

No. 646,225.

Patented Mar. 27, 1900.

C. KLARY.
FLASH LAMP.

(Application filed Oct. 26, 1898.)

(No Model.)

3 Sheets—Sheet 1.

FIG. 1.

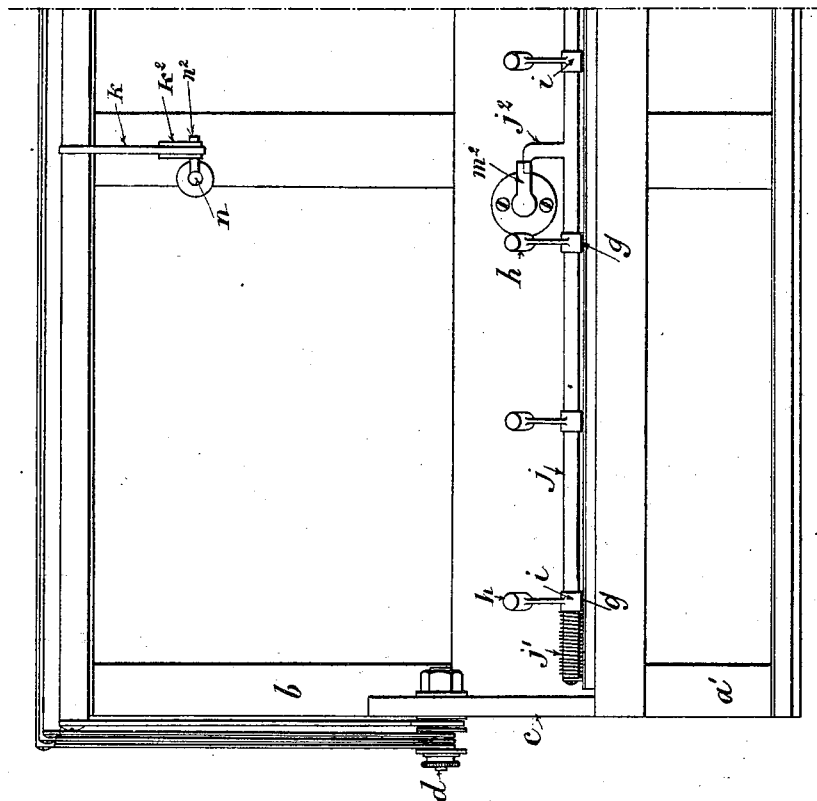
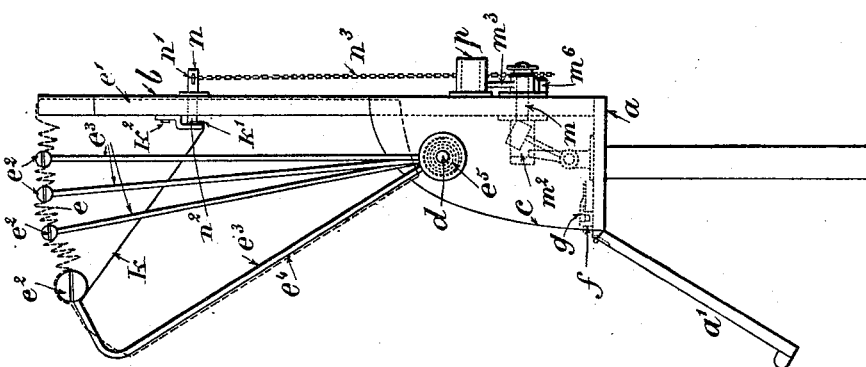


FIG. 2.



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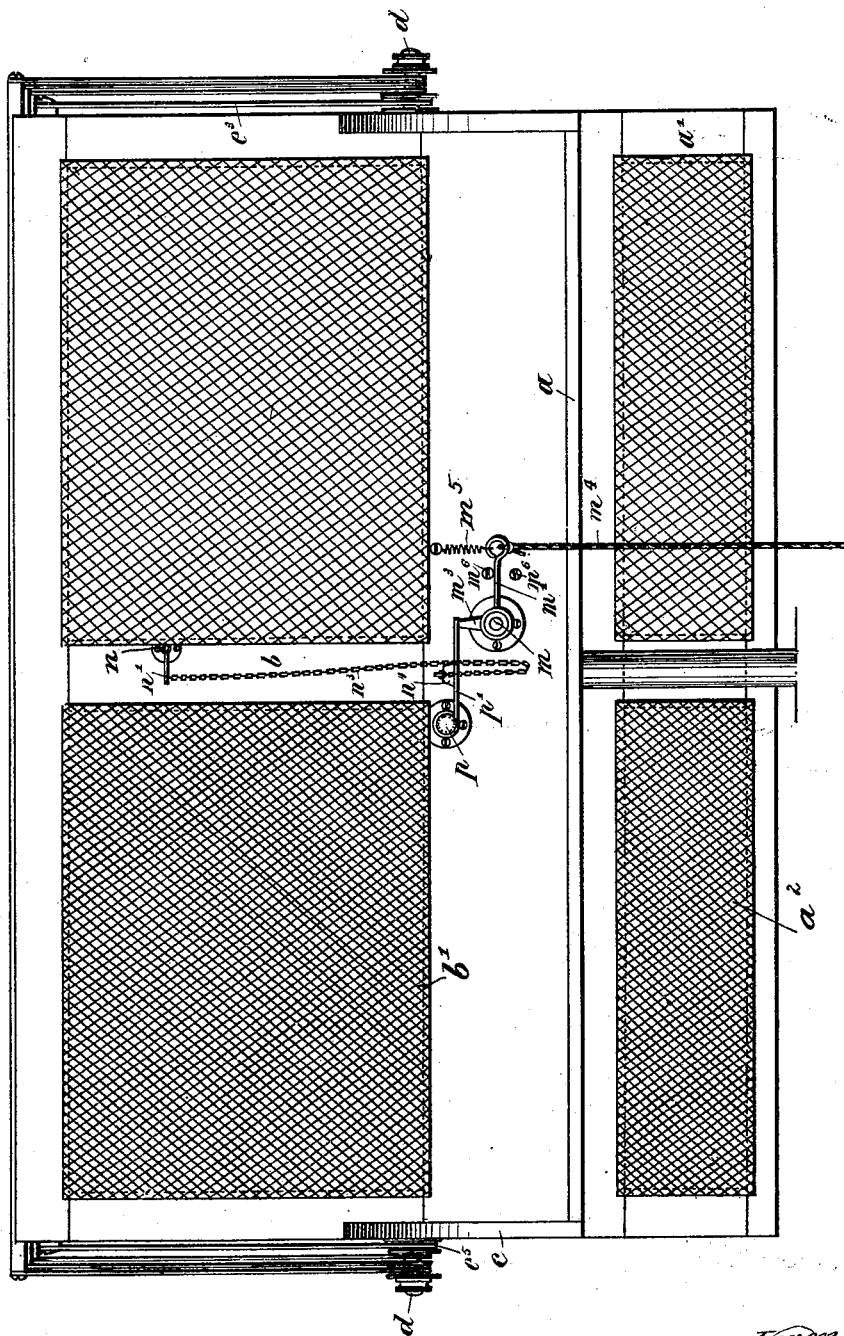
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3 Sheets—Sheet 2.

FIG-3-



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3 Sheets—Sheet 3.

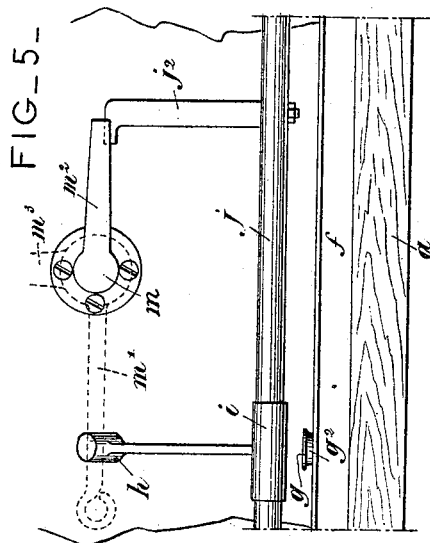


FIG-7-

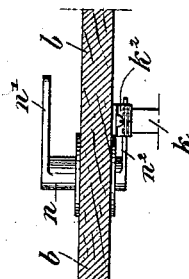
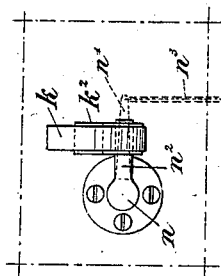


FIG-8-

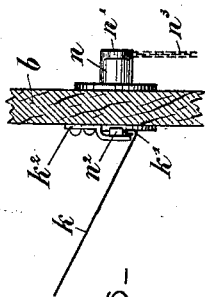
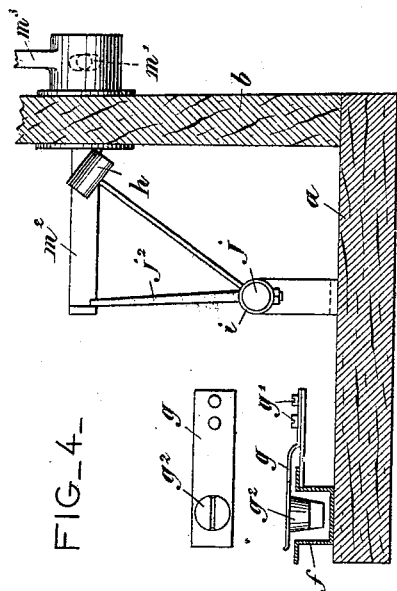


FIG-6-

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UNITED STATES PATENT OFFICE.

CHARLES KLARY, OF PARIS, FRANCE.

FLASH LAMP.

SPECIFICATION forming part of Letters Patent No. 646,225, dated March 27, 1900.

Application filed October 26, 1898. Serial No. 694,619. (No model.)

To all whom it may concern:

Be it known that I, CHARLES KLARY, manufacturer of photographic apparatus, of 13 Rue Taitbout, Paris, in the Republic of France, have invented certain new and useful Improvements in Flash-Light Apparatus for the Use of Artificial Lights in Photography, of which the following is a specification.

The apparatus which forms the subject-matter of my invention is essentially characterized by the combined devices for producing the instantaneous deflagration of the lighting or flash powder and the subsequent operation of a smoke-retaining device whereby a very vivid light may be obtained at exactly the proper moment without being interfered with by the very strong emission of gas and smoke produced by the combustion of the lighting-powder. Therefore my apparatus is most suitable for taking photographic views by the use of artificial light in houses, public-meeting rooms, and the like.

In the accompanying drawings I have shown, by way of example, one form of my flash-light apparatus.

Figure 1 is a front elevation of the apparatus set and ready to work, the support of the apparatus not being shown for want of room. Fig. 2 is a corresponding side view. Fig. 3 is a rear elevation. Figs. 4 and 5 are respectively and on a larger scale a cross-section and a front elevation of the mechanism for operating the deflagrating device. Figs. 6, 7, and 8 are respectively and on the same larger scale a side elevation, a front elevation, and a plan view of the device for operating the smoke-retaining device.

My apparatus comprises a support *a b*, of variable length, composed of a small table *a*, horizontal or substantially horizontal, and of a vertical frame *b*, the open parts of which are covered by a fabric *b'*. The ends of the said support are closed by cheeks *c*, on which are fixed the pivots *d d* of the rods *e³*, supporting the smoke-retaining blind or cloth *e*.

To the front of the small table *a* is connected a frame *a'*, formed of small longitudinal and transversal bars, on which is fixed and stretched a fabric or cloth *a²*, which fills up the intervals between the said bars. The frame *a'* is pivoted to the small table *a* and is thus capable of moving upward, as shown

in the drawings, when the parts are put in motion.

On the small table *a* is arranged a metal trough *f*, extending the whole length of the apparatus and intended to contain the flash-powder which is to produce the artificial light. The said table also carries a certain number of flat springs *g*, fixed at equal or unequal distances by screws *g'* and provided with blocks *g²* to strike and explode the caps placed underneath in the trough *f* and ignite the flash-powder.

Above and in line with the caps and the flat springs *g* are hammers *h*, (shown in detail in Figs. 1, 4, and 5 in the set position,) and the descent of which on the said springs and blocks determines the ignition of the flash-powder. The rods of the said hammers are fixed in the proper place in regard to the springs and blocks by means of a sleeve *i* on a horizontal common shaft *j*, one end of which is subjected to the action of a spiral spring *j'*, the pressure of which is exerted in the same direction as the fall of the said hammers. The shaft *j* carries at its middle part an arm *j²*, the release of which causes the simultaneous fall of the hammers, as hereinafter described.

The curtain or hood *e*, which has a top and sides, as shown in Fig. 2, and constitutes the smoke-retaining device and which is composed of any suitable kind of fabric, is collapsible in the manner of a pair of bellows or rather a carriage cover or hood, the framework of the same moving around the pivots *d d*, the same being shown in its collapsed position in Figs. 1, 2, and 3. The said hood is fast at one end (the upper end, as shown) and is constructed to fold into plaits after the fashion of a bellows or a carriage-top. When moved down, the smoke-retaining device comes against the pivoted part *a'* of the small table *a*, and thus forms, with the parts *a'* and *a*, the wall *b* and the cheeks *c c*, a closed receptacle in which the devices generating the artificial light are completely inclosed. The curtain or hood *e* is fixed at its edge *e'* to the sides of the frame *b*, and it is supported by a certain number of horizontal rods *e²*, mounted on radial rods *e³*, pivoted at *d d*. The outer rods *e³ e³* at the forward edge *e⁴* of the hood are subjected to the action of a spiral spring

e^5 , wound around each of the pivots $d\ d$ and operating to move the hood down. The said hood is held in its upper or folded position by the engagement of a rod k , ending in a hook k' , with a small catch k^2 on the frame b .

The catch mechanism is composed of two parts, the one relating to the igniting device comprising a horizontal shaft m , mounted in and passing through the wall or frame b and carrying three arms m' , m^2 , and m^3 , situated either inside or outside of the wall b . (See Fig. 2.) The arm m' , operated by means of the string m^4 and held upward by a spiral spring m^5 , is capable of oscillating between two stop-pins $m^6\ m^6$. As to the arm m^2 , it serves as a catch for the arm j^2 of the hammer-shaft j and holds the same in its set position. The third arm m^3 serves as a catch for the second part of the mechanism, which second part comprises a shaft n , mounted in the middle member of the frame b and carrying two arms n' and n^2 ; a chain n^3 , attached to the outer arm n' , and a weight n^4 , attached to the chain; a second shaft p , provided with an arm p' , supporting the weight n^4 and resting on the arm m^3 . Both the shafts n and p are mounted in the middle member of the frame b . The arm n^2 of the first-named shaft oscillates on the inside of the catch k^2 and is shown in the drawings as being placed at rest on the top of the hook k' of the rod k .

The operation of the apparatus is as follows: When the mechanism is set and ready to operate, the hammers h are raised and held by the engagement of the arm j^2 of their supporting-shaft j with the arm m^2 . The hood or curtain e is also held in its raised position by the engagement of the hook k' in the catch k^2 . When the string m^4 is pulled so as to lower the arm m' , the shaft m is caused to oscillate, and the arm m^2 , rising, sets free the arm j^2 . Under the action of the spring j' the hammers fall suddenly and strike the springs g and cause the instantaneous ignition of the flash-powder placed in the trough f . At the same time and on account of the oscillation of the shaft m the arm m^3 sets free the arm p' and the weight n^4 , which fall. The length of the chain n^3 is so determined that the weight n^4 only begins to act after having fallen some distance, which can be easily predetermined. When the said weight has completely extended the chain, the arm n' and consequently the arm n^2 descend, and the hook k' is set free from the catch k^2 . The curtain or hood e is freed and instantaneously falls under the influence of the springs e^5 , so that the smoke and gases produced by the ignition of the powder are trapped and cannot in any way interfere with the operator.

By varying the length of the chain n^3 the interval of time which passes between the production of the flash-light and the fall of the curtain or hood can be predetermined, whereby instantaneous views or portraits of any degree of rapidity may be obtained.

After the operation the apparatus is taken

outside and the smoke is set free in the open air, so that several successive views can be taken in the same room.

I desire it to be understood that modifications, as long as they are within the scope of the appended claims, constitute no departure from the nature of my invention.

I claim—

1. In a flash-light apparatus, the combination with a receptacle for the flash-powder, of a hood whose upper end is secured to a stationary part above the receptacle at the rear end of the hood, while the lower end of the hood is pivoted so as to allow the hood to swing forward and downward when released the hood being constructed to fold into plaits, means for holding the lower end of the hood in a raised or set position, and means for releasing said lower end to allow the hood to drop into an operative position.

2. A flash-light apparatus, comprising a trough adapted to contain the flash-powder, a series of flat springs provided with percussion-blocks above the said trough, a series of hammers mounted on a common shaft to strike simultaneously the said corresponding springs and determine the ignition of the powder, in combination with a collapsible hood and catch devices for the igniting mechanism, substantially as described.

3. A flash-light apparatus comprising a support, an igniting device, a collapsible hood with a pivoted folding framework, an oscillating shaft carrying three arms, one of which is operated from the outside by a string, the second of which serves as a stop-catch for the igniting device, and a catch device connected with the third arm, in combination with spiral springs wound around the pivots of the folding framework of the said hood, and having a tendency to throw the hood down, a rod having a part or hook for holding the hood in its raised position, a shaft provided with two arms one of which engages the said hook and the other of which serves to suspend a chain having a weight adjustable thereon, the fall of the said weight being determined by the catch device of the igniting mechanism, and causing the hood to operate after a lapse of time which can be regulated at will according to the nature of the flash-powder and the time necessary for taking the view, by attaching the weight at different points of the chain, substantially as hereinbefore specified.

4. In a flash-light apparatus, in combination, a series of springs g having percussion-blocks g^2 arranged on a supporting-table a , directly above a trough f containing the flash-powder with igniting-caps, hammers h for exploding the caps, said hammers being mounted on a common shaft j , journaled in bearings on the table a , and able to rotate under the influence of two spiral springs j' , wound around the ends of the said shaft; a catch device for holding the striking-hammers in the set position and comprising the arm j^2 of the said shaft j , and a shaft m having arms m' , m^2 , m^3 ,

the string m^4 , and the opposing spring m^5 , a framework having pivoted arms e^3 , spiral springs e^5 on the pivots of said arms, and a hood e constructed to fold after the fashion
 5 of an accordion and connected with said pivoted arms, a catch device for the curtain or hood e comprising the shaft n , having the arms n' , n^2 , the arm n' being provided with the chain n^3 having a weight n^4 , which rests
 10 on a lever p , which engages the arm m^3 of the said catch device of the said striking-hammers, and the arm n^2 of the said shaft engaging a rod k , whereby the hood e is held folded, substantially as described.

15 5. In a flash-light apparatus, the combination with a receptacle for the flash-powder, of a folding hood one end of which is secured to a stationary part, pivoted arms connected with the other end of the hood, the hood being
 20 arranged to cover said receptacle and to retain the smoke, means for holding the hood in a set position, and means for throwing the hood into an operative position.

25 6. In a flash-light apparatus, the combination with a receptacle for the flash-powder, and mechanism for igniting said powder, of a folding hood arranged to cover said recepta-

cle and to retain the smoke, said hood having one of its ends secured to a stationary part, pivoted arms with which is connected the
 30 other end of the hood, means for holding the hood in a set position, and mechanism for successively operating the igniting mechanism and the hood.

7. In a flash-light apparatus, the combination with a receptacle for the flash-powder, mechanism for igniting said powder, a movable hood for covering said receptacle and retaining the smoke, means for throwing the
 35 hood into an operative position, mechanism for normally holding the hood in an inactive position, a locking device for normally holding the igniting mechanism in a set position, a weight
 40 arranged to act upon said locking device and thus release the hood, means for normally supporting said weight, and mechanism for
 45 releasing said weight and the igniting mechanism.

Signed at Paris, in the Republic of France, this 4th day of October, 1898.

CHARLES KLARY.

Witnesses:

GEORGES LAURENT,
 EUGÈNE WATTIER.