No. 652,156. Patented June 19, 1900.

# A. G. ADAMSON.

## GAS PHOTOGRAPHING APPARATUS.

(Application filed Feb. 27, 1900.)

(No Model.)

Fig 4.

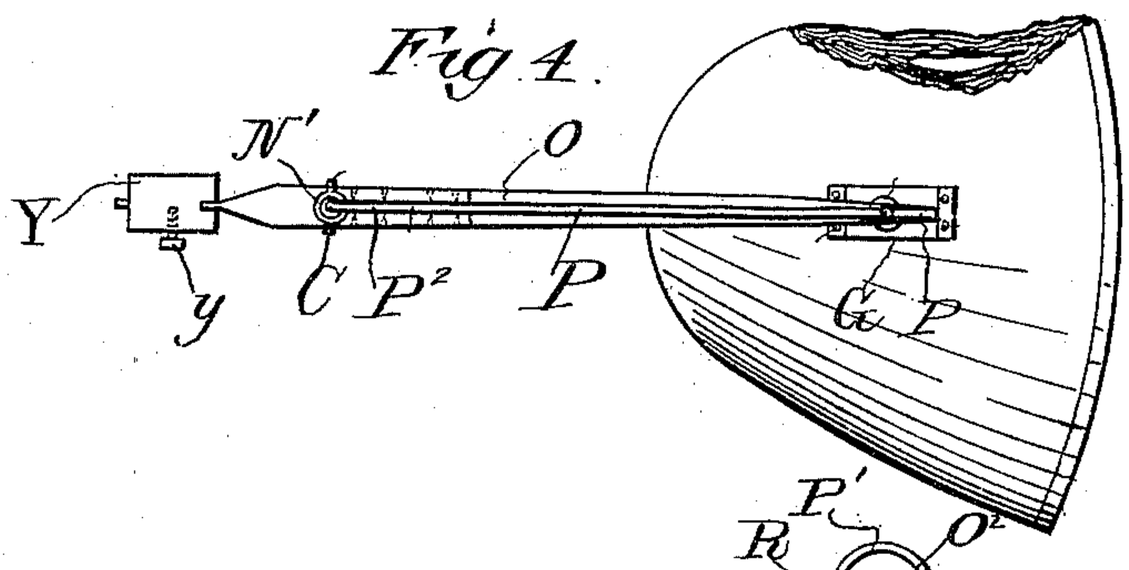


Fig. 1.

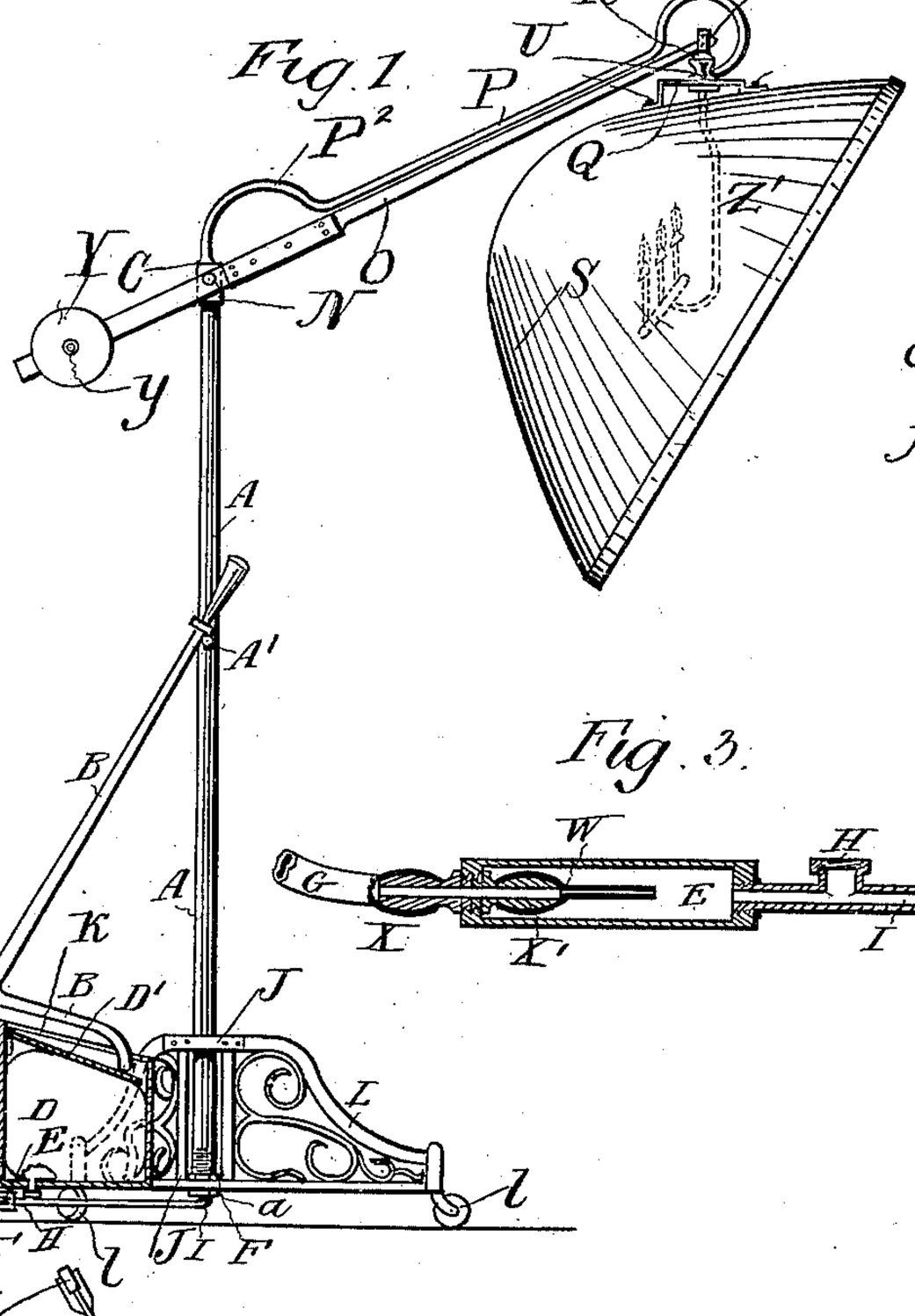


Fig. 5.

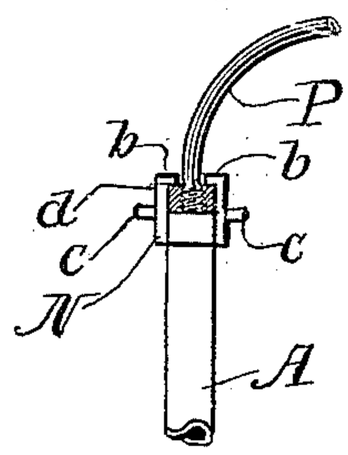


Fig. 3.




Fig 2

Witnesses
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# UNITED STATES PATENT OFFICE.

ANDREW GEORGE ADAMSON, OF LONDON, ENGLAND.

## GAS PHOTOGRAPHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 652,156, dated June 19, 1900.

Application filed February 27, 1900. Serial No. 6,748. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW GEORGE ADAMSON, electrical engineer, of Dashwood House, 9 New Broad street, London, England, have invented certain new and useful Improvements in Apparatus for Photographing by Means of Gas-Light, of which the following is a specification.

Owing to the large volume of gas required to give a sufficiency of light to photograph even when using incandescent burners it has hitherto been always necessary to provide a special service-supply main where one did not already exist, and as most studios are to be found on the tops of buildings the trouble and expense attending the way-leave through that part of the building not occupied by the photographer and the execution of the work have operated to prevent the introduction of gas in any general way for this purpose.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a sectional elevation of my whole apparatus. Fig. 2 is a plan of the lower part of the stand thereof, showing the relative position of the brackets, the manner in which they are attached to the supporting-forks, and also the position of the box and the slot in the top or upper lid of the box. Fig. 3 is a detail sectional elevation of a valve-tube and its connection. Fig. 4 is a plan view of a beam and counterweight for suspending the lamp. Fig. 5 is a detail vertical section showing the connection of the flexible tube with the upright.

In carrying out my invention I provide a stand composed of three brackets L, to which is attached a central upright tube A by means of two supporting-forks J, one supporting-fork being located at the top of the brackets L and the other supporting-fork at the bottom thereof. The tube A is tapped a few inches of its length at the bottom, and the bottom supporting-fork is secured in its place by means of two lock-nuts *a*. The three brackets L are for convenience of moving mounted upon casters *l*. At the top of the upright central tube A there is located a collar N, which slips over the end of the tube A and is supported at the top by an inner projecting flange *b*. (See Fig. 5.) From opposite sides of the collar N are projected two studs *c*, upon which is supported and pivoted the beam O, having an adjustable counterweight Y, secured in desired position by a screw-bolt *y*. The beam O is constructed partly of wood and partly of iron; but it may be constructed of any other suitable metal or material. From the point of the long end of the beam O is suspended on a pivot O′ a ball-and-socket joint R, to which is attached a bent burner-tube Z′. This bent burner-tube is adjusted to support a series of gas-burners (or one burner, as the case may be) adjusted in any convenient form, but being arranged in such a manner as to put its or their general position as nearly as possible in the focus of a parabolic reflector S of suitable size. The reflector S is supported by a metal or other support, which may be a strap, such as that indicated at Q. This support is bound between the joint at the head of the tube Z′ and the under part of the ball-and-socket joint R. In order to convey the gas to the burners, the blocked end *d* of the tube A is pierced inside the flange *b* and a connection made, to which is attached a rubber or other flexible feed-tube P. This flexible tube is carried along the top of the beam O, and a flexible loop P′ is left at the extreme outer point, where it is connected to the nozzle U. I prefer to attach the nozzle U to the under or movable part of the ball-and-socket joint R, thus conveying the gas directly into the tube Z′, and sealing its upper end inside the ball-and-socket joint R. The movement of the reflector is fully insured by the flexible loop P′ of the tube P. A similar loop $P^2$ is shown where the flexible tube is connected at the blocked end *d*. Following the gas-conductor down the tube A, a connection is made to the bottom of the tube A at the point F and a connecting-tube I is attached, which at its farther end has a T-piece H. To the end of the tube I an enlarged tube E is attached, and within this wider tube, as shown in Fig. 3, there is a metal nozzle X′, which is screwed or otherwise connected to the blocked end of the enlarged tube E, while another nozzle X is similarly connected from the outside of the enlarged tube E, the bore of the two nozzles be-

ing in line. Secured firmly over the nose of the nozzle X′ there is a back-pressure valve W, of india-rubber or other suitable elastic material, made tubular at the end and which fits over the nozzle, while in manufacture it is flattened at the outer end. Attached to the T-joint H is an ordinary coupling or union *h*, the upper end of which is secured firmly into the mouth of the india-rubber bag or other suitable flexible reservoir D. This india-rubber bag is inclosed in a box K, whose upper lid or top *k* is slotted its whole width to receive the bent short arm of the lever B. The point of the bent short arm of the lever B rests upon the lower hinged lid or cover D′, capable of freely moving up or down. Firmly secured to the nozzle X on the outside of the enlarged tube E is a flexible supply-tube G, the extreme end of which is attached in any convenient way to the gas pipe or fitting of a house. If gas is now allowed to flow through the supply-tube G, it will pass through the nozzles X and X′ and the flattened valve W, through the enlarged tube E to the reservoir D, and by means of the connecting-tube I, the central upright tube A, the flexible tube P to the nozzle U, and thence by the tube Z′ to the burner. The burner or burners are so arranged that while kept constantly lighted the flow therethrough is reduced until the operator is ready to expose the sensitive plate to the light. Up to this period the lever B is supported on a catch-pin or stud A′, so that no pressure is exerted on the rubber reservoir D until needed. When the exposure is about to be made, all the light is turned on, the lever B brought steadily down, and the pressure being exerted immediately closes the valve W by reason of the flattened sides of W being brought together, thus stopping the supply, so that the gas is instantly driven from the reservoir D to the burners under a pressure to supply a sufficient volume for the requisite number of burners. So soon as the exposure is completed the lever B is gently raised, and the pressure being removed from the reservoir D the flattened sides of the valve W are released and the supply refills the reservoir D, while keeping alight the burner required for arranging the light upon the sitter.

It will be easily seen from the foregoing that a very small gas-supply pipe is capable of replenishing the amount of gas taken from the reservoir for each photograph made. Careful experiment has shown that a reservoir of one cubic foot capacity and supplied by a one-quarter-inch gas-tube will enable a photographer to make a new photograph every two minutes and allow him to expose his plate for six seconds each time while maintaining the reservoir full—six seconds is a maximum exposure. With the light produced by it, with normal conditions, photographs are readily made equal to those by daylight.

The burner or burners are so arranged that the maximum surface of the light will be exposed to the reflecting-surface of the chamber or reflector in which they are placed.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. An apparatus for photographing by means of gas-light comprising a supply-pipe having a back-pressure valve, and adapted to be attached to a house-pipe, a burner, a feed-pipe with which the burner is connected, a flexible reservoir with which the feed-pipe is connected, and means whereby pressure is exerted upon the flexible reservoir.

2. An apparatus for photographing by means of gas-light comprising a supply-pipe having a back-pressure valve, a burner, a feed-pipe with which the burner is connected, a box having a hinged lid, a flexible reservoir located within the box beneath the hinged lid, and with which the feed-pipe is connected, and a lever having a short arm adapted to bear upon the hinged lid for exerting pressure on the flexible reservoir.

3. An apparatus for photographing by means of gas-light comprising a supply-pipe, the enlarged tube, the outer and inner nozzles, the back-pressure elastic valve having flattened outer end, a burner, a feed-pipe with which the burner is connected, the connecting-tube between the enlarged tube and the feed-pipe, a flexible reservoir with which the connecting-tube is connected, and means whereby pressure is exerted upon the flexible reservoir.

4. An apparatus for photographing by means of gas-light comprising a supply-pipe having a back-pressure valve and adapted to be attached to a house-pipe, a stand composed of brackets, the central upright tube, having a catch-pin, a beam, a burner, a feed-pipe supported on the beam and with which the burner is connected, a connecting-pipe, a box having a hinged lid, a flexible reservoir located within the box beneath the hinged lid, and with which the connecting-pipe is connected, and a lever, with which the catch-pin engages, having a short arm adapted to bear upon the hinged lid for exerting pressure upon the flexible reservoir.

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

ANDREW GEORGE ADAMSON.

Witnesses:

JOHN LIDDLE,

EDITH MARY EDMONDSTONE.