

(No Model.)

J. F. OREBAUGH & F. M. HUDDLESTON.
PHOTOGRAPHIC LIGHTING MACHINE.

No. 549,975.

Patented Nov. 19, 1895.

Fig. 2.

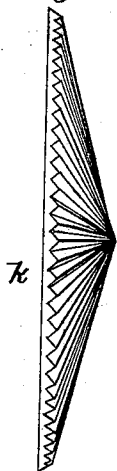


Fig. 1.

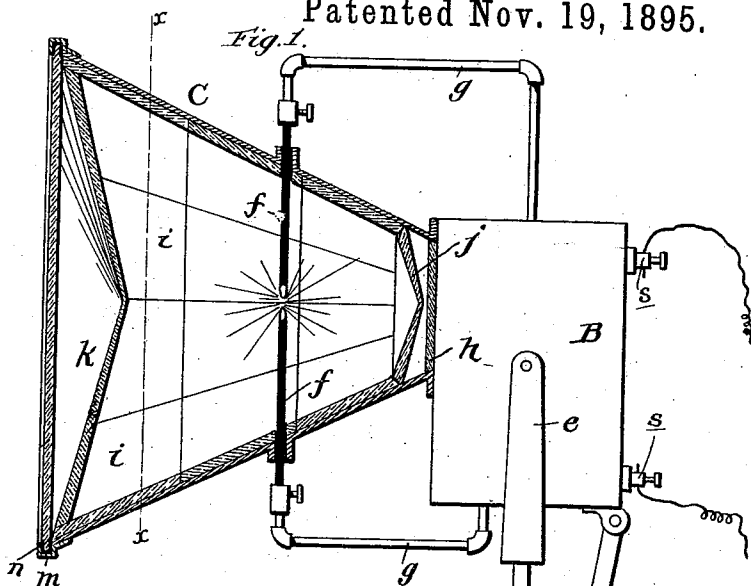
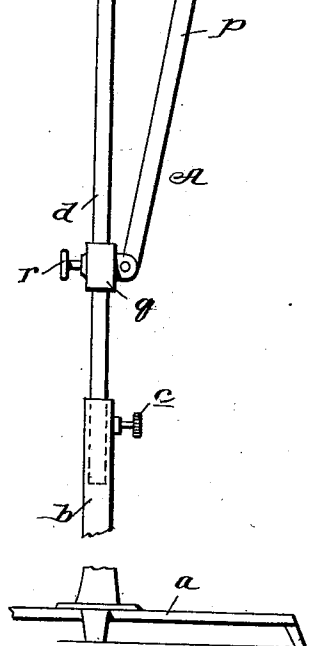
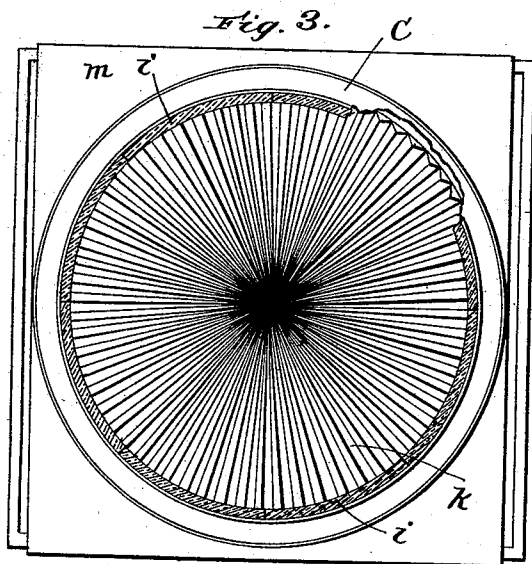


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES F. OREBAUGH AND FREEMAN M. HUDDLESTON, OF SHELBYVILLE,
INDIANA.

PHOTOGRAPHIC LIGHTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 549,975, dated November 19, 1895.

Application filed December 3, 1894. Serial No. 530,729. (No model.)

To all whom it may concern:

Be it known that we, JAMES F. OREBAUGH and FREEMAN M. HUDDLESTON, citizens of the United States, residing at Shelbyville, in the county of Shelby and State of Indiana, have invented certain new and useful Improvements in Photographic Lighting-Machines; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The general object of our invention is to provide an apparatus adapted to furnish a light similar in quality to the light of the sun, and therefore suitable for photographic and similar purposes.

Other objects and advantages of the invention will be fully understood from the following description and claim, when taken in connection with the annexed drawings, in which—

Figure 1 is a side elevation of our improved apparatus with the lamp-box in section. Fig. 2 is a detail side view of the large lens of the lamp, and Fig. 3 is a transverse section taken in the plane indicated by the line *x x* of Fig. 1.

Referring by letter to said drawings, A indicates the main frame of our improved apparatus, which preferably comprises the base *a*, having the hollow post *b* and the rod *d*, which is provided at its upper end with a U-shaped portion *e* and is designed to take into the hollow post *b* and be adjustably fixed with respect thereto by the set-screw *c* for a purpose presently described, and B indicates a casing, which is designed to contain mechanism for feeding the carbons of the lamp toward each other as they are consumed, and is also designed for the connection of the lamp-box.

The carbons *f* of the lamp are mounted in suitable conducting-holders *g*, by which they are connected with the mechanism in the casing B, and they are arranged as illustrated in Fig. 1, so that the arc will be formed in the center of the lamp-box C, which is adapted to reflect and diffuse the light so that the same will equal in quality the light of the sun and be suitable for photographic and similar purposes. The said lamp-box C is preferably

of a truncated-cone shape with its small end contiguous to the casing B, and it is provided at such small end with a reflector *h* and has its side wall lined with reflector-sections *i*, as illustrated, for a purpose presently disclosed. Said lamp-box C is furthermore provided immediately in advance of the reflector *h* with a concavo-convex lens *j*, which comprises a plurality of radial prisms, and at its outer end said box is provided with a lens *k*, which is provided on its inner convex side with radial prisms and otherwise similar in construction to the lens *j*, as shown. By reason of the lamp-box C being thus equipped it will be seen that the light reflected by the reflector *h* will be diffused by the lens *j* and with the light of the arc, will be reflected by the reflector-sections *i* and again diffused and the direction of its rays changed by the large lens *k*. The result will be a soft light very similar in quality to the light of the sun, and one by which a clear and distinct photograph may be taken, which will be free from the deep shades which are an objectionable feature of photographs taken by magnesium and similar lights.

In order that the quality of the light may be changed to suit different subjects and conditions, we provide the lamp-box at its outer end with a frame *m*, designed and adapted to receive removable frames *n*, carrying fabric or glass tinted with the desired colors, and in order to further change the quality and color of the light and better suit it to the purpose desired we contemplate employing, in conjunction with our apparatus, screens or frames carrying suitably-colored fabrics, which may be so placed with respect to the subject and the apparatus as to enable them to reflect or throw the light on the subject. We do not, however, desire to be understood as confining ourselves to the employment of the color-screens, as their use is only preferable, and without them the light furnished by the apparatus will be ample for the purpose.

The casing B, to which the lamp-box C is connected, is, as before stated, pivotally mounted in the portion *e* of the frame-rod *d*, and in order that the said casing and the lamp-box may be adjusted and adjustably fixed, so as to permit the latter to throw the

light at various angles of inclination, we connect the casing B by a link *p* with a sleeve *q*, which is designed to be adjustably fixed on the frame-rod *d* by a set-screw *r* or the like. Thus
 5 it will be seen that when the sleeve *q* is raised from the position illustrated the casing B and lamp-box C will be tilted and the light from the latter will be directed downwardly, while
 10 shown the casing B and lamp-box C will be tilted, so that the rays of light from the latter will be directed upwardly.

In the practice of our invention the wires from a suitable electric generator are connected with the mechanism in the casing B
 15 by suitable binding-posts *s* or the like, and when it is desired to use the apparatus the electric circuit is closed by a switch or other device under the control of the photographer
 20 so as to form an arc between the contiguous ends of the carbons *f*. This being done it is necessary to throw the lamp-box C so that the rays of light therefrom will fall to the best advantage upon the subject to be photographed.
 25 To accomplish this, the operator may conveniently raise or lower and turn the frame-rod *d* and the lamp-box carried by the same, and may adjustably fix said rod and the lamp-box through the medium of the set-screw *c*, and may conveniently tilt the lamp-box
 30 so that the rays of light will be directed upwardly or downwardly therefrom, and may adjustably fix the same through the medium of the set-screw *r*.

35 With an apparatus such as described a light as strong as an electric light, and yet diffused and softened, so as to resemble the light of the sun, may be produced and may be so directed upon a subject as to thoroughly light
 40 the same, and it will therefore be seen that

as good a photograph may be made at night or on a cloudy day as when the day is clear and bright.

We have in some respects specifically described the construction and relative arrangement of the parts of our improved apparatus
 45 in order to impart a full, clear, and exact understanding of the same; but we do not desire to be understood as confining ourselves to such construction and arrangement, as
 50 such changes or modifications may be made in practice as fairly fall within the scope of our invention. We also do not desire to be understood as confining ourselves to the employment of an electric-arc light in the lamp-box C,
 55 as any light suitable to the purposes of our invention may be employed.

Having described our invention, what we claim is—

An apparatus for furnishing light for photographic and other purposes comprising essentially a lamp and the box inclosing the lamp and increased in diameter from its inner to its outer end; said box having its side wall and small end lined with reflectors and being
 60 provided immediately in advance of the end reflector with a small concavo-convex lens having radial prisms on its convex side which is contiguous to the end reflector and being
 65 also provided at its large end with a concavo-convex lens having radial prisms on its inner convex side, substantially as and for the purpose set forth.
 70

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES F. OREBAUGH.

FREEMAN M. HUDDLESTON.

Witnesses:

T. B. ADAMS,
 ALONZO BLAIR.