

(No Model.)

T. H. MACDONALD.
FLASH LIGHT DEVICE.

No. 532,797.

Patented Jan. 22, 1895.

Fig. 1.

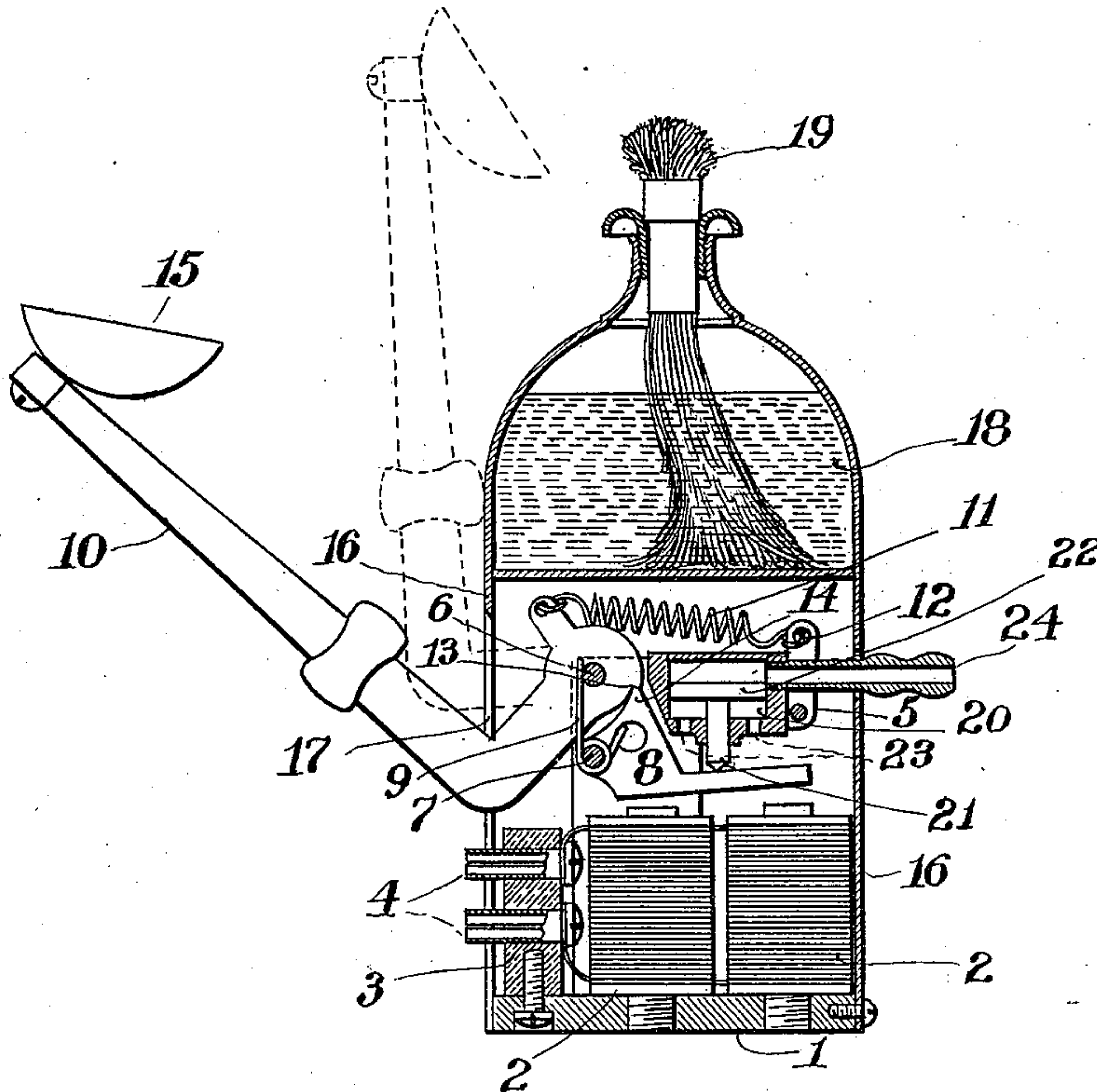
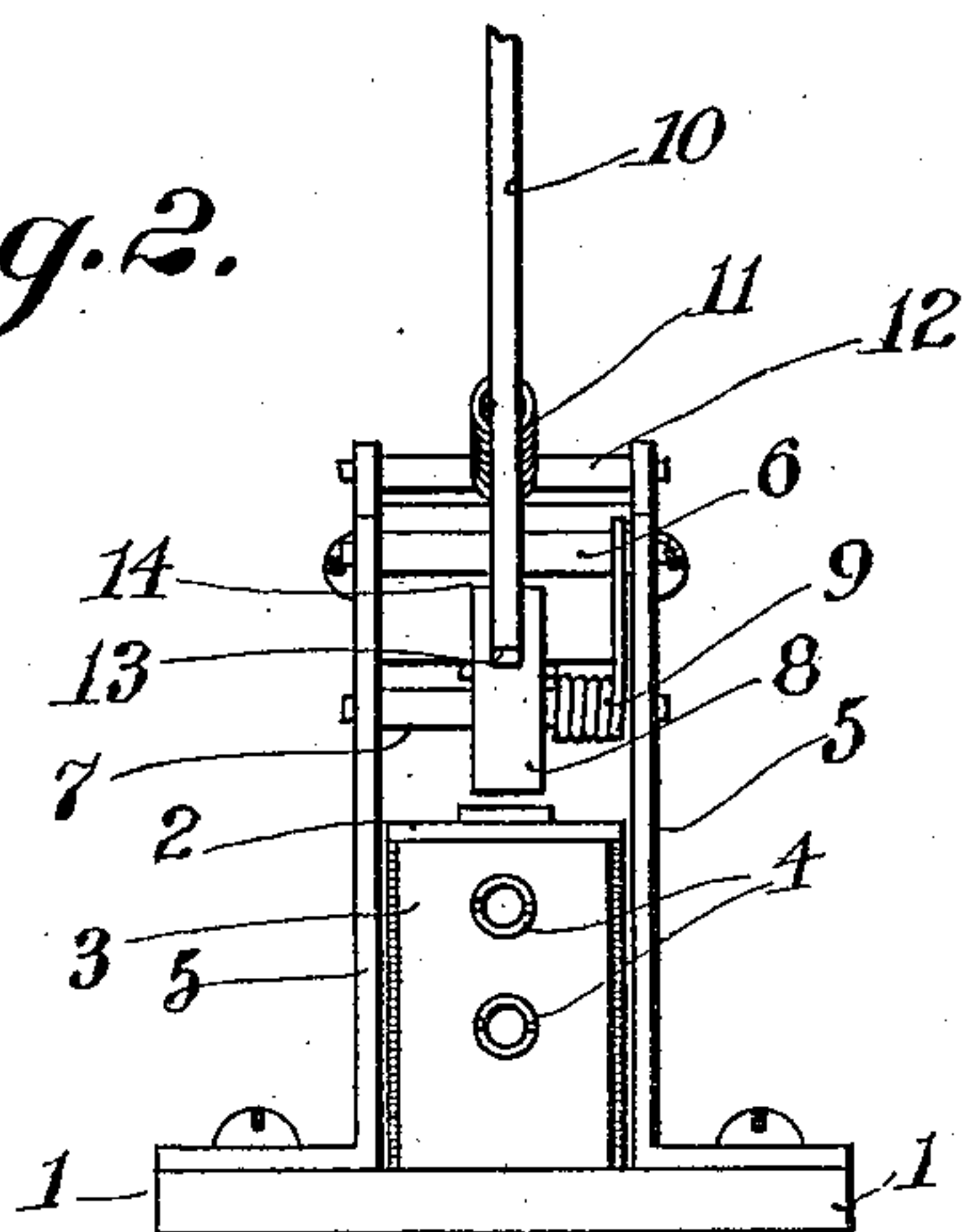


Fig. 2.



WITNESSES:

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THOMAS H. MACDONALD, OF BRIDGEPORT, CONNECTICUT.

FLASH-LIGHT DEVICE.

SPECIFICATION forming part of Letters Patent No. 532,797, dated January 22, 1895.

Application filed April 28, 1894. Serial No. 509,349. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. MACDONALD, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Flash-Light Devices; and I do hereby 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.

My invention relates to flash light devices, but more particularly has reference to the construction of such devices whereby any desired number of them may be operated simultaneously and at different locations.

In the accompanying drawings which form a part of this application, Figure 1 is a sectional elevation of my improvement, and Fig. 2 a rear elevation.

Similar numbers of reference denote like parts in both figures of the drawings.

1 is any suitable base having secured thereto electro-magnets 2, and 3 is a block of insulating material secured to this base and supporting contact pins 4, which latter are connected with the coils of the magnets in any well known manner.

5 are brackets which arise from the base 1, and 6, 7, are pintles extending between said brackets one above the other. Around the pintle 7 is a dog 8 whose tail is extended above the magnets and is the armature thereof.

9 is a coil spring around the pintle 7 and connected with the dog so as to keep the tail thereof normally elevated, the power of said spring not being great enough to afford any material resistance to the attraction of the armature by the magnets.

10 is an arm around the pintle 6, and 11 is a coil spring whose ends are connected respectively to the heel of said arm and to a cross pin 12 supported between the brackets, whereby said arm is normally thrown forward. The heel of this arm has therein a notch 13, which latter, when the arm is thrown backward against the resiliency of the spring 11, will be engaged by the nose 14 of the dog, thereby holding said arm in its retracted position. The dog is thrown upward, so that its nose can engage with said notch, by the spring 9, and when the dog is depressed its nose will be raised out of said notch thereby causing the arm to be suddenly thrown forward.

15 is a cup carried by the upper end of the arm 10 and within which is placed any suitable substance such as is ordinarily used for the purpose of making flash lights. 16 is the case or shell which surrounds the parts heretofore described and which is secured to the base. A slot 17 in the side of the case accommodates the arm 10 and permits the latter to have a free swinging movement. The upper end of this case is formed into a reservoir 18 to contain alcohol, oil, and the like, a wick 19 being arranged within this reservoir in any well known and suitable manner. It will thus be readily understood that when the lamp is lighted the substance within the cup 15 will, when the arm is thrown forward, be cast directly into the flame.

I have heretofore shown and described the means electrically controlled for releasing the arm, but there are several other ways in which this may be accomplished, one of which I have illustrated and will now describe.

20 is a hollow box secured between the brackets 5 and 21 is a pin which extends loosely through the bottom of said box and is capable of a free vertical movement. To the upper extremity of this pin is secured the disk 22 which fits snugly within the box but is capable of a rise and fall with the pin.

23 are air vents in the bottom of the box, and 24 is a hollow pin which leads into the box above the disk 22. Air suddenly driven through this hollow pin within the box will cause the disk and pin to be depressed, thereby forcing down the dog and releasing the arm 10.

A series of my improvements may be located at any desired places and connected together either electrically through the medium of the pins 4, or pneumatically by means of flexible tubes through the medium of the pins 24 so that a single impulse, either electric or pneumatic, will cause a series of simultaneous flashes. I do not therefore wish to be confined to any particular means for depressing the dog 8, for it will be readily seen that this constitutes a secondary feature of my invention capable of considerable variation.

The special arrangement of the parts which I describe is exceedingly advantageous since the adjustment and operation of such parts thus arranged are necessarily very nice and positive.

The cup 15 may be secured to the arm in

any desired manner, and such cup may be of any approved shape, or the arm may be so constructed as to carry a plurality of cups suitably arranged, without departing from the spirit of my invention.

The lamp may of course be separate from the mechanism heretofore described, and the latter may be located and secured as an independent device in close proximity to the lamp. For instance, such mechanism could be attached directly to a gas burner, and it will of course be understood that the usual reflectors may be employed if desired.

A most important feature of my invention is that my improvement is portable and that the lamp and the mechanism for throwing the flashing substance are combined in a unitary device. The advantage of this construction is very great, for I am thereby enabled to locate a flash light independent of any fixture or other stationary article.

Heretofore simultaneously operating devices have been arranged with respect to specially constructed gas fixtures, and a single trip or equivalent device has been employed to operate these flash devices, but it is impossible with such a construction to locate the flashing devices at any point or points independent of the fixtures, and moreover these devices cannot be operated independent of each other for they must operate all together.

By my improvement one or more flash devices may be operatively connected in a series, and the location of each device may be changed independently of the other devices, and also one or more of such devices may be cut out entirely from operation according to the demands of the occasion.

The provision of pneumatically controlled devices, in addition to those electrically operated, for effecting the action of the arm, renders my improvement of great value, in that the pin 24 may be connected by a rubber tube with the pneumatic devices which are used to operate the shutter of a photographer's lens, whereby the light may be flashed simultaneously with the uncovering of the lens.

A portable device of this character, so equipped that it may be operated either electrically or pneumatically according to the demands of the occasion, offers the greatest advantages and supplies a want long felt.

I claim—

1. The herein described portable flash light device, comprising a casing having in its upper portion a lamp, a base secured within the lower part of said casing, the arm pivoted to said base and having a notch in its heel end and projecting laterally through said casing, the spring which tends to throw said arm forward, the dog pivoted to said base and provided with a nose which engages with said notch whereby said arm may be held in retracted position, the spring whereby said dog is normally elevated, and means for depress-

ing said dog thereby releasing the arm, substantially as set forth.

2. The herein described portable flash light device, comprising a casing having formed in its upper portion an alcohol reservoir and wick receptacle, a base secured within the lower part of said casing, brackets rising from said base, the arm pivoted between such brackets and having a notch in its heel end and projecting laterally through said casing, the spring which tends to throw said arm forward, the dog pivoted between said brackets and provided with a nose which engages with said notch whereby said arm may be held in retracted position, the spring whereby said dog is normally elevated, and means for depressing said dog thereby releasing the arm, substantially as set forth.

3. The combination of the casing having formed integral with its upper end an alcohol lamp, the base secured within the lower portion of said casing and having brackets rising therefrom, the electro-magnets supported on said base, the arm pivoted between such brackets and having in its heel end a notch, the spring connected to said arm whereby the latter is normally thrown forward, the dog pivoted between said brackets and having its tail extended within the field of said magnets and provided with a nose capable of engaging with said notch, the spring connected to said dog whereby the tail of the latter is normally elevated, and insulated contact pins electrically connected with said magnets, whereby when the latter are vitalized the tail of the dog will be attracted thereby releasing the arm and causing the latter to be thrown forward, substantially as set forth.

4. In a portable flash light device, the combination of the casing having a lamp integral with its upper end, a base secured within the lower end and having brackets rising therefrom, the spring actuated arm pivoted between said brackets and having a notch in its heel end, the pivoted dog whose nose engages with said notch when said arm is retracted, the spring whereby said dog is normally elevated, and means pneumatically operated for depressing said dog and releasing said arm, substantially as set forth.

5. In a device of the character described, the combination of the pivoted spring actuated arm carrying a cup at its outer end and having in its heel end a notch, the pivoted resilient dog having its nose capable of engaging with said notch to hold the arm in retracted position and having an extended tail, the electro-magnets beneath said tail, and the pneumatically operated pin above said tail, substantially as set forth.

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

THOMAS H. MACDONALD.

Witnesses:

F. W. SMITH, Jr.,

M. T. LONGDEN.