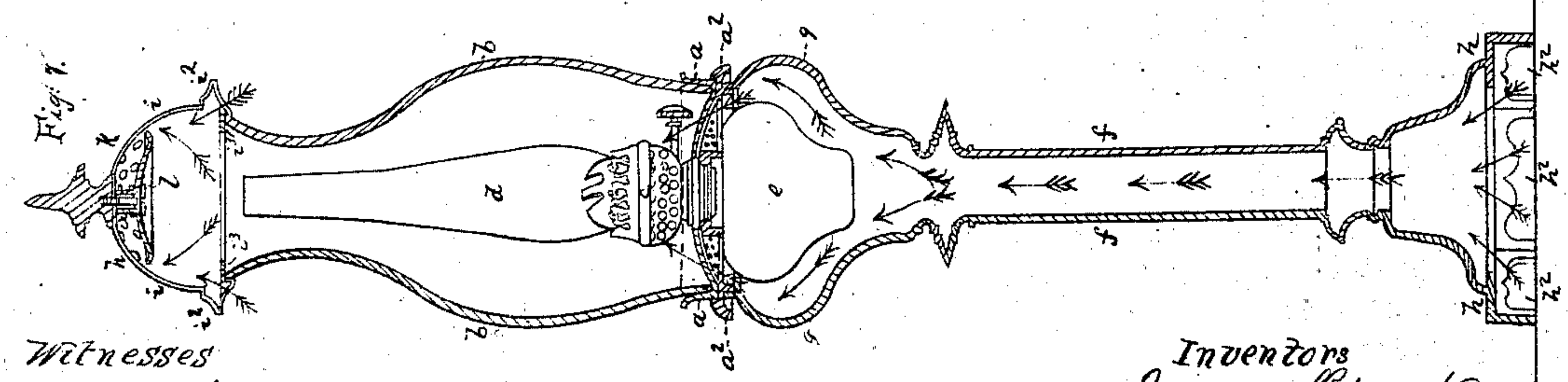
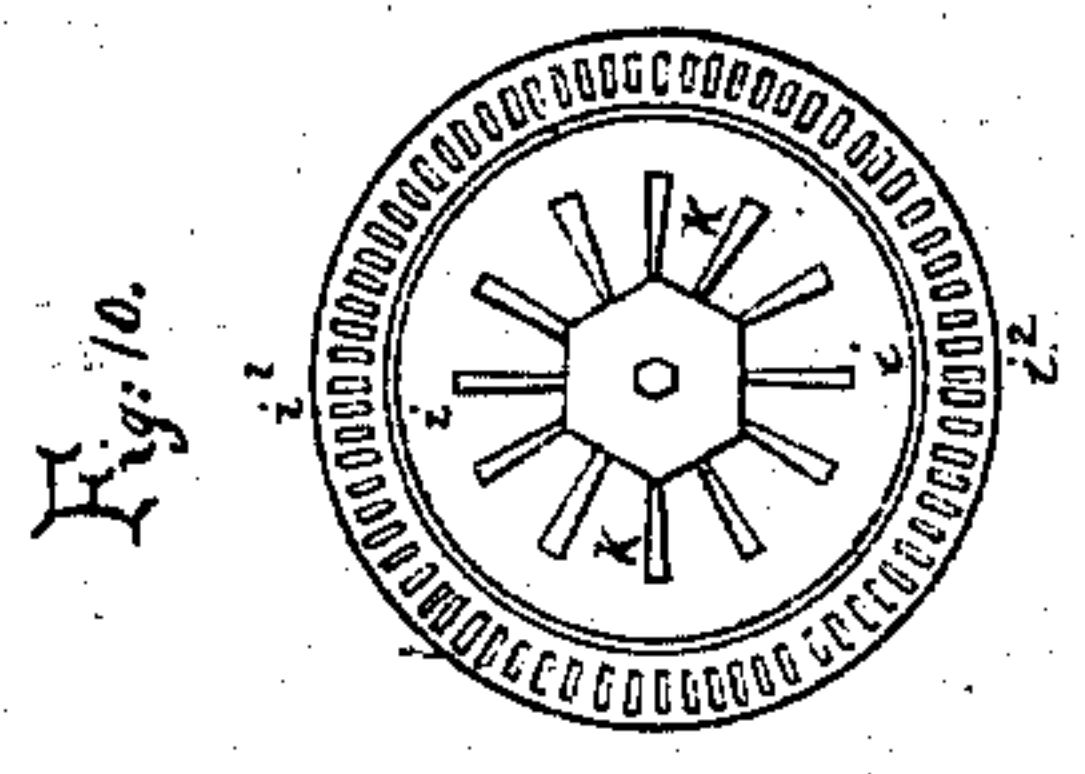
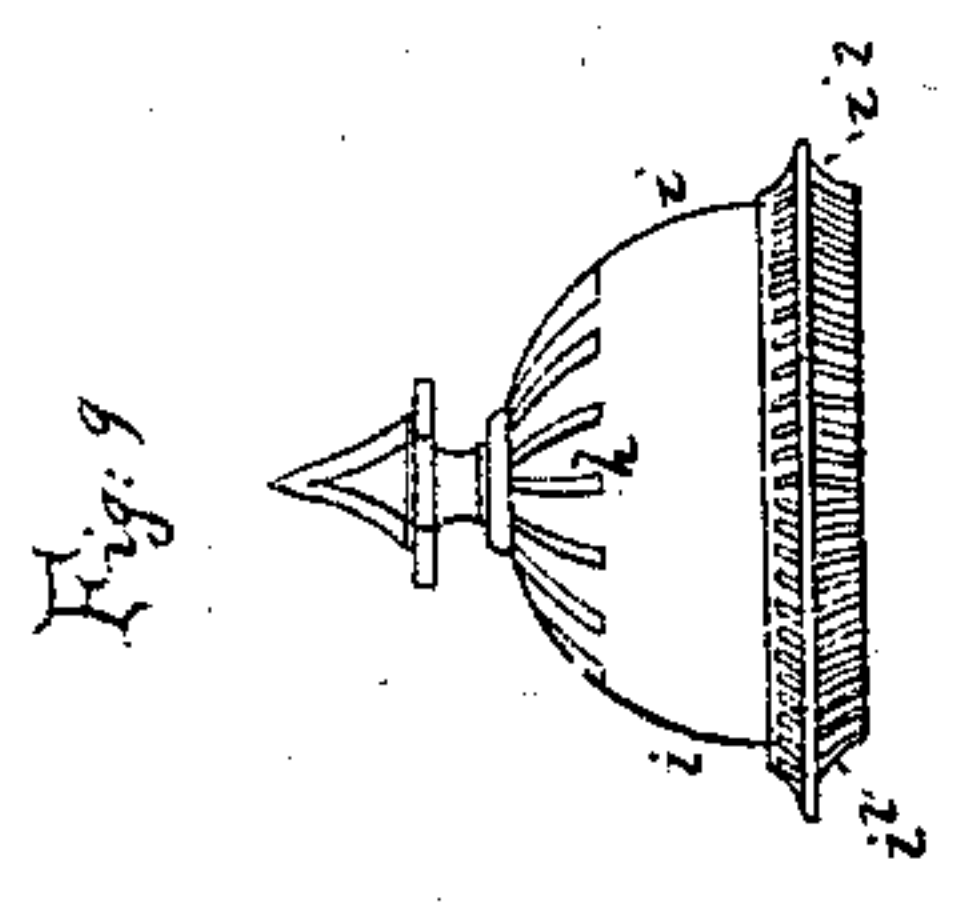
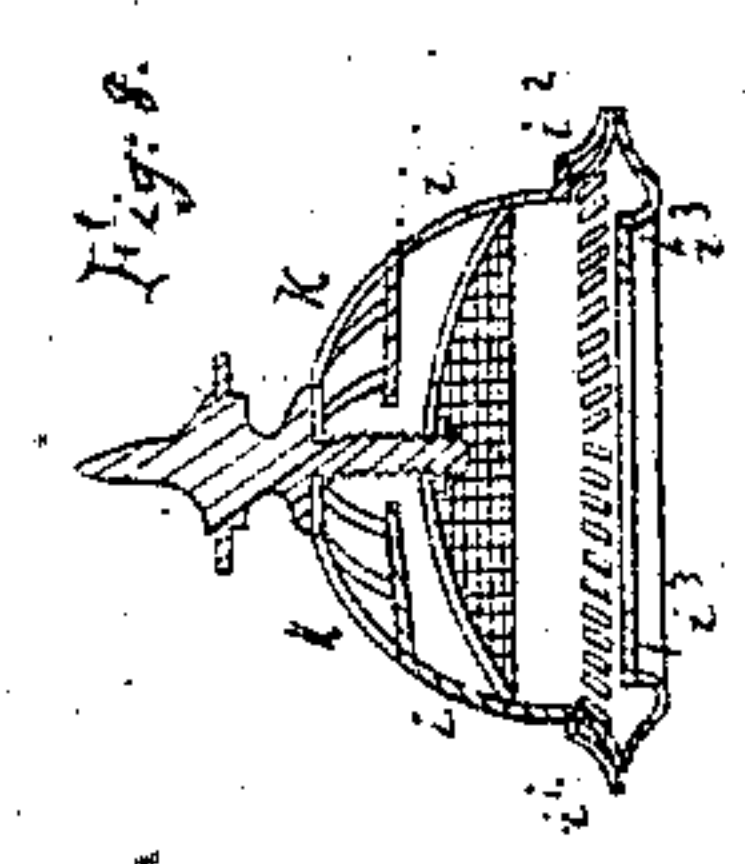
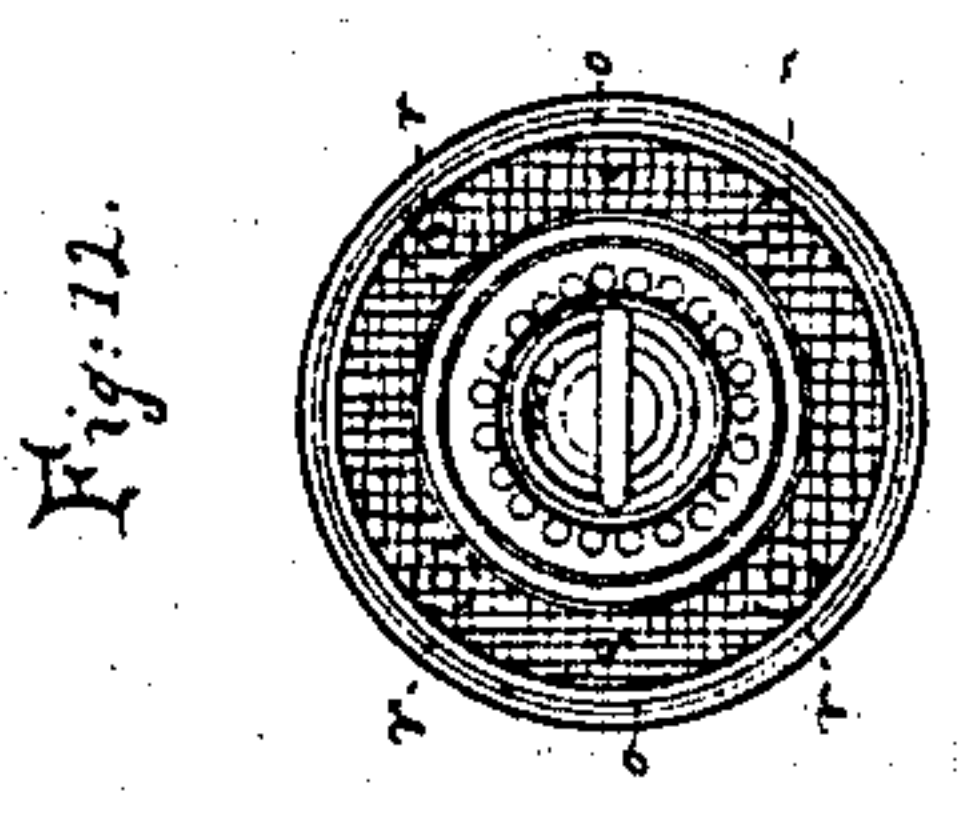
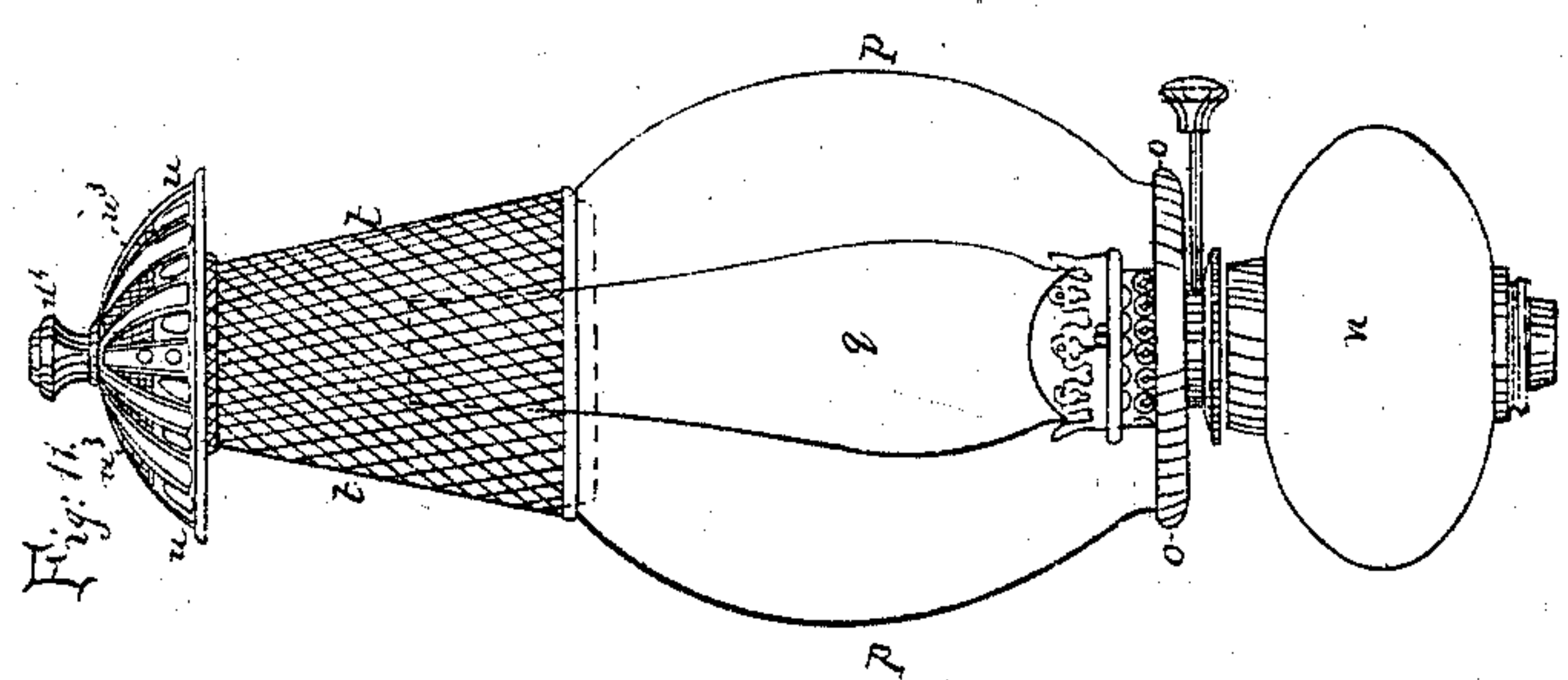
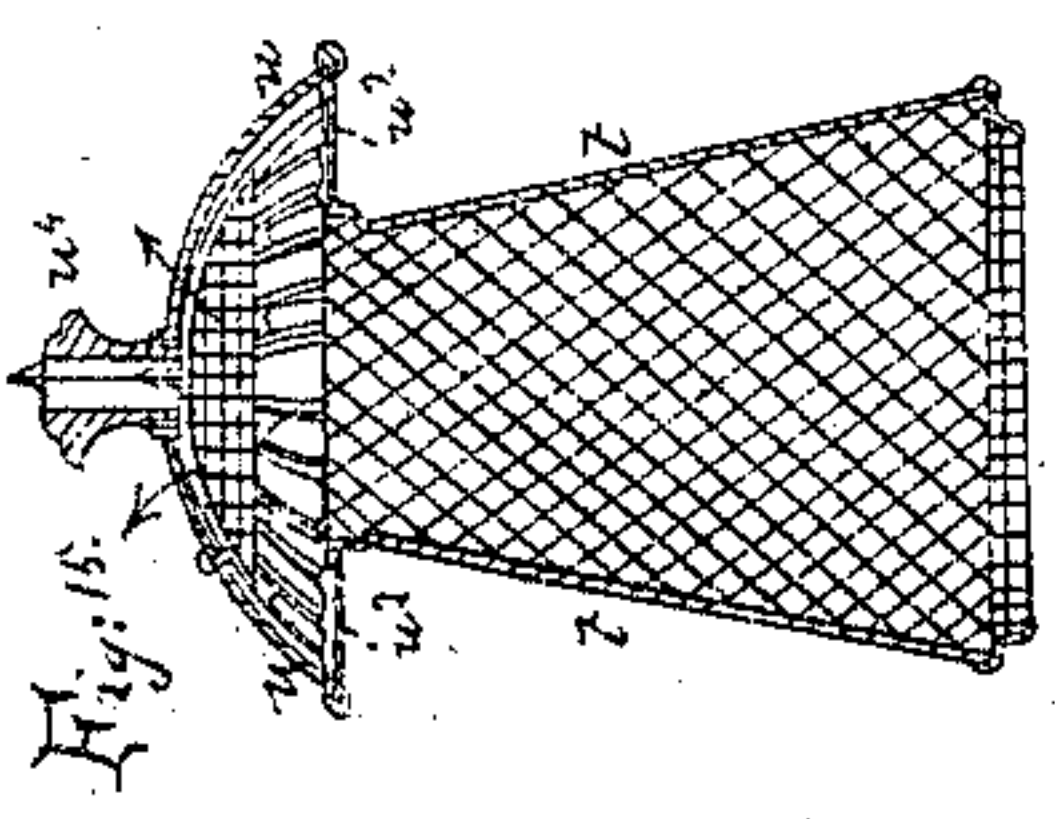
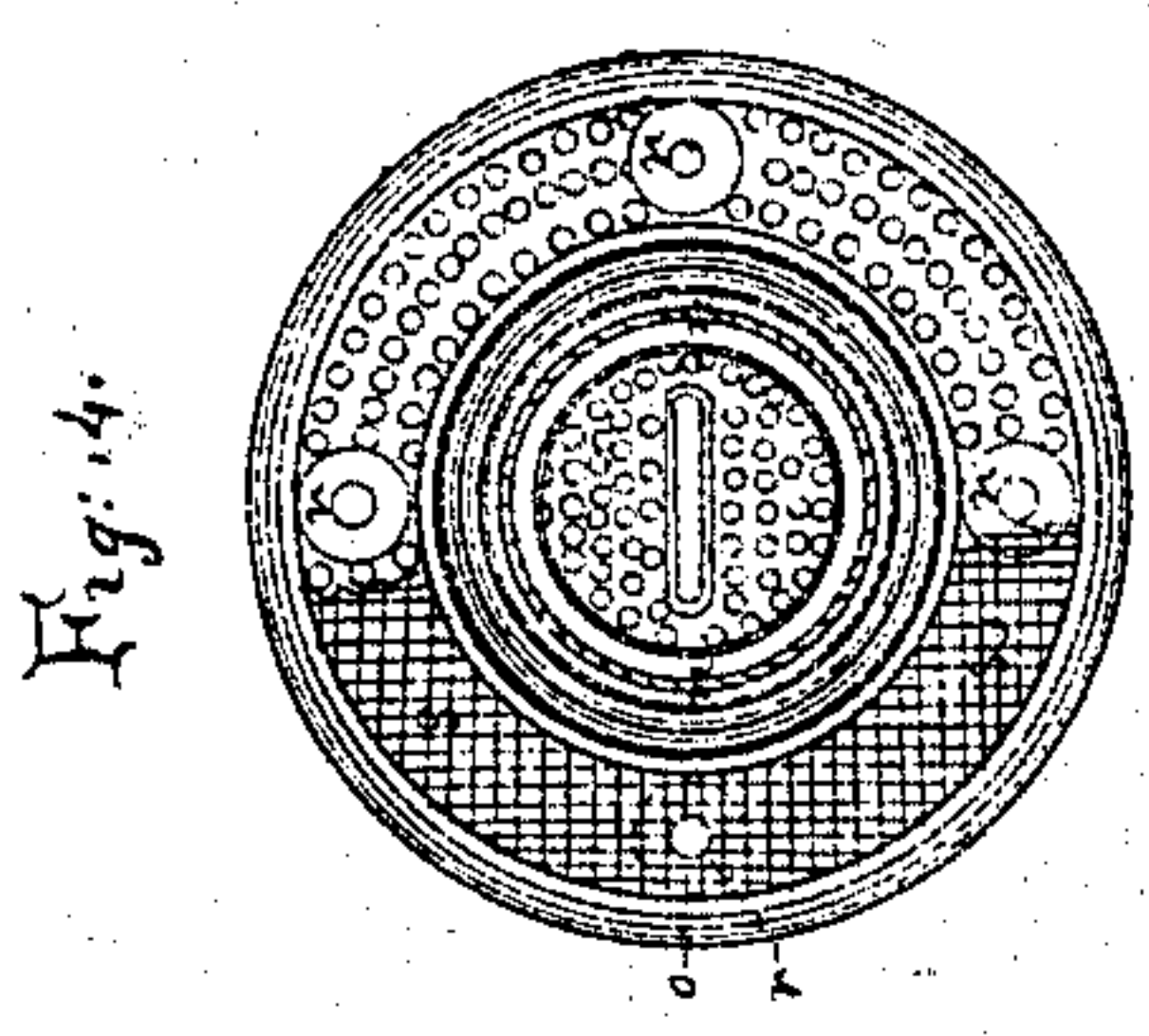
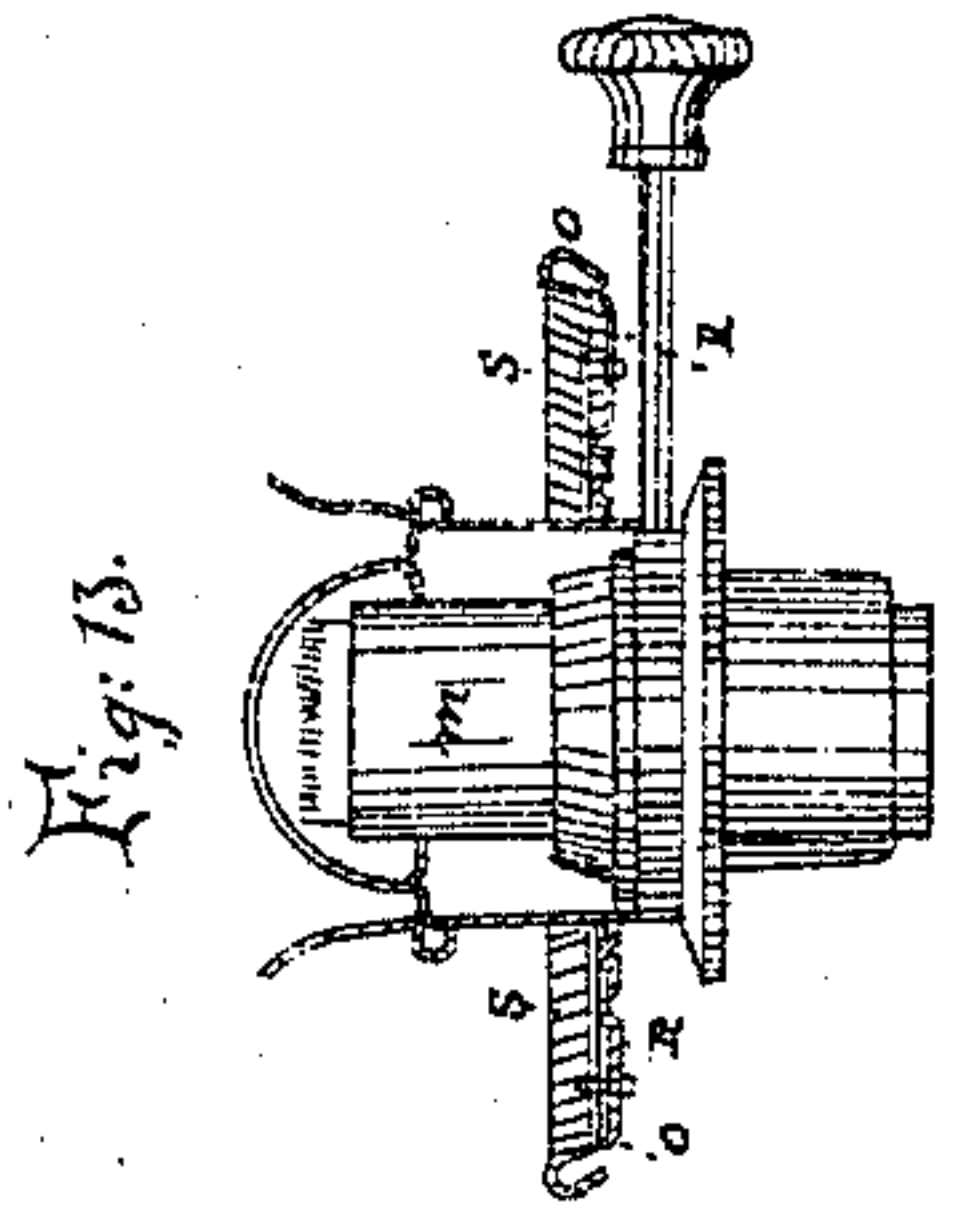
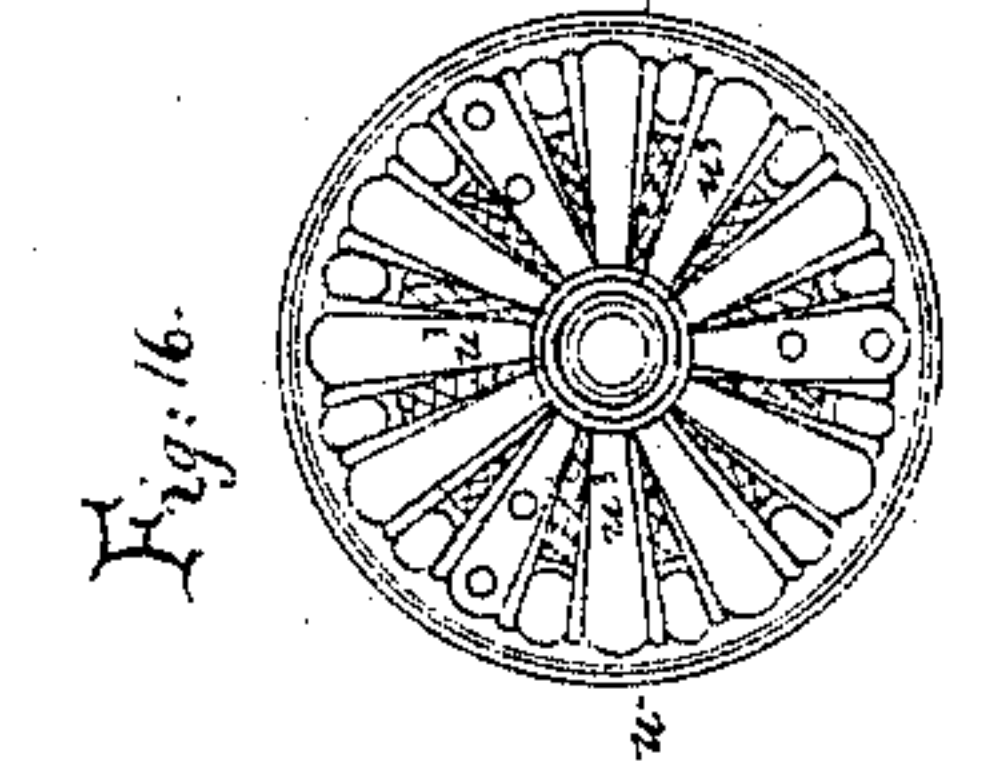


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N^o 72040

Lamp.

Patented Dec. 10, 1867



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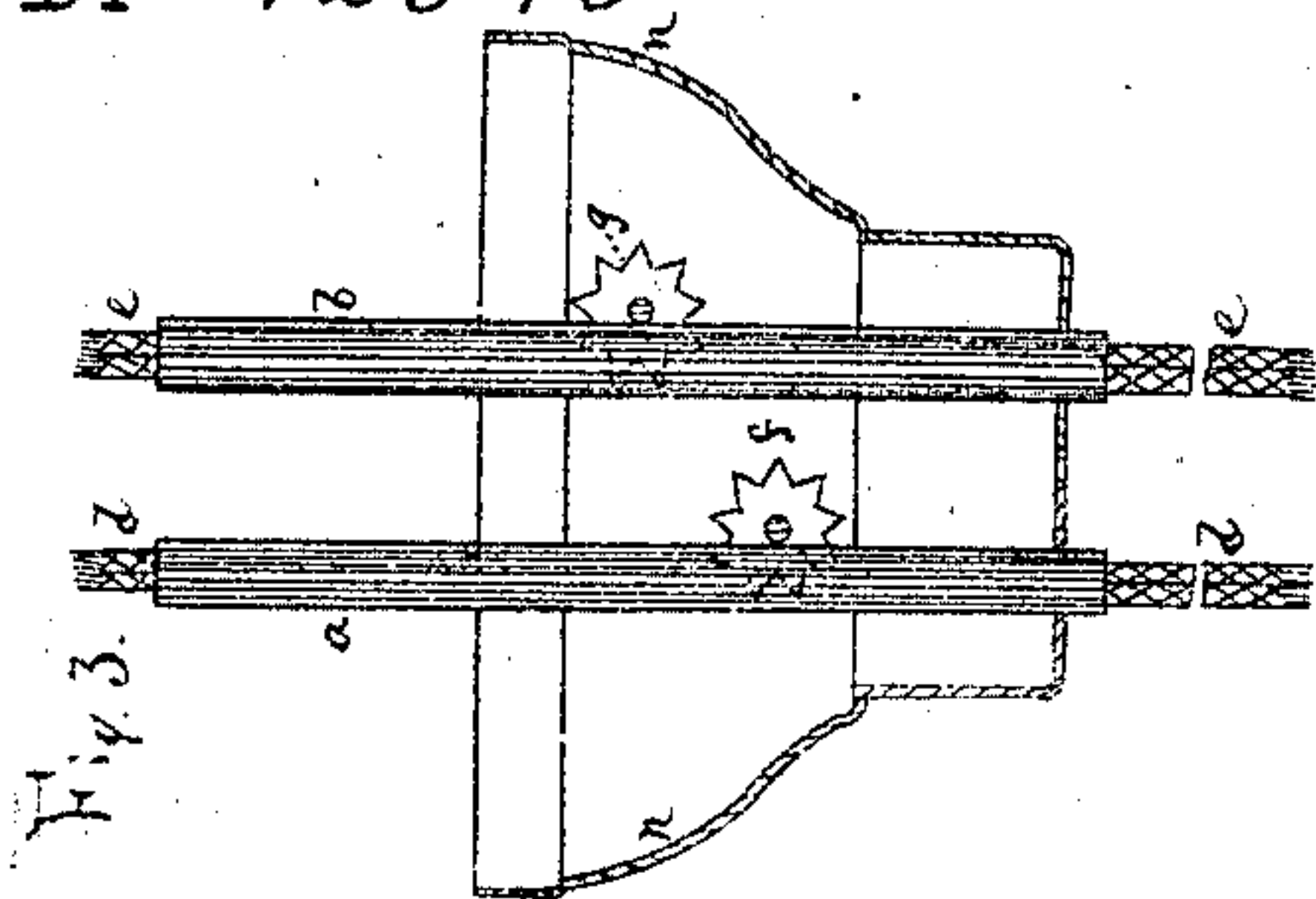


Fig. 3.

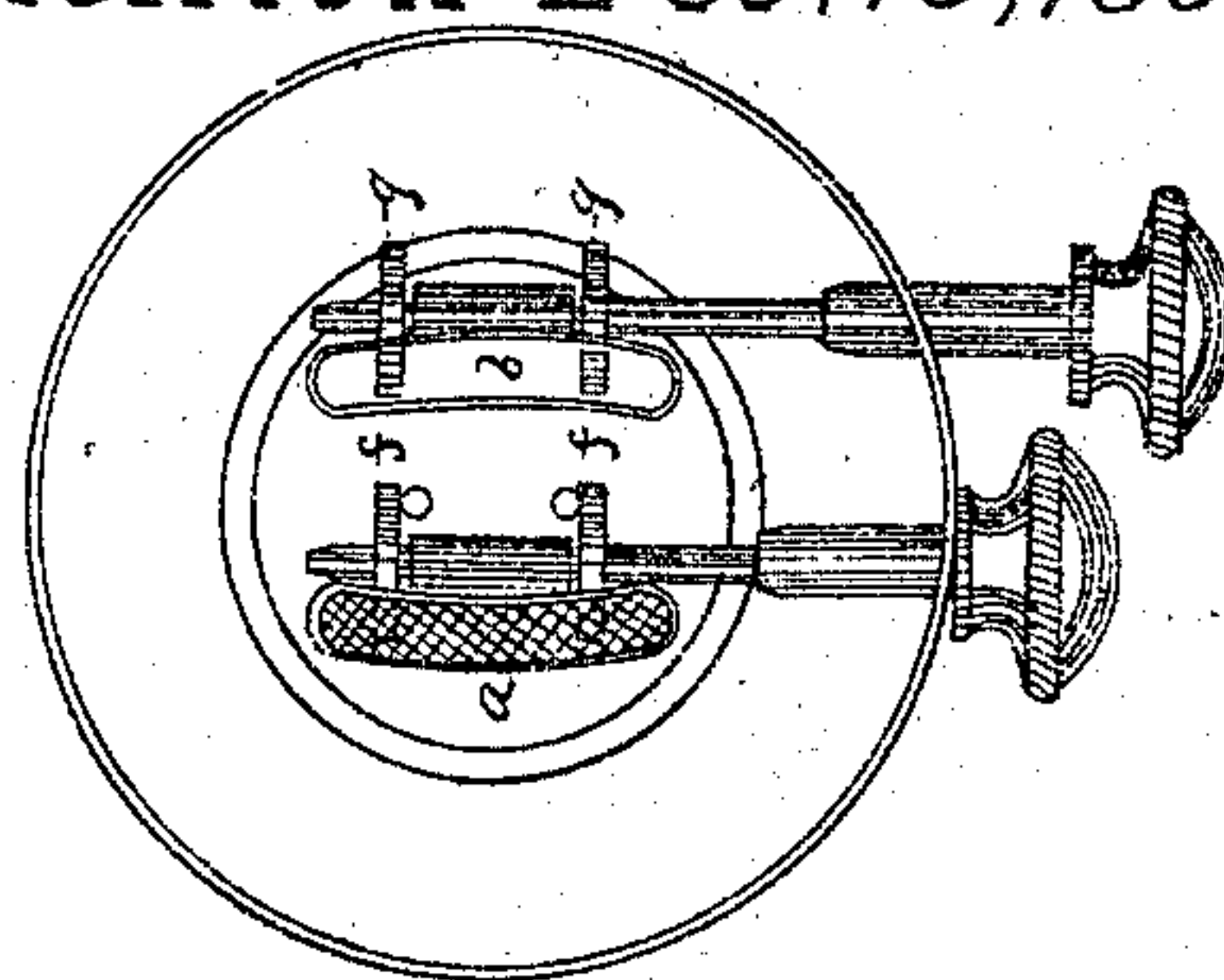


Fig. 5.

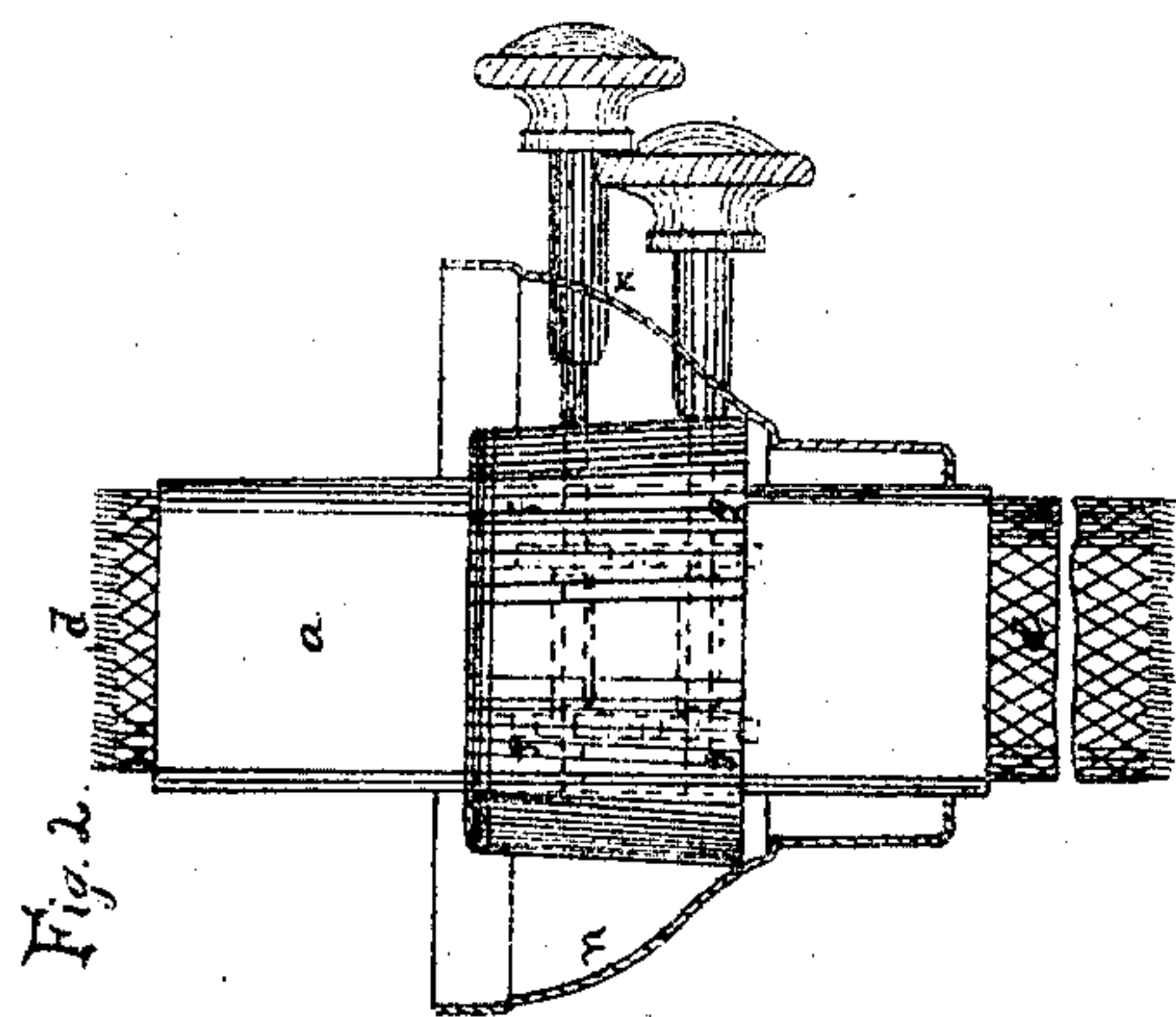


Fig. 2.

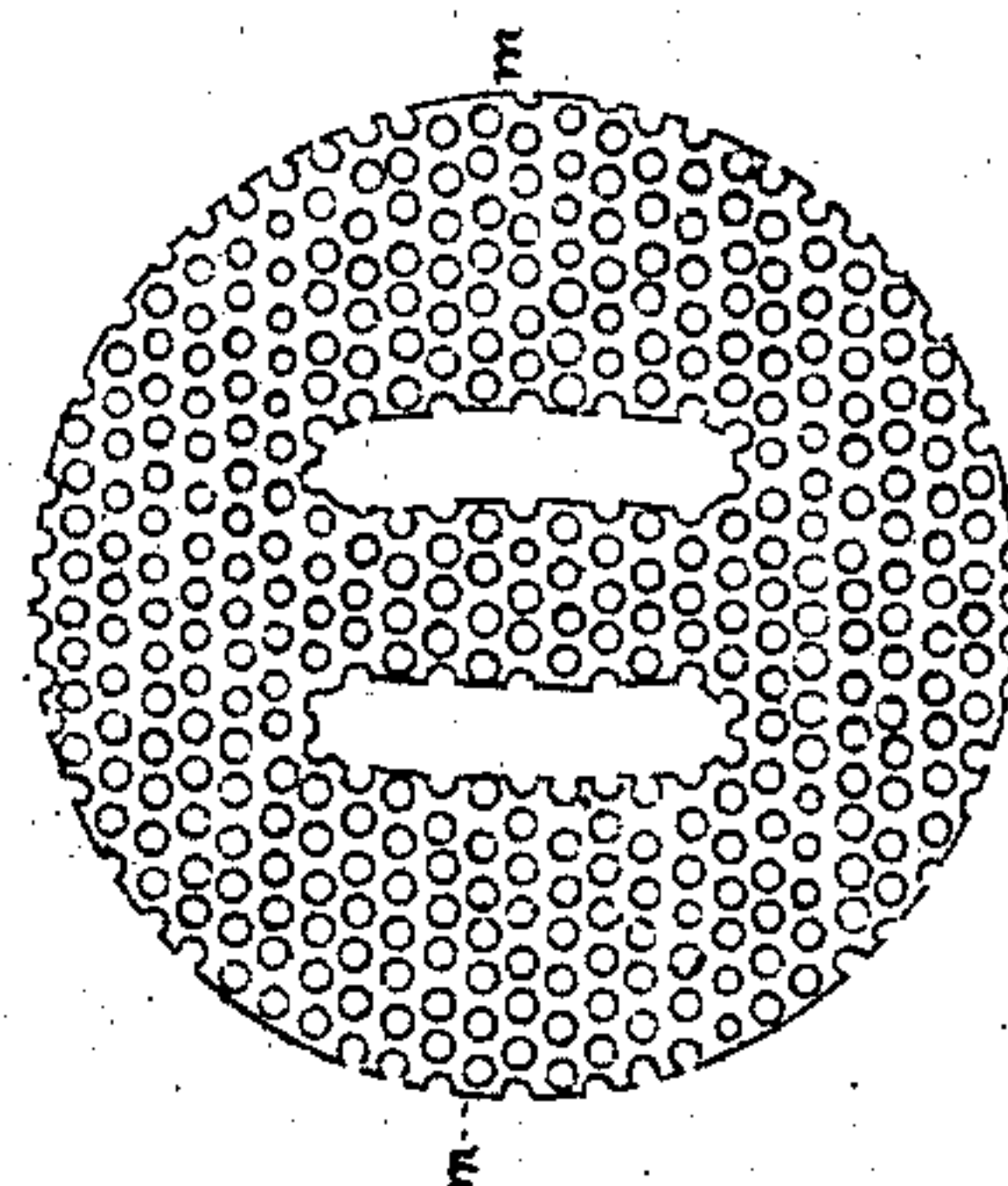


Fig. 6.

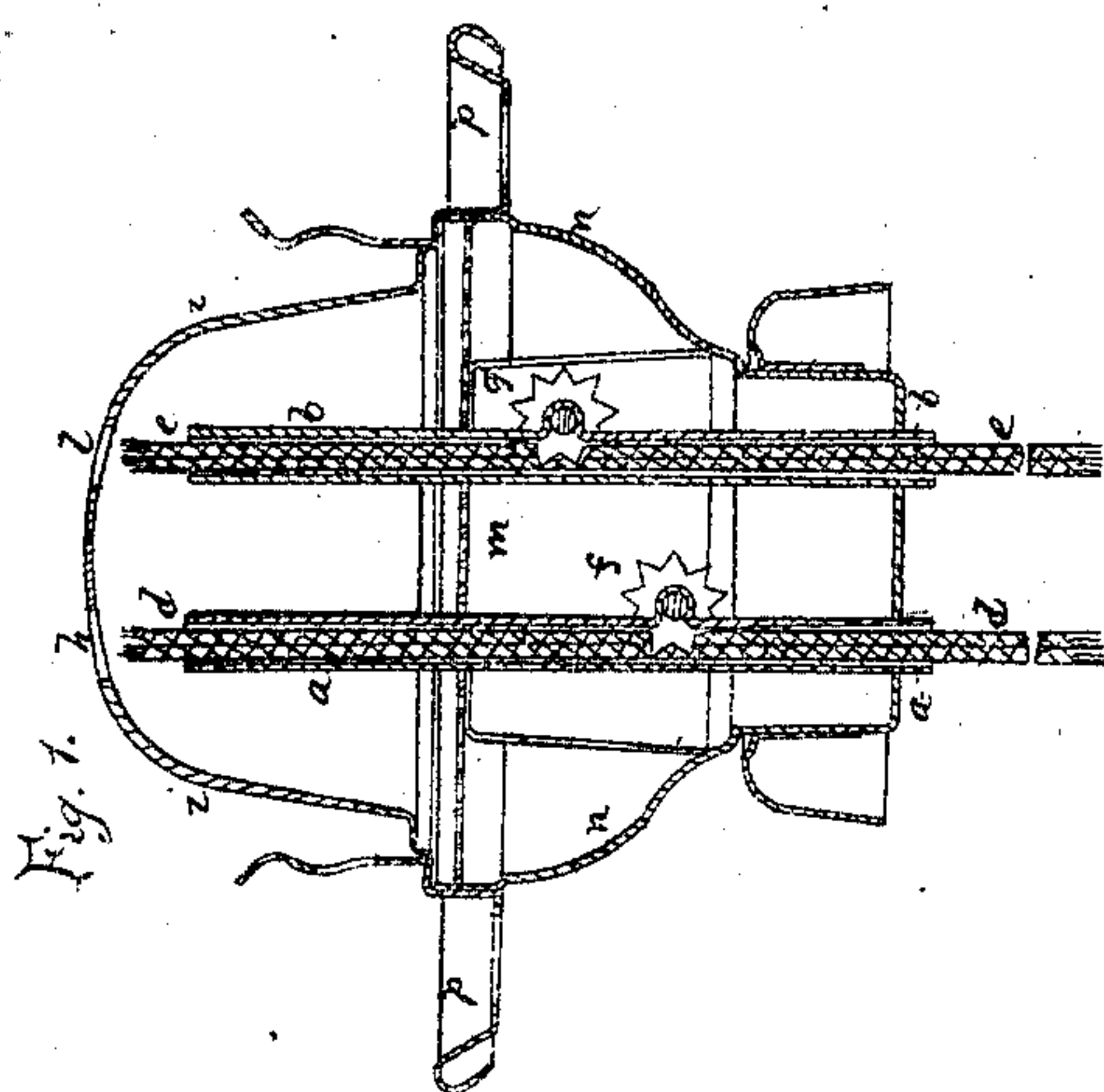
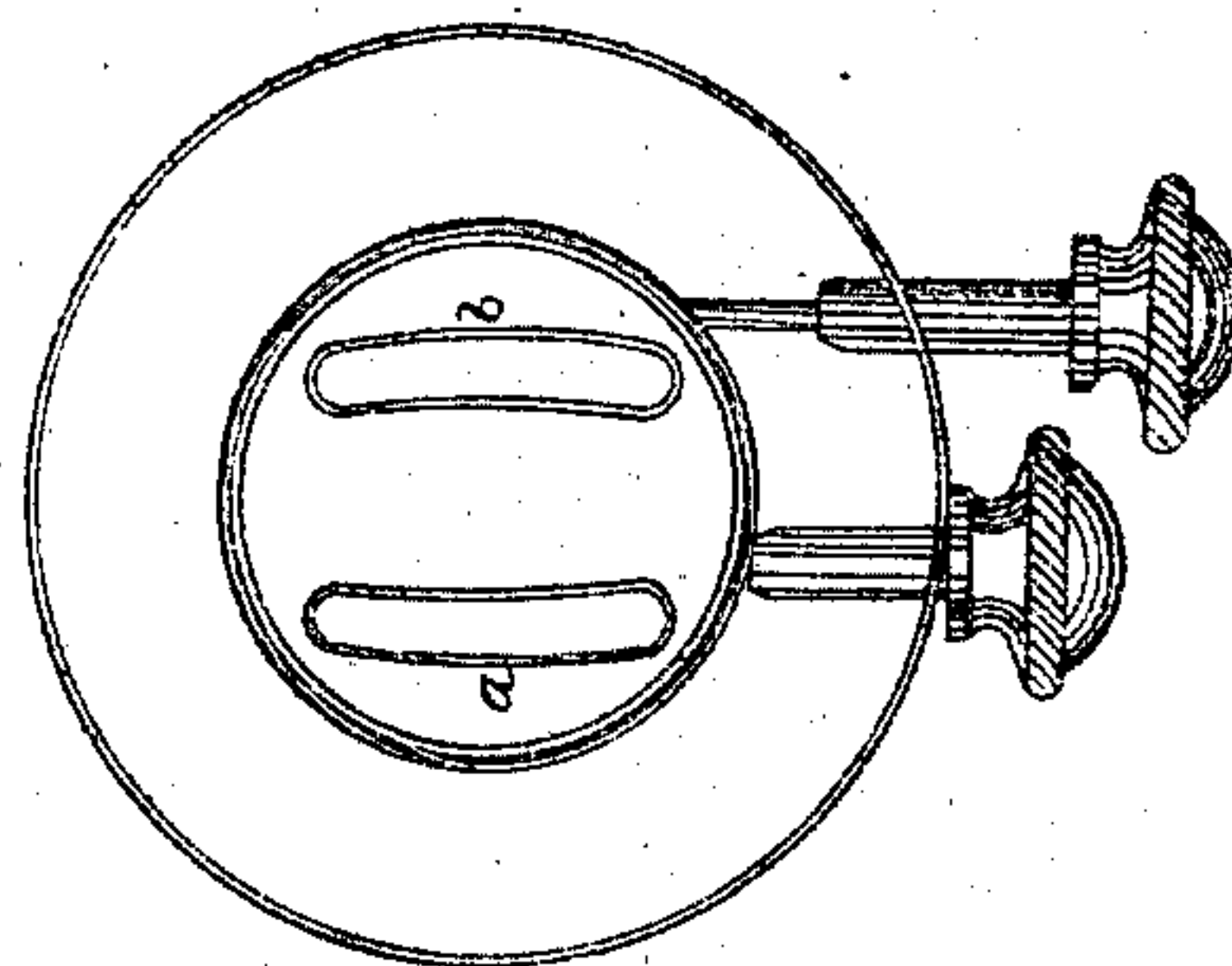


Fig. 1.



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JAMES HINKS AND JOSEPH HINKS, OF BIRMINGHAM, ENGLAND.

Letters Patent No. 72,040, dated December 10, 1867.

IMPROVEMENT IN LAMPS FOR BURNING PETROLEUM.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL TO WHOM IT MAY CONCERN:

Be it known that we, JAMES HINKS and JOSEPH HINKS, of Birmingham, in the county of Warwick, England, manufacturers, subjects of the Queen of Great Britain, have invented or discovered new and useful "Improvements in Lamps for Burning Petroleum Oil and other volatile liquid hydrocarbons;" and we, the said JAMES HINKS and JOSEPH HINKS, do hereby declare the nature of the said invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof; that is to say—

One part of our invention consists of the improvements, hereinafter described and illustrated in the accompanying drawing, in the burners of lamps for burning petroleum oil and other volatile liquid hydrocarbons, whereby two or more flat flames or an elliptical flame may be produced by the use of two or more single flat wicks. By the use of this part of our invention the danger of breaking the chimneys, which occurs from the use of a single flat wick, is wholly removed or much diminished.

This part of our invention consists in the employment in the same burner of two or more flat-wick cases or holders, in which said cases or holders single flat wicks are placed. Each of the said wick-cases is provided with an axis and pinion for raising and lowering the wick contained therein. The wick-cases or holders are either flat or slightly curved, or of the figure of semi-ellipses, or semicircular, so as to produce, when arranged in the burner, flat or elliptical flames. The cone or deflector has two or more straight or curved openings in it through which the wicks may pass.

Figure 1 represents in vertical section the burner of a lamp for burning petroleum oil and other volatile liquid hydrocarbons, the said burner being provided with two nearly flat wick-cases or holders, according to our invention.

Figures 2 and 3 represent elevations of the compound wick-holder, taken at right angles to one another.

Figure 4 is a plan of the wick-holder, the cone and gallery being removed, and

Figure 5 is a horizontal section of the burner.

Figure 6 is a portion of the burner.

a b is the double or compound wick-holder, in which two single flat wicks, *d e*, are placed, or one doubled wick, as represented. The pinions *f g*, for raising and lowering the wicks *d e*, pass through openings in the wick-cases, as represented. Instead of the compound wick-case represented, three or more wick-cases may be used. Each of the pinions *f g* is provided with an axis, by which it is turned. *i* is the cone or deflector of the lamp, the said cone *i* having two slightly-curved openings *k l* in it, through which the wicks *d e* may pass. Instead of employing a single cone or deflector, as represented, a double cone or deflector may be used, one wick passing through an opening in one of the cones, and the other through the opening in the other cone. Across the body of the burner is a perforated disk or plate, *m*, (shown separately in plan in fig. 6,) through which the air supplied by the perforated sides *n* of the burner passes to the flames. The gallery *p* is of the ordinary kind. In placing the two single wicks *d e* (or a doubled wick) in the cases or holders *a b*, the ends of the wicks are passed up the wick-tubes to the pinions *f g*. By rotating the pinions the wicks are carried up the wick-tubes *a b*, and the burner is ready to be placed in the lamp.

Instead of giving to the tubes of the compound wick-holder the curved figure represented in the plan, fig. 4, each tube of the wick-holder may be curved or of the figure of a semi-ellipse, or the said tubes may be straight, and the compound wick-holder may be made to contain more than two flat wicks, a corresponding number of openings being made in the cone or deflector for the wicks to pass through.

Another part of our invention consists of the improvements, hereinafter described, in constructing or arranging the shade-holders or galleries of lamps, and in supplying air to the flames.

Another part of our invention consists of the improvements, hereinafter described, in isolating the shade-holder from the shade, and in the construction of chimneys for lamps.

Another part of our invention consists of the improvements, hereinafter described, in constructing the caps or wind-protectors of lamps.

These improvements are specially applicable to lamps used in India, or where punkahs are used, and are illustrated in figs. 7 to 16, both inclusive, of the accompanying drawings.

Figure 7 represents in vertical section a complete lamp and punkah or wind-protector, constructed according to our invention.

a is the holder or gallery supporting the shade b , the said shade-holder or gallery being situated at the bottom of the burner or mount of the burner c . The shade-holder is carried by the rim a^2 . The shade-holder a is made of perforated metal or wire gauze, and is, by preference, of a diameter double that of the ordinary holder; it may, however, be made larger or smaller, as may be desired. The lamp c consists of a double flat-wick burner, of the kind hereinbefore described, having a chimney, d . The construction of this chimney is hereinafter explained. e is the reservoir, screwed to the bottom of the lamp or burner c . The said lamp or burner c is supported in the middle of the shade-holder a in the manner represented in the drawing, so that, when the said shade-holder is lifted by its rim a^2 from the stand, the said lamp c , reservoir e , and shade b are carried with it.

The stand on which the lamp is supported consists of a hollow pillar, f , on the summit of which is an ornamental vase or cup, g , the open mouth of which is of the same diameter as the inner flange of the rim a^2 of the shade-holder a . The manner in which the rim of the shade-holder rests in the vase g , and the position of the reservoir e of the lamp in the said vase, will be readily understood by an examination of the drawing.

Air for the support of combustion enters by perforations h^2 at the foot h of the pillar f , and, rising up the pillar and between the vase g and reservoir e , passes through the perforations or wire gauze of the shade-holder a to the perforations in the lamp or burner c , and from thence to the flames. In place of or in addition to perforations in the foot of the stand, for supplying air for combustion, perforations may be made in the pillar f or in the vase g . In lamps having no pillars we make the perforations in the vase itself. By the construction described, the lamp is protected from the currents of air produced by the punkahs, or otherwise produced, while still permitting of a free and large ingress of cold air to the inside of the shade to be supplied to the burner.

The punkah or wind-protector i , at the top of the shade b , consists of a dome or cap, having a perforated rim, i^2 , the said perforated rim being of a diameter somewhat greater than the diameter of the top of the shade b . The horizontal part i^3 of the rim of the protector i rests upon the top of the shade. The summit of the dome is perforated at k , and in the axes of the dome is a disk of a metal, l . When the dome or protector is placed on the top of the shade its perforated edge i^2 is situated beyond the edge of the said shade, so that cold air may enter freely at the perforated edge i^2 into the interior of the protector i , and, in combination with the hot air from the lamp, escape by the perforations at the summit of the protector, as indicated by the arrows. By the use of this dome or protector, in combination with the shade-holder represented, the lamp is protected both ways from the currents of air produced by the punkah, or otherwise produced. Instead of the plain disk l in the protector, a perforated disk or piece of wire gauze may be used, as represented in section in Figure 8, elevation in Figure 9, and plan of upper side in Figure 10.

When a cheap lamp is required, we admit air to the burner and construct the punkah or wind-protector in the manner illustrated in figs. 11 to 14, both inclusive, of the drawings—

Figure 11 being an elevation of a complete lamp, (the pillar being omitted.)

Figure 12 a plan of the shade-holder and gallery.

Figure 13 a section; and

Figure 14 a plan of the shade-holder or gallery and burner on a larger scale.

Figure 15 is a section, and

Figure 16 a plan of the punkah or wind-protector.

Figures 11, 12, 13, and 14 also represent our improvements in isolating the shade from the shade-holder or gallery.

m is the burner; n is the reservoir, screwed to the top of the pillar of the lamp in the ordinary way; o is the shade-holder or gallery supporting the shade; p and q is the chimney of the lamp. We make the shade-holder o of about four inches in diameter, instead of three inches, as usual, and we perforate the said shade-holder with a series of small holes, (see fig. 14,) for supplying air to the flame of the lamp. In the said shade-holder we make a series of indentations or depressions, in which we insert and fix disks or pieces of bone, wood, or other imperfect conductor of heat, marked r , the said disks or pieces r projecting a little above the plane of the bottom of the shade-holder o . (See the section, fig. 13.) Upon these projecting disks or pieces r we place and fix a ring, s , of wire gauze or perforated metal, and thereby form a chamber through which the air has to pass before it reaches the flame of the burner. The ring s is fastened in its place by the same pins which fasten the non-conducting disks r to the shade-holder. Upon the ring s of perforated metal or wire gauze the shade p rests.

By admitting air to the flame, only through the perforations in the bottom of the shade-holder and perforated ring above it, as described and represented, the currents of air produced by the punkahs or other source are prevented from acting upon the flame and causing the lamp to smoke, and, by means of the non-conducting disks or pieces r , upon which the shade rests, the said shade is isolated from the shade-holder, and the said shade-holder is thereby prevented from being heated by the said shade, and by the punkah or wind-protector at the top of the said shade. The oil in the reservoir n is thus kept cool.

We make the body t of the punkah-protector at the top of the shade p of a taper tube, of wire gauze or perforated metal, the taper of the said body being greater than usual; that is, we make the base of the body t about four inches in diameter, and the summit about two inches, instead of three inches, as usual. We surmount the body t of the protector by a cap or cover, u , of a dome shape, the bottom of the said cap being perforated at u^2 , and the top being also perforated at u^3 . The summit of the cap u has also a hollow or tubular termination, u^4 . Across the cap a disk or diaphragm, of wire gauze or perforated metal, v , is fixed. The cold air enters the cap at the bottom perforations u^2 , and, in combination with the heated air from the lamp, escapes by the top perforations u^3 and hollow termination u^4 , as indicated by the arrows in fig. 15. By making the body

of the punkah or wind-protector of the taper represented, a free egress of the heated air from the shade-holder or glass *p* is obtained, and, by making the cap or cover surmounting the said body in the manner described and represented, a direct egress of the heated air from the chimney *q* is also obtained.

We make the chimneys *d* and *q* of the lamps, figs. 7 and 11, and other lamps burning liquid volatile hydrocarbons, conical, either circular or elliptical in cross-section, in place of the ordinary bulged shouldered chimney. Our said chimney tapers from nearly the middle towards each end, as represented.

By the use of a chimney of the kind represented, a free egress of the heated air, combined with an equal expansion of every part of the chimney by heat, is obtained, and hence the chimney is less liable to break than the ordinary bulged chimney.

Having now described the nature of our invention, and the manner in which the same is to be performed, we wish it to be understood that we do not limit ourselves to the precise details herein described, and illustrated in the accompanying drawings, as the same may be varied, without departing from the nature of our invention; but

We claim as our invention of improvements in lamps for burning petroleum oil and other volatile liquid hydrocarbons—

1. Constructing the burners of the said lamps substantially in the manner hereinbefore described, and illustrated in figs. 1, 2, 3, 4, 5, and 6 of the accompanying drawings, that is to say, the combination in the same burner of two or more flat or curved wick-cases or holders, in which two or more flat wicks are placed, so as to produce thereby two or more flat flames or elliptical or nearly circular flames.

2. Constructing and arranging the shade-holders or galleries of the said lamps, for the purpose of admitting air to the flames, substantially in the manner hereinbefore described, and illustrated in figs. 7, 11, 12, 13, and 14 of the accompanying drawings.

3. Supporting the shade-holders or galleries in a vase or cup on the top of the pillar of the lamp, and supplying air to the lamp through the said pillar or vase, or supporting them in a cup or vase without a pillar, the air in this case being supplied through the vase, substantially in the manner hereinbefore described, and illustrated in fig. 7 of the accompanying drawings.

4. The improvement described, and illustrated in figs. 11, 12, 13, and 14 of the accompanying drawings, for isolating the shade from the shade-holder or gallery.

5. The arrangement or combination of the parts of punkah-protectors or wind-protectors, substantially in the manner hereinbefore described, and illustrated in figs. 7, 8, 9, 10, 11, 15, and 16 of the accompanying drawings.

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