July 14, 1931. G. A. DRUCKER 1,814,299

FLASH LAMP

Filed Oct. 3, 1929

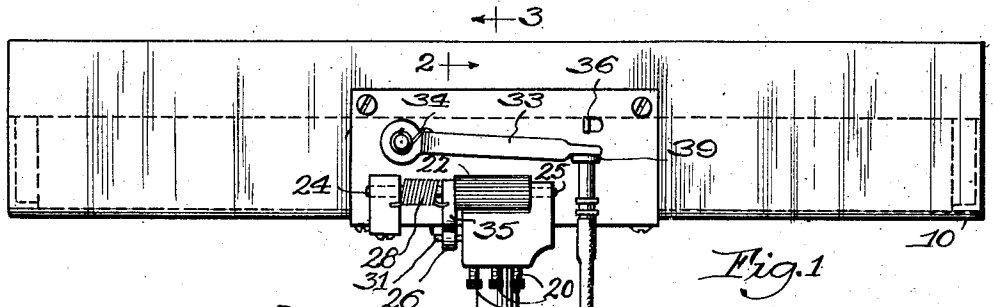


Fig. 1

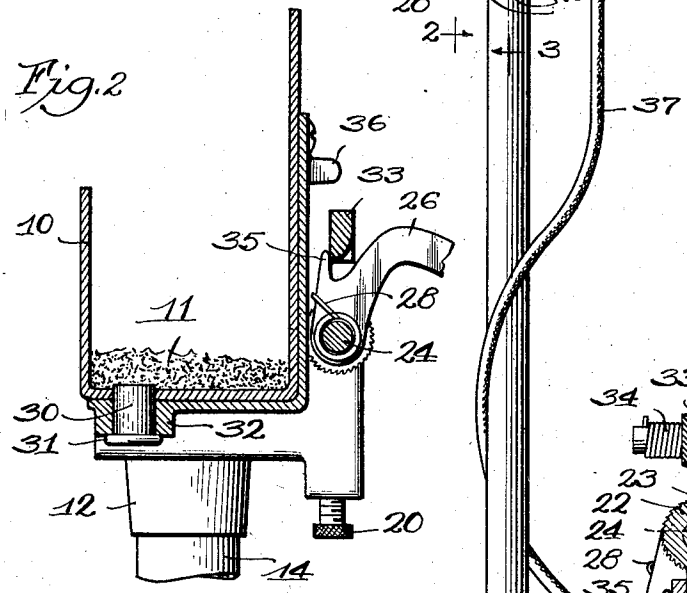


Fig. 2

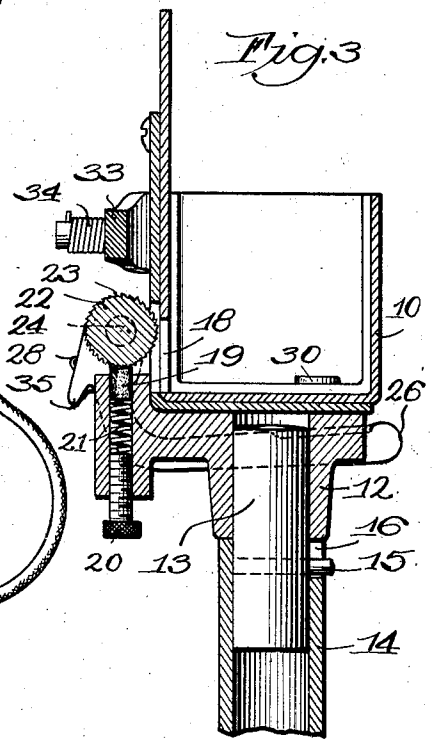


Fig. 3

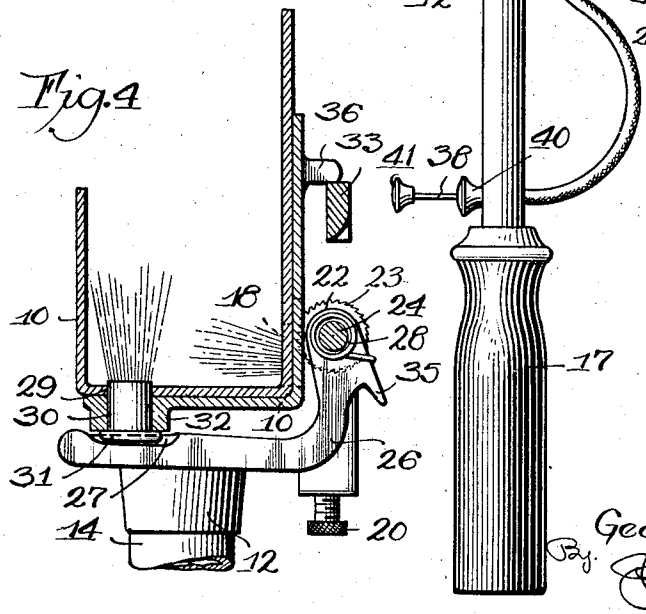


Fig. 4

Inventor.

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By [signature] Atty.

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UNITED STATES PATENT OFFICE

GEORGE A. DRUCKER, OF CHICAGO, ILLINOIS, ASSIGNOR TO BURKE & JAMES, INC., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

FLASH LAMP

Application filed October 3, 1929. Serial No. 396,963.

This invention relates to improvements in flash lamps particularly adapted though not necessarily limited in its use for photographic work and of the type in which a powder or charge is held in a pan or holder and then ignited to produce a flash.

Heretofore such flashes have been occasioned by means of a spark produced by friction such as the engagement of a piece of flint or similar substance with a roughened or serrated surface, and at other times the ignition has been occasioned by means of a cartridge such as is known as a rim fire cartridge, by exploding the same into the charge. Oftentimes in either instance the flash fails, owing to the fact that the igniting device does not function or operate properly.

It is one of the objects of the present invention to overcome these difficulties and objections and to provide an improved flash lamp of this character in which separate and entirely different means are provided for igniting the charge, and improved means whereby a spark will be produced from each of the igniting means, through the medium of the same operating means, and one in advance of the other, thereby insuring that upon the failure of one of the igniting means to produce the necessary spark the other one will.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating this invention, and in which

Figure 1 is a rear elevation of a device of this character constructed in accordance with the principles of this invention and showing the position of the parts after a spark has been produced by the igniting means.

Figure 2 is a view taken on line 2—2, Figure 1, with parts omitted, showing the spark producing means set for operation.

Figure 3 is a view taken on line 3—3, Figure 1, and with the parts in a different position than shown in Figure 2.

Figure 4 is a view taken on line 2—2, Figure 1, showing the parts in a tripped or firing position.

Referring more particularly to the drawings the numeral 10 designates generally a pan or tray of the ordinary and usual type and construction, in which a charge such as powder 11 or the like is placed to produce the flash.

This tray is provided with a socket 12 depending below the bottom thereof into which is inserted a plug 13 that is adapted to telescope with one end of a handle 14, the two being connected together by means of a pin and slot 15—16 whereby the tray will be held against rotative movement with respect to the handle. The handle may be of any desired length and is provided with a grip portion 17.

All of the above referred to parts are of the ordinary and well known construction.

The tray 10 is provided in one wall thereof adjacent the bottom of the tray, with an opening 18 of any desired size and length, and adjustably supported in any suitable manner adjacent the opening 18 and on the outside of the tray are spark producing elements 19 which may be in the form of flint or any other suitable material. A plurality of these elements 19, preferably three in number, are provided and each is adustably held in position by means of an adjusting screw 20 with a spring 21 interposed between the screw and the element 19.

Rotatably mounted adjacent the opening 18 and above the elements 19 is an elongated roller 22 provided with a roughened or serrated periphery 23 and this roller 23 is of a length to extend over all of the elements 19 so that a plurality of sparks will be produced when the roller 22 is rotated over the elements 19.

The shaft 24 of the roller 22 is rotatably mounted in bearings 25 and secured to the shaft for rotation therewith is a trigger or hammer 26 which is preferably bent as shown so as to extend beneath the bottom of the pan or tray 10. A portion of the edge of the element 26 is reduced as at 27 to form a sharp edge, for a purpose to be set forth.

A spring 28 encompasses the shaft 24 preferably between the trigger 26 and the adjacent bearing 25. One end of the spring rests against the bearing 25 and the other against the trigger and tends normally to move the trigger from the position shown in Figure 2, to the position shown in Figure 4.

The bottom of the tray 10 is provided with an opening 29 for the reception of a cartridge 30, preferably of the rim fire type, and the head 31 of the cartridge rests against a bearing 32 projecting below the bottom of the tray. The size of the opening 29 is such that the cartridge 30 will be frictionally held therein but may be removed by pressure from the inside of the tray.

Pivotally mounted upon the back of the tray is a lever 33 and operating upon the lever is a spring 34 and this spring 34 tends normally to move the lever 33 in a direction so that when the trigger 26 is moved from the position shown in Figure 4 to the position shown in Figure 2, a projection or shoulder 35 on the trigger will pass behind the lever 33, the latter yielding for that purpose. After the projection or shoulder 35 has assumed the position shown in Figure 2, the spring 34 will move the lever 33 in a direction to lock the trigger 26 in its set position. A stop 36 may be provided for limiting the movement of the lever 33 in one direction.

When the trigger 26 is moved to the position shown in Figure 2 energy will be stored in the spring 28 so that when the lever 33 is shifted to release the trigger the energy thus stored in the spring 28 will cause the trigger to move quickly into a position to cause the edge 27 thereof to strike and explode the cartridge 30. At the same time and as the roller 22 is connected with the trigger 26 for movement therewith the serrated or roughened face of the roller will pass over the elements 19, causing sparks to be created which will enter the pan or tray 10 to explode the charge.

Thus it will be seen that when the trigger 26 is tripped there will be two separate and distinct means for producing sparks and one will actuate in advance of the other, thereby insuring an absolute ignition of the flash charge in the pan.

Any suitable means may be provided for actuating the lever 33. A simple and efficient means embodies a flexible casing 37 in which operates a flexible rod 38. One end of the casing 37 is connected with a projection 39 on the pan or its support and the other end is secured as at 40 to the handle 12, preferably adjacent the grip 17 thereof.

Connected with the flexible member 38 is a knob or button 41 and the other end of the rod or element 38 is adapted to be projected beyond the end of the flexible casing 37 to shift the lever 33 from the position shown in Figure 1, so that it will release the trigger 26 by moving out of engagement with the shoulder or projection 35.

The spring 34 also operates to hold the end of the lever 33 against the end of the flexible member 38 and to also project the handle or button 41 beyond the end of the casing 37 so that it will be in a position to be depressed by the operator.

While the preferred form of the invention has been herein shown and described, it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:—

1. A flash lamp embodying a charge holding container, supporting means therefor, separate spark producing means for igniting said charge, one of said spark producing means operating to ignite the charge or the failure of the other spark producing means to so do, and means common to the last said means for controlling them.

2. A flash lamp embodying a charge holding container, supporting means therefor, separate spark producing means for igniting said charge, and means common to the last said means for producing a spark from one of said spark producing means in advance of the other.

3. A flash lamp embodying a charge holding container, supporting means therefor, separate spark producing means for igniting said charge, and means common to the last said means for producing a spark from each one in advance of the other and upon each operation of the spark producing means.

4. A flash lamp embodying a charge holder, supporting means therefor, a friction spark producing means, an explosive spark producing means, and means common to both of said spark producing means for rendering them active.

5. A flash lamp embodying a charge holder, supporting means therefor, a friction spark producing means, an explosive spark producing means, and means common to both of said spark producing means for rendering them active, one in advance of the other on each operation of the last said means.

6. A flash lamp embodying a charge holder, a handle connected therewith, spark producing means embodying two relatively movable elements contacting with each other, an explosive spark producing means, an element connected with the movable one of the first said elements for exploding the last said means, means tending normally to move said element to explode the second said means, means for locking the said element against movement by the third recited means, and means for rendering the said locking means inactive at will.

7. A flash lamp embodying a charge con-

tainer, a handle connected therewith, a flint element, a spark wheel co-operating therewith, means for holding a cartridge to discharge into said charge, a trigger connected with said wheel and operating to explode the cartridge, a spring adapted to be placed under tension when said trigger is set, means for locking the trigger in a set position, and means for releasing the trigger whereby said spring will rotate said wheel and drive said trigger to explode the cartridge.

8. A flash lamp embodying a charge container, a handle connected therewith, a flint element, a spark wheel co-operating therewith, means for holding a cartridge to discharge into said charge, a trigger connected with said wheel and operating to explode the cartridge, a spring adapted to be placed under tension when said trigger is set, a lever for locking said trigger in a set position, and means for actuating said lever from a remote point to release the trigger whereby said spring will rotate said spark wheel and drive said trigger to explode the cartridge.

9. A flash lamp embodying a charge holder, a handle connected therewith, a plurality of separate flint elements, a spark wheel common to the elements for producing sparks therefrom, means for holding a cartridge, a trigger operatively connected with said spark wheel, a spring adapted to be placed under tension when the trigger is set, and means for releasing said trigger whereby the said spring will rotate said wheel and drive the trigger to explode the cartridge.

10. A flash lamp embodying a charge holder, a handle connected therewith, a plurality of separate flint elements, a spark wheel common to the elements for producing sparks therefrom, means for holding a cartridge, a trigger operatively connected with said spark wheel, a spring adapted to be placed under tension when the trigger is set, and means for releasing said trigger whereby the said spring will rotate said wheel and drive the trigger to explode the cartridge, upon each release of the trigger and one in advance of the other.

In testimony whereof I have signed my name to this specification, on this 27th day of September, A. D. 1929.

GEORGE A. DRUCKER.