

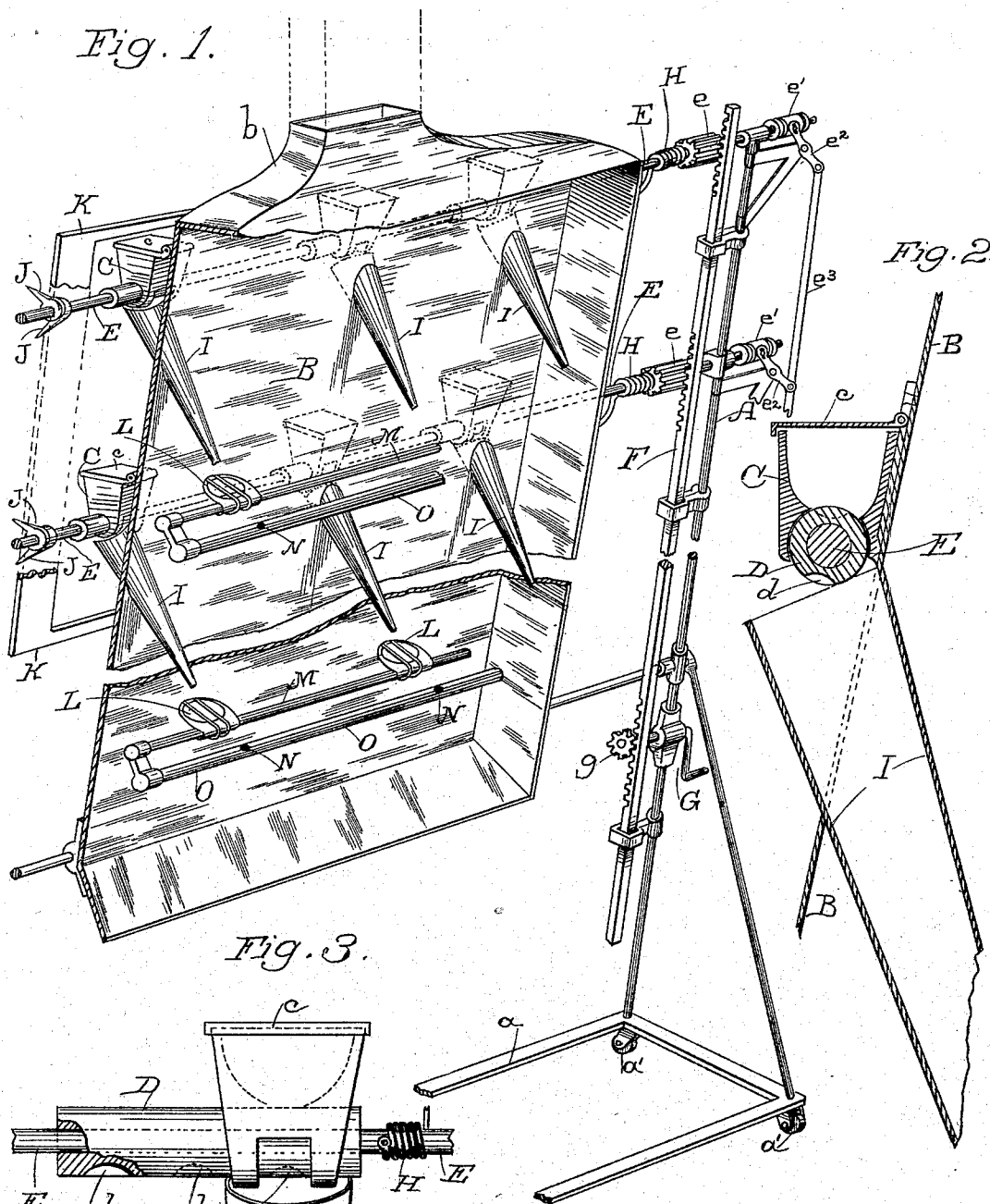
(No Model.)

S. M. WILLIAMS.
COMBINED CHARGER, REFLECTOR, AND SMOKE ARRESTER
FOR FLASH LIGHT BURNERS.

No. 504,955.

Patented Sept. 12, 1893.

Fig. 1.



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UNITED STATES PATENT OFFICE.

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COMBINED CHARGER, REFLECTOR, AND SMOKE-ARRESTER FOR FLASH-LIGHT BURNERS.

SPECIFICATION forming part of Letters Patent No. 504,955, dated September 12, 1893.

Application filed December 31, 1892. Serial No. 456,896. (No model.)

To all whom it may concern:

Be it known that I, SYLVESTER M. WILLIAMS, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in a Combined Charger, Reflector, and Smoke-Arrester for Flash-Light Burners; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the general class of mechanisms for producing artificial light for photographic exposures.

It consists in connection with a suitable flash light burner, of a charger therefor whereby a stated charge of powder is supplied to the burner.

It consists also in connection with a suitable flash light burner, of a charger therefor and a reflector carrying said charger, said reflector being also constructed and located to serve the further purpose of a smoke arrester, the whole forming, in connection with the flash light burner, a combined charger, reflector and smoke arrester therefor.

It also consists in the novel details of construction, arrangement and combination which I shall hereinafter fully describe and specifically point out in the claims.

The object of my invention is to provide a means for charging the flash light burner readily and accurately, and to use said means in connection with a reflector which also serves as a smoke arrester.

Referring to the accompanying drawings for a more complete explanation of my invention,—Figure 1 is a perspective view of my device. Fig. 2 is a vertical cross section through one of the supply hoppers and directing chutes. Fig. 3 is a rear elevation, showing one of the supply hoppers, the charging valve and the upper rear end of the directing chute.

A is one standard of a light frame-work mounted upon a base *a* and having casters *a'* whereby the whole frame-work and the parts carried thereby are readily movable.

B is a reflecting plate of suitable character. Its top may be provided with the apertured hood *b* which serves as a collector and dis-charger of the smoke, said head being sup-

posed to be in connection with a suitable outlet. This reflector is supported upon the frame in a suitable manner.

Secured to the back of the reflector is a supply hopper C. There may be as many of these as may be required for the particular burner to be charged. I have here shown six of such hoppers. Each hopper is provided with a hinged lid *c*.

In the lower portion or throat of each hopper is mounted and adapted to oscillate a charging valve D which is in the shape of a sleeve, said sleeve having in its surface a charging socket *d*. Each sleeve may have a series of these sockets, as shown in Fig. 3, of different sizes, whereby by moving the sleeve endwise a socket of proper size may be brought into the hopper. Through these charging sleeves or valves pass shafts E, said shafts having their ends mounted in the end standards A of the frame and adapted to rock therein whereby they turn the sleeves or valves D to operate them, as I shall presently describe.

The shafts E are rocked by any suitable mechanism. I have here shown them provided with pinions *e* with which engages a rack bar F adapted to be vertically operated by suitable mechanism, here shown as a crank G and pinion *g*. Springs H upon the shafts insure their return to normal position. Under the valve of each hopper is a directing spout I which passes through the reflector.

The charging operation is as follows: The flash powder is placed in the hoppers C. The normal position of the sleeve valves D is one in which their charge sockets *d* are on the lower side and below the hoppers, and in this normal position the springs H hold them. By operating the rack bar F, the shafts E are rocked and thereby the valve sleeves D are turned through approximately a half revolution, thus turning their charge sockets *d* upwardly and into the hoppers, so that they receive the charges of powder. When the rack bar is relieved, the springs H throw the valves back again to normal position, and the powder is delivered to the chutes. Now, in order to limit the movement of the valves accurately and not allow them to turn too far one way or

the other, I have any suitable stops, here shown as arms J, upon the shafts, adapted to come in contact in either direction with the stop bar K secured to the back of the reflector.

5 The contact of the stops also serves to jar the powder out of the charge sockets. When it is desired to supply the burner with a larger charge, the sleeve valves D may be moved so that sockets of a larger size may be brought
10 within the hoppers. This movement, where the machine is a small one, may be effected by moving individual sleeves, but the preferable way is to move them all simultaneously by moving longitudinally the rock shafts E
15 which carry them. This movement may be effected by suitable means as by collars e' , levers e^2 and connecting handle e^3 . In charging the burner, the whole device is brought up close to it in position for its spouts to deliver
20 the powder properly. When the burner is charged, the frame with its reflector and charging mechanism is moved back to a proper position for the reflector B to serve its purpose. This adjustability or portability of the device
25 is of great advantage in that it is not desirable to have it too close to the burner, as the light of the flash powder is opaque, and the reflector would be of no service when very close; but by moving it back a proper distance it can
30 reflect the light around the ends of the flame, and thereby light up the room properly. It is further necessary to adjust the device with respect to the burner so that it will not become coated with the products of combustion.
35 The smoke which reaches it is arrested and directed upwardly through the apertured hood to a proper point above.

This device may be used in connection with any flash light burner. Its purpose is best
40 served in connection with a burner in which provision is made for the explosion of a number of charges simultaneously, as, for example, a series of plates adapted to receive the charges of powder from the spouts I, and to
45 have the powder thereon ignited in a suitable manner. These plates may be stationary or movable, and the means for igniting the powder may be of any character. In order, however, to show the particular utility of the de-
50 vice, I have in Fig. 1, shown in front of the reflector the charge cups L of that flash light burner heretofore patented to me, January 26, 1892, No. 467,696, to which reference is hereby made. These cups are mounted upon
55 swinging shafts M and are adapted to throw their powder into flames rising from the holes N in a gas pipe O. These parts, as before stated, are portions of my particular flash light burner, and they are here shown in Fig.
60 1, in position to receive the charges of powder from the chutes I, but they form no part of my present device. The powder from chutes I may be discharged directly into the flames which would thus constitute the burner.

65 It is to be understood that I do not claim in this application the device set forth in my

application, Serial No. 456,251, filed December 24, 1892.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A charger for flash light burners consisting of a supply hopper and a longitudinally movable oscillatory valve mounted in the throat of the hopper and having a series of
75 charge sockets of varying sizes adapted to be moved into and out of the hopper, substantially as herein described.

2. A charger for flash light burners consisting of a supply hopper and a longitudinally
80 movable oscillatory valve mounted in the throat of the hopper and having a series of charge sockets of varying sizes adapted to be moved into and out of the hopper, and a directing chute in communication with said
85 valve, and into which it delivers the charge of powder, substantially as herein described.

3. A charger and reflector for flash light burners consisting of a reflecting plate, a supply hopper secured to the back of said plate,
90 an oscillatory charge valve operating in the throat of the hopper and a directing chute in communication with said valve and passing through the reflecting plate, substantially as herein described.

4. A reflector and charger for flash light burners consisting of a frame, a reflector carried thereby, a directing chute passing
95 through the reflector from behind, and means for supplying a charge of powder to said chute, substantially as herein described.

5. A reflector and charger for flash light burners, consisting of a reflecting plate, a supply hopper on its back, means for controlling
100 the discharge from the hopper, and means for delivering the charge to the burner, substantially as herein described.

6. A reflector and charger for flash light burners consisting of a movable frame, a reflector carried thereby, directing chutes passing
105 through the reflector from behind, and means for supplying a charge of powder to said chutes, consisting of hoppers on the back of the reflector, and oscillatory valves with charge sockets operating in the throats of the
110 hoppers, substantially as herein described.

7. A reflector and charger for flash light burners consisting of a frame, a reflecting plate carried thereby, a series of supply hoppers
115 secured to the back of the plate, oscillatory valves with charge sockets operating in the throats of the hoppers, directing chutes in communication with said valves, and passing through the reflecting plate and rocking shafts upon which said valves are mounted
120 whereby they are operated simultaneously, substantially as herein described.

8. A reflector and charger for flash light burners consisting of a frame, a reflecting plate carried thereby, a series of supply hoppers
125 secured to the back of the plate, oscillatory longitudinally movable sleeves forming

valves operating in the throats of the hoppers, said valves having a series of charge sockets of different sizes, directing chutes in communication with said valves, and passing through the reflecting plate and rocking shafts upon which said valves are mounted whereby they are operated simultaneously, substantially as herein described.

9. A reflector and charger for flash light burners consisting of a frame, a reflecting plate carried thereby, a series of supply hoppers secured to the back of the plate, oscillatory valves with charge sockets operating in the throats of the hoppers, directing chutes in communication with said valves and passing through the reflecting plate, rocking shafts upon which said valves are mounted whereby they are operated simultaneously, and stops for limiting the movement of said valves, substantially as herein described.

10. A reflector and charger for flash light burners consisting of a frame, a reflecting plate carried thereby, a series of supply hoppers secured to the back of the plate, oscillatory valves with charge sockets operating in the throats of the hoppers, directing chutes in communication with said valves and passing through the reflecting plate, rocking shafts upon which said valves are mounted whereby they are operated simultaneously, and the means for operating said shafts, consisting of a rock bar, pinions on the shafts

and springs for returning them, substantially as herein described.

11. A combined charger, reflector and smoke arrester for flash light burners, consisting of a portable frame, a reflecting plate carried thereby, provided with an apertured top hood, supply hoppers secured to the back of the reflecting plate, oscillatory valves with charge sockets operating in the throats of the hoppers, rock-shafts upon which said valves are mounted, and directing chutes in communication with the valves and passing through the reflecting plate, substantially as herein described.

12. A reflector and charger for flash light burners consisting of a reflecting plate, supply hoppers on its back, oscillatory valves, each having a series of charge sockets of different sizes, said valves operating in the throats of the hoppers, longitudinally movable rock shafts carrying said valves whereby they may be moved simultaneously to present different sockets in the hoppers, and directing chutes for receiving the charges from said sockets, substantially as herein described.

In witness whereof I have hereunto set my hand.

SYLVESTER M. WILLIAMS.

Witnesses:

S. H. NOURSE,
H. F. ASCHECK.