

D. C. SHOBERG.
FLASH LIGHT APPARATUS.
APPLICATION FILED JUNE 7, 1912.

Patented May 27, 1913.

2 SHEETS—SHEET 1.

1,063,075.

Fig. 1.

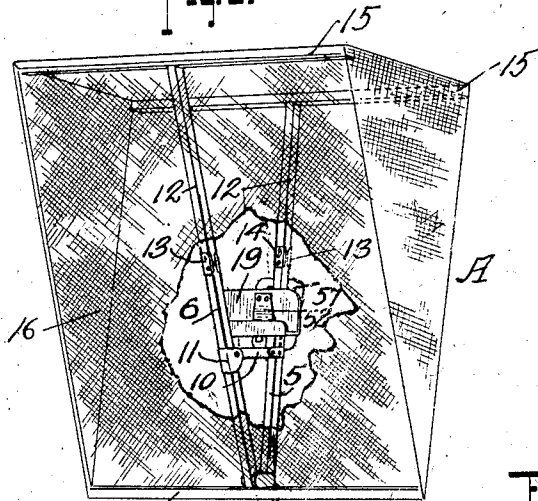


Fig. 7.

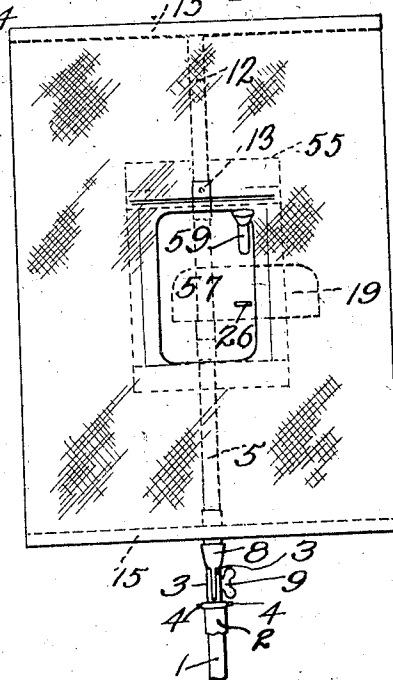


Fig. 2.

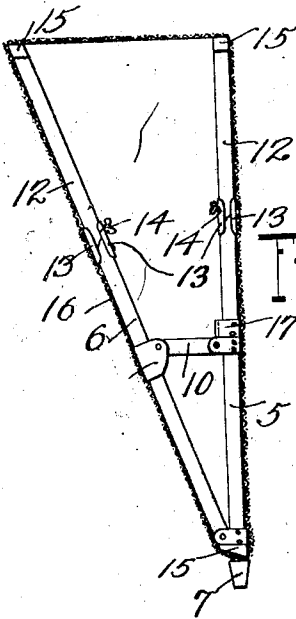
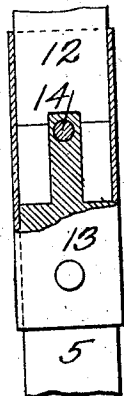


Fig. 8.



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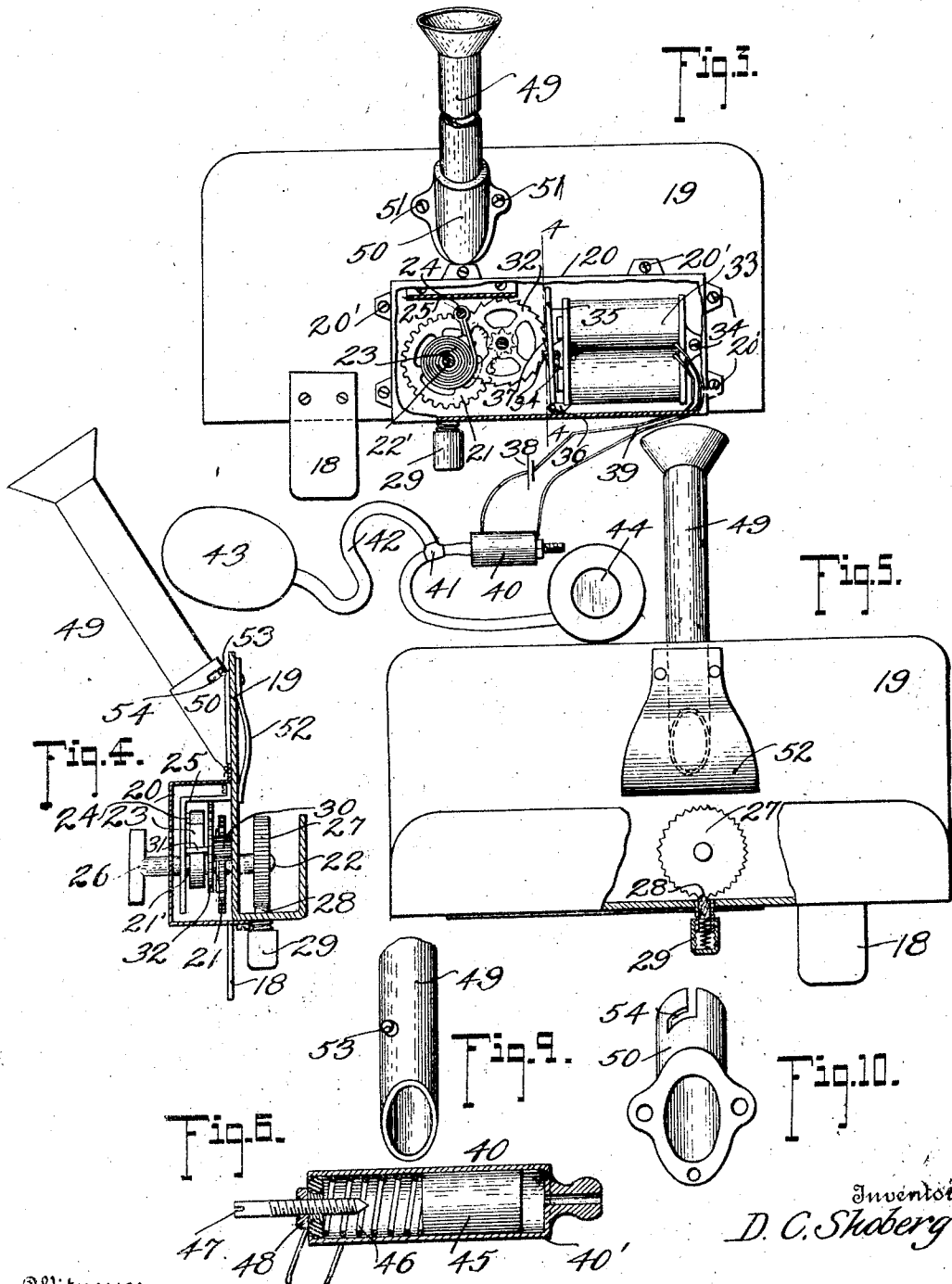
Attorneys

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

DAVID C. SHOBERG, OF SIOUX CITY, IOWA.

FLASH-LIGHT APPARATUS.

1,063,075.

Specification of Letters Patent.

Patented May 27, 1913.

Application filed June 7, 1912. Serial No. 702,347.

To all whom it may concern:

Be it known that I, DAVID C. SHOBERG, a citizen of the United States, residing at Sioux City, in the county of Woodbury and State of Iowa, have invented certain new and useful Improvements in Flash-Light Apparatus, of which the following is a specification.

This invention relates to improvements in flashlight apparatus for use in conjunction with photographic appliances or cameras, said improvements embodying certain features of construction set forth in my previous Patent, Number 970,358, dated September 13, 1910.

The invention comprises certain novel flashlight firing mechanism adapted to co-operate with a camera whereby the powder which is confined within a hood, or covering, may be fired by means of spark metal ignition operated from without said hood, and in such a manner as to permit of any number of flashes in rapid succession without removing the flash or allowing the smoke to escape from the hood, as well as working said flash simultaneously, or in perfect unison with the shutter of the camera. While under certain conditions it is desirable to retain the smoke within the hood above mentioned, it is, on the other hand, very necessary, in order to obtain best results, that it be expelled after each flash, and this is easily accomplished by employing my form of collapsible hood by means of which the smoke is forced out instantly in an advantageous manner, the collapsing operation performing a very desirable function in an apparatus of this type, as will hereinafter be more fully described.

It is contemplated in the construction of my invention that the front of the hood be covered with a translucent cloth, or similar transparent, or semi-transparent porous material, by means of which the light from the flash within the hood is directed on to the subject to be photographed. As is well known, the flashes fired produce, or leave, certain sediment, or ashes, which, under ordinary conditions, are a detriment in machines of this nature, but in my apparatus,

on the contrary, when the operator collapses the hood, by shaking it briskly, the transparent cloth will strike and rub against the back of the hood, sifting the ashes through the front cloth and thereby removing the dirt and smoke, and effectively clarifying the apparatus for subsequent use. This feature is particularly desirable from an economical standpoint, since, under usual conditions hereinbefore mentioned, in previous constructions the accumulations of this sediment in the hoods after a few exposures requires that the amount of powder to produce sufficient light, must be doubled in order to penetrate the ashes, while in my device the amount of powder used does not vary in the least.

Still a further advantageous feature of my construction is subserved in the use of a peculiar form of circuit closer adapted to be operated by a pressure bulb to close an electric circuit which releases the sparking mechanism for firing the flash, friction being so reduced as to require a minimum current, and said closer being made so adjustable that it can be "tuned" with the shutter of any kodak or camera and that any number of machines can be operated in perfect unison for photographing purposes of large convention halls, or the like, where several machines are required, and this without the use of an electric spark and without interference of smoke.

With the above and other objects in view, this invention consists of the construction, combination and arrangement of parts, all as hereinafter more fully described, claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the hood having the covering for the front of the same broken away to more clearly show the position of the flashlight firing mechanism contained therein; Fig. 2 is a side elevation of the frame for supporting the hood; Fig. 3 is an enlarged detail view in rear elevation of the firing mechanism, with the casing inclosing parts thereof broken away; Fig. 4 is a transverse sectional view, on the line 4—4 of Fig. 3; Fig. 5 is a front view of

the flash pan, partly broken away to show the sparking wheel; Fig. 6 is an enlarged sectional view of the circuit closer for operating the electro-magnet; Fig. 7 is a rear elevation of the hood, showing the sliding door therein; Fig. 8 is a detail view, partly in section, showing more clearly the means for connecting the sections of the hood standard. Fig. 9 is a detail view of the lower portion of the flash powder feeding tube; and Fig. 10 is an enlarged view of the supporting member for said tube.

Throughout the following detail description and on the several figures of the drawings, similar parts are referred to by like reference characters.

Specifically describing my invention, and referring to the drawings, an apparatus constructed in accordance therewith comprises a hood A which is supported in extended position by means of a frame constructed similarly to that disclosed in my previous patent above mentioned. The hood and apparatus hereinafter disclosed is adapted to be supported by any conventional vertically adjustable stand, the standard 1 of which terminates at its upper end in a socket member 2 in which are located the clamping plates 3, said plates being held in the member 2 by means of screws, or similar fastening means 4.

The frame for holding the hood consists of the converging bars 5 and 6, the bar 5 being vertically disposed and having secured at its lower extremity the tapering plug 7, which is adapted to be inserted when the apparatus is in operative position, in a socket member 8 conforming to the shape of the plug, said member 8 being integrally formed with a flattened portion which is adapted to be received between the clamping members 3 and adjustably secured therebetween by means of a thumb-screw 9. By means of the construction thus described, the apparatus may be tilted into any desired position by relieving the pressure of the adjusting screw 9 and again tightening the same when properly adjusted.

As shown in Fig. 2 the collapsible frame supporting the hood is held in an extended position by means of the center spread bar 10 which is pivotally secured to the vertical bar, or standard 5, intermediate its ends and slidably connected with the bar 6 by means of the sleeve 11. As in my former patent, when it is desired to collapse the hood, or apparatus, for purposes of transportation and folding into convenient size, the bar 10 is pulled upwardly, thereby bringing the bar 6 into position parallel with the bar 5 and having the spread bar 10 interposed therebetween. To further economize space, I have constructed the bars 5 and 6 in sections as indicated at 12, which may be de-

tached from the lower portions of the bars 5 and 6. According to my construction, said bars 5 and 6 have riveted at opposite sides thereof, the plates 13 which extend upward a suitable distance and have passing therethrough a thumb-screw 14. The sections 12 are slotted at their lower ends and adapted to be inserted between the plates 13 and over the thumb-screws 14 and the latter then tightened so as to effectively hold the sections in position. The transverse bars 15, located at the top and lower portions of the bars 5 and 6, support the hood, as in my previous patent, and a translucent, or porous covering 16 is secured over the front of the hood, as shown in Fig. 1 of the drawings.

Describing specifically my flashlight firing mechanism, at a suitable point above the center spread bar 10 is located a collar, or socket member 17 secured to the bar 5, into which is removably placed the supporting member 18 attached to the rear portion of the elongated flash pan 19. Said pan 19 is of L-shape form in cross section, this specific shape being most desirable in order that the flash may be spread, as will hereinafter more clearly appear. Secured to the rear portion of the flash pan 19, as by means of the screws, or similar fastenings, 20', is a casing 20 within which is located the clocklike mechanism for controlling the sparking, or ignition, of the flash powder. Said mechanism consists of a gear, or click wheel 21, which is secured to the shaft 22, having its bearing in the rear wall of the flash pan 19. The shaft 22 consists of two parts, the second part being designated by the numeral 22' upon which is secured the main spring 23, the opposite end of said spring being secured to the pin 24 which projects from the bracket 25 removably secured to the rear wall of the pan 19 and in the lower portion of said bracket the opposite end of the shaft 22' has its bearing. A key 26 is secured to the outer extremity of the shaft 22' and passes outside of the casing 20 and the rear wall of the hood so that the mechanism may be wound without the necessity of opening the hood in any way. The inner end of the shaft 22 carries the friction, or spark wheel 27 which is located on the inner side of the rear wall of the pan 19 adjacent the bottom of the latter. The roughened, or serrated, periphery of the wheel 27 contacts with a spark metal 28, or similar substance, projecting from the bottom of the pan 19. The igniter 28 is adjustably held in firm contact with the wheel 27 by means of a coil spring contained within the screw-cap 29 threaded in the pan 19 beneath the wheel, said cap being adapted to be screwed upwardly as the sparker wears away or requires greater tension for operation. The gear 21 inter-

meshes with the gear element 30 carried by the transverse shaft 31, and adjacent said element 30 on the shaft just mentioned is provided a ratchet wheel 32.

5 At 33 is designated a conventional form of electro-magnet secured within the casing 20 by means of the screws 34, said magnet being provided with the armature 35 pivoted at its lower extremity, as indicated at 36. At a suitable point on the armature 35 is a lug 37 which is normally in engagement with the ratchet wheel 32 holding the same against movement in an obvious manner.

15 The means for operating the flash mechanism will now be described.

The electro-magnet 33 is connected in the electric circuit leading from the single cell, or battery, 38, the terminal of one of the wires 39 being connected with the casing 20 40 of the circuit closer 40. The circuit closer 40 is located at the terminal of the branch tubing 41, communicating therewith, as shown in Fig. 3, and with the main tube 42 leading to the hand operating bulb 25 43. The other branch of the tubing 41 leads to the shutter of the camera, which is conventionally shown in the drawings and designated by the numeral 44. Within the casing 40 of the circuit closer 40 is slidably mounted a plunger 45 which is adapted to be moved by the air pressure transmitted from the bulb 43, against the coil spring 46 interposed between one end of said plunger 35 and the closed end of the casing 40. Insulated from and extending a suitable distance within the casing 40 is a contact pin 47 having an adjusting nut 48 threaded thereon, by means of which the pin may be projected farther within the casing or withdrawn therefrom as desired. The terminal 40 of the other wire of the circuit 39 is connected with the pin 47 by means of the nut 48 and it will be obvious that by screwing 45 the pin 47 in or out, electric connection with the plunger may be made sooner or later, thus providing a simple and most efficient means for tuning the connection in perfect unison with the shutter of the camera which 50 is operated simultaneously by pressure of the bulb 43. The particular purpose of this tuning will be apparent when it is considered that a number of flash apparatuses may be operated by the single means above 55 described and on account of the varying distances from the operator it is desired that the contacts for operating the spark ignition be made at somewhat different intervals, or made more sensitive.

60 In order to supply flash powder charges to the pan without opening the hood or disturbing the mechanism, I provide a suitable metallic feeding tube, or pipe, 49 which extends through the rear portion of the hood

and is preferably flared at its mouth to 65 facilitate pouring of the loose powder thereinto. The opposite end of the pipe 49 is cut off diagonally for the purpose which will appear hereinafter, and said tube is adapted to be inserted in the supporting 70 member 50 which is suitably secured to the rear wall of the pan 19 by means of the screws, or like fastenings, 51. As will be noted, this supporting member 50 holds the tube at an incline and when loading the 75 flash, the powder passes downwardly there-through until it is caught by the curved spring plate 52 secured at its upper portion to the inside of the rear wall of the pan 19. The tube 49 has provided thereon at its 80 lower portion a lug, or projection, 53 for interlocking with the angular slot 54 in the supporting member 50 when the tube is partially rotated in one direction. When all is in readiness for the charge to be set 85 in the pan, the tube 49 is turned partially in the direction opposite that above mentioned, thereby engaging the tapered end of said tube with the spring plate 52 and raising the latter slightly so that the powder falls 90 into the bottom of the pan 19. The peculiar form and location of the plate 52 acts as a spreader for the powder so that the same is advantageously distributed in the pan as most desired for the purposes of this 95 apparatus. When the tube 49 is released the plate 52 has ample resiliency to force it back into its initial position and the next charge may be inserted when desired, said plate effectively closing the opening to prevent the flash from passing out the tube or permitting the smoke to escape from the hood through the passage thus provided.

The operation of igniting the flash will be briefly set forth. 105

When the apparatus, or hood, has been set at the desired angle, the camera properly adjusted, and the powder placed in the pan as above described, the operator presses the bulb 43, simultaneously operating the 110 shutter 44 in the customary manner and forcing the plunger 45 to close the electric circuit in perfect unison therewith. The electro-magnet 33 draws the armature 35, when the circuit is thus closed, from engagement with the ratchet wheel 32, which 115 allows the action of the spring 23 to cause rotation through the gearing of the friction wheel 27 against the spark metal 28, instantly setting off the powder and firing 120 the charge contained in the pan. Release of the pressure permits the armature to again engage the wheel 32 and the operator may proceed to recharge the apparatus for a second flash. This may proceed for numerous 125 exposures, the smoke being effectively retained within the hood until the operator removes the apparatus from the room, or

building, expulsion of the smoke taking place when the hand is inserted within the hood and the spread bar 10 is moved upwardly as heretofore described, forcing the smoke out of the hood as well as cleansing the apparatus of the ashes, similar to the action of a bellows.

In order that ready access may be provided for the operator to collapse the hood, I employ a double layer for the rear portion of the hood said layers being stitched together, as shown by the dotted lines designated as 55. A slit in the outer layer permits the insertion of the sliding door 57 between the folds of the two layers, and certain reinforcing wires, also shown in dotted lines, are employed for the purpose of holding the door tightly against the opening in the hood, assuring a smoke-tight covering and preventing escape of the smoke therefrom. It will be understood that the door 57 is provided with openings through which the tube 49 and the key 26 may extend, as heretofore inferred.

In my former patent the hood was not provided with a covering for the front, as in the present case, this covering providing a superior device for the purposes contemplated and hereinbefore disclosed.

Having thus described the invention what is claimed as new is:

1. In photographic flash light apparatus, a hood adapted to hold smoke incident to firing of a flash therein, said hood comprising pivoted sides, a spreading member normally holding the hood extended and operable to collapse said hood, whereby the smoke aforesaid may be expelled from the hood.

2. In photographic flash light apparatus, a hood adapted to hold smoke incident to firing of a flash therein, said hood comprising pivoted sides, a spreading member pivotally connected to one side of said hood and slidably connected with its opposite side, whereby movement of said spreading member will collapse the hood and forcibly expel the smoke therefrom.

3. In photographic flash light apparatus, a collapsible inclosing hood adapted to hold smoke incident to firing of a flash therein, a spreading member connected with the opposite sides of said hood and operable to collapse the same to permit the said sides to flap and rub against each other when shaken, whereby the residuum of powder from the flash may be expelled from the hood.

4. In photographic flash light apparatus, a collapsible hood adapted to hold smoke incident to firing of a flash therein, said hood comprising inclosing sides one of which is composed of foraminous material, a spreading member pivotally connected with

the opposite sides and normally holding the hood extended, said member being operable to collapse the hood and permit the sides thereof to flap and rub against each other when shaken, whereby the residuum of powder from the flash may be sifted through the said foraminous material to thereby cleanse the latter.

5. Flash light apparatus comprising a pan, feeding means for supplying powder to the pan, and the resilient member for checking the flow of powder into the pan and operable by the feeding means to release a supply of powder, said member being adapted to return the feeding means to initial operative position.

6. Flash light apparatus comprising a pan, a feeding tube for supplying flash powder to said pan, and a resilient member adapted to check the flow of powder through the tube aforesaid and operable thereby to admit and spread a charge of powder onto the pan, said member normally closing the tube to prevent the flash from entering the same.

7. Flash light apparatus comprising a pan, means for feeding flash powder to the pan, ignition means for firing the powder, operating mechanism for said ignition means, an electro-magnet, an armature therefor pivotally mounted adjacent the operating mechanism and arranged to move normally into engagement the switch to prevent movement of the operating mechanism, and means for disengaging the armature from the said operating mechanism and cause ignition of the flash powder.

8. Flash light apparatus comprising a pan, means for feeding and spreading the flash powder onto the pan, a friction wheel mounted in the pan, an igniter adjustably held in contact with the friction wheel, a spring controlled shaft on which said wheel is mounted, a ratchet wheel operatively connected with the shaft aforesaid, an electric circuit including an electro-magnet adjacent the ratchet wheel, an armature for said magnet normally engaging the said ratchet wheel, a circuit closer in the electric circuit, and an operating bulb for operating the circuit closer, whereby the armature is disengaged from the ratchet wheel and the friction wheel and igniter sparks to fire the flash powder.

9. In photographic flashlight apparatus, the combination of a hood, means for firing flash light in said hood, the hood comprising a collapsible structure including a side of foraminous material whereby on collapsing the hood, the residuum of the flash powder may be forced through said foraminous material to clear the same.

10. In a flash light apparatus, the combination with means for firing a flash light,

of a hood adapted to house said means to
confine the smoke resulting from the flash
light, said hood comprising a side of foram-
inous material and also comprising means
5 whereby the residuum of the flash powder
used for flash light purposes may be sifted
forcibly through said foraminous material
to clear the latter.

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

DAVID C. SHOBERG.

Witnesses:

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ANNA WIGDAHL.