

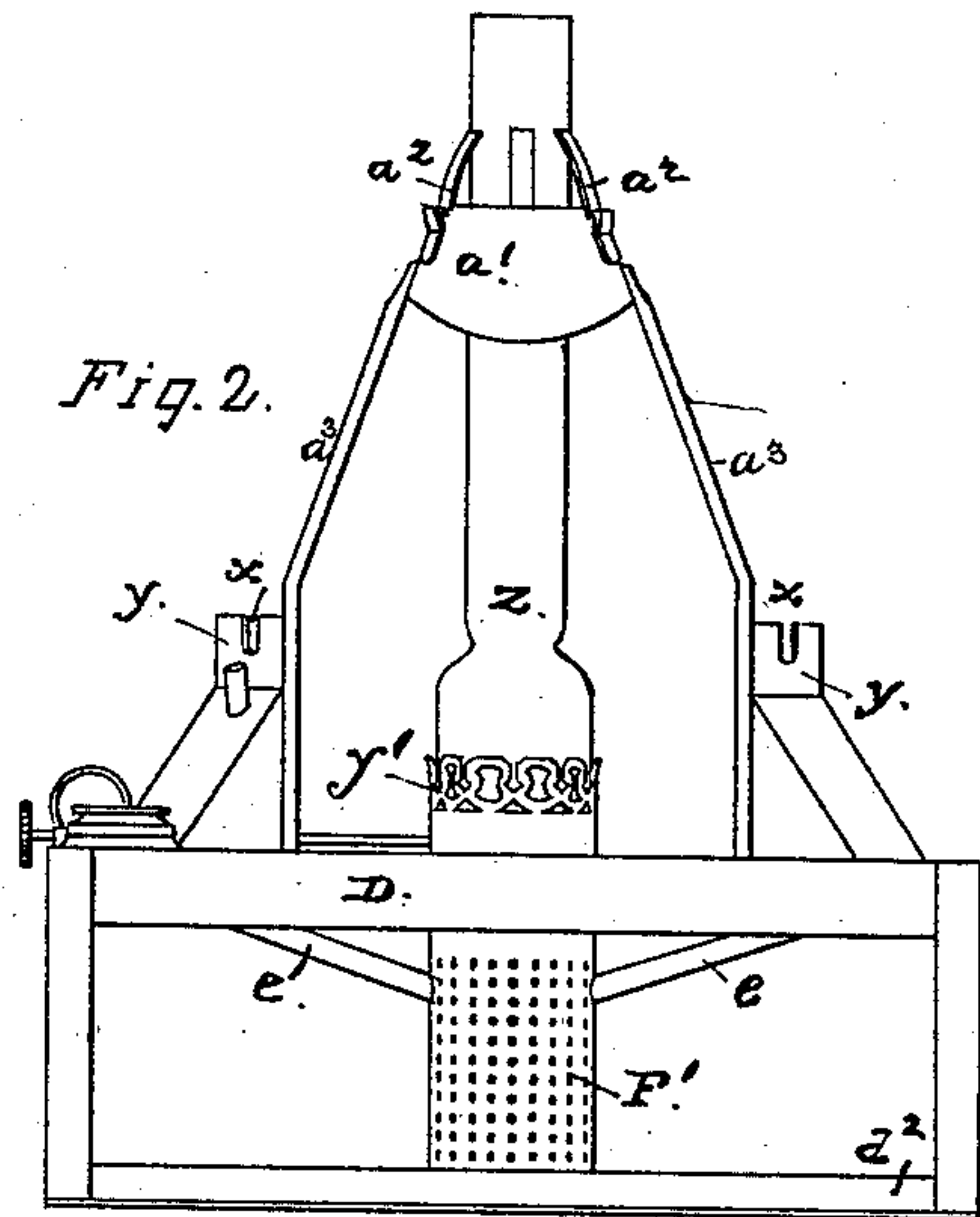
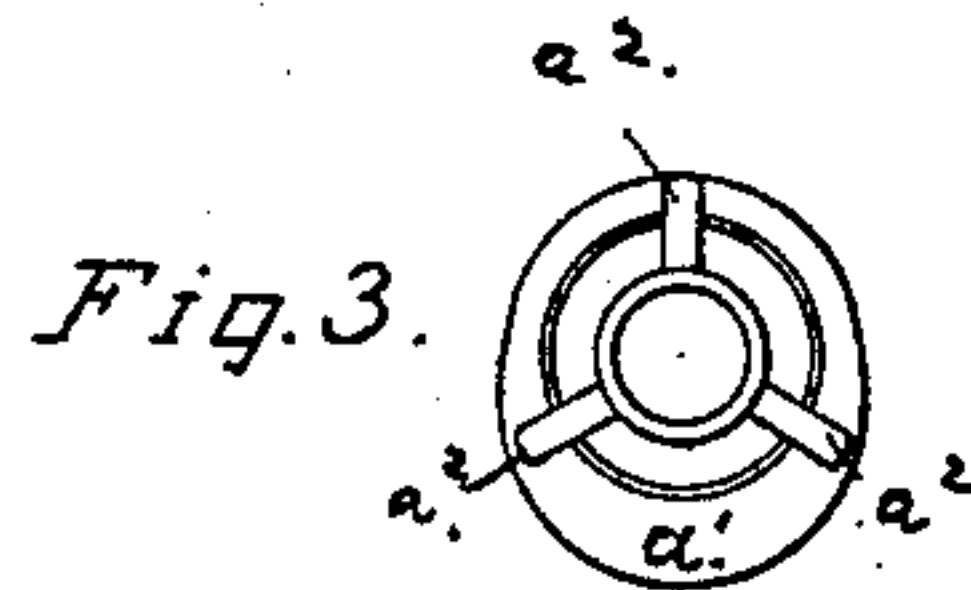
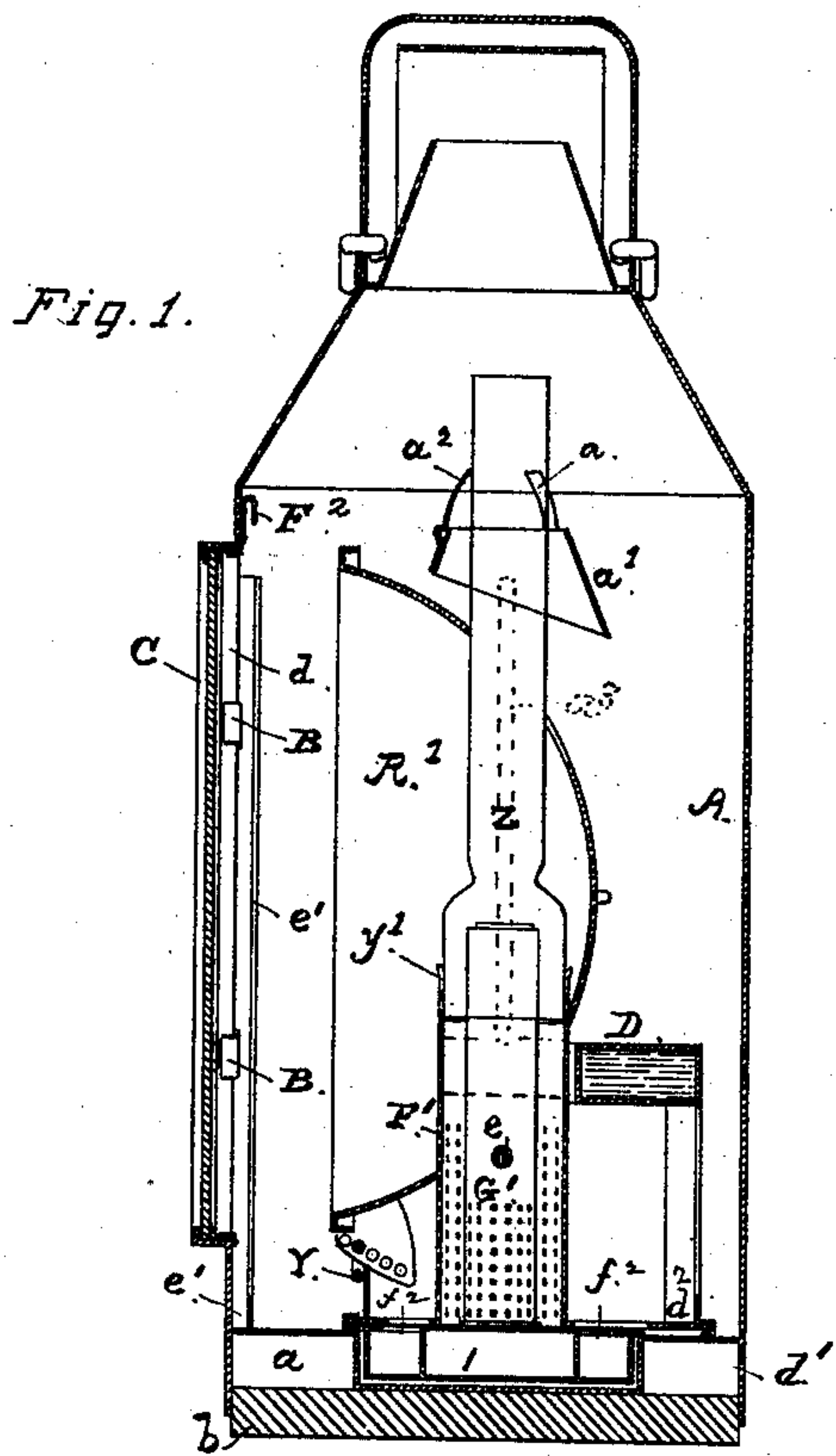
(No Model.)

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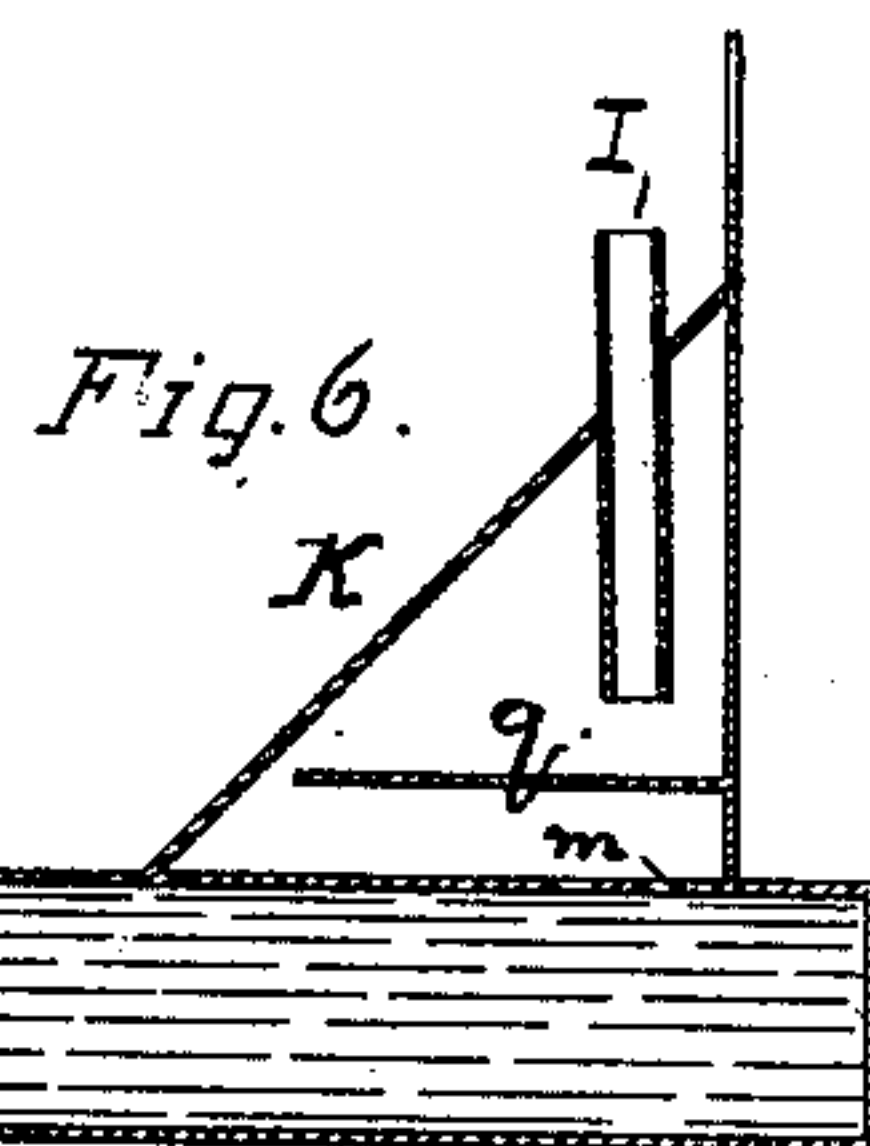
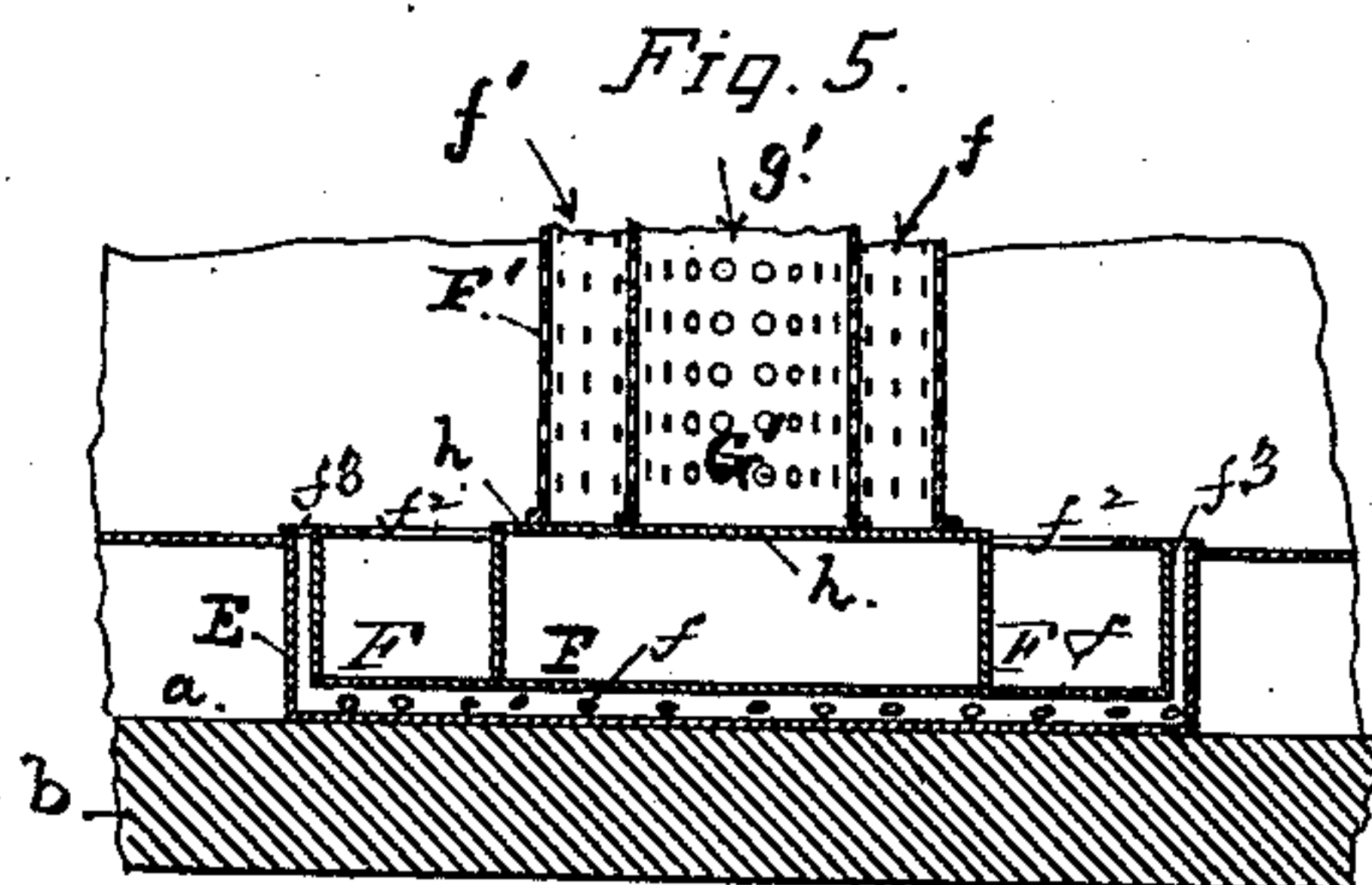
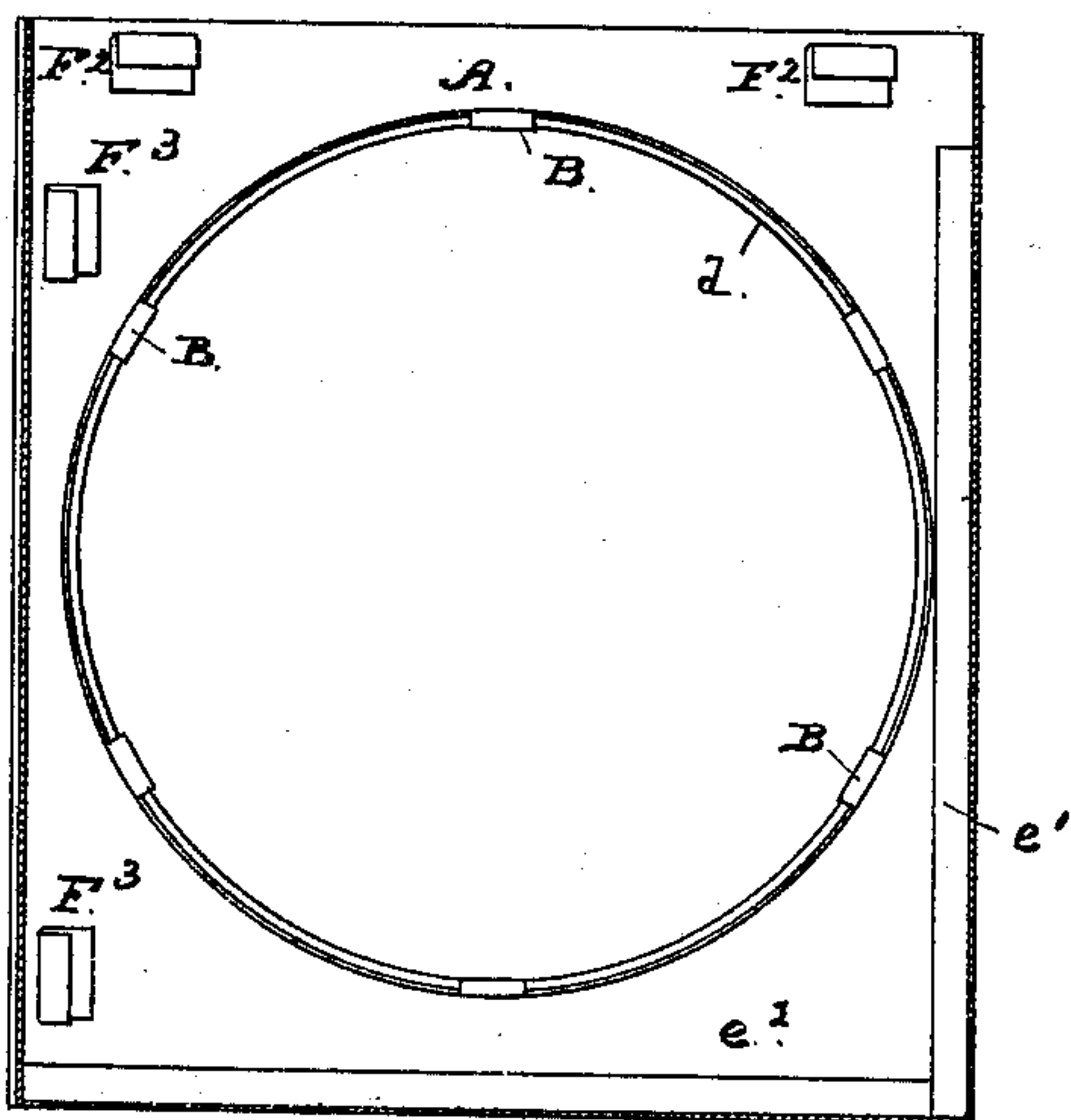
E. BOESCH.  
HEAD LIGHT LAMP.

No. 349,082.

Patented Sept. 14, 1886.



*Fig. 4.*



Witnesses:

*Wm. V. V. V.*  
*Geo. Vincent*

Inventor:

*Emile Boesch*  
By his Atty., *Emile Boesch*

(No Model.)

2 Sheets—Sheet 2.

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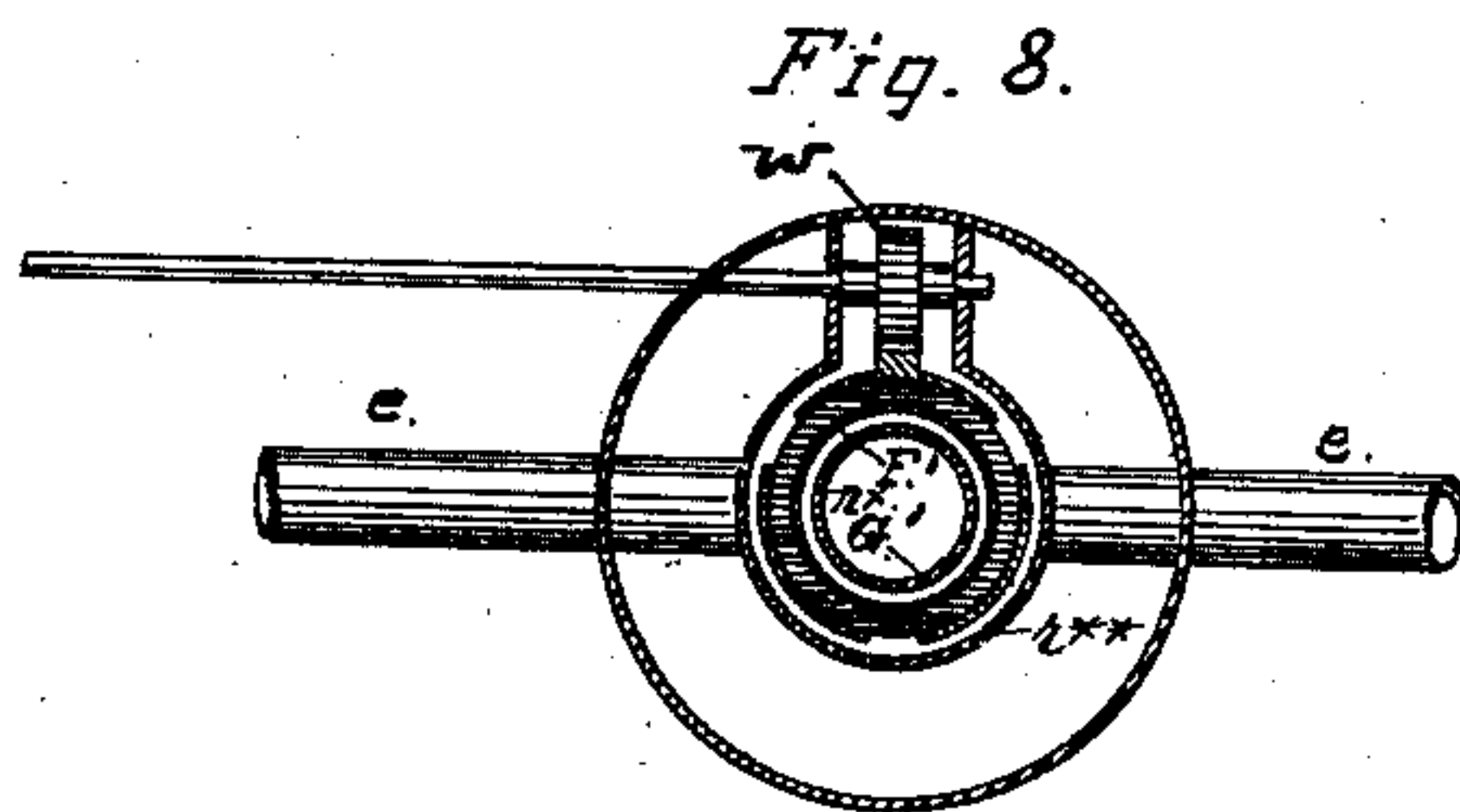
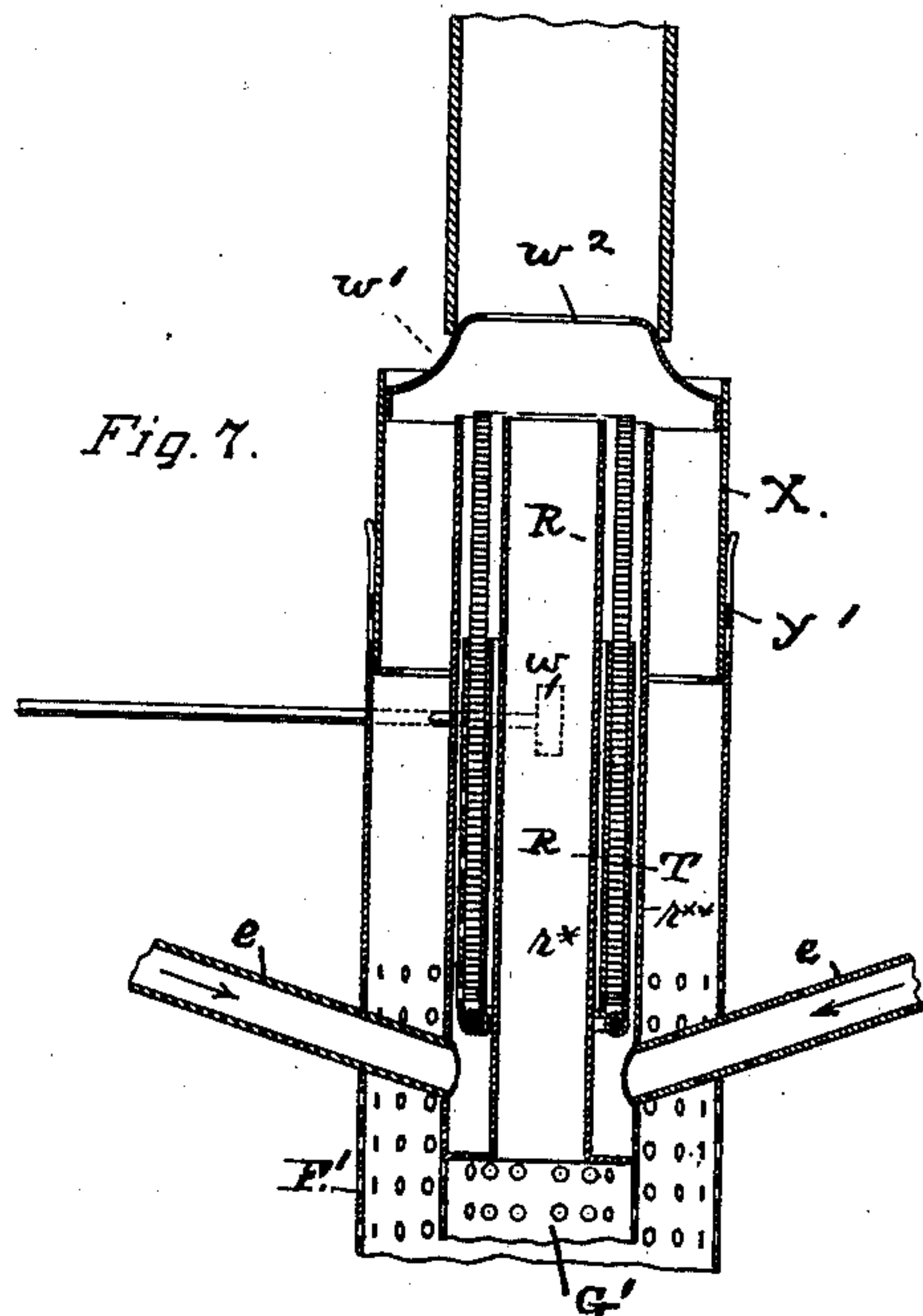


Fig. 9.

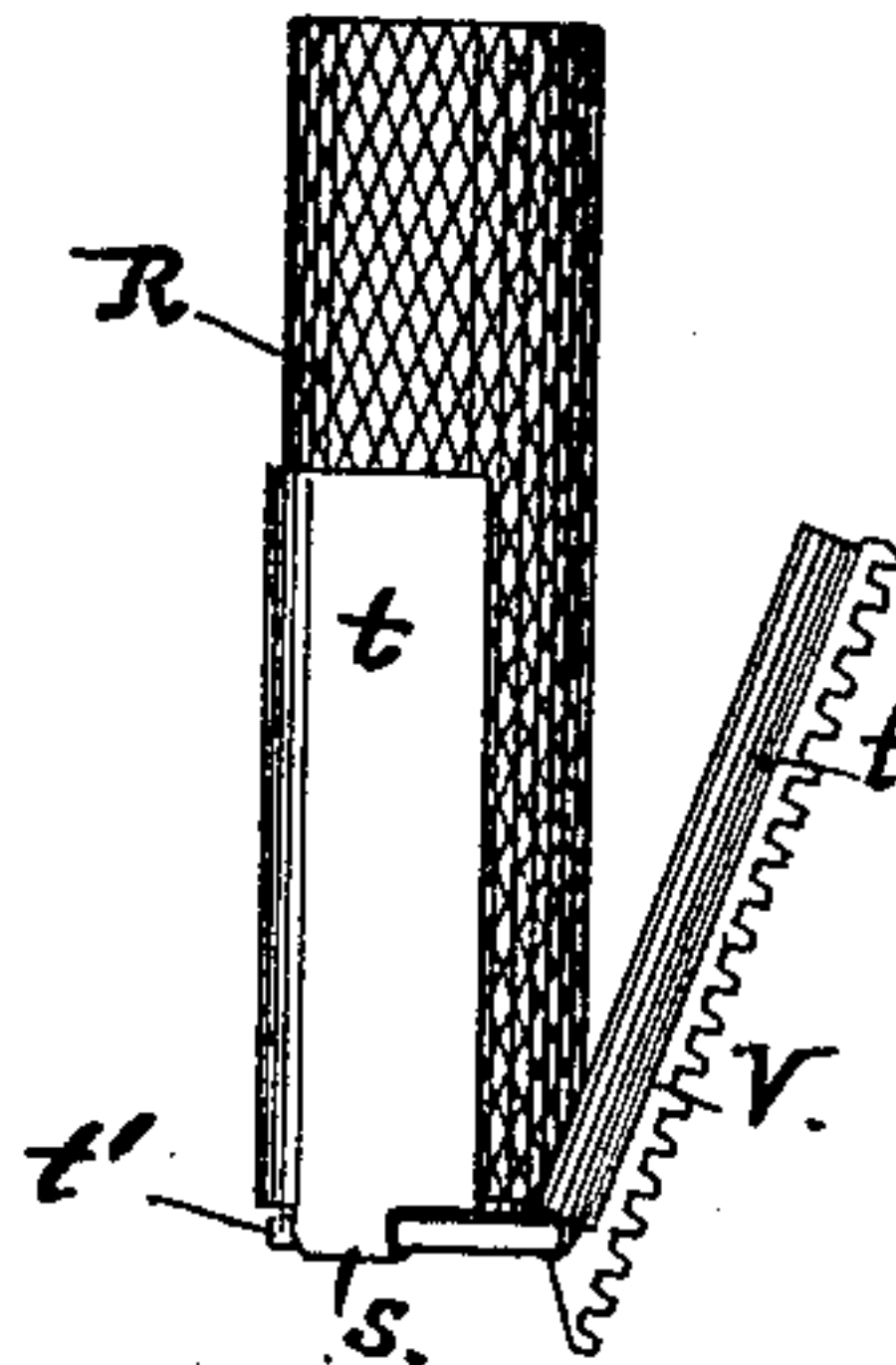


Fig. 10.

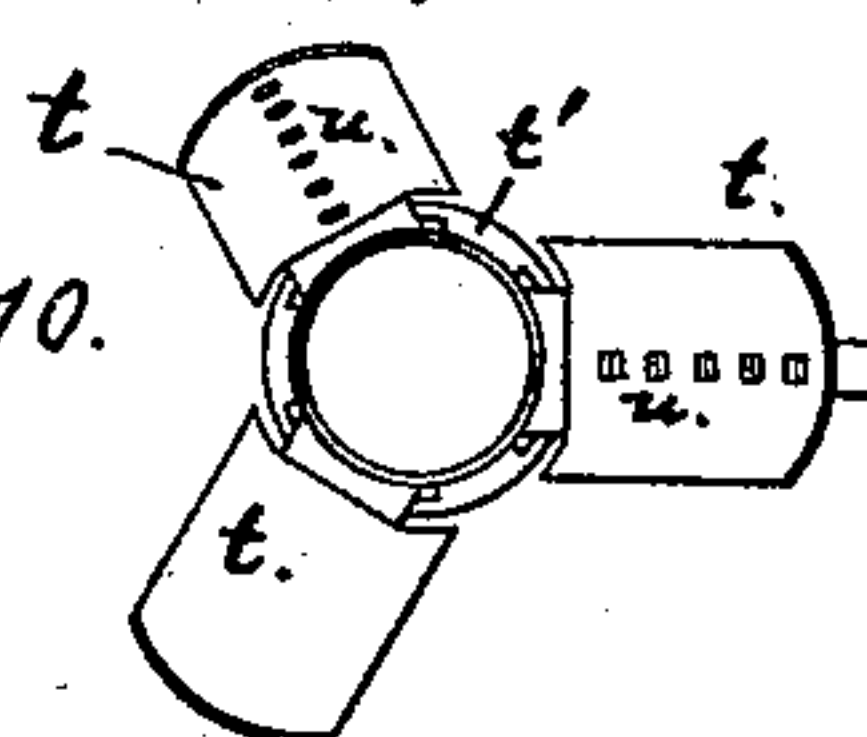


Fig. 11.

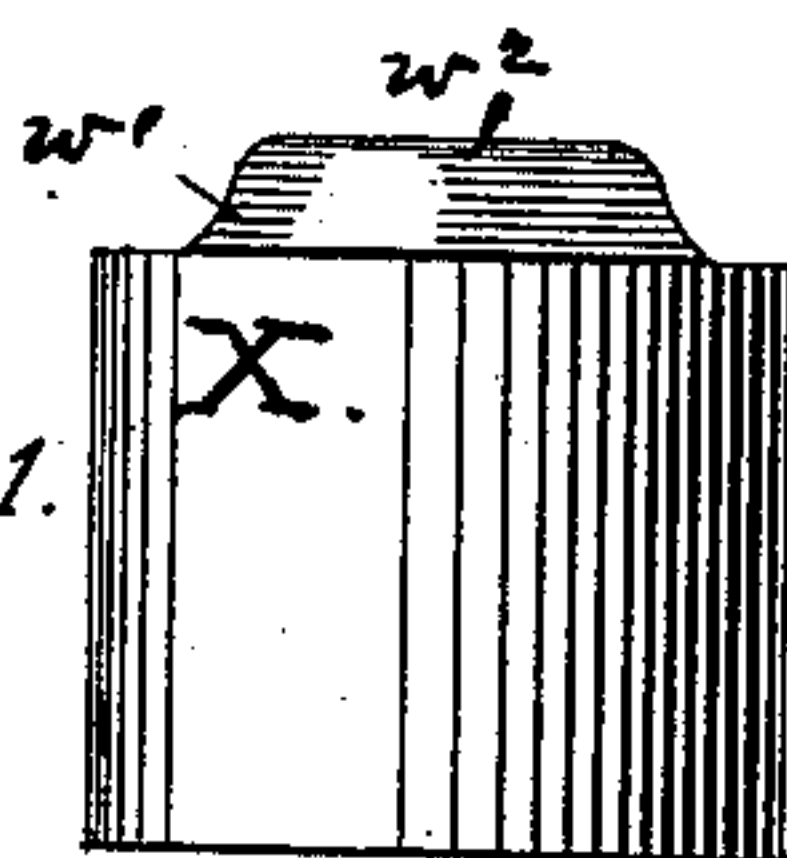
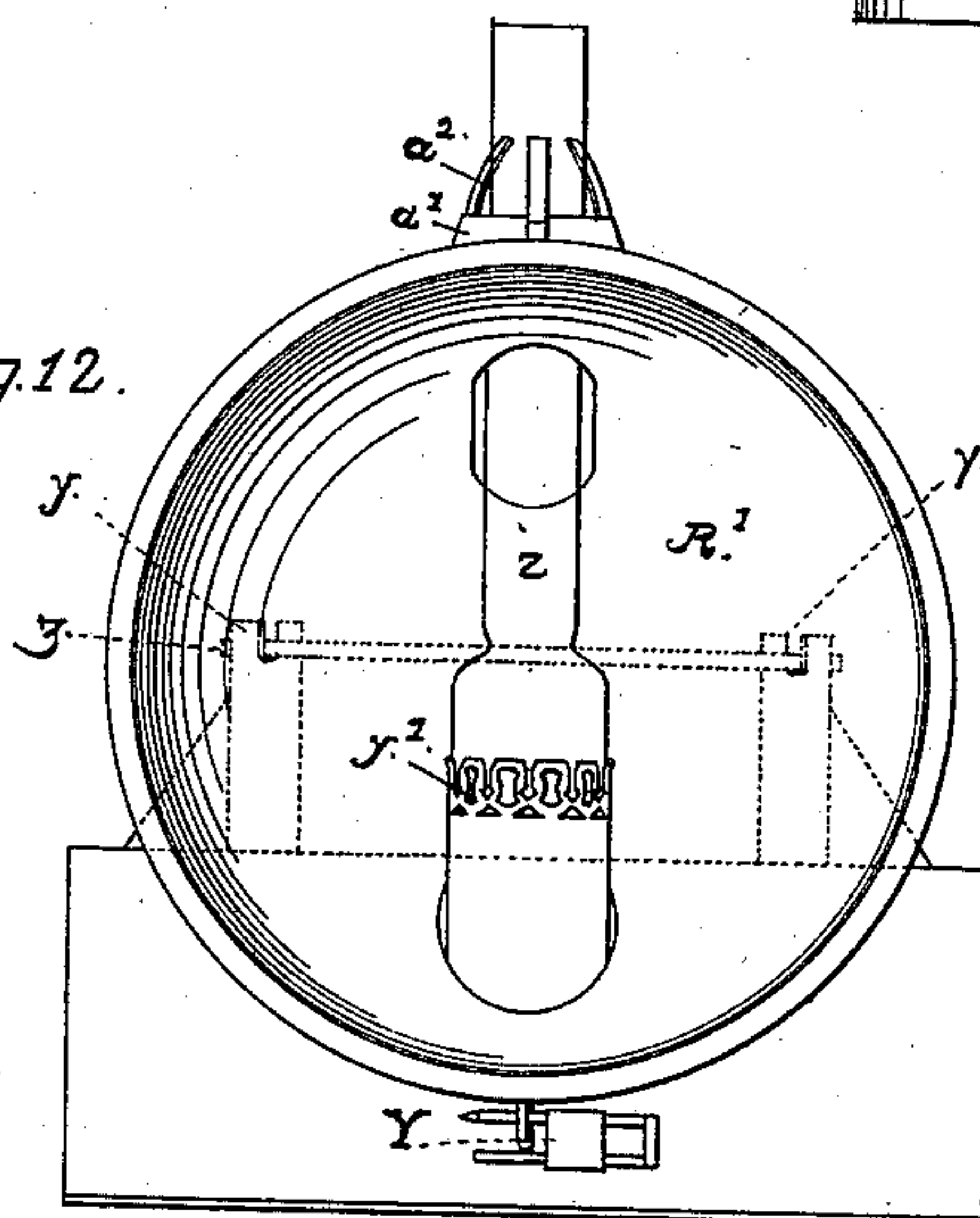


Fig. 12.



Witnesses:  
Wm. Voigt  
Geo. Vincent

Inventor:  
Emile Bosch  
By his Atty., E. J. Adams



# UNITED STATES PATENT OFFICE.

EMILE BOESCH, OF SAN FRANCISCO, CALIFORNIA.

## HEAD-LIGHT LAMP.

SPECIFICATION forming part of Letters Patent No. 349,082, dated September 14, 1886.

Application filed December 2, 1882. Serial No. 78,221. (No model.)

*To all whom it may concern:*

Be it known that I, EMILE BOESCH, a citizen of the United States, residing at and in the city and county of San Francisco, and State of California, have made and invented certain new and useful Improvements in Head-Light Lamps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings.

My invention relates to improvements in head-light lamps for railways, carriages and engines; and the same consists, first, in certain novel constructions in the parts of the case or lantern, and, secondly, in the lamp stand or burner and parts connected therewith.

The following description fully explains the nature of the several improvements constituting my present invention and the manner in which I proceed to construct, apply, and combine the same, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section taken through the center of and transversely across the lantern outer case, the reflector, and the burner-body. Fig. 2 is an elevation of the lamp-body burner and chimney-holder. Fig. 3 is a top view of the chimney-holder. Fig. 4 is an inside view of the lantern front, showing the fastenings for the glasses. Figs. 5 and 6 are detail sections of the lamp-body. Figs. 7 and 8 are details of the burner-body, wick-tube, and elevating mechanism. Figs. 9 and 10 are details of the sectional wick-tube and removable rock-bar. Fig. 11 is the supplemental chimney-holding base. Fig. 12 is a front view of the lamp-stand and reflector, showing more particularly the fastenings for the reflector and the chimney-holder.

I make the case or body of the lantern A in the usual form; but in connection with it I provide for fixing two panes to the front opening to enable a double front to be applied or the circular opening to be closed by a round or a square pane, as may be convenient. For this purpose I fix within the circular opening in the inside of the front a sufficient number of metal clips, B, to be bent up against the glass after it is inserted in the opening. A bezel or ring,  $d$ , is placed in the opening against the

glass, and the clips are then bent over it. This serves to fix the glass in place and hold it tightly against the rim C and allow sufficient play for expansion and contraction of the glass. In like manner I provide fastenings to hold a square pane upon the inside of the front against the circular opening, so that if the circular glass cannot be readily had the light can be quickly repaired by setting in a square glass; also, in situations where a double glass is required, an inner pane can be set at any time. This fastening consists of grooves  $e' e'$  in the bottom and at one side, and the clips  $F^2 F^3$  at and along the top and remaining sides, as seen in Figs. 1 and 4, Sheet 1, of the drawings. A square glass can be easily set or removed at any time, so that a double front can be formed at any time when required. This is also of advantage in enabling repairs to be quickly and cheaply made.

Another novel feature or improvement in the case or lantern consists in setting the drip-cup into an air-chamber formed under the bottom of the lantern, by which a constant circulation of air is maintained around this waste-oil receptacle, and the contents are kept from igniting. This construction is shown more particularly by the detail view, Fig. 5, where  $a$  is an air-chamber formed by fixing a second bottom,  $b$ , below the bottom of the case, so as to leave the required space between them. By means of inlet and outlet openings  $d'$ , air is taken into this space from the outside and supplied to the interior of the lantern. A drip-cup chamber, E, fixed in the space is made somewhat larger in diameter than the drip-cup F, and is surrounded by a row of apertures,  $f$ , through which the air passes upward in the center of the bottom around the chamber, and immediately to the burner, through openings  $f^3$  in its top between the walls of chamber E and cup F, and thence through openings in the parts  $F'$  and  $G'$ , as shown. The drip-cup F has openings  $f^2$  in its top, as shown, to assist in keeping the oil it contains cool. The waste oil collecting in this cup F is thus kept well ventilated and at such low temperature that the heat from the burner will not ignite it.

The burner consists of an oil-chamber, D, a supporting base or stand,  $d^2$ , and a wick-



chamber connected with the oil by supply-tubes *e e* in the usual manner.

In the construction of wick-chamber now employed the air-inlets *f' g'* to the flame are closed at the bottom, and in consequence soon become foul with the cinders and particles from the wick, and are cleansed only at the expense of considerable time and trouble, or, when left open, as in some constructions, they produce a flickering and uneven flame.

In my improvement I carry down the tubes *F' G'* to the stand *d'*, and through an opening in its bottom, so that when the burner is placed in position in the lantern the ends of both tubes will come against and be closed by a fixed plate, *h*, which may be the bottom of the lantern or where the drip-cup is placed in the center it may be a plate, *h*, in the center of the drip-cup *F*, as shown in Fig. 5. Both tubes *F' G'* are lengths of perforated cylinders, the inner one feeding the center of the flame and the outer one directing air around the outside of the flame. Such a burner, therefore, is formed of tubes without joint or screw connection and is permanently attached to the oil-chamber. Its pinion for elevating the wick is also above the level of the oil, so that no leakage can possibly take place at this point, and no packing is required around the pinion-shaft.

When the burner is in position for use, the ends of both tubes are properly closed by the bottom *h*, but when the stand is drawn out from the lantern the ends of the tubes *F' G'* are open and any matter collected in them is discharged, leaving the air-passages *f' g'* unobstructed. These tubes, therefore, are self-cleaning, and they are cleared of obstructions any time by simply drawing out the stand.

In connection with the vent *m* of the oil-chamber *D*, I provide a means to keep the oil from splashing out or otherwise escaping from the chamber. This device is shown in Fig. 6 of the drawings. It consists of a small air-box, *K K*, fixed over vent-holes *m* in the oil-chamber, and having an air-tube, *I*, leading through the top down to within a short distance of the vent. Just below the end of this tube *I* a cut-off plate, *q*, is attached to one side of the box and is extended across the space over the vent *m*. Any oil that splashes through the opening *m* is therefore confined to the lower part of the box *K*, and will run back again into the chamber instead of escaping to the outside.

In the wick-operating mechanism, (seen in the detail views, Figs. 7, 8, 9, and 10,) the wick-holder is made of a tube, *R*, and a clamp, *T*, composed of separate sections *t t*, each formed on the segment of a circle. These are attached together to the bottom ring, *t'*, by means of a joint, *S*, so as to be capable of being opened or thrown apart, as shown in Figs. 9 and 10, to admit the wick, and of being closed to confine it in the holder, as seen in Figs. 7 and 9. Upon the inner side of one or more of these sections there are formed teeth or asperities *u*, to hold the wick, and a rack,

*V*, extending the full length of the tube, is fixed or formed on one of the sections to engage with the wick-regulating pinion *w*. This construction is new in head-light burners, and enables me to place the pinion *w* above the level of the oil, so that the stem or shaft requires no packing. This obviates the use of packing and all leaking is prevented at the stem. The wick also is set more readily, and can be entirely used up without waste. Small lengths of wick can be placed in the holder, one against the other, and used as readily as a single length of wick.

Connected with the burner-stand is a chimney-holder of improved construction, consisting of a tapering flange, *a'*, having fixed to the outside a number of spring-clasps, *a''*. By means of upright rods, *a'''*, this holder is supported above the burner in position to secure and surround the upper part of the chimney. The back of this flange *a'* is carried down below the front edge, as shown in section, Fig. 1, for the purpose of presenting a surface to guide the end of the chimney through the opening between the clasps *a''*, and thereby facilitate its insertion into place. In this construction the reflector *R'* is attached to the burner-stand, and is so placed that it covers the chimney-holder at the front, and interferes with the ready insertion of the end of the chimney through the aperture of the reflector and into the holder. By making the flange of this peculiar shape, however, the chimney can be placed from the front of the burner without requiring any special care to guide it. The spring-clasps *a''*, attached on the outside of the flange, are bent over at the top to present the edge instead of the surface to the glass. A small amount of metal is in direct contact with the glass, so that they do not lose their elasticity by action of the heat.

I am aware that spring-clamps for holding the chimney have been placed directly upon the reflector, but such placement causes the chimney to be affected by all the movements of the reflector, and in adjustable reflectors this would not be practical. At the same time the hood *a'* serves to guide the chimney into the springs, as the reflector could not do.

The reflector *R'* is secured to the lamp-stand by a sliding catch, so that while it can be readily removed for cleaning it is also securely held in position upon the burner, and is drawn in and out with the stand. For this purpose there are small upright supports, *y*, fixed in the top of the burner-stand with slots *z*, to receive the ends of a wire rod or guide, *z*, to the back of the reflector.

By means of the adjustable fastening device *Y*, patented to me on the 14th day of April, 1874, I secure the lower end of the reflector to the front of the stand, and provide for accurately adjusting it in position to throw the ray of light horizontally from the burner.

When the burner-stand is drawn out, all the parts being secured to it, the lantern is left clean, and the reflector and parts of the burner



are presented in the best manner for cleaning and adjustment.

In lamps or burners of this character it is often of advantage to be able to use plain cylindrical chimneys, as seen in Fig. 7, as well as the ordinary slip-chimney. (Shown at Z, Figs. 1 and 2.) For this purpose I provide a metal base, X, of suitable size to fit the socket  $y'$  of the chimney-holder, and having a seat,  $w'$ , to receive the lower end of the glass cylinder. The top of this ring is made on a slope or taper from the top outward to receive and hold a larger or smaller cylinder. The construction and application of this device are shown in Figs. 7 and 11, where X is a short metal cylinder, and  $w'$  a ring or cap having a central aperture,  $w^2$ , for the flame, and made with a sloping surface to receive any diameter of chimney. The removable cone is readily combined with a slip-chimney holder, and permits for almost any kind of long chimney to be used in these lamps.

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

1. A lamp or lantern provided with a front having a circular opening, the fastening-ring  $d$ , and clamps B, for holding the glass in the circular opening, and the auxiliary fastening  $e'$   $F^2$   $F^3$  on the inside of the front to secure a square glass, when desirable.

2. In a head-light lantern, the double bottom forming an air-space,  $a$ , and connecting with the outside atmosphere and with the inside of the lantern through apertures  $d'$ , and having the chamber E, set under the burner to receive the drippings, as set forth.

3. In a burner having a circular wick, an air-supply tube formed of perforated cylinders  $F' G'$ , open at the bottom, in combination with a means of closing the end when the burner is in position in the case to secure a steady flame.

4. The combination, with the oil-chamber air-vent  $m$ , of the closed top K, splash-plate  $q$ , and air-tube I.

5. In a lamp, the combination, with the chimney-holder  $a'$ , of the supporting-standards  $a^3$ , unconnected with the reflector.

6. The improved chimney holder or clasp consisting of the flaring collar  $a'$ , and the curved metal springs  $a^2$ , secured to the top of the collar, and having their ends bent over toward the center to present the edges of each for contact with the glass, said collar being provided with suitable supporting means, as set forth.

7. The improved chimney-holder consisting of the flaring collar, having its back carried down below the front edge, the metal clasps  $a^2$ , and the supporting-rods  $a^3$ .

8. The combination, with the lamp-stand and reflector  $R'$ , provided with the trunnions  $z$ , of the supports  $y y$ , to receive the trunnions, and the adjustable fastening Y at the bottom of the reflector, whereby the reflector may be thrown and held at any angle, as set forth.

EMILE BOESCH. [L. S.]

Witnesses:

EDWD. E. OSBORN,  
K. R. MABIE.