(No Model.)

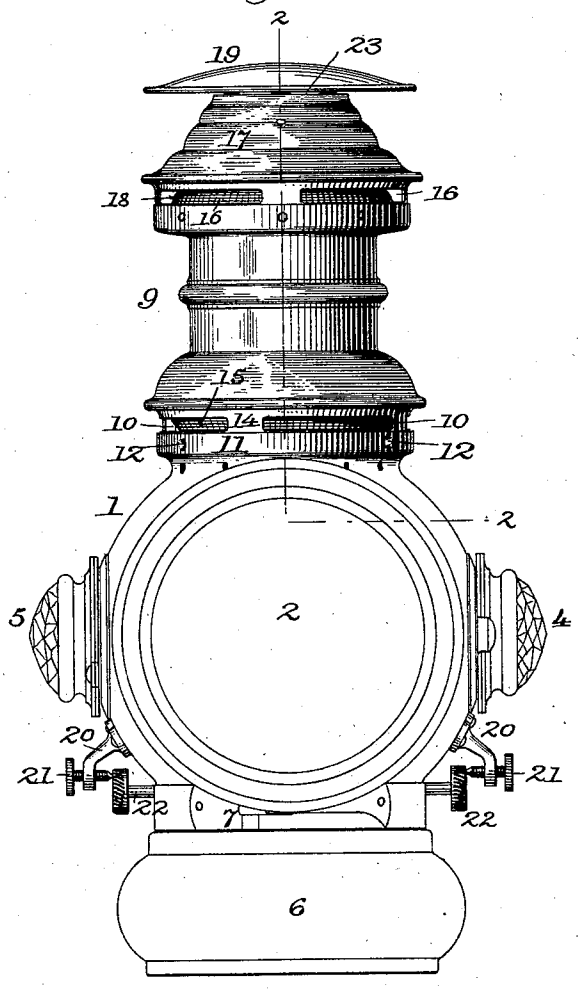
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W. S. HAMM.

BICYCLE LAMP.

No. 588,904. Patented Aug. 24, 1897.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

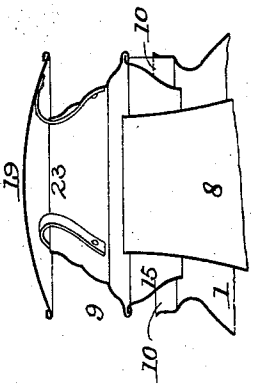
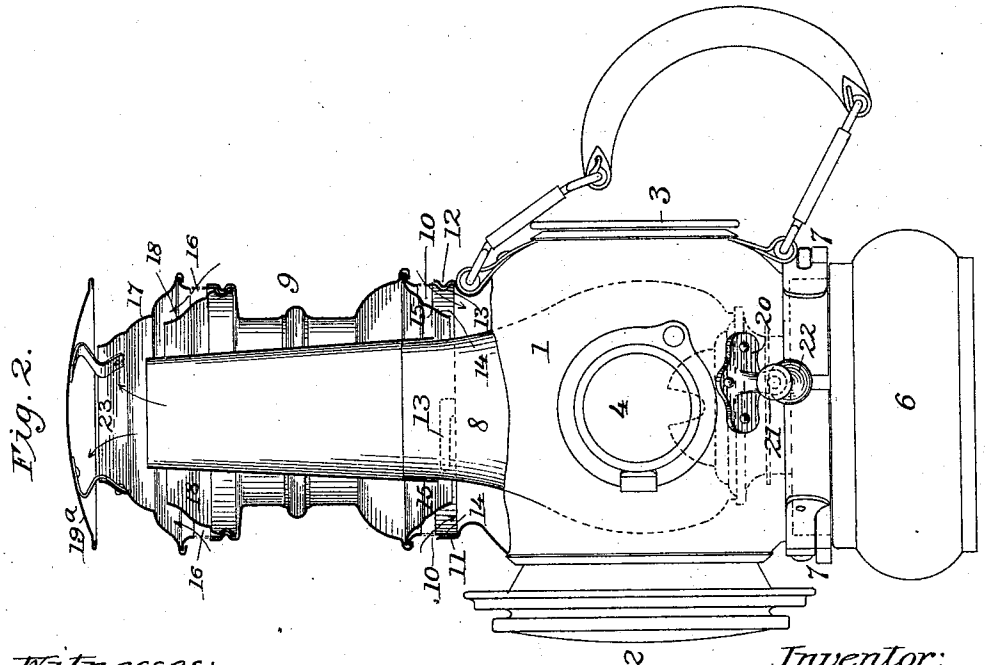


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM S. HAMM, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE ADAMS & WESTLAKE COMPANY, OF ILLINOIS.

BICYCLE-LAMP.

SPECIFICATION forming part of Letters Patent No. 588,904, dated August 24, 1897.

Application filed February 2, 1897. Serial No. 621,659. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. HAMM, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bicycle-Lamps, of which the following is a specification, reference being had to the accompanying drawings, and to the numerals of reference marked thereon.

My invention has reference to lamps or lanterns used on bicycles and vehicles of like kind, and is an improvement upon the device shown in Letters Patent No. 564,882, granted to me July 28, 1896.

The object of the present invention is to so construct a lantern that the brilliancy and steadiness of the flame cannot be impaired either by a strong wind or draft or by the sudden, rapid, and unequal vibrations to which a lantern of this character is subjected when in use.

In the accompanying drawings, Figure 1 is a front elevation of a lamp or lantern embodying my invention. Fig. 2 is a side elevation of the same, the upper portion being shown in section on the line 2 2 of Fig. 1. Fig. 3 is a sectional view of the upper portion of a lamp or lantern constructed in accordance with my patent above mentioned.

The case or body 1 of the lantern is made of spherical form, having a lens 2 in front, a reflector 3 at the rear, side lights 4 5, an oil-pot 6 connected to the bottom of the body 1 by bayonet-joints 7, and a suspending-link riveted to the body at points above and below the reflector. A chimney 8 within the case 1 surrounds the burner and extends upward through the body of the lamp into the cap 9, which cap is provided with openings 10 for the admission of fresh air to the burner.

The above parts, except as hereinafter modified, are the same as shown and described in my Letters Patent above cited.

The top of the case 1 is open and surrounded by a ring 11, from which project inwardly studs 12, usually formed by indenting the metal of the ring.

The cap 9, which is higher than that shown in my previous patent, is connected to the body 1 by means of bayonet-grooves 13, formed in a vertical flange 14, depending from the cap 9, which flange is made to fit within the ring 11, the studs 12 and grooves 13 interlocking with each other and securing the cap in place. The air-inlets 10, heretofore described, are formed in the flange 14.

Depending from the bottom of the cap 9, within the flange 14, is a conical wind-cone 15, to direct the entering air downwardly between the chimney 8 and the body 9 to the burner.

The cap 9 extends upwardly from the flange 14 about two inches, where a second series of air-inlets 16 are made in the top piece 17 of the cap 9, the said top piece being united to the cap by a flange and ring on the respective parts and secured by means of rivets or indenting the metal of the two parts.

A wind-cone 18 projects upwardly from the top piece 17 from a point below the air-inlets 16, which directs the entering air toward the outlet.

The top piece 19 is open at the upper part 23 for the escape of the products of combustion, but it is surmounted by a cover 19^a to protect the flame of the lamp from wind and rain.

The chimney 8, which is similar to the one shown in my said patent and held in place by the same means—namely, the supports for the lens, reflector, and side lights—is, however, made taller, so that it extends up into the cap 9 above the air-inlets 10 and 16, for a purpose to be hereinafter described.

Much trouble is experienced at times when riding over rough roads by the wick dropping from the vibration of the lamp. This causes the light to grow dim or be extinguished. To overcome this defect, I have provided the lock seen in Figs. 1 and 2. As therein shown, I rivet or otherwise attach to each side of the body 1 under the side light a bracket 20, carrying a pointed set-screw 21, in position to engage with the turn-buttons of the wick-raiser 22, one of which projects laterally from each side of the lamp. After the lamp has been lighted and the wick adjusted to the

proper height by turning the set-screws 21 the pointed ends thereof engage the turn-buttons of the wick-raiser and hold it firmly in the desired position. While I have shown two locks it is obvious that one only need be employed.

The great desideratum in a bicycle-lamp is a bright flame which cannot be impaired by wind or by the jolting to which such a lamp is necessarily subjected.

Long experience with lamps and lanterns has shown me that for lamps exposed to strong wind a top draft for supplying air to the flame is the best. A bicycle-lamp of this character is shown in Fig. 3 and in my patent hereinbefore referred to, and while the flame in that construction is proof against the injurious action of the wind or a draft created by rapid riding it has been found advisable to additionally guard the flame against extinguishment by the jolting, which is the usual accompaniment of road-riding.

After careful experiment I have discovered that in a lamp constructed under the said patent and illustrated in Fig. 3 of this application, where the inlet 10 for fresh air and the outlet 23 for hot air are in communication with each other, the two currents of air—that is, the cold incoming and the hot outgoing—balance each other. Thus if a strong gust of wind strikes the lamp and does not enter the air-inlets 10 it causes the hot air to pass out through the air-inlets 10, drawing cold air in at 23, which passes down between the outer case or body 1 and the chimney 8 to the flame, preventing thereby a partial vacuum in the lower portion of the lamp and consequently protecting the flame from extinguishment. It has been found, however, that the light may be jolted out by the sudden and swift vertical movement to which the lamp is subjected. This movement causes the hot air to rise more quickly than ordinarily and with such increased force as to overcome the natural tendency of the cold air to descend. The cold air is thus drawn in at the air-inlets 10, around the conical wind-cone 15, whence it joins the hot air coming up the chimney 8, and together they pass out of the lamp at the outlet 23. A partial vacuum is thus created in the lower part of the lamp and consequently the light fails for want of oxygen. To overcome this defect, I have elongated the cap and chimney and introduced a second series of air-inlets and a second wind-cone, as heretofore described. Air for the support of combustion passes in at the inlets 10, as in my said patent, down between the outer case or body 1 and the chimney 8 to the flame. Air entering the inlets 16 near the top of the cap is directed upwardly by the additional wind-cone 18 and, mingling with the hot air from the chimney, passes out at the opening 23. Placing the hot-air outlet 23 so far away from the fresh-air inlet 10, or, more properly, extending the chimney 8, accelerates the upward movement of the hot air and the downward flow of cold air, thus improving the combustion and producing a brighter light. The addition of the second series of inlets 16 overcomes the tendency toward an upward movement of the air-current entering at 10 by the rushing out of the hot air at 23, and this outflow of hot air, which under my former construction tended to create a vacuum below the chimney, is prevented, the openings 16 allowing the air entering at 10 to pass down to the burner undisturbed.

It is important that the cone 18 be so placed as to upwardly direct the air entering at 16. Were it in the same relative position as the cone 15 it would cause the light to be greatly reduced, and at times, as in violent winds, the light would get so low as to appear to be extinguished.

The improvements constituting this invention are obviously applicable to other descriptions of lamps and lanterns, as headlights or lamps employed for carriages, ships, switches, and other purposes. It is also apparent that minor changes in construction may be made without departing from the principles underlying my invention.

Having described my invention, I claim—

1. In a lamp or lantern, the combination of an outer case or body, a cap surmounting the same having two series of air-inlets in different horizontal planes and an outlet above the inlets, wind-cones within the cap, one being arranged in proximity to each series of inlets to positively deflect the entering air in opposite directions, and a chimney within the body extending into the cap above the wind-cones, substantially as described.

2. In a lamp or lantern, the combination of an outer case or body, a cap surmounting the same having two sets of air-inlets in different horizontal planes and an outlet above the inlets, a downwardly-deflecting wind-cone within the cap near the lower air-inlets, an upwardly-deflecting wind-cone within the cap near the upper air-inlet, and a chimney within the body extending into the cap to a point above the air-inlets, substantially as shown and described.

3. In a lamp or lantern, the combination of an outer case or body, a burner, a detachable cap surmounting the body above the burner having two sets of air-inlets and an outlet, the said inlets and outlet being in different horizontal planes, wind-cones near the inlets for deflecting in opposite directions the incoming air, and a chimney extending from the burner into the cap above the highest wind-cone, substantially as described.

4. In a lamp or lantern, the combination of a burner, a chimney, a casing surrounding the burner and chimney with an uninterrupted air-space between the said casing and chimney, two or more air-inlets and an outlet being formed in the casing in different hori-

zontal planes, the said openings being above the burner and in communication with the said air-space, and wind-cones adapted to deflect the entering air in opposite directions, substantially as shown and described.

5. In a lamp or lantern, in combination with the body, a burner attached thereto, a wick-raiser extending through the body, turn-buttons on each end of the wick-raiser, a bracket secured to each side of the body, and a set-screw in each bracket adapted to engage with its own turn-button, substantially as set forth.

In testimony whereof I have hereunto set my hand and affixed my seal, at the city of Chicago, in the county of Cook and State of Illinois, this 13th day of January, 1897.

WILLIAM S. HAMM. [L. S.]

Witnesses:

HENRY O. MILLER,

G. HENRY GIS.