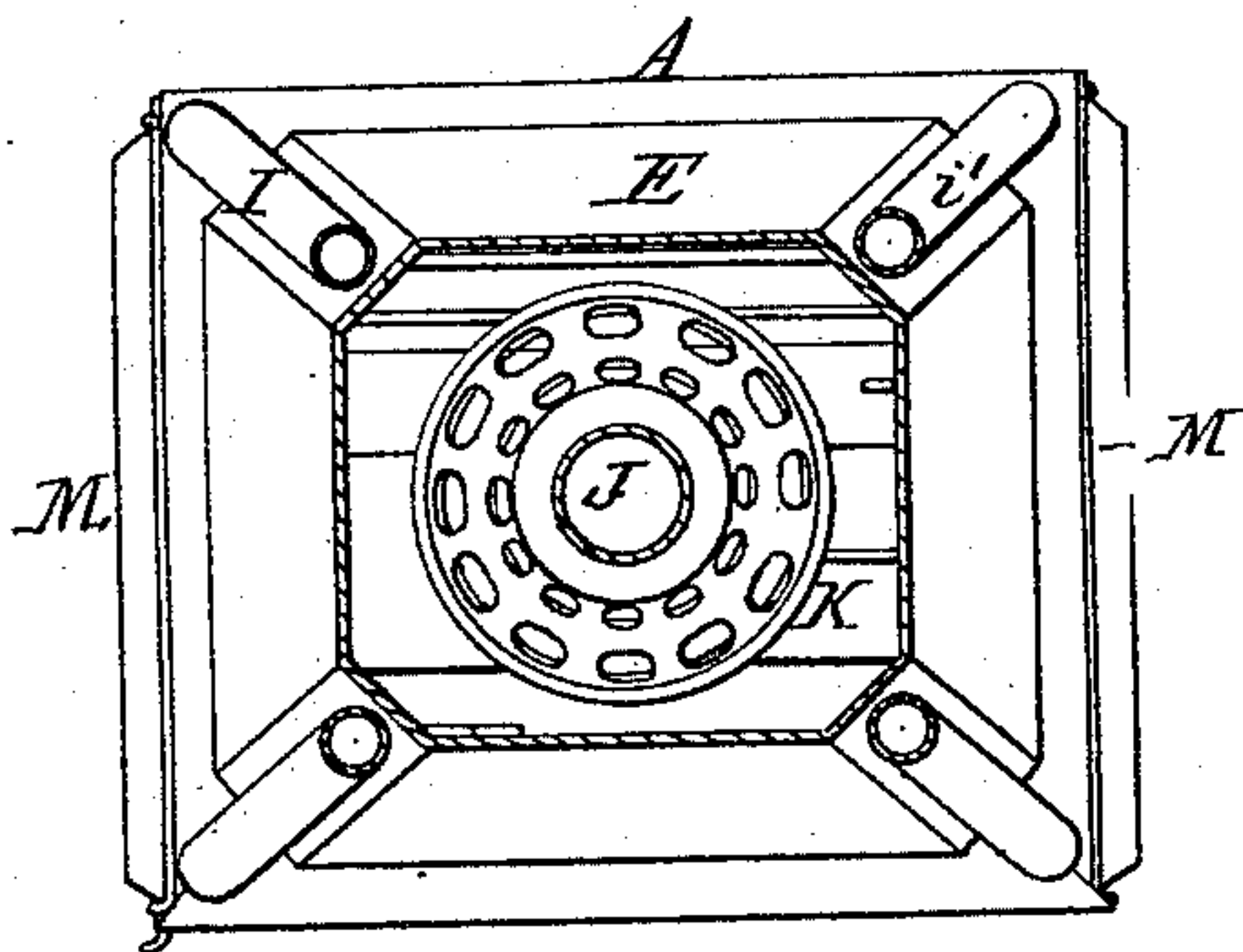
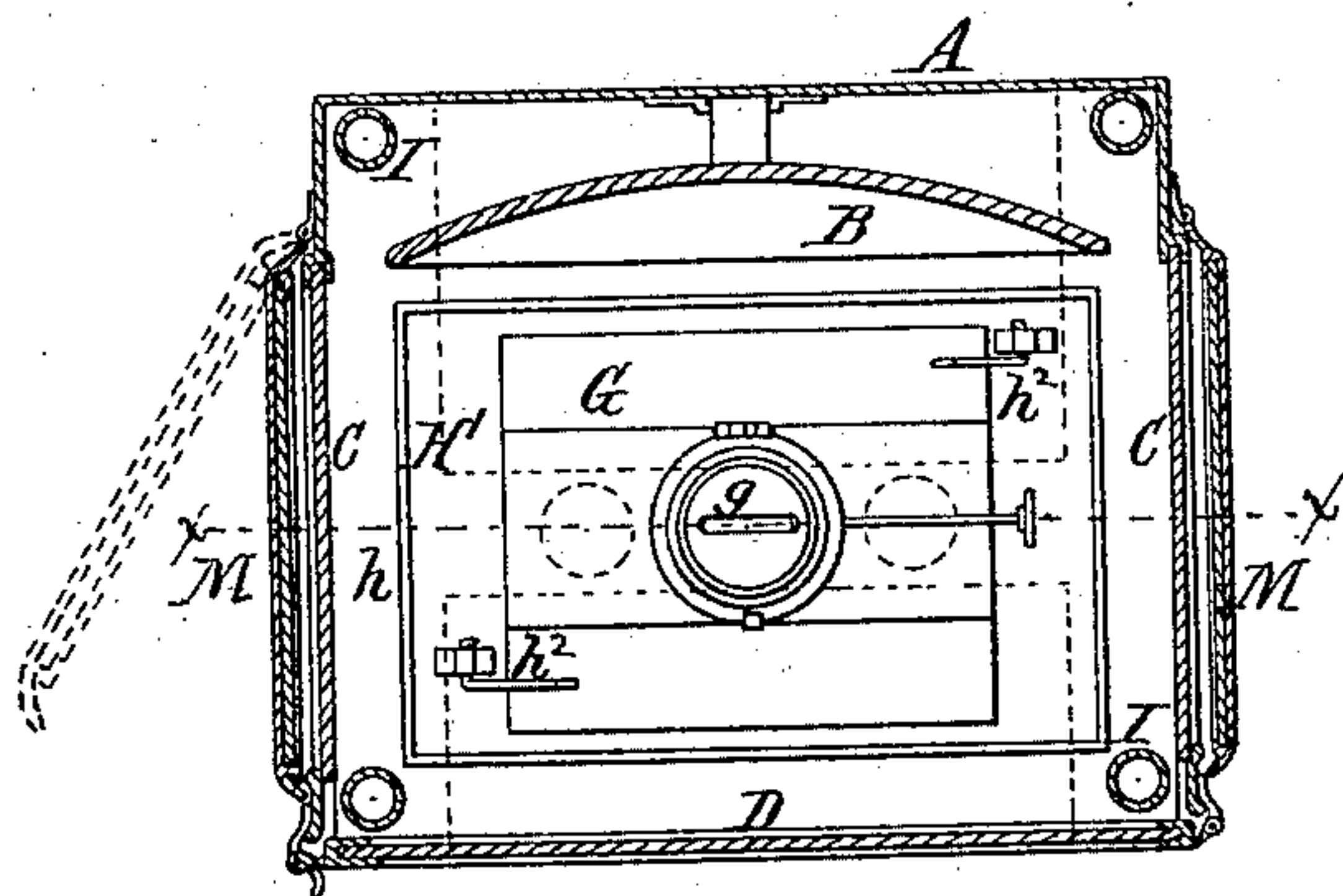


Fig. 4.



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Fig. 5.

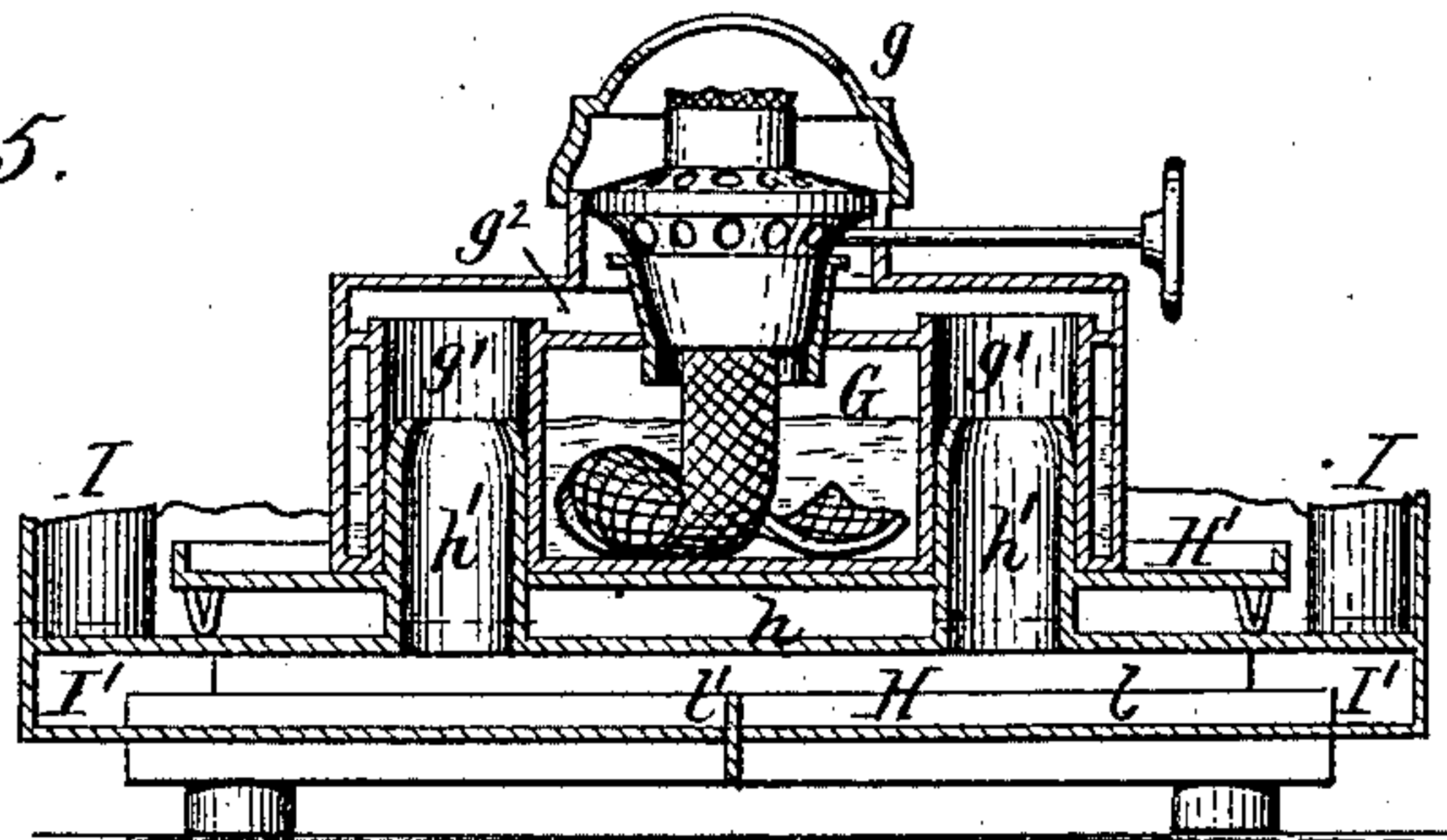


Fig. 6.

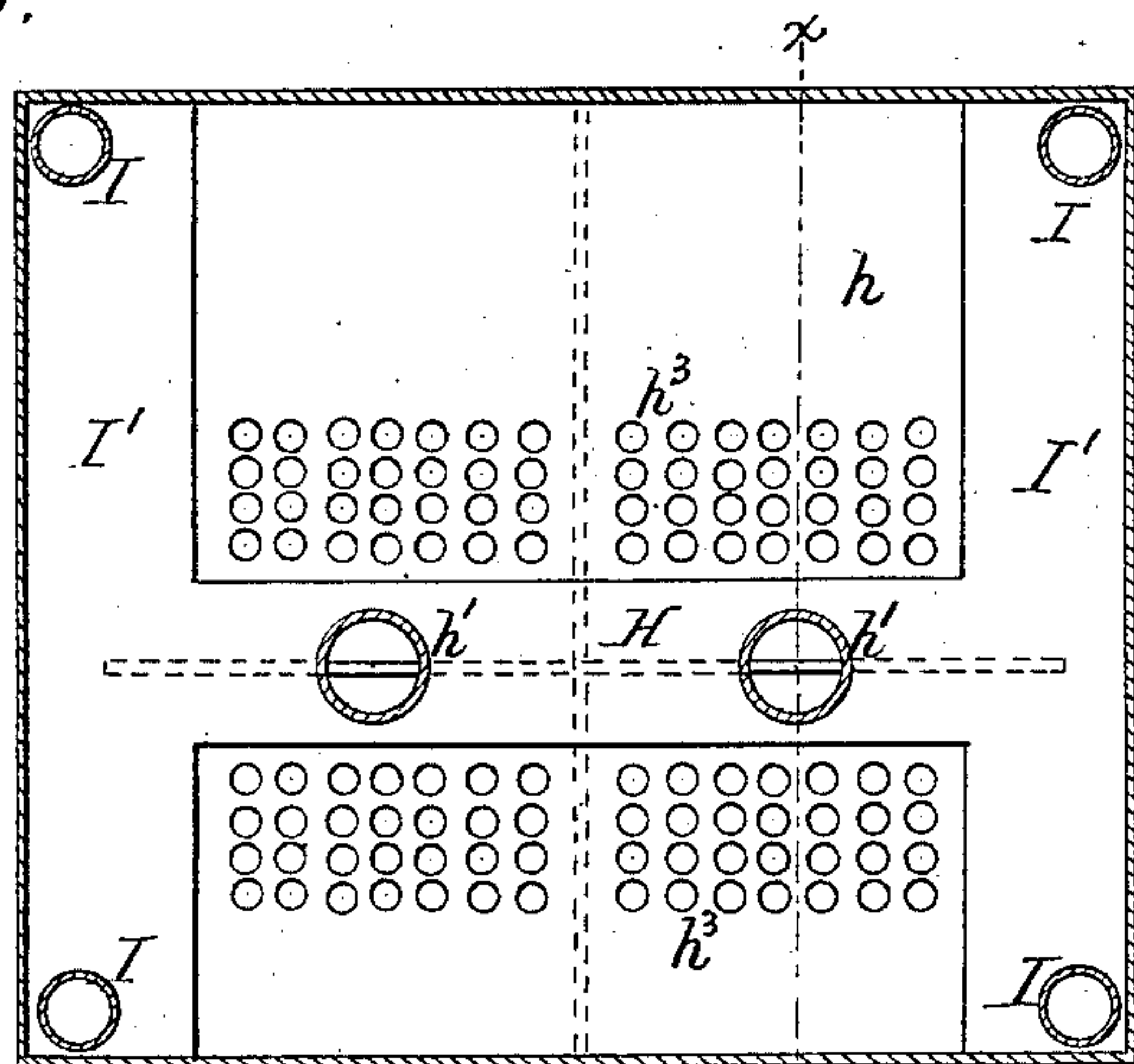


Fig. 7.

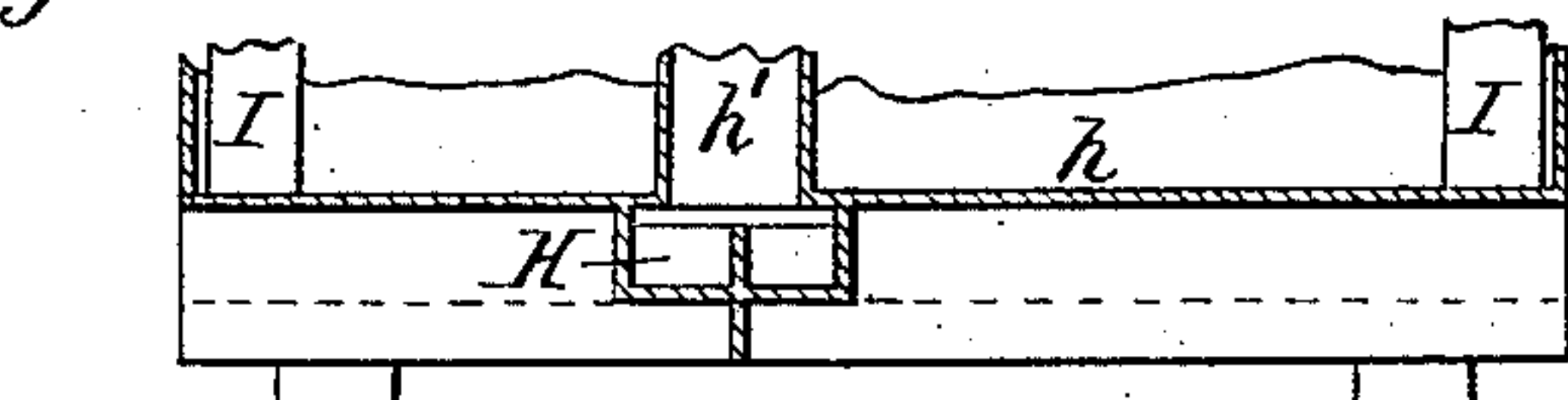
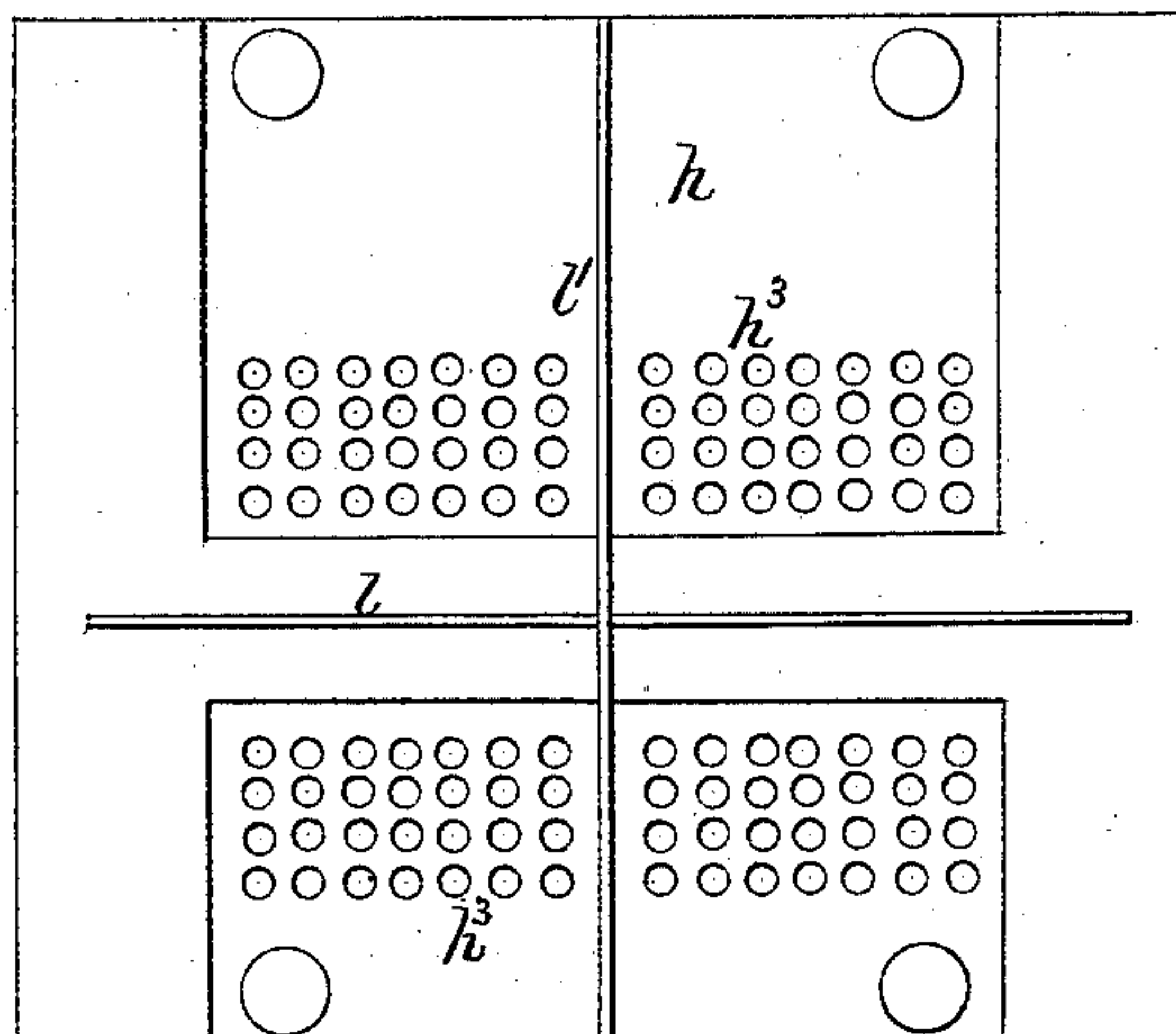


Fig. 8.



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(No Model.)

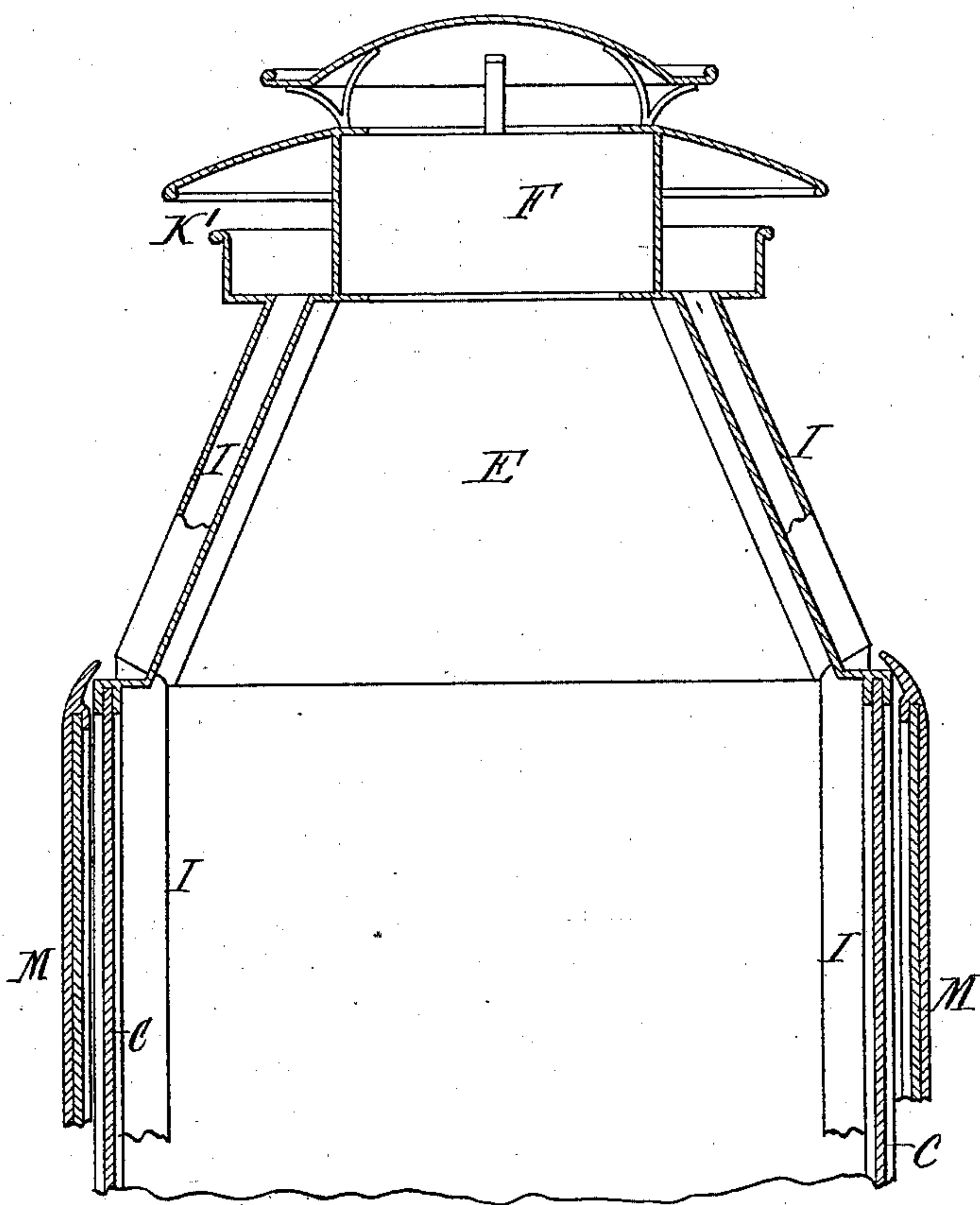
3 Sheets—Sheet 3.

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*Fig. 9.*



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*Chas. J. Buchheit*

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# UNITED STATES PATENT OFFICE.

CHARLES T. HAM, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE STEAM GAUGE AND LANTERN COMPANY, OF SAME PLACE.

## TUBULAR LANTERN.

SPECIFICATION forming part of Letters Patent No. 285,408, dated September 25, 1883.

Application filed July 10, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES T. HAM, of the city of Rochester, in the county of Monroe and State of New York, have invented  
5 new and useful Improvements in Tubular Lanterns, of which the following is a specification.

This invention relates to an improvement in that class of tubular lanterns which are provided with a square or rectangular body  
10 or case.

The object of my invention is to produce a neat and attractive lamp of the kind in which the air-supply to the flame is stronger and more regular than heretofore, and in which the  
15 air-tubes do not interfere with the use of side reflectors, so that the lamp can be successfully used as a bow-lamp for boats and ships, as a signal-lamp for bridges, &c., and for similar purposes,

20 Heretofore these lanterns have been provided with air-supply tubes arranged outside the lantern-case on both sides thereof; but this construction is objectionable, as it is unsightly, and for the reason that the tubes interfere with the light, and do not permit the  
25 use of the hinged side reflectors which are ordinarily used in bow-lamps. The air-supply tubes have also been arranged in the corners of the lantern-case, their upper portions forming the top thereof; but this construction is objectionable, as the tubes become hot, whereby the downward flow of the cold air in the tubes is retarded, thereby materially reducing the supply of fresh air to the flame.

35 My invention is designed to produce a lamp in which these difficulties are overcome; and it consists of the improvements which will be hereinafter fully set forth, and pointed out in the claims.

40 In the accompanying drawings, consisting of three sheets, Figure 1 is a perspective view of a lantern provided with my improvement. Fig. 2 is a sectional front elevation of the lantern. Figs. 3 and 4 are horizontal sections in  
45 lines  $x-x$  and  $y-y$ , Fig. 2, respectively. Fig. 5 is a vertical section, on an enlarged scale, of the lower part of the lantern in line  $x-y$ , Fig. 4. Fig. 6 is a horizontal section, on an enlarged scale, in line  $z-z$ , Fig. 2. Fig. 7 is a  
50 vertical section in line  $x-x$ , Fig. 6. Fig. 8 is a bottom plan view of the lantern. Fig. 9

represents the upper portion of my improved lantern, with a different device for supplying air to the tubes.

Like letters of reference refer to like parts  
55 in the several figures.

A represents the back of the square or rectangular lantern-case; B, the main reflector, secured thereto; C C, the panes of glass secured in the sides of the lantern, and D the  
60 front glass mounted in a hinged door, whereby access is had to the interior of the case.

E is the four-sided tapering top of the case, resting upon the frame of the rectangular body and terminating in a cap, F, through which  
65 the products of combustion escape from the lantern.

$g$  represents the burner, G the oil reservoir, and  $g'$  vertical air-tubes, open at both ends and extending from the bottom of the oil-reservoir to an air-chamber,  $g^2$ , formed on the  
70 top of the oil-reservoir, and communicating with the under side of the burner-cone.

$h$  represents the bottom of the lantern-case, and H a transverse air-chamber or flat tube,  
75 arranged below the bottom  $h$ .

$h'$  are upright air-tubes, rising from the air-chamber H and extending into the air-tubes  $g'$  of the oil-reservoir. The latter is removable, and rests upon a horizontal plate, H',  
80 which is secured at a short distance above the bottom  $h$  of the lantern-case. The oil-reservoir is removably attached to the plate H' by catches  $h^2$ .

$h^3$  are openings, formed in the bottom  $h$ , on  
85 both sides of the air-chamber H, to admit the external air into the lantern-case. The plate H', being located above the perforations  $h^3$ , serves as a deflector, which prevents strong currents of air from striking the flame. Upon  
90 releasing the catches  $h^2$  the oil-reservoir can be removed for filling it or trimming the wick. The fixed tubes  $h'$ , projecting into the tubes  $g'$  of the movable oil-reservoir, form a tight joint  
95 firmly when the lantern is being moved about.

$l\ l'$  are deflecting-plates secured to the under side of the perforated bottom plate, at right angles to each other, for the purpose of preventing air-currents from blowing uninterrupt-  
100 edly across the perforated bottom and exhausting the air from the lantern-case, whereby the



flame would be disturbed and its illuminating-power reduced. The plate *l* extends into the air-chamber H throughout its entire length, and the plate *l'* extends into the air-chamber H, with its central portion standing at right angles to the plate *l*, whereby the bottom of the air-chamber H is divided into four compartments, corresponding with the four air-supply tubes I. If the wind affects one air-supply tube more than another, the deflecting-plates, projecting into the air-chamber H, prevent such disturbances from being communicated from one tube to the other with such force as to disturb the flame. These deflecting-plates thereby equalize the air-supply to the burner-cone and insure a steady bright flame under all conditions of exposure to varying air-currents.

I represents the upright air-supply tubes. The lower portions, *i*, of these tubes are arranged within the lantern-case, in the corners thereof, and communicate at their lower ends with horizontal air-chamber I', which in turn communicates with the air-chamber H. The upper portions, *i'*, of the air-tubes penetrate the tapering top E at its base, and extend upwardly along the edges of the top to the base of the cap F, the edges of the top being made blunt, as represented in Figs. 1 and 3, to clear the tubes. The upper ends of the air-supply tubes turn inwardly, and extend through the lower portion of the cap F to the central air-supply tube, J, which is closed at its upper end and provided at its lower end with a flaring mouth, K, located over the flame. The external air enters the lantern-case through the perforations *h*<sup>3</sup> in its bottom, becomes heated by the flame, and enters the flaring mouth K, ascends in the pipe J, descends through the tubes I, enters the air-chamber H, and reaches the flame through the air-passages *g'* and the burner-cone. In passing through the upper portions, *i'*, of the tubes I, which are located on the outside of the top F, the air becomes cool, as these portions of the tubes are protected against the heat of the flame by the top F, and also exposed to the cooling influence of the surrounding atmosphere. The lower portions, *i*, of the tubes I are arranged at a sufficient distance from the flame to prevent them from becoming heated by radiation or by contact with the column of heated air rising from the flame.

M represents the side reflectors, hinged with their rear ends to the lantern-case, and made adjustable in a well-known manner, so that they can be placed at an angle to the side of the lantern-case, as represented in dotted lines in Fig. 4, for reflecting the light forwardly, or be locked against the sides of the lantern-case when not required for use, as represented in full lines in Fig. 4. As the lower portions, *i*,

of the tubes are on the inner sides of the lantern-case, they do not interfere with the movements of the side-reflectors and do not obstruct the light.

The top of the lantern can be considerably contracted, thereby producing a compact and attractive lantern, without danger of the upper portions of the tubes becoming heated.

Instead of supplying the air to the tubes from the interior of the lamp-case, it may be supplied from the exterior atmosphere by a suitable injector, K', as represented in Fig. 9.

I claim as my invention—

1. The combination, with a lantern-case having a perforated bottom, of a burner, an air-chamber underneath the burner, air-supply tubes conducting the air downwardly from the upper portion of the lantern to the air-chamber underneath the burner, and deflecting-plates secured to the under side of the perforated bottom, between the air-conduits, and adapted to break air-currents blowing across the perforated bottom, substantially as set forth.

2. The combination, with a lantern-case, of upright air-supply tubes I, a burner, a horizontal air-passage leading from the lower ends of the air-tubes to the under side of the burner-cone, and intersecting deflecting-plates arranged in said air-passage, substantially as set forth.

3. The combination, with a lantern-case having a perforated bottom, of air-supply tubes, a burner, a horizontal air-passage leading from the air-supply tubes to the under side of the burner-cone, and deflecting-plates projecting below the perforated bottom and into the horizontal air-passage, substantially as set forth.

4. A lamp or lantern provided with air-supply tubes having their lower portions arranged within the lantern-case and their upper portions outside of the same, substantially as set forth.

5. A lamp or lantern constructed with a rectangular body, a tapering top resting on the same, and air-supply tubes having their lower portions arranged within the rectangular body and their upper portions outside of the tapering top, substantially as set forth.

6. The combination, in a lamp or lantern, of a case having transparent sides, movable side reflectors, a burner, and air-supply tubes having their lower portions arranged within the case and their upper portions outside of the case, substantially as set forth.

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Witnesses:

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