

No. 822,871.

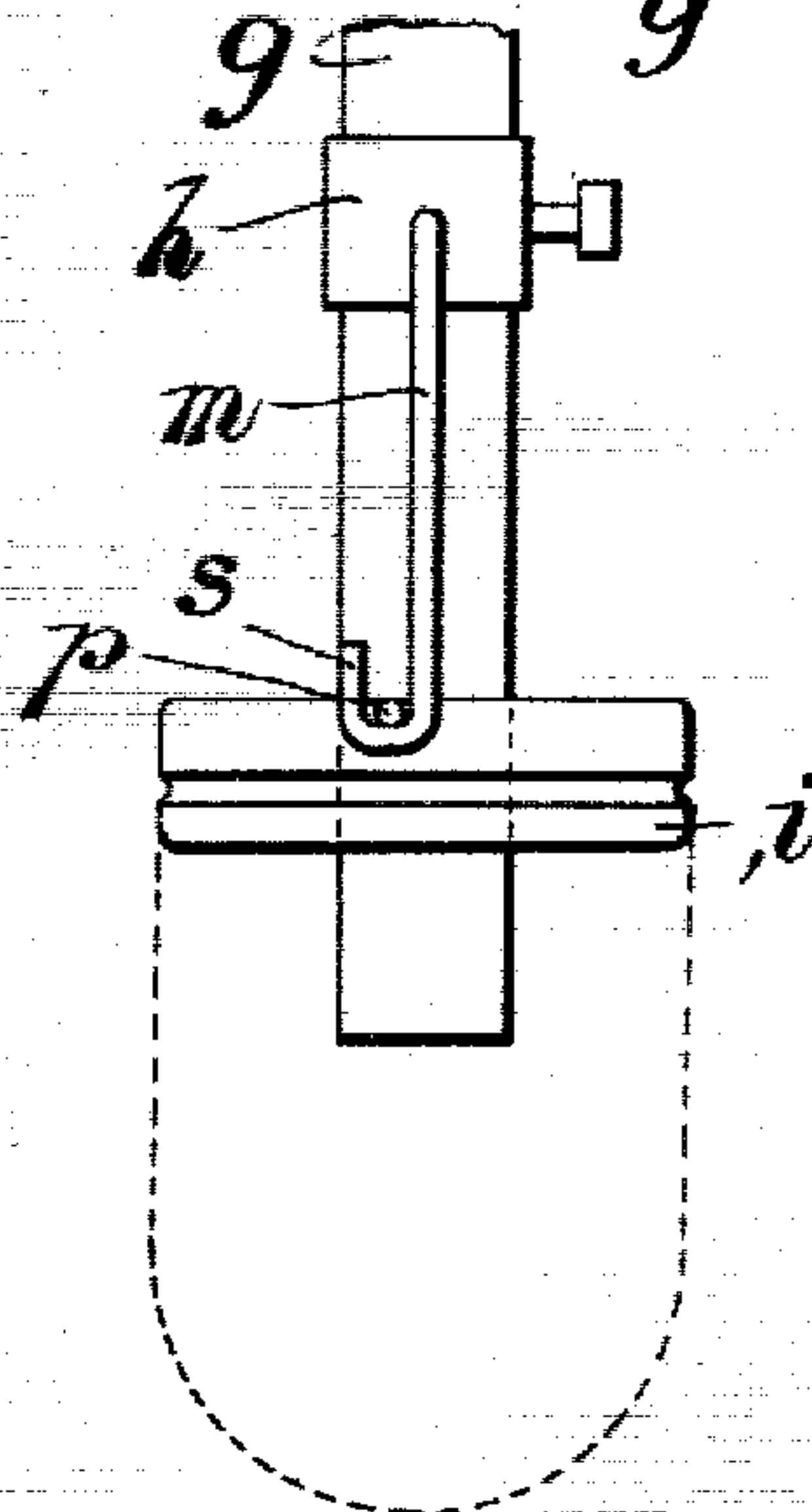
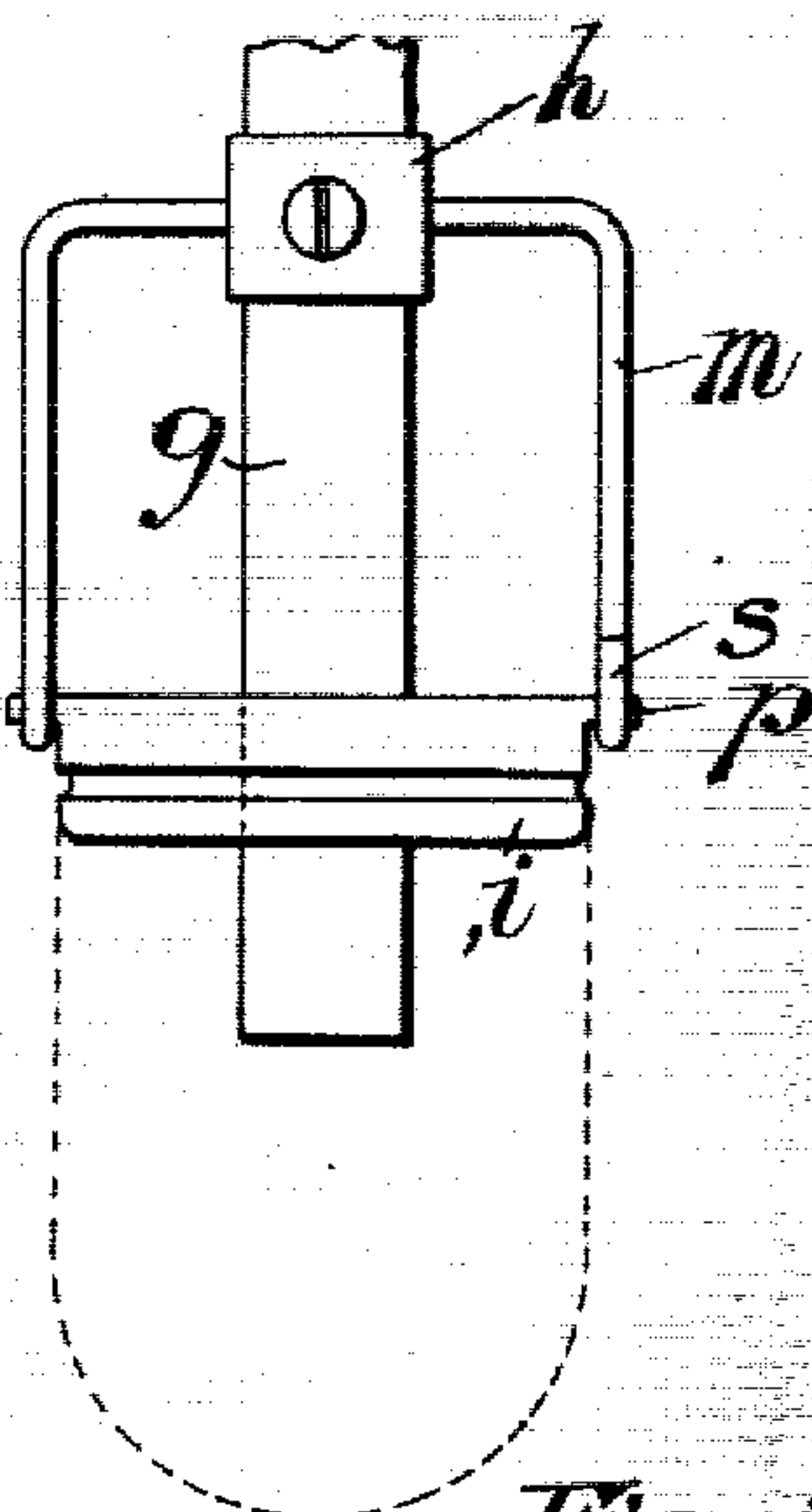
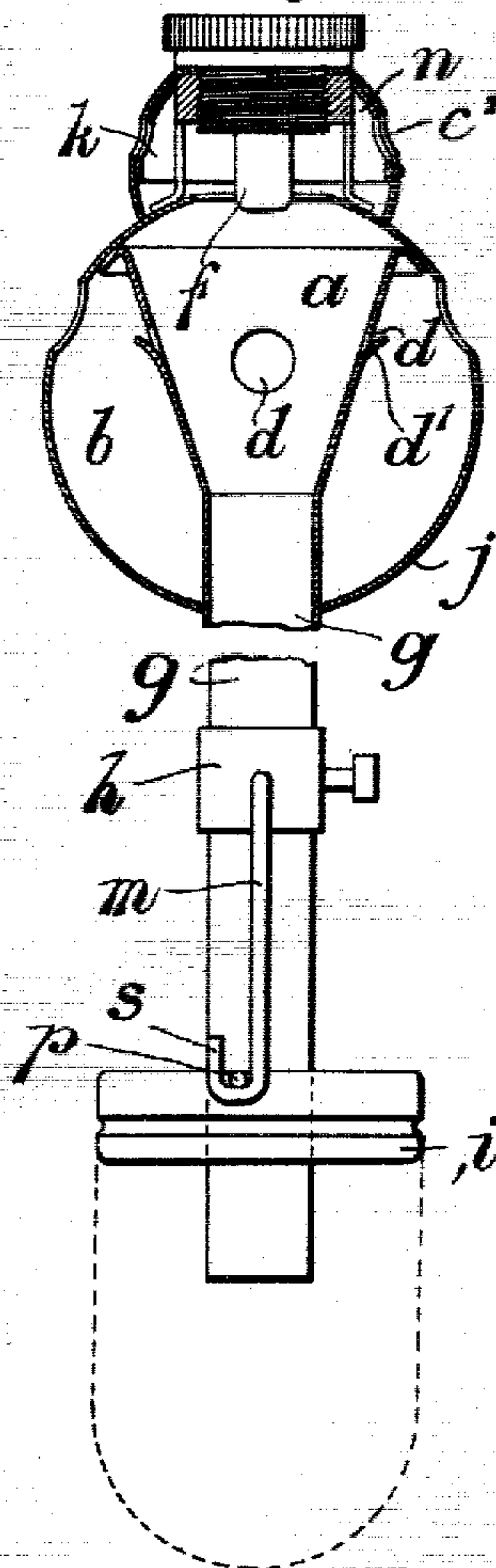
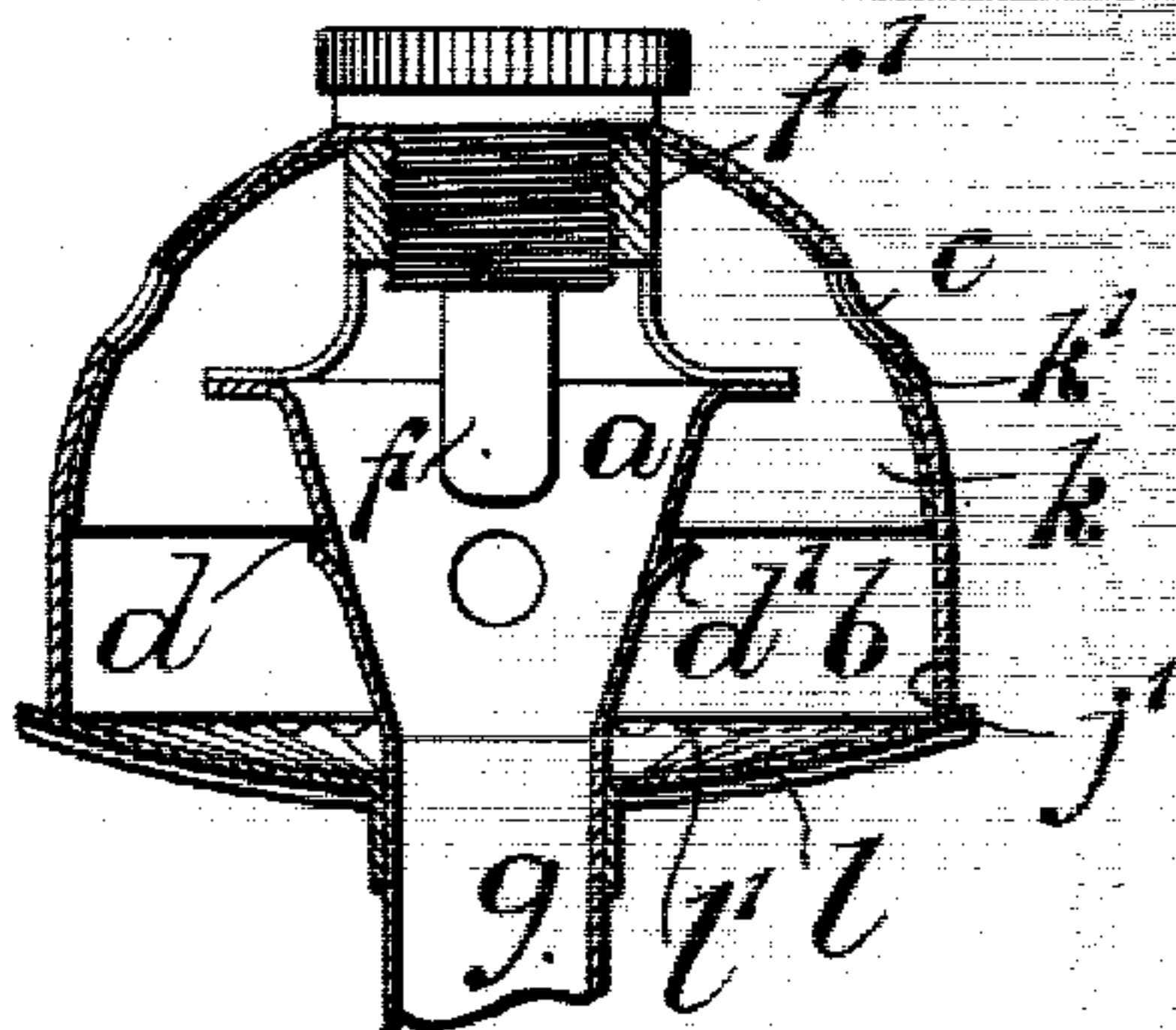
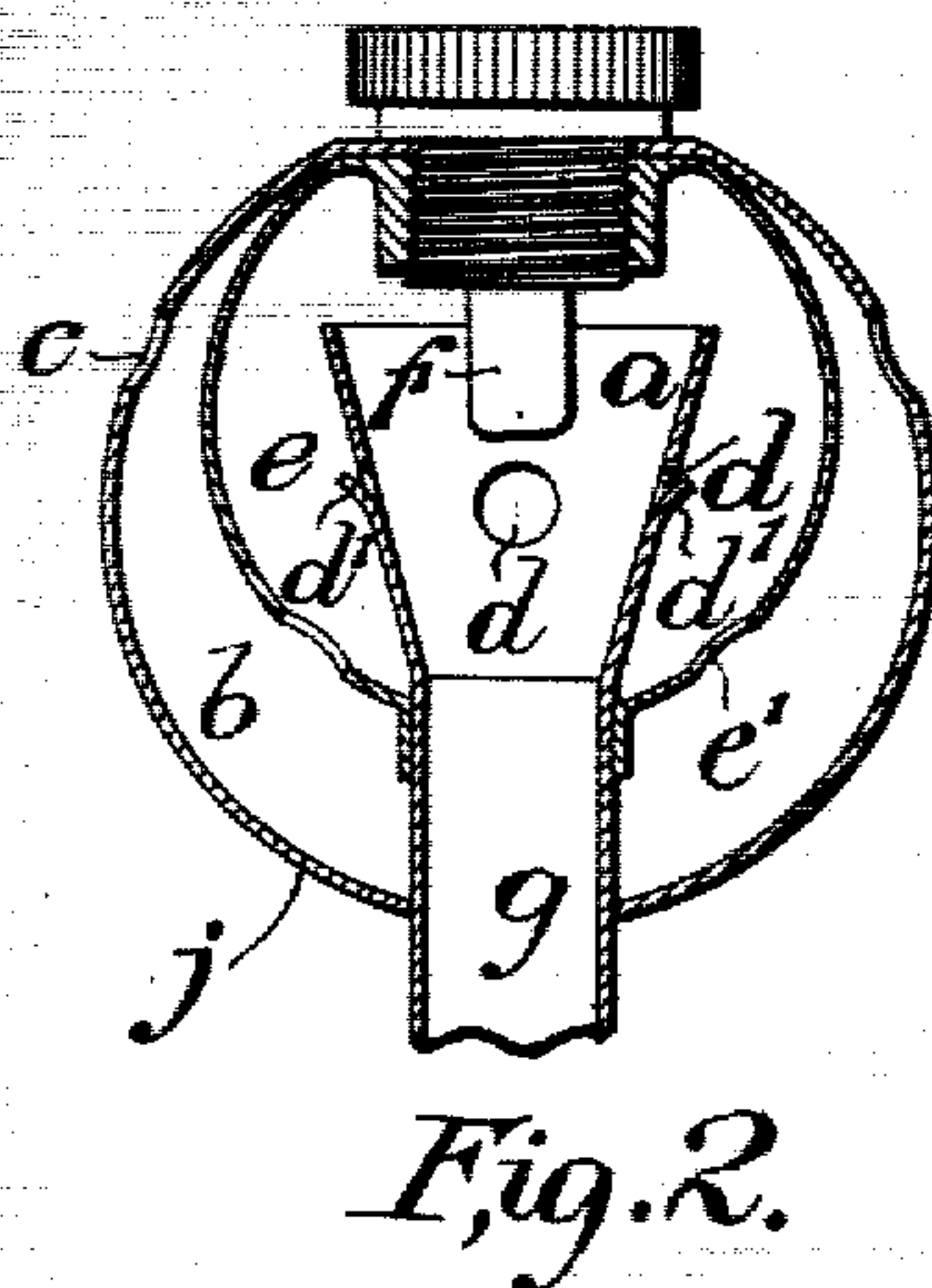
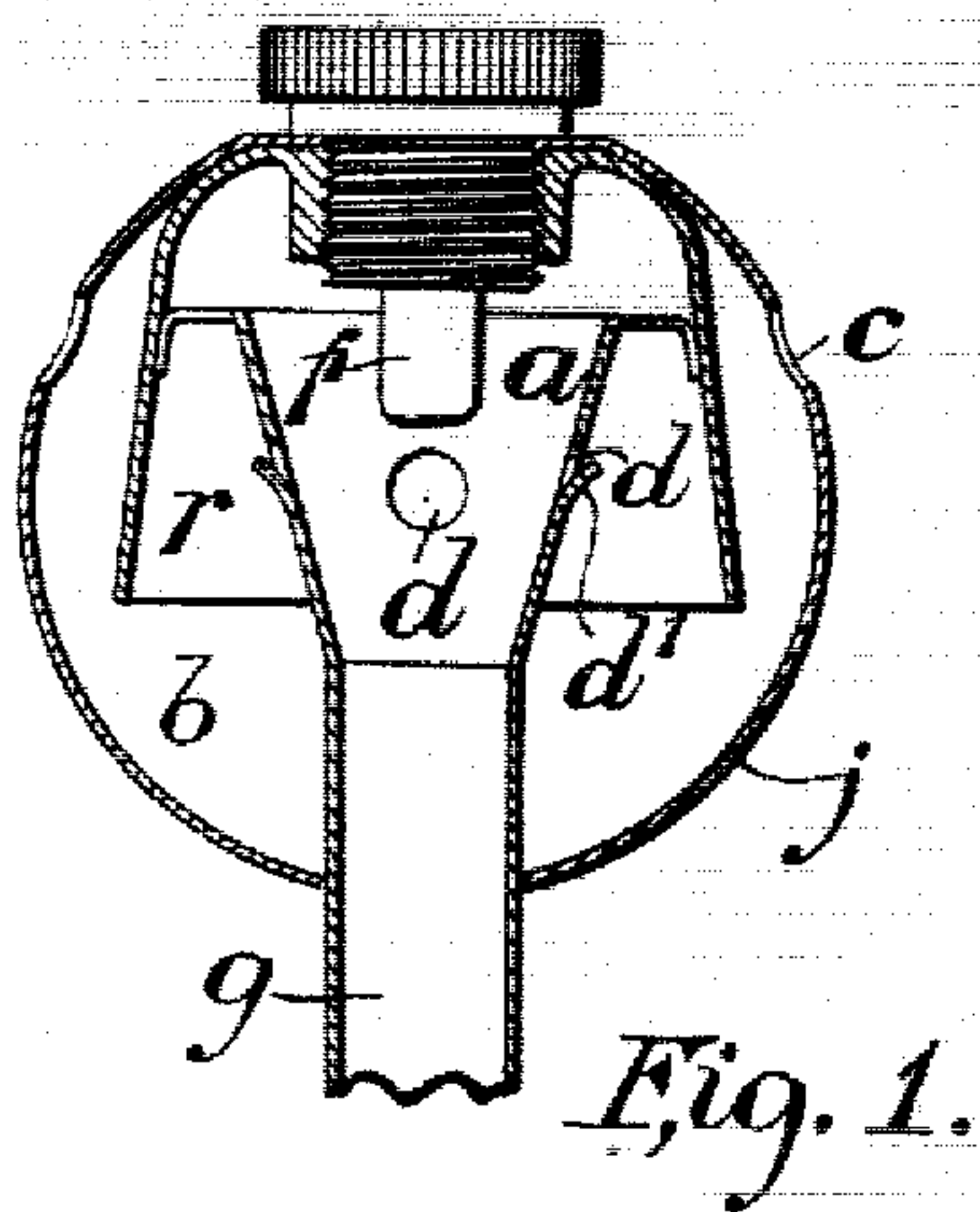
PATENTED JUNE 5, 1906.

I. SHOOB.

BURNER FOR INCANDESCENT GAS LIGHT OR FOR HEATING PURPOSES.

APPLICATION FILED APR. 20, 1905.

3 SHEETS—SHEET 1.



Witnesses  
J. H. Griesbauer.

Fig. 3.

Fig. 4.

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A. B. Willson, Attorney.

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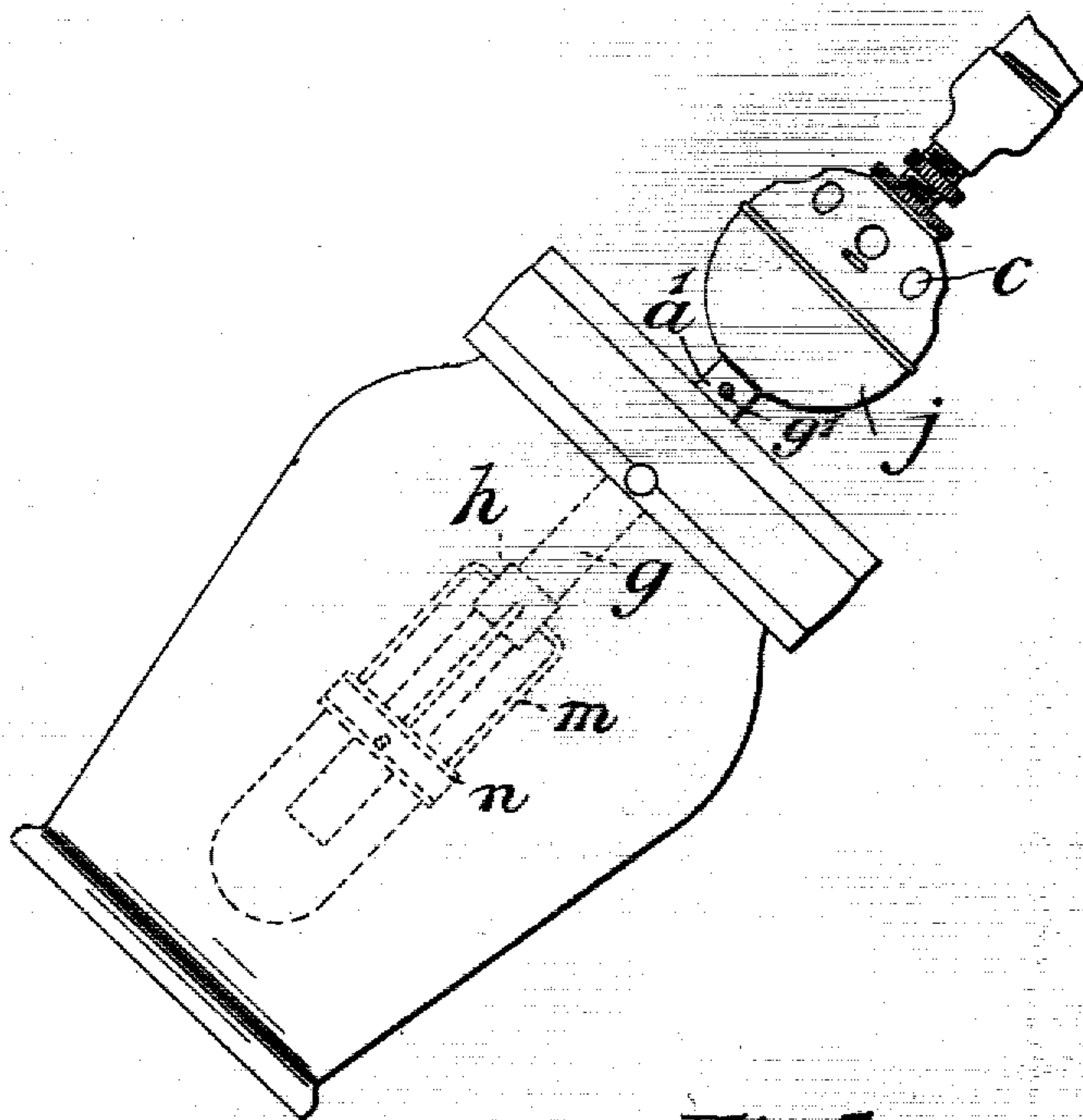


Fig. 5.

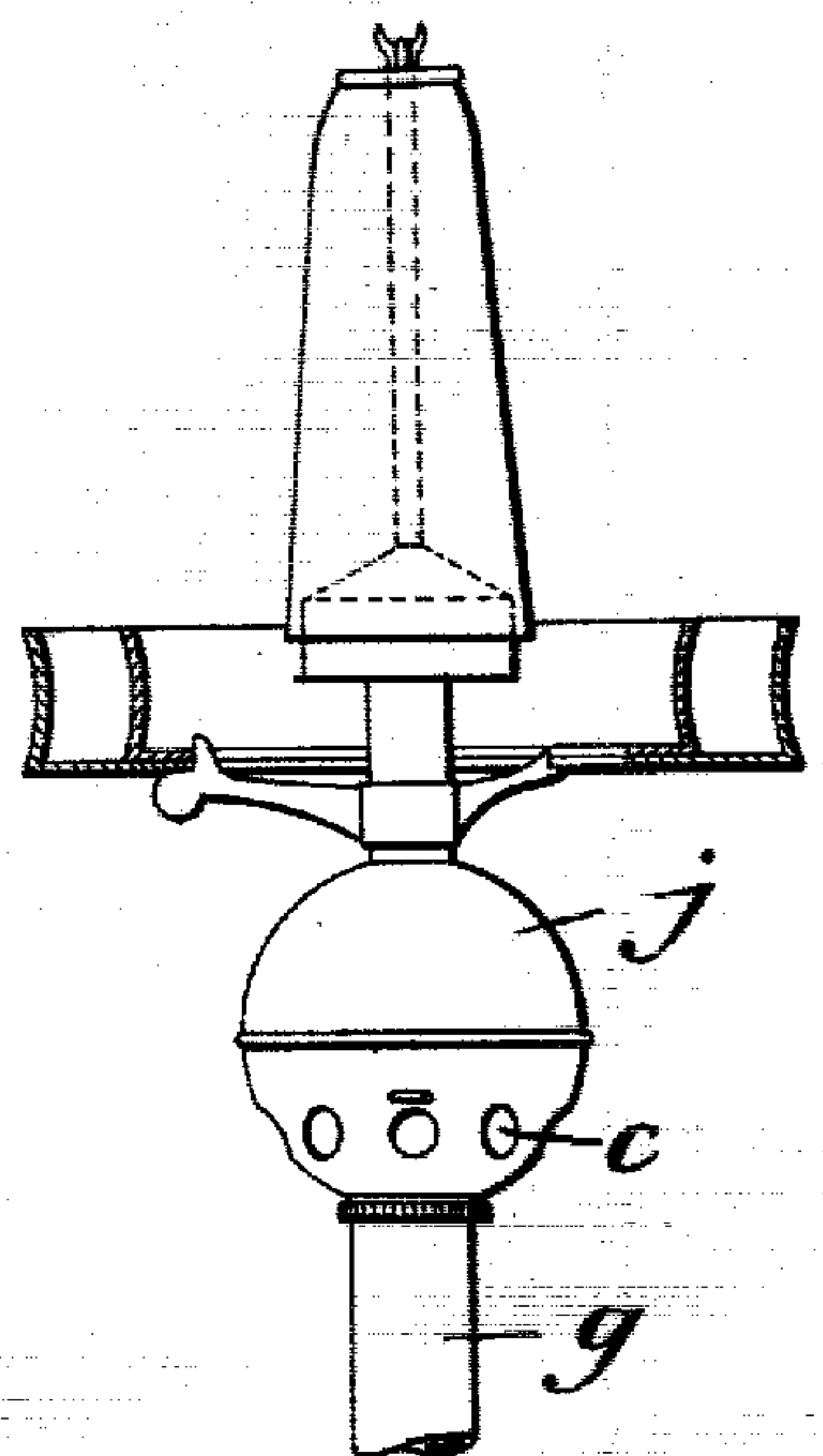


Fig. 6.

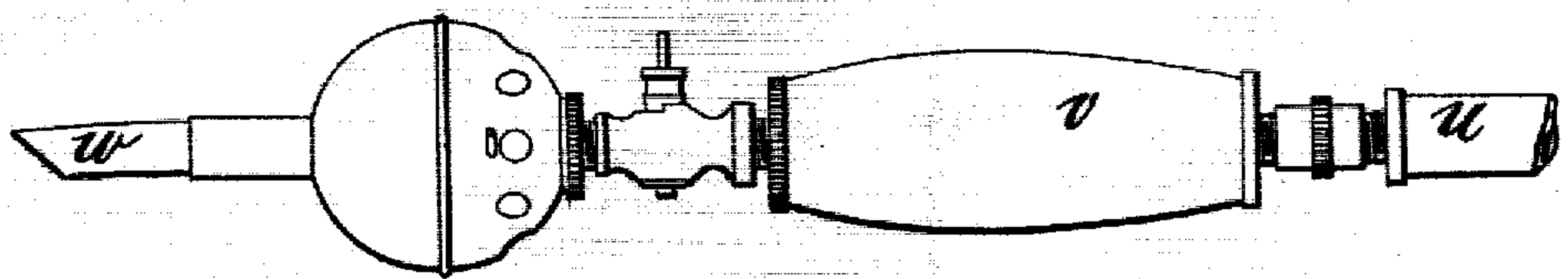


Fig. 7.

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Inventor  
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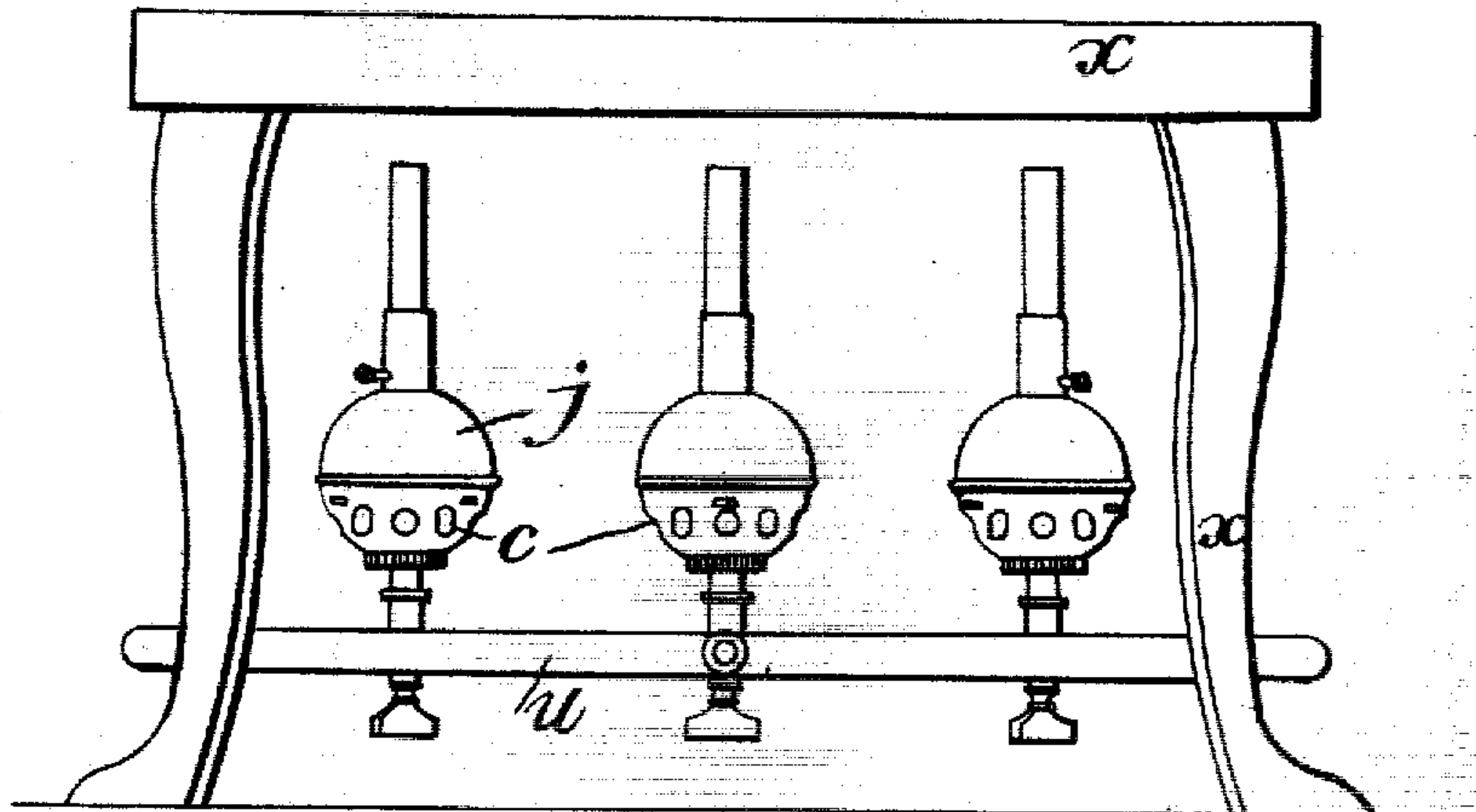


Fig. 8.

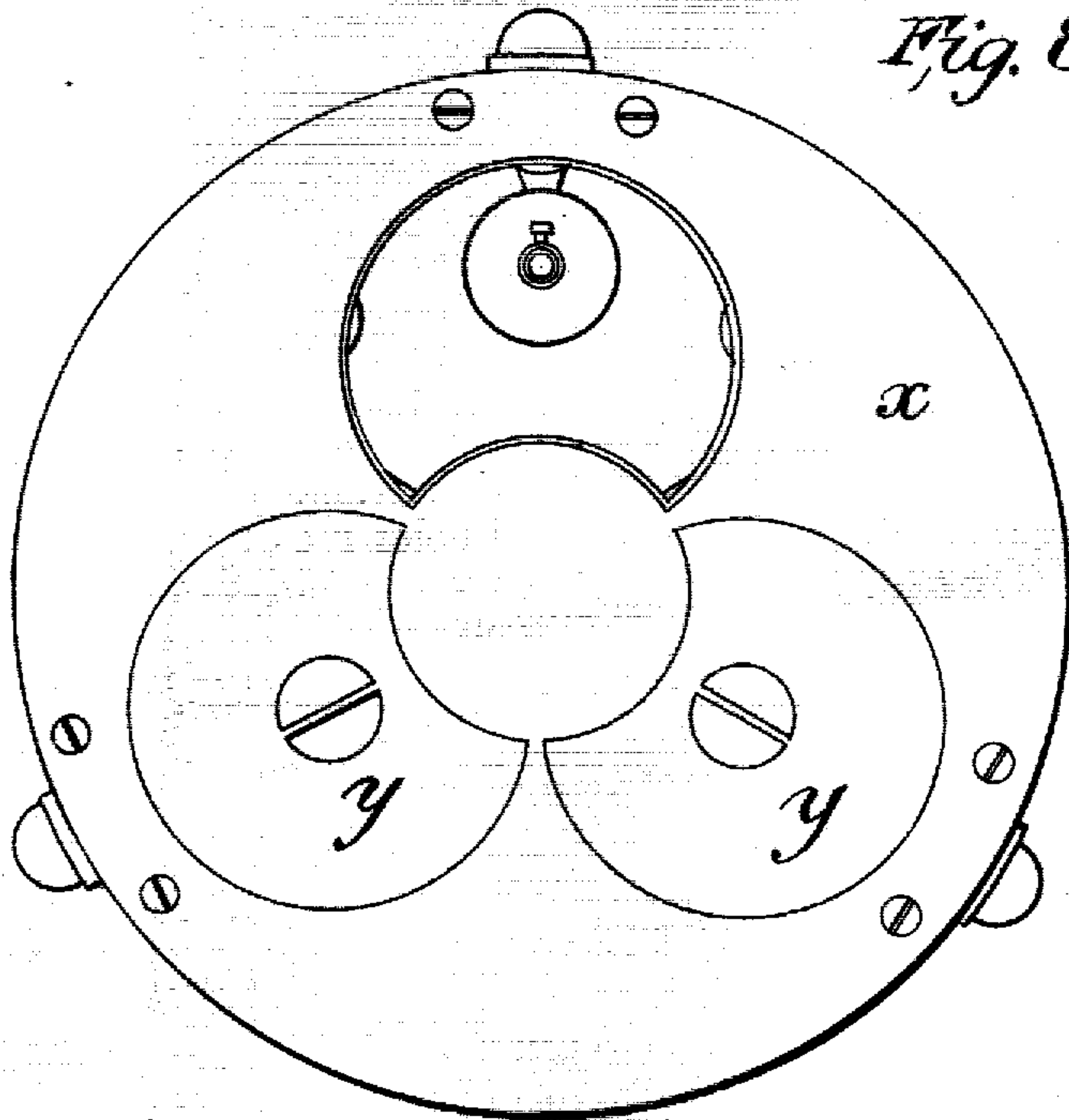


Fig. 9.

Witnesses  
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C. H. Griesbauer.

Inventor  
Isaac Shoob,  
By *H. B. Wilson*  
Attorney



# UNITED STATES PATENT OFFICE.

ISAAC SHOOB, OF LONDON, ENGLAND.

BURNER FOR INCANDESCENT GAS-LIGHT OR FOR HEATING PURPOSES.

No. 822,871.

Specification of Letters Patent.

Patented June 5, 1906.

Original application filed April 13, 1904, Serial No. 203,042. Divided and this application filed April 20, 1905. Serial No. 256,674.

*To all whom it may concern:*

Be it known that I, ISAAC SHOOB, a subject of the King of Great Britain and Ireland, residing at 123 Wardour street, London, England, have invented certain new and useful Improvements in Burners for Incandescent Gas-Lights or for Heating Purposes, of which the following is a specification.

This invention relates to improvements in burners for heating or lighting purposes, and when used for the latter purpose more especially to those employed for inverted incandescent gas-lights, such as are described in my original application, (of which this is a divisional part,) Serial No. 203,042, filed April 13, 1904.

The invention consists in the special arrangement, disposition, and combination of parts hereinafter described.

The invention will now be described with reference to the accompanying drawings, in which—

Figures 1, 2, 3, and 4 show sectional elevations of various methods of carrying the invention into effect. Figs. 5 and 6 show the application of the invention to an oblique inverted and to a vertical lamp, respectively. Fig. 7 shows its application to a blowpipe, and Figs. 8 and 9 its application to heating purposes.

In carrying the invention into effect according to one modification, as shown in Fig. 1, the upper end *a* of the burner or Bunsen tube *g* is cone-shaped and any suitable number of openings formed therein by pressing out the cut portions *d'*. Projecting a short distance into the wider end of the cone is a fixed gas-supply nozzle *f*, which also carries a circular hood or baffle *r*. The hood *r* surrounds and supports the mixing-cone *a*, as shown. *j* is an outer inclosing spherical chamber, toward the upper end of which a number of air-inlet orifices *c* are formed.

It will be seen from Fig. 1 that the baffle *r* is interposed between the two sets of inlet-orifices *c* and *d* and that its lower edge is some distance below them. It therefore follows that air entering at *c* does not directly mix with the gas, but is first deflected downward into the quiescent space *b*, where it would be heated by the products of combustion impinging upon the exterior of the chamber *j* if the burner were being used in connection with an inverted gas-lamp.

By means of the injector-like action of the gas issuing from the nozzle *f* the air is quietly

and steadily drawn off from the space *b* up into the interior of the baffle *r* and thence into the cone either at its open end or through the side openings *d*. It will be understood that the strength of the injector action will depend upon the distance the nozzle *f* extends into the mixing-cone. Further, the burning of the lamp will be unaffected by strong cross-currents of air, since after entering at one side they will be deflected round the baffle *r* and out through the openings *c* at the other side of the spherical chamber.

Referring to Fig. 2, a similar construction to that in Fig. 1 is shown, the shape of the baffle *e* in this case being spherical, with a number of air-inlet openings *e'* formed toward its lower end.

Fig. 3 shows a similar arrangement of mixing-cone and nozzle, the shape of the outer inclosing chamber being modified and the inside baffle being omitted. The outer chamber *j'* is of approximately hemispherical shape provided at its upper end with a number of air-inlet orifices *c*, adapted to register more or less with a similar number of orifices in an air-regulator plate *k*, adjustable by means of a projecting pin *k'*. The lower edge of the outer chamber is adapted to make contact with a radially-corrugated closing-plate *l*, the corrugations causing a number of small holes *l'* to be formed around its lower end for the purpose of relieving any excess pressure within the chamber *j*. The mixing-cone is in this case carried from a boss *f'*, which is screwed upon the fixed gas-nozzle *f*.

Fig. 4 shows a modified arrangement of mixing-cone and gas-nozzle in which a decreased velocity is imparted to the gas and air mixture as compared with the arrangements shown in the previous figures. The mixing-cone *a*, constructed as already described, is flanged and secured to the interior surface of the spherical chamber *j* toward the upper end of the latter in the manner shown, so that the cone expands outwardly and then inwardly at its upper end, where an opening is left, in the center of which the nozzle *f* is disposed. To supply air to the open end of the cone, an auxiliary chamber *n* is mounted above the chamber *j*, in which a number of air-inlet holes *c'* are formed, a regulator *k* being added to control the amount of air. Although no baffle is shown between the mixing-cone and the inclosing chamber *j*, such may be used, if desired.

—In Figs. 3 and 4 an inverted mantle-sup-



port is also shown, the two figures showing front and side elevations, respectively, of the same form of mantle-support, while the upper part shows different modifications of the mixing-cone and gas-nozzle. The mantle-ring is formed with projections *p*, which rest in hooks *s*, formed on the ends of the wires *m*, suspended from the adjusting-sleeve *h*, which is secured to the burner-tube *g* by a set-screw.

In Fig. 5 the invention is shown as applied to an inverted incandescent gas-lamp arranged to project from a wall or bracket or from a flexible pipe in an oblique manner. The fittings may be either of the types before described.

Fig. 6 shows an adaptation to an incandescent gas-lamp of the usual erect type. In this case the use of the special mantle-support above described is dispensed with, only the spherical air-chamber with its other immediate fittings being used.

It will be understood that when the burner is not employed for lighting purposes the mantle attachments are not required and any suitable nozzle or head may be used on the burner-tube *g*, or the latter alone may suffice.

As shown in Fig. 7, the spherical air-chamber may be applied to a gas-blowpipe. Gas is supplied by the flexible or other pipe *u* to the spherical air-chamber made in any of the forms above described. A handle portion *v* is added, while the mantle and its supports are replaced by a flame deflector or spreader *w*. No compressed-air pipe is shown. It may, however, be led to the flame in any suitable manner.

Figs. 8 and 9 show the adaptation to a gas cooking-stove, the views being an elevation and plan, respectively. Beneath a tripod or other suitable stand *x* are disposed one or more heating-burners supplied with gas from the common supply-pipe *u*. The burners are

each fitted with a spherical air and mixing chamber of any of the types above described. The top of the stand *x* is fitted with the usual loose cover-plates *y*, one over each burner, one plate in Fig. 9 being removed to show the burner beneath.

When employed for lighting, other forms of mantle-holder may be used than those described.

Any suitable form of by-pass may be used.

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

1. A gas-burner comprising a perforated mixing-cone open at its larger end, a tube extending from one end thereof, a gas-supply nozzle projecting into its other end, and a perforated casing surrounding the cone substantially as described.

2. A gas-burner comprising a perforating mixing-cone open at its larger end, a tube extending from one end thereof, a gas-supply nozzle projecting into its other end, a perforated casing surrounding the cone, and a baffle-plate interposed between the perforations in the mixing-cone and those in the outer surrounding casing, substantially as described.

3. A gas-burner comprising a perforated mixing-cone *a* open at its larger end, a tube *g*, extending from one end thereof, a gas-supply nozzle *f* projecting into its other end, a conical hood or baffle-plate *r* surrounding and supporting the mixing-cone, and a perforated spherical outer casing, *j*, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ISAAC SHOOB

Witnesses:

ALBERT E. PARKER,  
FRANCIS J. BIGNELL.