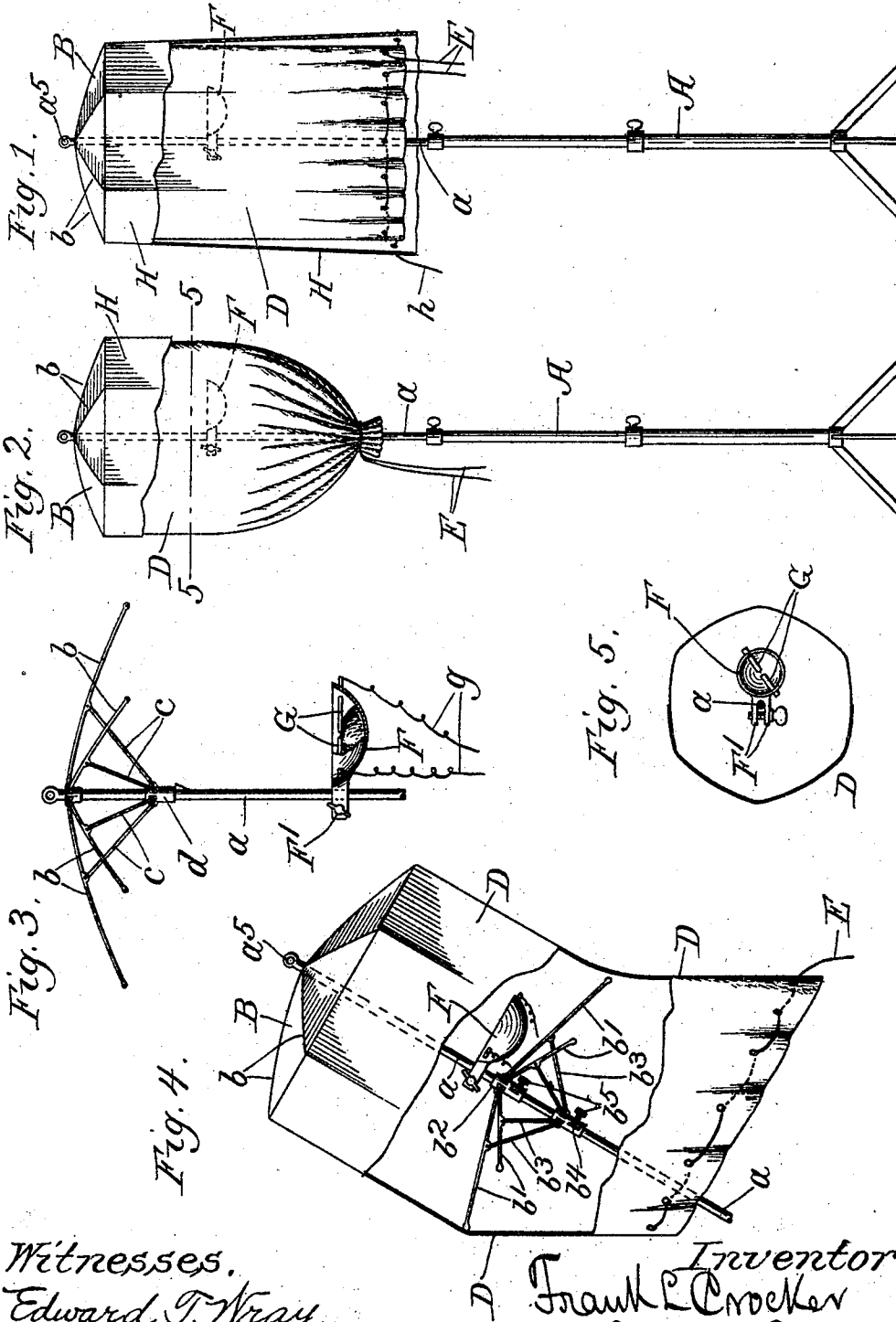


No. 820,476.

PATENTED MAY 15, 1906.

F. L. CROCKER.
FLASH LIGHT SCREEN.
APPLICATION FILED DEC. 14, 1905.



Witnesses.
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UNITED STATES PATENT OFFICE.

FRANK L. CROCKER, OF CHICAGO, ILLINOIS.

FLASH-LIGHT SCREEN.

No. 820,476.

Specification of Letters Patent.

Patented May 15, 1906.

Application filed December 14, 1905. Serial No. 291,696.

To all whom it may concern:

Be it known that I, FRANK L. CROCKER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Flash-Light Screens, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide an improved appliance for a flash-light for photographic purposes adapted to prevent the diffusion of the gases developed from the substance employed to produce the flash-light and retain them in a receptacle in which they may be removed from the room, also adapted to permit diffusion of the light, preventing the intense contrasts of light and shadow, also to cause the light to be reflected from one side for intensifying the illumination in the direction of the view to be taken.

It consists in the features of construction set out in the claims.

In the drawings, Figure 1 is a front elevation of an appliance for the purpose stated embodying this invention, showing the screen-curtain normally pendent from its support. Fig. 2 is a similar view, the standards or support being broken away, showing the curtain gathered together for closing it at the bottom to more effectually retain the gases. Fig. 3 is an elevation of the device with the curtain removed from the forward part, showing the interior framework and devices for supporting the combustibles. Fig. 4 is a view similar to Fig. 1, showing a modification designed to adapt the device to be inclined for directing the light upward or downward, the curtain being partly cut away to disclose the interior construction. Fig. 5 is a section at the line 5 5 on Fig. 2.

I have shown this device in the drawings mounted upon a standard A, which may be made in telescoping sections, as illustrated, so as to adapt it to support the screen at any desired height within the limit of extensibility of said standard. The upper and innermost section *a* of the telescoping standard constitutes the main stem of the device, which comprises an umbrella-skeleton—that is, a frame consisting of bows *b b b*, connected by braces *c c c* with a runner or sliding ring *d* on the stem *a*, the runner being moved upward on the stem for expanding the frame and downward for collapsing it in a familiar

manner requiring no explanation. Upon the bows *b b b* there is stretched a cover B, of fabric, which is interiorly adapted to reflect the light, being for that purpose lustrous white silk or even pure white linen or cotton fabric, and this cover being also designed to be impervious to gases and substantially opaque is exteriorly treated with or covered by some material adapted to render it thus opaque and impervious, as by being coated with a rubber film after the manner of what are commonly called “gossamer waterproof” fabrics. It is necessary that the fabric should also be sufficiently fireproof for safety, and for that purpose the interior element—lustrous white silk or white linen or cotton fabric—is suitably treated by well-known means for rendering it thus fireproof. Neither the fireproofing nor the treatment for rendering it impervious prevents the fabric from being thoroughly flexible, so that the device will collapse after the manner of an umbrella without liability to cracking in the process.

In addition to the cover B the device comprises a curtain D, pendent from the periphery of the said cover, to which, as well as to the bows, said curtain is attached at the upper end. The rear part of this curtain is made of material similar to the cover B—that is, interiorly reflective and fireproofed and exteriorly treated for rendering it opaque and impervious to gases. The forward part of the curtain is made of fabric which is translucent to a high degree, but at the same time not to any large degree permeable by gases, and the same lustrous silk or closely-woven cotton or linen fabric employed for the inner element of the cover B sufficiently meets these conditions. This forward part of the curtain is also fireproofed in the same manner as the cover and rear part of the curtain. Near the lower end of the curtain it is provided with a draw-string E for closing it up, as seen in Fig. 2.

F is a pan for holding the combustibles to produce the flash-light. It is provided with a marginal clasp F', by which it may be detachably secured to the stem *a*. Upon the pan there are also mounted igniter-electrodes G G, from which the conducting-wires *g g* may extend around the bottom of the curtain to a controlling-switch, (not shown,) which may be located at any position convenient for the operator.

Ordinarily it may not be found necessary

to close the curtain at the bottom by means of the draw-string before producing the flash, the gases developed tending to rise to the top and the capacity of the device being sufficient to accommodate the amount of gas developed from an ordinary flash, the expansion of the gases operating to drive out the air at the bottom without causing the gases themselves to escape to any inconvenient extent. The draw-string being drawn to close the curtain immediately after the explosion, the device may be removed from the room and emptied of the gases. If, however, the chemicals employed for the flash in any instance are found to develop gas so rapidly or in such quantity that it escapes into the room around the curtain when the latter is left open at the bottom, the draw-string may be operated to nearly close it, as seen in Fig. 2, still leaving sufficient space for vent, so that the air driven out by the gases may escape quickly enough to prevent rupture of the curtain, and immediately after the flash the string may be drawn tight to retain the gases while the device is removed for emptying.

To adapt the device to be inclined so as to direct the light downward or upward, there may be employed a spreader for the curtain D, consisting of a second set of bows b' , connected to a ring b^2 and provided with braces b^3 , connected to a ring b^4 , each of the rings having a set-screw b^5 , so that the entire device may be passed on to the stem a below the pan F and spread to extend the bows to the curtain. The device being then tilted, as shown in Fig. 4, the curtain will be held approximately in cylindrical form over the portion of its length between the upper and lower set of bows, the portion below the lower set dropping, as shown in the drawings. This spreader may be removed from the stem, if desired, to facilitate packing it all into limited compass; but when this is not necessary the upper ring b^2 may remain fastened by its set-screw to the stem and the remainder of the device collapsing normally around the standard when not in use.

To some extent the advantage of inclining the device for directing the light upward or downward may be obtained without the spreader, the operation of the draw-string gathering the curtain together about the stem being sufficient to hold the curtain in position for the purpose of directing the light obliquely when it is inclined. The spreader, however, increases the efficiency of the device for such use.

If in any instance it should be found that the material employed for the forward part of the curtain in order to be sufficiently translucent is made or is liable to become with use too permeable to gases to effect the desired purpose of retaining them until the device can be removed from the room, there may be provided a second curtain H, suspended

from the bows b , made of thoroughly impermeable material without any regard to translucency, and this curtain being thrown up upon the top of the device during the flash can be dropped immediately afterward and gathered with a draw-string h , with which it is provided. This precautionary addition to the device will not ordinarily be found necessary. The stem a has at the upper end above the top B an eye a^3 , by which the device may be suspended when that is more convenient than supporting it on a standard.

An important purpose which is accomplished by the employment of the white fabric through which the light is transmitted for illuminating the object to be photographed is the diffusion of the light which such a screen causes, giving the effect of daylight and avoiding the intense contrast of light and shadow often observed in flash-light pictures.

I claim—

1. A flash-light screen comprising an umbrella-top, a flexible textile fabric curtain pendent from the periphery of said top, the rear portion of the curtain being adapted to reflect and the forward portion being adapted to transmit the light, both portions being fireproofed and substantially impermeable to gases.

2. A flash-light screen comprising an umbrella-top and a flexible textile fabric screen pendent from the periphery of such top, the top and the rear portion of the curtain being opaque and interiorly adapted to reflect the light, and the forward portion of the curtain being adapted to transmit the light.

3. A flash-light screen comprising a collapsible umbrella-top of flexible textile fabric, a flexible textile fabric curtain pendent from the entire periphery of the top, the rear portion of the curtain being opaque and interiorly adapted to reflect the light, and the forward portion being adapted to transmit the light; an interior stem for carrying the device; means mounted on the stem for holding the combustibles to produce the flash, the curtain having a draw-string at its lower edge below such pan for closing it up about the stem.

4. A flash-light screen comprising a top provided with a collapsible frame adapted when extended to support a cover and inclosing curtain of flexible material, such frame consisting of bows and braces and a central stem for the same; a pan mounted on the stem for holding combustibles; a spreader mounted on the stem below the pan consisting of a second set of bows and braces and their respective runners, provided, each, with means for clamping them to the stem.

5. A flash-light screen comprising a top having a collapsible frame and a cover of flexible material; a flexible textile fabric curtain pendent from the periphery of the top upon all sides, the rear portion of the curtain being

reflective and the forward portion translucent, and both portions being fireproof and substantially impermeable to gases.

5 6. A flash-light screen comprising a top having a collapsible frame and a cover for the same of flexible material; a curtain made of flexible textile fabric pendent from the entire periphery of the top; an interior stem supporting the top frame, and means mounted
10 on the same for holding the combustibles to produce the flash, said pendent curtain being long enough to be gathered together about the stem below the pan, and a draw-string for so gathering it.

15 7. A flash-light screen comprising a collapsible top frame consisting of bows and braces and a central stem for the same; a pan mounted on the stem for holding combustibles; a spreader mounted on the stem

below the pan consisting of a second set of
20 bows and braces and their respective runners, provided, each, with means for clamping them to the same, in combination with a cover for the top of flexible textile fabric, and
25 a curtain pendent from the periphery of the top on all sides inclosing the pan and spreader, such curtain being translucent at the forward side and opaque and interiorly reflective at the rear part and throughout fireproofed
30 and substantially impermeable to gases.

In testimony whereof I have hereunto set my hand, at Chicago, Illinois, this 12th day of December, A. D. 1905.

FRANK L. CROCKER.

In presence of—

CHAS. S. BURTON,
M. GERTRUDE ADY.