

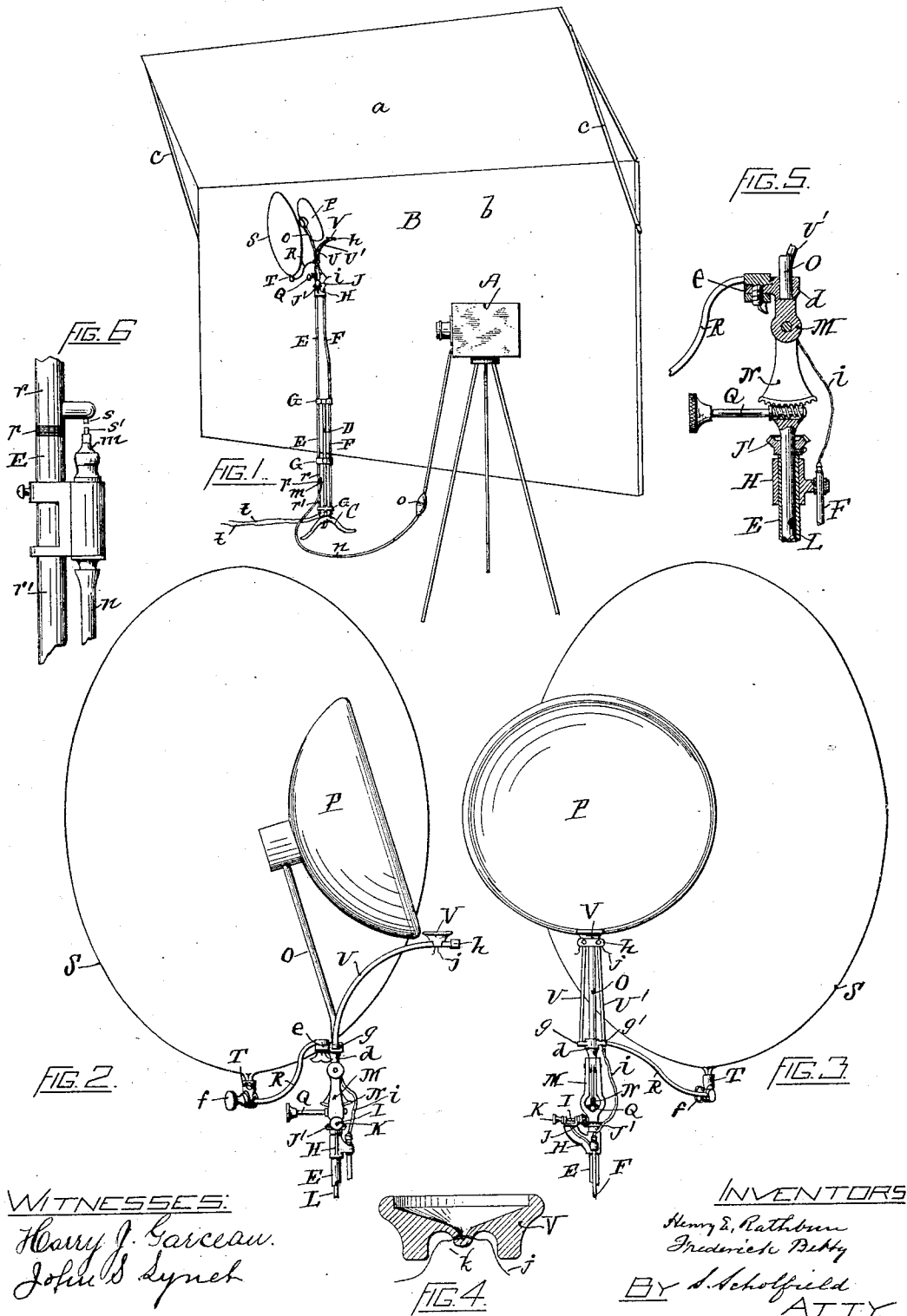
(No Model.)

H. E. RATHBUN & F. BEBBY.

FLASH LIGHT APPARATUS FOR PHOTOGRAPHIC PURPOSES.

No. 572,718.

Patented Dec. 8, 1896.



UNITED STATES PATENT OFFICE.

HENRY E. RATHBUN AND FREDERICK BEBBY, OF PAWTUCKET, RHODE ISLAND; SAID RATHBUN ASSIGNOR TO SAID BEBBY.

FLASH-LIGHT APPARATUS FOR PHOTOGRAPHIC PURPOSES.

SPECIFICATION forming part of Letters Patent No. 572,718, dated December 8, 1896.

Application filed January 7, 1895. Serial No. 534,120. (No model.)

To all whom it may concern:

Be it known that we, HENRY E. RATHBUN and FREDERICK BEBBY, citizens of the United States, residing at Pawtucket, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Flash-Light Apparatus for Photographic Purposes, of which the following is a specification.

Our invention relates to the employment of the electric current for igniting the flashing powder upon the opening of the shutters of the camera; and it consists in a stand a portion of which is adapted to form an electric conductor, in combination with a cartridge provided in itself with an electric wire for igniting the charge of flashing powder, and also provided in itself with means for pressing the igniting-wire against the conducting portions of the stand.

In the accompanying drawings, Figure 1 represents a perspective view of the apparatus arranged for operation. Fig. 2 represents a detail side view of the flash-light burner, showing an edge view of the concave reflector employed to throw the light upon the screen. Fig. 3 represents a detail side view taken at right angles to the view shown in Fig. 2. Fig. 4 represents an enlarged axial section of the removable receptacle which serves to hold the flashing powder. Fig. 5 represents an enlarged detail section showing the jointed construction of the stand. Fig. 6 represents an enlarged detail section of the pneumatic piston for effecting the electric contact simultaneously with the opening of the camera-shutters.

In the drawings, A represents the camera, and B represents a diffusing-screen, the upper part *a* of the screen being hinged to the lower part *b*, and then said upper part held at the required angle with the lower part by means of the braces *c c*.

The flash-light burner consists of the movable stand C, provided with the central upright rod D, from which the tube E and rod F, which form portions of the electric circuit, are supported by means of the cross-pieces G G G, from which the rod F is electrically insulated.

To the upper end of the tube E is attached

the head-piece H, which forms the journal-bearings of a small shaft I, provided at its inner end with the bevel-pinion J and at its outer end with the milled head K for turning the shaft. Upon a rod L, which extends downward within the bore of the tube E, is secured the bevel-gear J', which engages with the pinion J, to cause the proper rotation of the rod L and the several parts attached thereto.

Upon the rod L, above the bevel-gear J, is placed the yoke M, to which is pivoted the segment-gear N, provided with an upwardly-extending arm *d*, to which is secured the rod O, carrying at its upper end the concave mirror P, which is to be adjusted in a vertical plane by means of the tangent screw Q, and to the side ear *e* of the arm *d* is jointed the arm R, to the outer end of which is attached the head-screen S, the said screen being adapted for adjustment horizontally in its socket-piece T, and the said socket-piece made capable of adjustment in a vertical plane by means of a jointed connection with the outer end of the arm R, the said socket-piece being held in its adjusted position by means of the milled screw *f*.

To the lug *g*, extending laterally from the side of the arm *d*, is secured the upwardly-curved rod U, to the outer end of which is secured the piece of insulating material *h*, and to the similar lug *g'*, at the opposite side of the arm *d*, is secured the insulated curved rod U', which terminates at the insulator *h*, by means of which the outer ends of the rods U and U' are connected with each other, and the insulated curved rod U' is connected with the insulated upright rod F by means of the connecting-wire *i*, so that the only electric connection between the curved rods U and U' will consist in the igniting-wire *j* of the cartridge V for the flashing powder, the said cartridge V being provided with the groove *k*, adapted to receive the said rods and press the igniting-wire *j* firmly in contact with the same.

The shutter of the camera W is connected with the pneumatic contact-piston *m* by means of the flexible tube *n*, at the middle of which is placed the elastic bulb *o*, by the compression of which in the hand of the opera-

tor the electric connection will be effected to flash the powder and open the shutter simultaneously, an insulator *p* being placed between the upper and lower portions *r r'* of the tube *e*, so as to electrically separate the contact-points *s s'*.

In operating with the apparatus it is to be so adjusted in front of the diffusing-screen *B* that the light will be properly reflected therefrom to the sitter, and the head-screen *S* adjusted so as to protect the head of the sitter from the direct action of the flash-light. Then by compressing the bulb *o* the electric contact will be made to ignite the flashing powder in the cartridge *V* simultaneously with the opening of the camera-shutter.

Electric connection is made with the lower end of the tube *E* and rod *F* by means of the electric circuit-wires *t t*, and the proper horizontal adjustment of the mirror effected

by means of the bevel gear and pinion, and the vertical adjustment by means of the segment-gear and tangent screw. The mirror, however, is not deemed essential to the apparatus and may be dispensed with.

We claim as our invention—

In a flash-light apparatus for photographic purposes, the combination of a stand, a portion of which is adapted to form an electric conductor, with a cartridge provided in itself with an electric wire adapted to ignite the charge of flashing powder, and also provided in itself with means for pressing the igniting-wire against the conducting portions of the stand substantially as described.

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Witnesses:

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