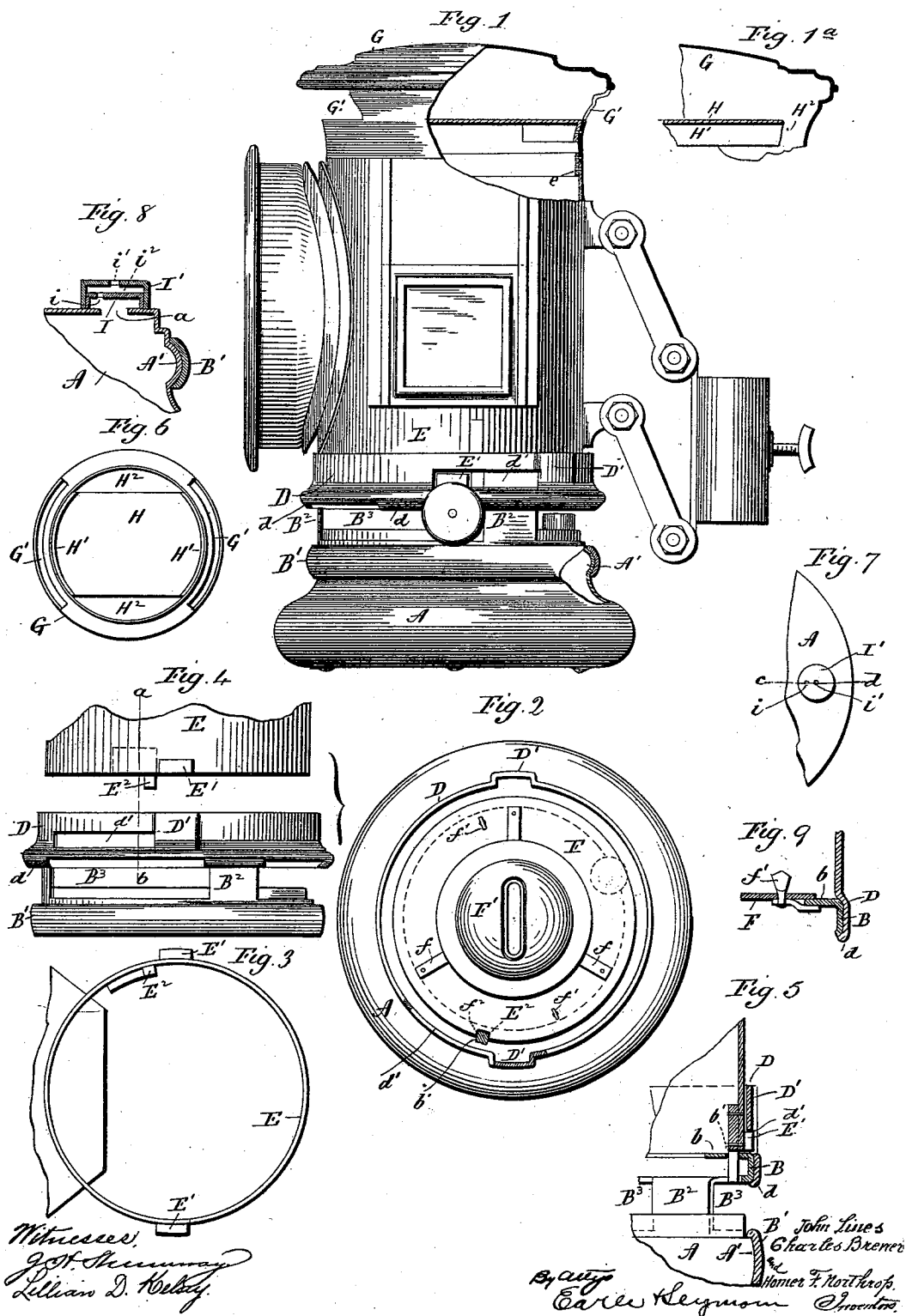


(No Model.)

J. LINES, C. BREWER & H. F. NORTHROP.
BICYCLE LANTERN.

No. 539,626.

Patented May 21, 1895.



UNITED STATES PATENT OFFICE.

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BICYCLE-LANTERN.

SPECIFICATION forming part of Letters Patent No. 539,626, dated May 21, 1895.

Application filed February 4, 1895. Serial No. 537,222. (No model.)

To all whom it may concern:

Be it known that we, JOHN LINES, CHARLES BREWER, and HOMER F. NORTHROP, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new Improvement in Bicycle-Lanterns; and we do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view, partly in side elevation and partly in vertical section, of a bicycle-lantern constructed in accordance with our invention; Fig. 1^a, a partial view, in vertical section, through the dome and upper end of the lantern-body, the said section being taken at a right angle to the section of Fig. 1; Fig. 2, a view of the lantern with the lantern-body removed, but showing the pin of the said body in transverse section; Fig. 3, a reverse plan view of the lower end of the body; Fig. 4, a broken view in side elevation, showing the lower end of the lantern-body and the fixed and coupling rings, the parts being shown detached and in position for the lower end of the body to be set down into the coupling-ring; Fig. 5, a broken enlarged view, in vertical section, on the line *ab* of Fig. 4 and showing the parts in the positions due to them after the body has been set down into the coupling-ring and the same has been rotated; Fig. 6, a detached reverse plan view of the dome, showing the deflector therein; Fig. 7, a broken plan view of the fount to show the double vent-cap with which the same is provided; Fig. 8, an enlarged view, in vertical section, on the line *cd* of Fig. 7; Fig. 9, a broken view, in vertical section, showing one of the buttons employed for securing the burner-plate to the supporting-flange of the fixed ring.

Our invention relates to an improvement in bicycle lanterns, the object being to produce an effective lantern constructed with particular reference to convenience of connecting and disconnecting the oil-fount and lantern-body, steadiness of light, and to the avoidance of leakage of oil through the vent-opening of the fount.

With these ends in view, our invention consists in a lantern having certain details of construction and combinations of parts as will be hereinafter described and pointed out in the claims.

In carrying out our invention, we provide the oil-fount A, which may be of any approved construction, with a fixed skeleton coupling-ring, composed of an upper and a lower band B and B', and integral upright webs B², connecting the same. The said lower band is spun over a horizontal annular bead A', located near the upper edge of the fount, as seen in Fig. 5, whereby the fixed ring is secured thereto, while the said upper band stands above the plane of the top of the fount, so as to permit currents of air to flow through the long air-openings B³, located between the two bands, and between the upright webs B² aforesaid. The number of webs and the shape of the openings, may, of course be varied, and we do not limit ourselves to securing the fixed ring to the fount by spinning the lower band B' over a bead thereon, as shown, for the ring may be secured to the fount in any suitable manner.

A rotatable coupling ring D, is applied to the fixed ring aforesaid, so as to rotate thereupon, but so as to be permanently connected therewith, the two rings being connected together by means of inwardly turned coupling fingers *d*, formed upon the lower edge of the coupling-ring, and clasped under the lower edge of the upper band B of the fixed ring. The number of fingers *d* may be varied, as desired. The said coupling-ring is adapted in its internal diameter to have the lower end of the cylindrical lantern-body E set into it, the said end of the said body being provided upon its outer face, and at opposite points, with locking lugs E' E', (Fig. 3) for which clearance is made in the coupling-ring by striking the same outward at opposite points to form clearance offsets D' D', adapted in dimensions to receive the lugs E' E', and permit the lower end of the body to be set down into the coupling-ring, so as to rest upon the inwardly turned horizontal supporting flange *b*, formed integral with the upper band B of the fixed ring, as clearly shown in Fig. 5. For coaction

with the said locking lugs, the coupling-ring is constructed with two long horizontal coupling-slots d' , located opposite each other, and each intersecting at one end one wall of the respective clearance offsets $D' D'$, as shown in Fig. 2. Under this construction, the lower end of the body is set down into the coupling-ring, after its coupling lugs $E' E'$ have been aligned with the clearance offsets $D' D'$, as shown in Fig. 4. The ring is then rotated, whereby its coupling slots $d' d'$ are caused to move over the coupling-lugs $E' E'$ of the body, so that the upper walls of the said slots will engage with the upper faces of the said lugs, and bind the body to the coupling-ring, and hence to the fixed ring and the fount. In order to prevent the body itself from rotating upon the supporting flange b , we provide its lower end with a finger E^2 , which passes through an opening b' formed for it in the supporting flange b , as seen in Fig. 5.

It is manifest from the drawings and the foregoing description that the fixed ring and coupling-ring afford simple and convenient means for connecting the fount and body together, and for permitting free access of air to the flame. Thus, for coupling the body with the fount the coupling lugs $E' E'$ of the body are aligned with the clearance offsets $D' D'$ of the coupling-ring, after which the lower end of the body is set down into the said ring, so as to rest upon the inwardly turned horizontal supporting flange b formed integral with its upper band B , as clearly shown in Fig. 5. Then while the body and fount remain stationary, the coupling-ring is rotated, and the body bound to the coupling-ring and hence to the fixed ring, and therefore to the fount, in the manner already described. On the other hand, when it is desired to detach the body from the fount, the coupling-ring is rotated, while the body and fount remain stationary, until the clearance offsets $D' D'$ of the ring are brought into line with the coupling lugs $E' E'$ of the body, which may then be lifted out of the coupling ring and away from the fount.

The inwardly extending, horizontal, supporting flange b , also supports a circular burner-plate F , to which the burner-cone F' is secured by means of radial fingers f , formed integral with its lower edge, as seen in Fig. 2. The particular construction of the burner-cone may be varied as desired.

It will be understood that the burner-plate F is enough smaller in diameter than the internal diameter of the body of the lantern to permit the same to set over and outside of it and come in direct contact with the outer edge of the supporting flange b , the inner edge of which affords bearing for the edge of the said plate. For securing the plate in place, we provide it with two locking buttons $f' f'$, standing above its upper face, and extending outward under its lower face, so as to take under the supporting flange, as shown in Fig. 9. However, other means might be employed

for holding the burner-plate in place. For preventing the burner-plate from rotation, we preferably construct its edge with an open notch f^2 , as seen in Fig. 2, coacting with the coupling-pin E^2 , as shown in the said figure.

For maintaining a steady air pressure within the lantern, which is particularly exposed to drafts on account of the character of its use, we provide the upper end of its body E , with a dome G , the lower edge of which corresponds in diameter to the diameter of the upper end of the body, and rests upon the upper edge thereof, the said lower edge of the dome being slipped over and secured to a fastening ring e , fastened within the upper edge of the body as seen in section in Fig. 1. The side wall of the dome is constructed at its upper edge with two long, narrow air-openings $G' G'$, from which the draft of the lantern escapes, over a flat deflector or draft-plate H , having its ends turned down to form segmental flanges H' , by means of which the plate is fastened within the dome, as seen in Fig. 6. The said plate is considerably narrower than the diameter of the dome, so that draft-ports or openings $H^2 H^2$ are established over its edges, into the top of the dome, as seen in the same figure. These draft-ports, it will be observed, are located at a right angle to the air-openings $G' G'$. There is, therefore, no direct draft through the lantern, for the air rising through the body thereof, impinges first against the flat draft-plate, and is deflected over the side edges thereof, and then flows into the top of the dome, and issues therefrom through the air-openings G' , which, as aforesaid, are located at right angles to the draft-ports H^2 . In this manner we secure a steady draft for the lantern.

It is necessary that the oil-fount A should be provided with a vent for the escape of any gas which may be generated in it, but on account of the constant and violent agitation of the fount, means must be provided for preventing any oil from escaping through the vent-opening. With that end in view, we locate a cup-shaped safety-cap I over the vent-opening a formed in the top of the fount, the said cap having a small vent-opening i formed in it, and located to one side of or out of line with the vent-opening a . Then over the cap I we place another cup-shaped cap I' , having a small vent-opening i' located out of line with the vent-opening i . The cap I' not only is larger, but also deeper than the cap I , so that a space i^2 is formed between them, as clearly shown in Fig. 8. These two caps form effective safeguards against the escape of any oil through the vent-opening a , but they do not prevent the free escape of gas from the fount. These caps are preferably struck up from sheet-metal, and are secured to the fount in any desired manner.

The other details of our improved bicycle-lantern may be of any approved construction, and their description is thought to be unnecessary.

It is apparent that in carrying out our invention, we may make some variations and changes from the construction herein shown and described, and we would therefore have it understood that we do not limit ourselves to the same, but hold ourselves at liberty to make such changes as fairly fall within the spirit and scope of our invention.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a bicycle lantern, the combination with the oil-fount and lantern-body, of a fixed ring and a rotatable coupling-ring permanently connected together, and constructed and arranged to detachably unite the fount and body, substantially as described.

2. In a bicycle lantern, the combination with the oil-fount and lantern-body thereof, of a fixed ring applied to the oil-fount, a rotatable coupling-ring permanently connected with the fixed ring, and receiving the lower end of the lantern body which is constructed to be coupled with the said coupling-ring and hence with the fount, substantially as described.

3. In a bicycle lantern, the combination with the oil-fount and lantern-body thereof, of a skeleton ring fixed to the oil-fount and comprising an upper and a lower band connected together by integral vertical webs, a coupling-ring rotatably but permanently connected with the upper portion of the said fixed ring, and adapted to have the lower end of the lantern-body connected with and disconnected from it, substantially as described.

4. In a bicycle lantern, the combination with the oil-fount and lantern-body, of a fixed ring applied to the oil-fount, and having at its upper end an inwardly projecting horizontal supporting flange, a rotatable coupling ring permanently connected with the upper end of the said fixed ring, and adapted to have the lower end of the lantern-body applied to and detachably connected with it, substantially as described.

5. In a bicycle lantern, the combination with the oil-fount and lantern-body, of a fixed ring applied to the oil-fount, a coupling-ring rotatably and permanently connected with the upper portion of the fixed ring, and having outwardly projecting clearance offsets and coupling

slots intersecting the said offsets; and coupling lugs located at the lower end of the lantern-body and coacting with the said clearance offsets and coupling slots for the detachable connection of the lantern-body with the said ring, substantially as described.

6. In a bicycle lantern, the combination with the oil-fount and lantern-body, of a fixed ring applied to the oil-fount, and furnished with an inwardly projecting, horizontal supporting flange, a rotatable coupling-ring permanently connected with the said fixed ring, and adapted to coact with the lower end of the lantern body for detachably connecting the same with the oil-fount, and a finger extending downward from the lantern-body and passing through an opening in the said supporting flange for holding the body against rotation thereupon, substantially as described.

7. In a bicycle lantern, the combination with the oil-fount and lantern-body, of a fixed ring applied to the oil-fount, and having an inwardly projecting horizontal supporting flange, of a rotatable coupling-ring permanently connected with the upper portion of the fixed ring, and adapted to receive the lower end of the lantern-body for connecting the same with the rings and hence with the fount, and a burner-plate provided with a burner cone and resting at its edges upon the said supporting flange, substantially as described.

8. In a bicycle lantern, the combination with the lantern-body, of a circular dome formed independently of the said body, and having air-openings, and an imperforate draft-plate located within the said dome, narrower than the diameter of the same, having its ends turned down to form segmental flanges by means of which it is fastened to the dome, and arranged within the dome with its sides out of line with the openings therein, substantially as described.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

JOHN LINES.
CHARLES BREWER.
HOMER F. NORTHROP.

Witnesses:

C. M. DE MOTT,
HENRY FEHL.