No. 805,951. PATENTED NOV. 28, 1905.

W. S. HAMM.

WICK RAISING ATTACHMENT FOR LANTERNS.

APPLICATION FILED NOV. 2, 1904.

2 SHEETS—SHEET 1.

Fig. 2.

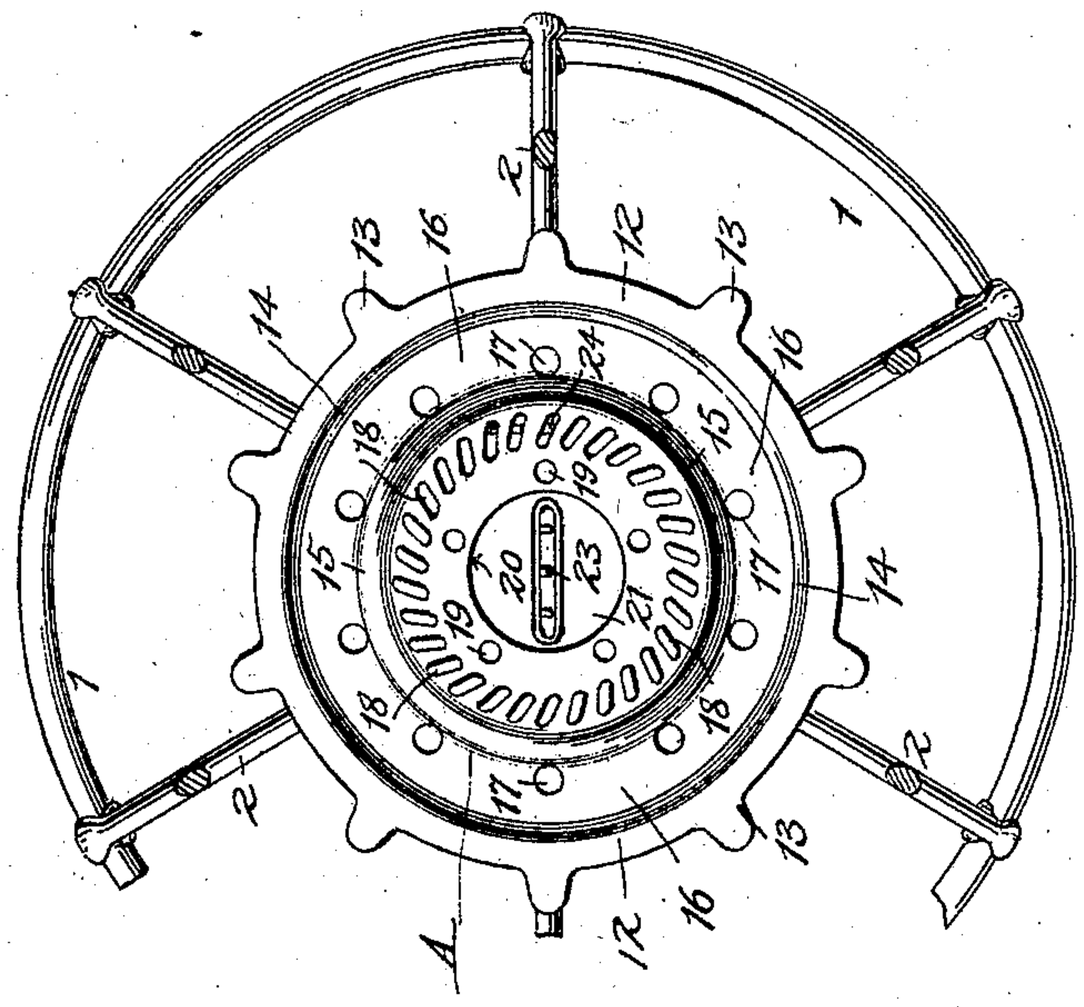

Fig. 1.

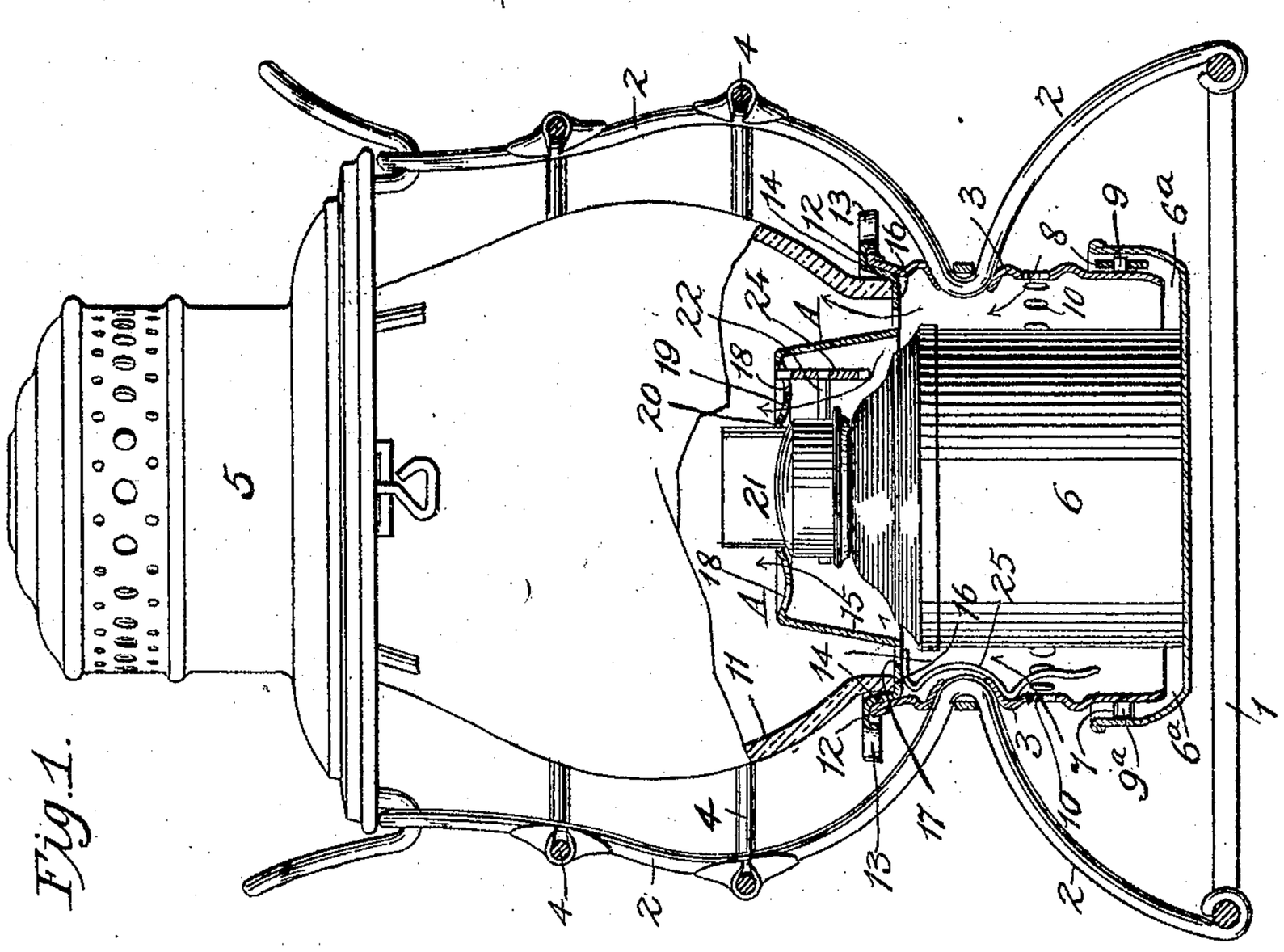

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Fig. 3.

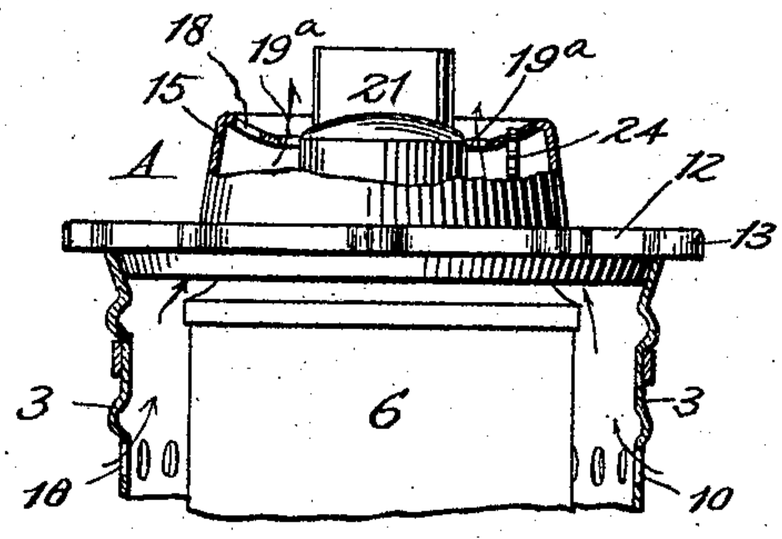


Fig. 4.

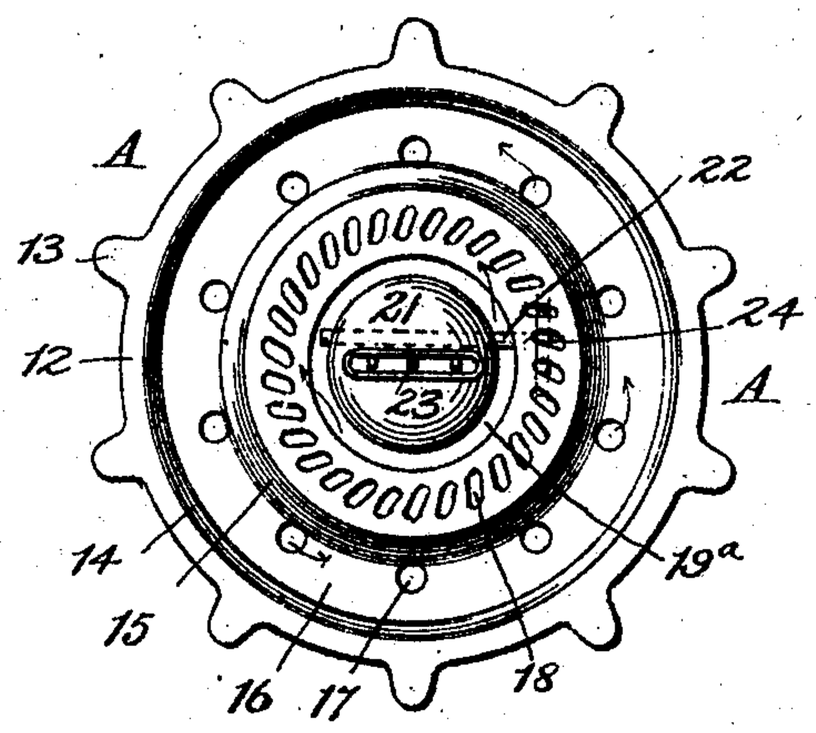


Fig. 5.

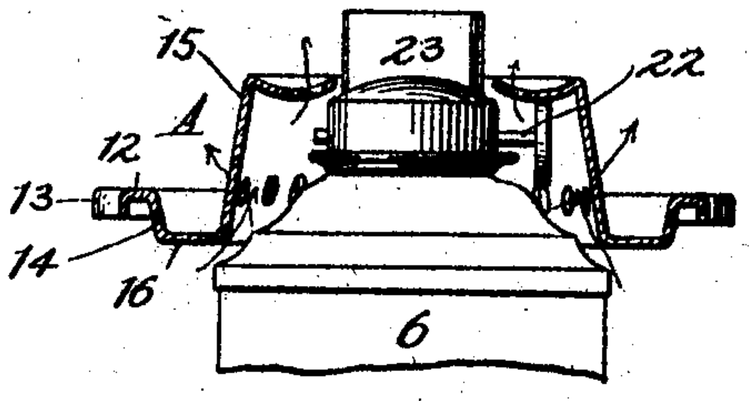
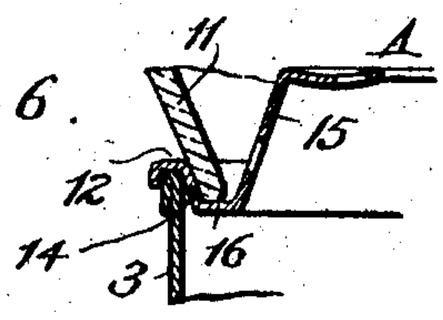


Fig. 6.



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UNITED STATES PATENT OFFICE.

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WICK-RAISING ATTACHMENT FOR LANTERNS.

No. 805,951. Specification of Letters Patent. Patented Nov. 28, 1905.

Application filed November 2, 1904. Serial No. 231,105.

To all whom it may concern:

Be it known that I, WILLIAM S. HAMM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Wick-Raising Attachments for Lanterns, of which the following is a specification.

This invention relates to an outside wick-raising attachment more especially intended for a hand-lantern for railroad use and is capable of performing two important functions.

In railroad practice it is important that the user of the lantern shall be able to adjust the wick from the outside instead, as in the more ordinary construction of such lanterns, of having to remove the oil-pot or, in some cases, optionally, to raise the cap of the lantern and lift the globe in order to reach the wick-raising spindle within the globe. These operations are inconvenient and at times dangerous, because of the extinguishment of the flame by gusts of wind. By the use of the outside wick-raising attachment the wick may be raised or lowered without the removal of the oil-pot or the lifting of the globe. Secondly, this invention prevents the extinguishment of the flame as the lantern is raised, lowered, or swung as in the actions of signaling or when subjected to a sudden jerk or jar. Heretofore the flame of a railroad hand-lantern of the general class to which this improvement relates and unprovided with a feature entering into my invention when the lantern would be subjected to jerks or jars would be immediately extinguished, the result often being that great danger resulted by the failure of a signal at a critical moment. All railroad hand-lanterns heretofore made, in fact, all lanterns, with the exception of certain of those of the "tubular" type, are exposed to this danger, in that the light may be put out with the least jerk or jar, the cause being that when the lantern is jerked or jarred the air is caused to rush past the flame, it being thereby robbed of the amount necessary to sustain combustion. The flame being inadequately supplied with air necessarily goes out. I have therefore invented a device which while capable of performing the functions of an outside wick-raiser also provides means whereby air-currents entering the perforated hoop of the lantern shall at all times sufficiently feed the flame regardless of the sudden jerks or jars to which the lantern is exposed and shall especially prevent a vacuum at the combustion-point, which necessarily results in the immediate extinction of the flame. Furthermore, my invention provides means whereby air-currents are supplied to the interior of the globe to prevent the latter from becoming overheated.

In the accompanying drawings, Figure 1 is a vertical section of a lantern, showing the invention. Fig. 2 is a plan thereof. Fig. 3 shows in elevation a modification, and Fig. 4 the same modification in plan view; Fig. 5, a further modification. Fig. 6 shows a feature hereinafter described.

Similar reference characters indicate similar parts in the respective figures.

1 is the base of the lantern, to which are attached guard-wires 2, connecting with the annular hoop 3 in any suitable manner and which, extending upwardly to form the correct shape of the guard, unite with the series of horizontal rings 4. To the upper one of the latter is hinged the cap 5. Formed with the oil-pot 6, at the lower part thereof, is a cup 6^a, in the wall of which is the slot 7 of a bayonet-joint, and to which wall is attached the spring 8, the free end of the spring being adapted to fit over a pin 9, projecting from the hoop 3, and the slot 7 over a similarly-projecting pin 9^a. The hoop above the cup 6^a, which fits over it, is provided with a row of perforations 10, through which the necessary supply of air is received for admission to the interior of the globe 11 and to the flame to support combustion.

A represents a cap having an outer flange 12, which fits over the upper edge of the hoop 3 and is provided with fingers or projections 13, used in rotating the cap upon the hoop for a purpose hereinafter mentioned. The cap is furnished with a shoulder 14, which neatly fits the interior of the hoop, and with a skirt 15. In the horizontal space 16 are perforations 17, and in the top of the cap are cut rack-teeth 18. As shown in Figs. 1 and 2, a row of perforations 19 immediately surrounds the central opening 20, which fits around the burner 21. The burner is provided with a wick-spindle 22 and an internal star-wheel 23, as usual; but instead of the button ordinarily used with the spindle in hand-raising wick attachments a gear-wheel 24 is used, which engages the rack-teeth 18,

formed in the upper portion of the cap A. It will therefore be seen that by the rotation of the cap, which is conveniently effected by manipulating the fingers 13, the wick-raising spindle 22 is revolved and the wick raised or lowered, as may be required. In order to preserve the necessary frictional contact between the cap A and the interior of the hoop 3, I provide springs 25, which are attached to the outside of the cap, as shown, and rest with spring force against the hoop. These springs while preserving the position of the cap with relation to the hoop do not prevent the rotation of the former. Apart from acting as a part of the outside wick-raiser the inner surface of the skirt of the cap as the lantern is jerked or jarred will direct the current or currents of air admitted to the hoop at the perforations 10 through the perforations in the upper portion of the cap to the interior of the globe. Thus the air will be directed through the spaces between the rack-teeth 18 and also through the inner row of perforations 19, and by reason of the latter being in immediate proximity to the point of combustion whatever sudden jerk or jar may be given the lantern the incoming air is directed to the flame and cannot be made to rush past it. Therefore the production of a vacuum or partial vacuum in the region of the flame is impossible and in consequence the flame cannot be extinguished.

In Figs. 3 and 4, instead of the row of perforations 19, (shown in Figs. 1 and 2,) an annular opening 19ª is provided around the annular base of the burner, the advantages of which are that air-currents may be injected into the body of the lantern more closely to the point of combustion than can be done with the row of holes 19, and that a greater volume of air is obtained at the point of combustion through the annular opening than is obtainable through a row of small holes.

The blanks in the horizontal space 16, between the perforations 17, act in conjunction with the row of perforations 19, as shown in Figs. 1 and 2, or the annular opening 19ª of Figs. 3 and 4 to check the tendency of the air-currents to pass upward and out of the top of the lantern without reaching the flame when the lantern is subjected to a sudden jerk or jar and to force the air-currents, or a large percentage of them, through the holes or opening around the burner, thus preventing a vacuum at the combustion-point, and therefore rendering impossible the extinguishment of the flame. The perforations 17, just within the bottom edge of the globe, perform the function of admitting air to the interior of the globe, whereby the latter is preserved from becoming overheated.

While in my preferred form of construction a rack and gear-wheel attachment is used as a part of the wick-raiser, approximately the same results may be obtained by the employment of a frictional device, as illustrated in Fig. 5. In that figure instead of the gear-wheel 24 a friction-wheel is used which engages the under side of the cap A, and the rotation of the cap, owing to its engagement with the friction-wheel, will cause the raising or lowering of the wick. Fig. 5 also shows a modified form of construction, in that instead of placing perforations 17 in the horizontal space 16 similar perforations are placed in the wall of the skirt 15, the space 16 being solid or imperforate. In Fig. 6 the cap A is shown used with a globe 11, from which the ordinary bottom vertical flange is omitted. Such frictional gear I consider the equivalent of the "rack-gear," and where that term is used in the claims it is intended to cover the frictional gear.

My invention is seen to meet in a simple manner two important conditions of lantern service. In the first place it furnishes a convenient and reliable outside wick-raising attachment, and, secondly, in the production of that device provides means whereby the signaling power of the lantern shall at all times be available without danger of extinguishment of the flame under conditions to which such lanterns are commonly exposed.

I do not restrict myself to the exact details of construction, combination, and arrangement herein set forth, it being obvious that minor variations thereof not involving the exercise of invention may be made by the skilled mechanic, and such departures from what is herein described and claimed not involving invention I consider as within the scope and terms of my claims.

Having thus described my invention, I claim—

1. In a lantern, a body-hoop and a rotatable cap forming a seat for the globe and fitting said hoop, said cap being provided with a skirt and a top having rack-teeth, combined with a burner having wick-raising means including a gear-wheel in engagement with the rack, substantially as set forth.

2. In a lantern, a body-hoop provided with perforations for the admission of air, and a rotatable cap forming a seat for the globe and fitting said hoop, said cap being provided with a skirt and a top having rack-teeth and means for admitting air into close proximity to the center of the cap, combined with a burner having wick-raising means including a gear-wheel meshing with the rack, substantially as set forth.

3. In a lantern, a body-hoop provided with perforations for the admission of air, and a rotatable cap forming a seat for the globe and fitting said hoop, said cap being provided with a skirt and perforations at the base thereof and having its top furnished with rack-teeth and means for admitting air into close proximity to the burner, combined with a burner having wick-raising means including a gear-

wheel in engagement with the rack, substantially as set forth.

4. In a lantern, a body-hoop and a rotatable cap forming a seat for the globe and fitting said hoop and furnished with exterior fingers, a skirt and a top having rack-teeth, combined with a burner having wick-raising means including a gear-wheel in engagement with the rack, substantially as set forth.

5. In a lantern, a body-hoop and a rotatable cap forming a seat for the globe and fitted to said hoop, said cap having means for frictional engagement with the hoop and being provided with a skirt and a top furnished with rack-teeth, combined with a burner having wick-raising means including a gear-wheel in engagement with the rack, substantially as set forth.

6. In a lantern, a body-hoop provided with air-inlets, and an oil-pot removably fitted to the hoop and having a burner provided with a wick-raising spindle and a gear-wheel mounted thereon, combined with a ventilated rotatable cap forming a seat for the globe and fitted upon the hoop and provided with a skirt and a top furnished with rack-teeth, said teeth engaging the gear-wheel of the wick-raising spindle, substantially as set forth.

7. In a lantern, a body-hoop and a rotatable cap forming a seat for the globe and fitted to said hoop and provided with a skirt, combined with a burner and wick-raising means, the latter having rotative contact with the top wall of said cap, substantially as set forth.

8. In a lantern, a body-hoop and a one-piece rotatable cap forming a seat for the globe and fitted to said hoop, combined with a burner and wick-raising means, the latter having rotative contact with the top wall of said cap, substantially as set forth.

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

WILLIAM S. HAMM.

Witnesses:

EDGAR ANDREWS,

P. G. EMERY.