No. 771,425. PATENTED OCT. 4, 1904.

O. GRÖNBLADH.

PETROLEUM INCANDESCENT LAMP BURNER.

APPLICATION FILED OCT. 8, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

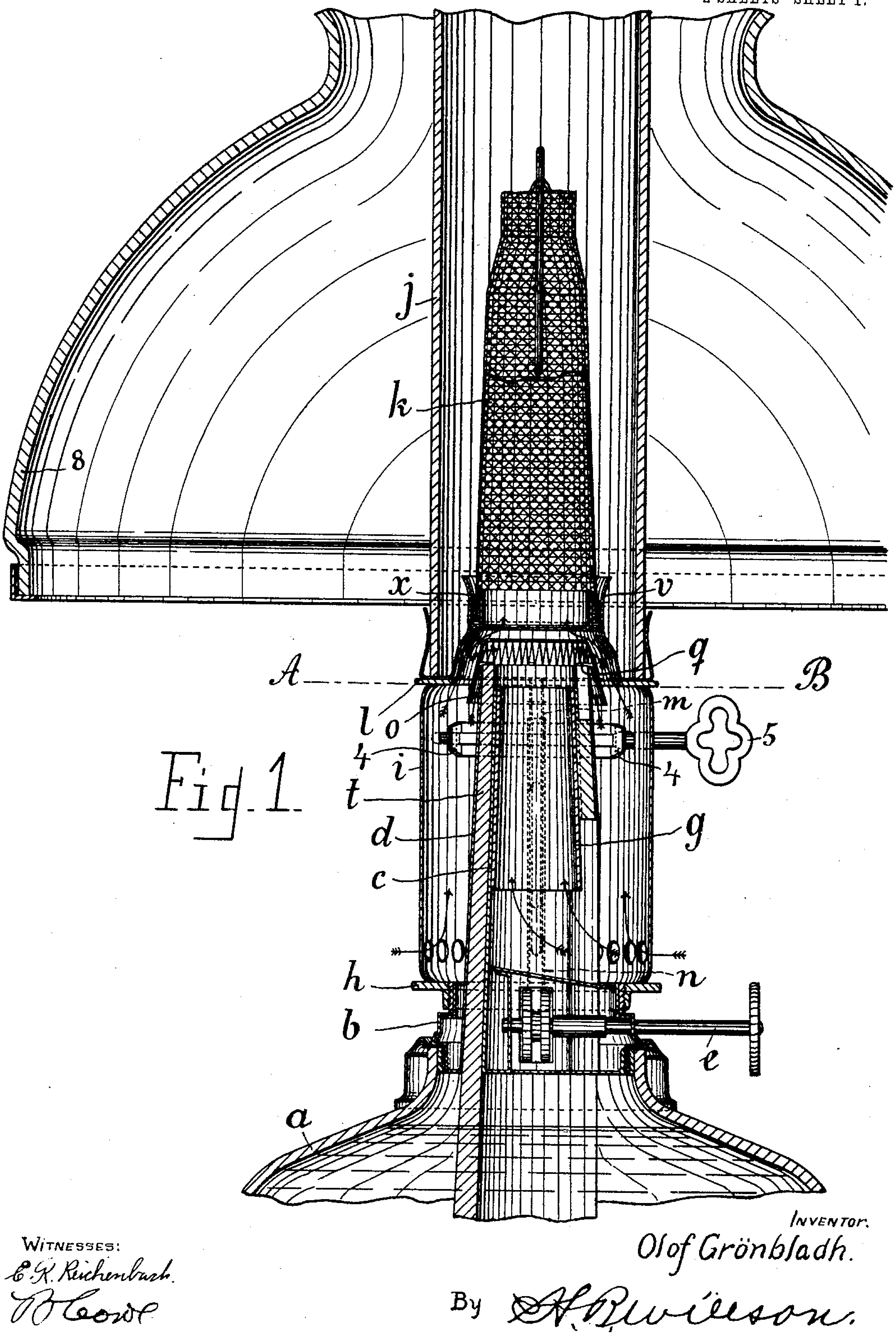

Fig. 1

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.

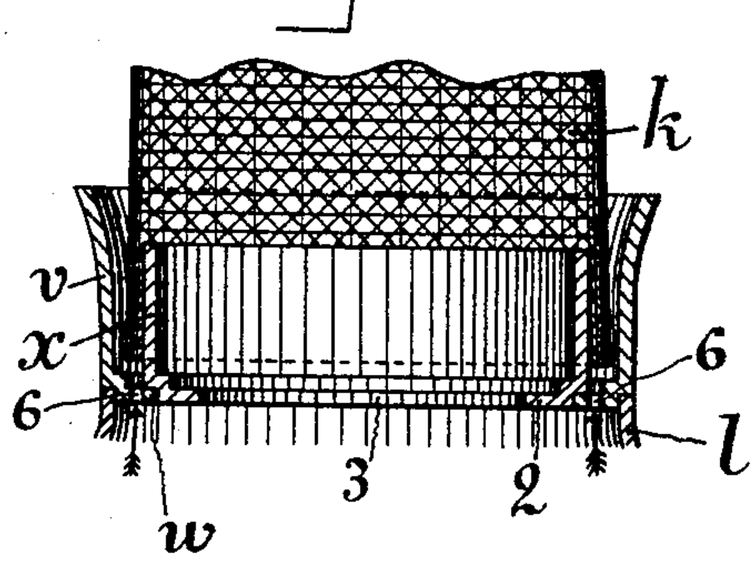
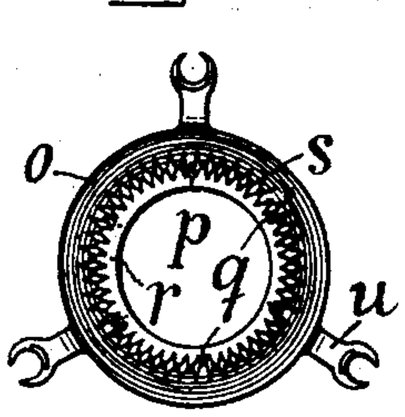


Fig. 3.



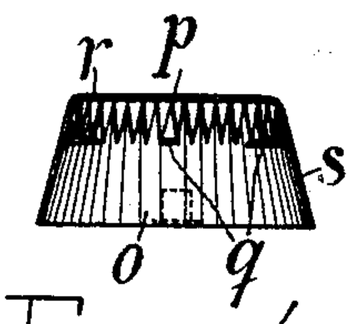
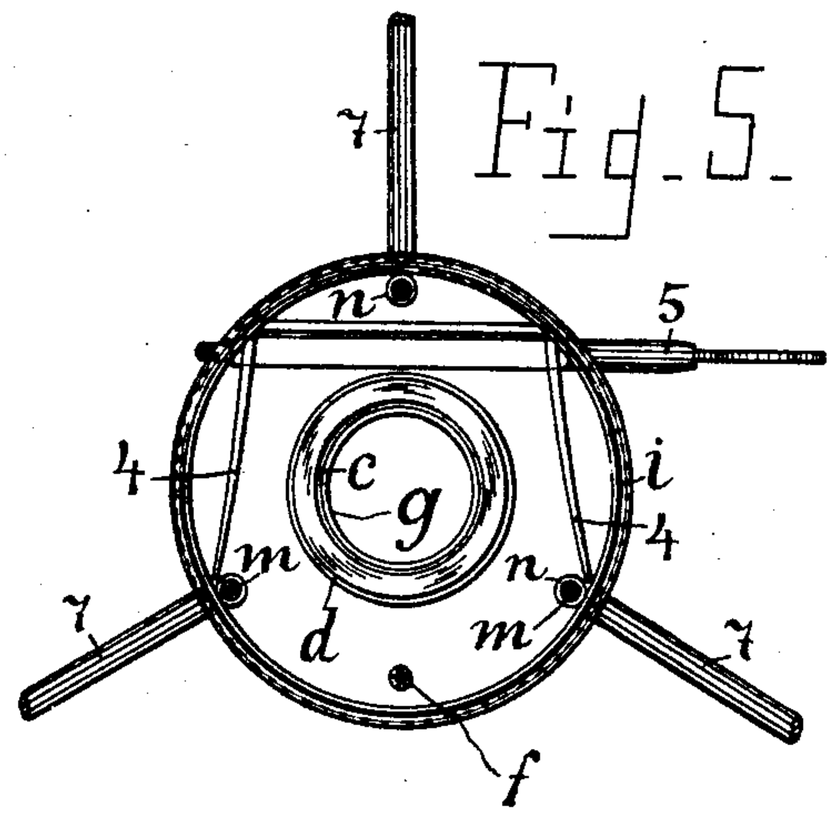


Fig. 4.

Fig. 5.



WITNESSES:
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No. 771,425. Patented October 4, 1904.

UNITED STATES PATENT OFFICE.

OLOF GRÖNBLADH, OF STOCKHOLM, SWEDEN, ASSIGNOR OF ONE-HALF TO BALTZAR GRILL, OF STOCKHOLM, SWEDEN.

PETROLEUM-INCANDESCENT-LAMP BURNER.

SPECIFICATION forming part of Letters Patent No. 771,425, dated October 4, 1904.

Application filed October 8, 1903. Serial No. 176,302. (No model.)

To all whom it may concern:

Be it known that I, OLOF GRÖNBLADH, a subject of the King of Sweden and Norway, and a resident of Stockholm, Sweden, have invented a new and useful Petroleum-Incandescent-Lamp Burner, of which the following is a specification.

My invention relates to improvements in petroleum incandescent lamps having a wick, on the top of which the petroleum is evaporated by means of a flame burning on the inside of said top; and the objects of my invention are, first, to avoid the loss of heat and fuel caused by using two different flames, as hitherto proposed—viz., an evaporating flame and a blue flame with a mixing-chamber of considerable height between them; second, to make the adjustment of the flame of this incandescent lamp as easy as the adjustment of the old well-known petroleum-lamp; third, to afford a proper guide for the lower part of the incandescent mantle, and, fourth, to simplify the whole construction, and thus reduce the cost of manufacturing. I attain the first, second, and fourth objects by eliminating the high mixing-chamber and using one flame only instead of two. For this purpose I place a perforated cap, having a large central opening in its top, on the top of the wick in such a manner that a narrow free space is formed between them, and the upper part of the burner bearing the glass chimney and the incandescent mantle I place near above said cap and cause the flame to ascend directly from the wick through the central opening of the cap and a similar central opening in the bottom of said chimney-holder into the incandescent mantle, the adjustment being effected by simply turning the usual adjusting-pinion, whereby the air-admitting space above the cap to the outside of the flame is regulated and balanced with regard to the central air-supply through the inner wick-tube to the inside of the flame.

In the accompanying drawings, Figure 1 is a vertical section of a lamp having a burner constructed according to this invention, the upper and lower and right part being broken away from want of space. Fig. 2 shows a part of Fig. 1 on a larger scale. Fig. 3 shows the cap in plan. Fig. 4 is a vertical section of the cap. Fig. 5 is a horizontal section on A B, Fig. 1.

It should be noted, however, that the special construction shown in the drawings is to be understood as an example only. In this example the invention is applied on a petroleum lamp of the usual form in order to show that such one can be utilized and with small expenses transformed to a petroleum incandescent lamp of my new type. The petroleum-reservoir *a*, the part *b*, screwed into its mouth, the wick-tubes *c d*, fastened in the part *b*, the wick-raising device *e*, mounted in said part *b*, and the short tube *g*, partly closing the lateral opening in the wick-tubes, belong to the old lamp and can be used in the new one without any alteration. The other parts of the old burner are taken away and substituted by new ones. These new parts are the following: a ring *h*, screwed on the wick-tube holder *b;* a perforated shell *i*, resting on the ring *h*, (or eventually made in one piece with the same;) a cap *o* on the top of the wick, and, lastly, the upper part *l*, which serves as support for the glass chimney *j* and the incandescent mantle *k*. This part can be shifted up and down for getting access to the cap and top of wick and is guided by means of three vertical pins (or pipes) *m*, fixed to the under side of the same and passed in (or over) pipes (or pins) *n*, fastened to the ring *h*. (If the shell *i* is rigidly connected to the ring *h*, the pipes *n* may be substituted by lugs or the like on the shell.)

The cap *o* has in its top a wide opening of about the same diameter as the top of the inner wick-tube. The horizontal part of the cap consists only of a narrow ring *r*, which may be formed by bending the upper edge of the conical side wall *s* inwardly. The ring *r* and the side wall *s* are perforated, and the remaining bridges between the perforations should preferably be as narrow as possible. In order to keep the ring *r* in the proper distance (about five millimeters) above the top of the wick *t*, I cause it to rest on the wick by means of small teeth *q*, projecting inwardly

from the side wall *s*. The diameter of the latter should be so large that in this position a sufficient space for air-supply to the evaporating-surface of the wick is provided for between the cap and the outer wick-tube. The cap follows the movements of the wick. If the latter is lowered beneath the top of the wick-tubes, the cap will rest on the tube until the wick is raised again. The arms *u*, extending from the lower edge of the side wall *s*, are adapted to slide along the pins *m* or tubes *n*, whereby the cap is guided.

The bottom of the upper part *l* may be obconic or inversely funnel-shaped in the center, as shown, thus forming a wide central opening in said bottom; but the opening should preferably be somewhat contracted below the top. For this purpose and for simultaneously affording a suitable guide for the lower edge of the incandescent mantle a ring *v*, with inwardly-projecting lower edge *w*, is placed in the upper mouth of the funnel, and an inner ring *x*, with inwardly-projecting lower edge 2, rests on the edge *w* of the outer ring *v*, a sufficient space being left between the rings *v* and *x* for receiving the lower edge of the incandescent mantle *k*. The opening 3, formed by the edge 2, should have about the same diameter as the opening *p* in top of the cap *o*, so that the flame burning on the inside of the free top of the wick can ascend directly through said openings *p* 3 into the incandescent mantle *k*, the edge 2 and the ring *x* thereby helping to give to the flame the proper form.

For igniting the lamp the upper part *l* should be raised, so that a burning match can be introduced to the wick above the top of the shell *i*. (This raising of the part 1 can be effected, for instance, by turning the little axle 5 so that the arms 4, fixed to it, are pressed against the bottom of the part 1.) When the wick has been ignited and the part *l* lowered to its normal position, (so as to rest on the top of shell *i*,) the flame is regulated by turning the usual adjusting-pinion *e*, the proper blue flame being formed at once when the cap *o* is raised to a suitable distance beneath the part 1 respecting the edge 2. The lamp is extinguished by simply turning the pinion *e* backward, so that the wick is lowered.

Through the small holes 6 in the edge *w* an additional air-supply to the outside of the blue flame in the incandescent mantles is obtained.

The arms 7 for supporting the lamp-globe 8 may be fixed to the shell *i* or to the part 1.

As already stated, I do not limit myself to the exact form and construction above described, and shown in the drawings, as the details may be varied infinitely within the scope of my invention. So, for instance, I sometimes use a corrugated cap *o* instead of a smooth one, or I may use a cap of network instead of perforated sheet metal, and so on, the essential part of my invention being the use of one flame only instead of two.

I claim—

1. In a vapor-incandescent-lamp burner, the combination with a lamp-font having a wick-tube and guides upon the outside of said tube, of an adjustable wick in said tube, having its upper end projecting above said tube, an incandescent-mantle support mounted above said wick, a frusto-conical-shaped cap disposed between said wick and said support and having a central opening in its top and a foraminated portion adjacent to said opening, guide-arms upon said cap adapted to engage said guides upon the lamp-font, and projections upon the interior of said cap adapted to engage the top of said wick to space the former from the latter, substantially as described.

2. In a vapor-incandescent-lamp burner, the combination of a lamp-font, a wick-tube upon said font, a casing mounted upon said font and surrounding said tube, a vertically-movable combined chimney-holder and mantle-support mounted upon said casing above the upper end of said tube, guides for said combined holder and support, a rock-shaft mounted in said casing, and an arm upon said shaft adapted to raise and lower said combined holder and support, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

OLOF GRÖNBLADH.

Witnesses:

L. ROWELL,

OSKAR RINGSTRÖM.