

No. 672,964.

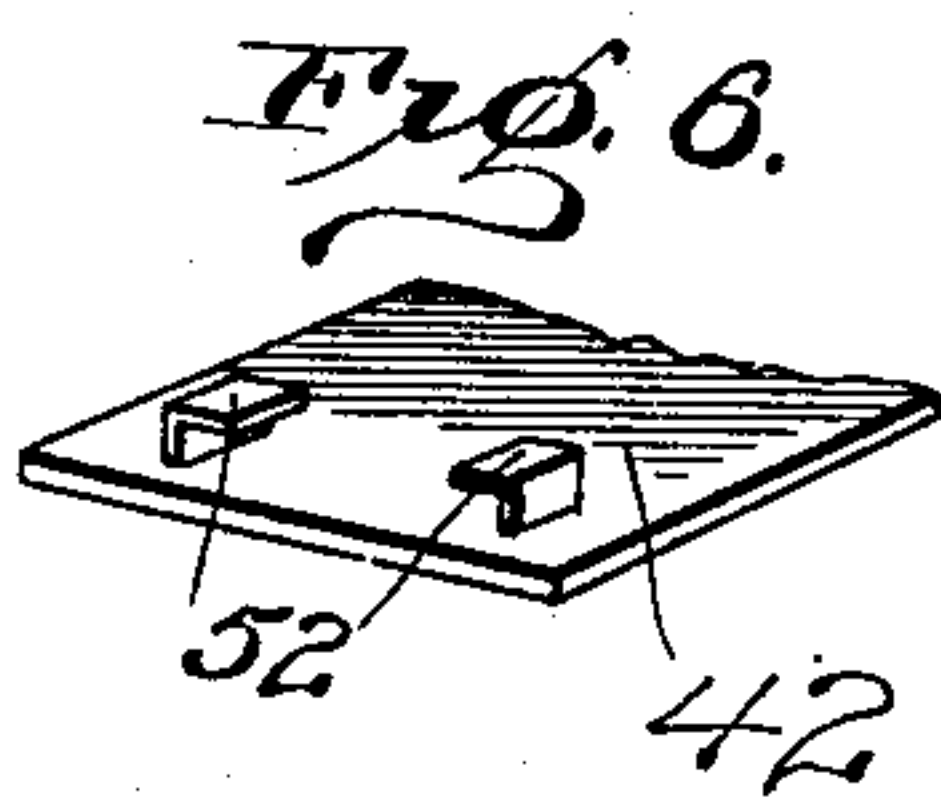
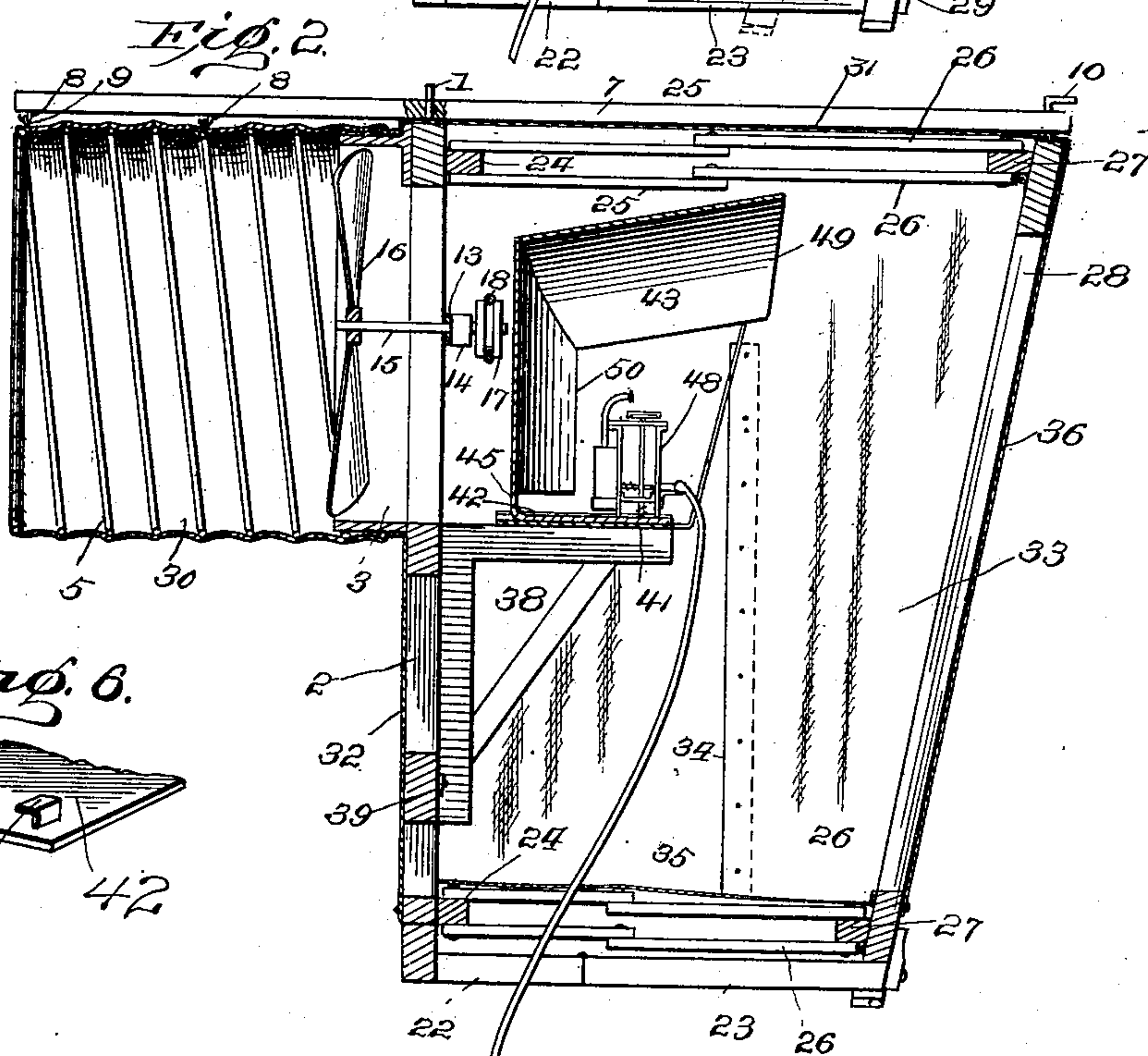
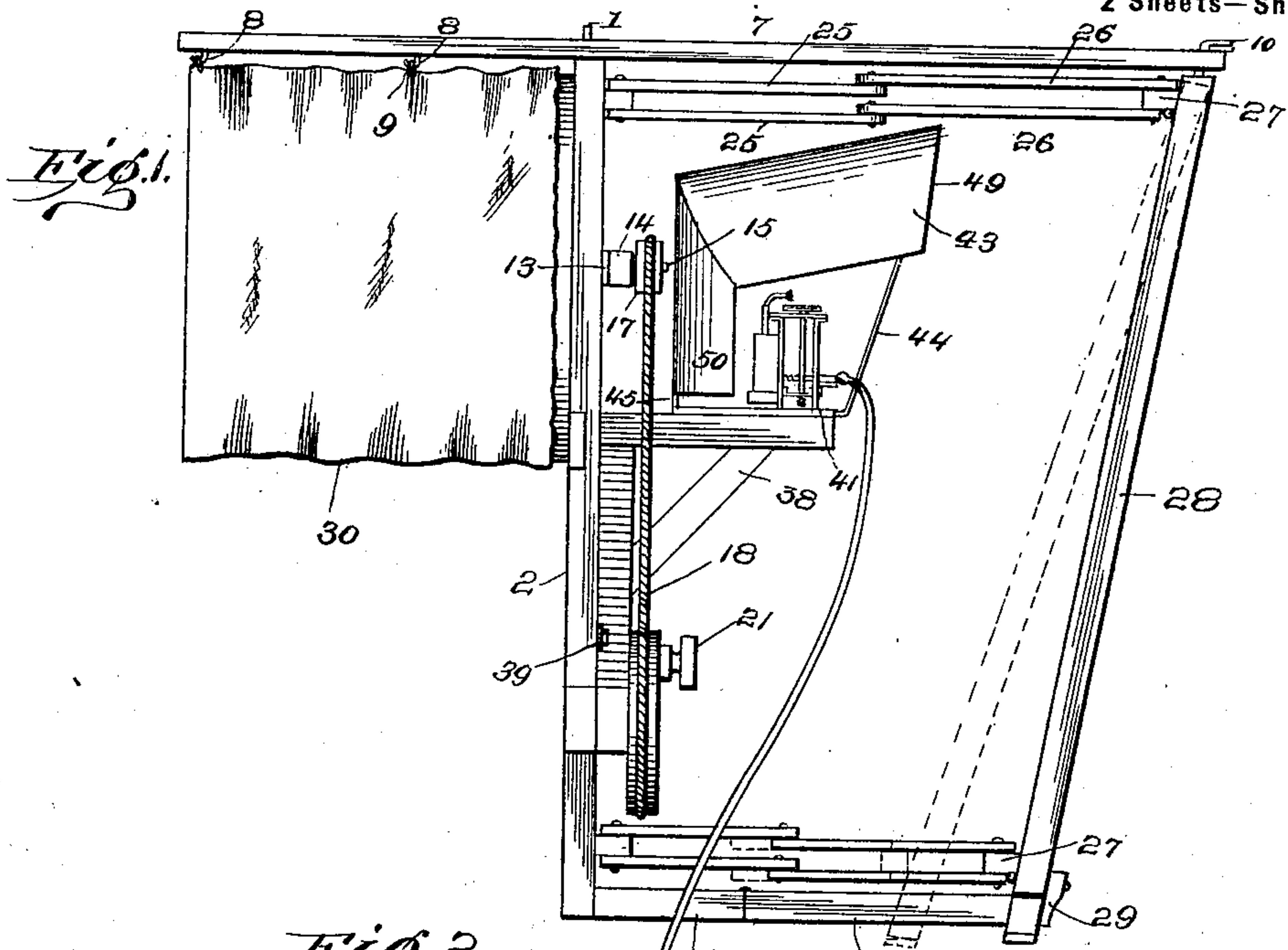
Patented Apr. 30, 1901.

H. B. SHAEFFER.  
FLASH LIGHT APPARATUS.

(Application filed July 14, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES  
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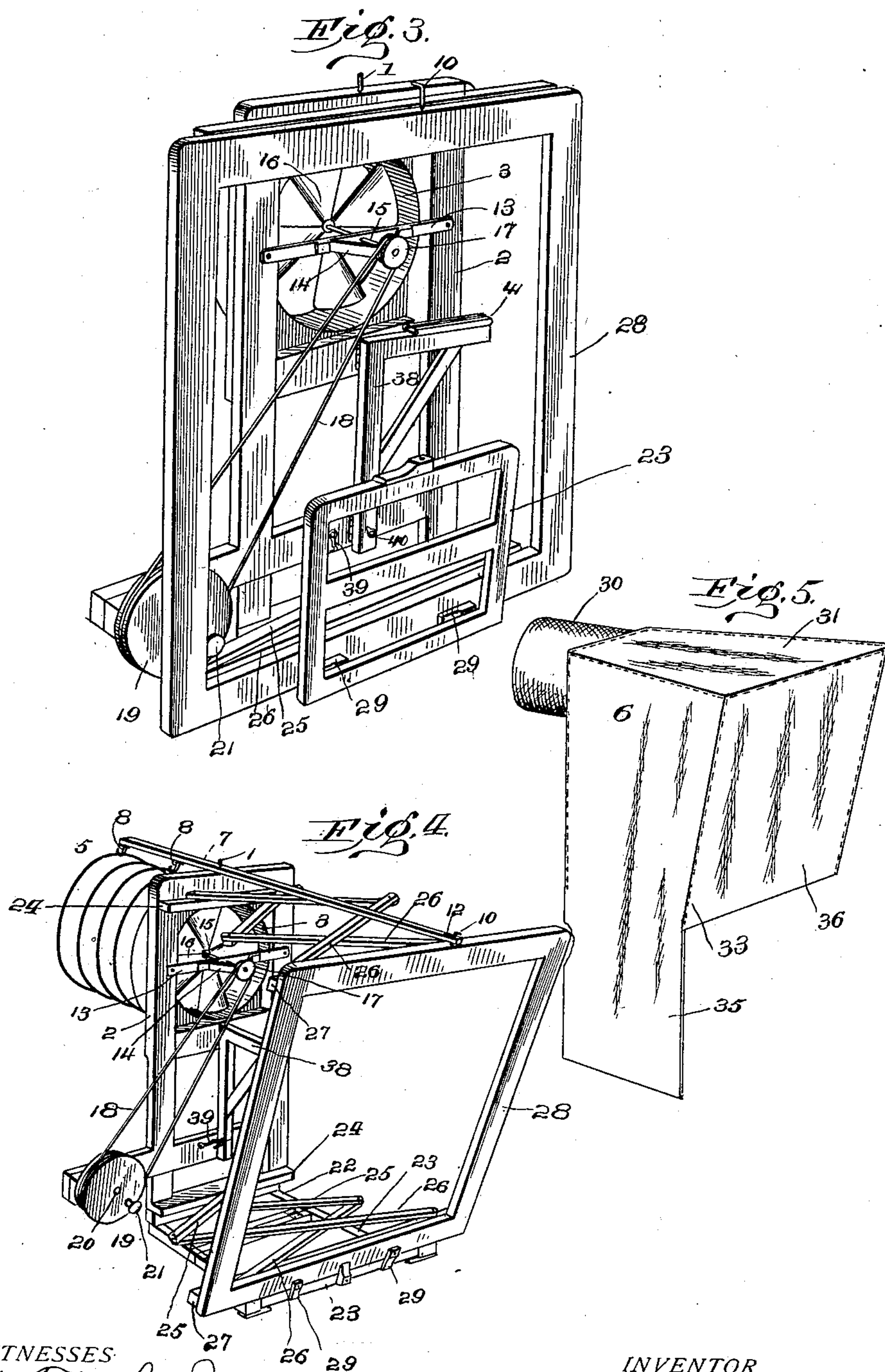
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# UNITED STATES PATENT OFFICE.

HARRY B. SHAEFFER, OF ALTOONA, PENNSYLVANIA.

## FLASH-LIGHT APPARATUS.

**SPECIFICATION** forming part of Letters Patent No. 672,964, dated April 30, 1901.

Application filed July 14, 1900. Serial No. 23,598. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY B. SHAEFFER, a citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Flash-Light Apparatus; and I do 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.

This invention relates to flash-light photographic apparatus; and it has for its object to provide a simple, durable, and comparatively inexpensive device adapted to confine the products of combustion resulting from the explosion of the powder used in making the flash within the apparatus and to positively expel the same after each explosion therefrom, so as to remove the smoke and fumes, now so disagreeably present at each explosion, entirely from the apparatus and to direct the light onto the subject being posed; and it consists of the parts and combinations of parts hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of my improved apparatus with the confining-hood removed; Fig. 2, a central vertical longitudinal section through my apparatus, showing the hood in place; Fig. 3, a perspective view of the frame of my apparatus, showing it folded; Fig. 4, a similar view showing the frame unfolded or extended into position for use. Fig. 5 is a perspective view of the hood; and Fig. 6, a detail view of the base-plate 42, showing the catches 52 for the base-plate of the lamp.

Similar numerals refer to similar parts throughout all the views.

As is well known, the explosion of a charge of flash-light composition creates or generates a heavy thick smoke which fills the room or studio and, unless some means for expelling the same is promptly used, prevents the taking of further pictures in the room or studio until the smoke is dissipated. Besides, where the flash-light is uninclosed and made in the room or studio the light is unconfined and undirected and illumines the whole room or studio instead of, as is neces-

sary to obtain good results, being concentrated on the subject being posed.

Now it is the object of my invention to obviate the objectionable features mentioned to the use of flash-lights in photography, and I accomplish this by means of the apparatus hereinafter described.

Referring to the drawings, the numeral 2 represents the rear end of the frame of my apparatus, which consists of a vertically-arranged open-work rectangular frame having a collar 3 secured over the upper opening therein in order to provide for the attachment thereto of a collapsible tube, through which the smoke and fumes generated by the explosion of the flash-light composition are conducted from the apparatus and the studio or room in which the apparatus is used to the outer air. The collapsible tube is formed of a spirally-arranged spring-metal wire 5, which is covered with a suitable flexible fireproof fabric or other suitable material which forms a part of the hood 6, which covers the entire apparatus, as will be hereinafter described. The wire 5 is secured in any desired manner to the collar and when the apparatus is in use is kept extended therefrom and is supported by a rod or bar 7, having hooks 8, which are adapted to engage eyes or rings 9, secured to the wire and the fabric, and the latter being stitched or otherwise secured at its outer end to the outer coil of the wire, as clearly shown in Fig. 2 of the drawings. The rod or bar 7 is supported in place and lateral movement thereof prevented by means of a pin 1, projecting from the top of the rear frame, and by a hook 10, projecting from the top bar of the front frame 28, which enters a slot 12 in the end of the bar or rod and prevents said end tilting from the weight of the tube thereon.

Extending across the center of the upper opening and secured to the side bars or uprights of the rear frame 2 is a metal bar 13, having a laterally-projecting central bearing 14 formed thereon for a shaft 15, on one end of which is secured a fan 16, located in the collar 3, and on the opposite end a grooved wheel 17, which is connected by a belt 18 to a large grooved wheel 19, mounted on a stud-shaft 20, secured to the projecting end of the lower cross-bar of the rear frame 2. The



grooved wheel 19 is provided with a knob or handle 21, whereby it may be revolved in order to impart motion to the fan.

The lower end or bottom of the frame 2 rests on and is secured firmly to a horizontal base-frame 22, to which is hinged a rectangular frame 23, which may be folded or turned up when the apparatus is prepared for transportation or is not in use. At the top and bottom of the rear frame 2 are secured cleats 24, to the upper and lower sides of which are pivotally attached the ends of levers 25, the said levers crossing each other and having their opposite ends pivotally attached to the ends of similarly-crossed but slightly-longer levers 26, the other ends of which are connected pivotally to cleats 27, which are hinged to the top and bottom rails of the front frame 28 of the apparatus, whereby the said frame 28 may be pushed inwardly or toward the rear frame 2, as shown in Fig. 1, thus collapsing the system of levers, and the frame 23 may be then folded or turned up onto the frame 28, as shown in Fig. 3, in order to fold the apparatus into a compact form.

The frame 28 consists merely of the four bars or rails connected together and forming an open rectangular frame, and by reason of its hinged connection to the cleats 27 it may be adjusted to any angle of inclination desired to secure the proper effect in lighting the subject to be photographed. Thus the angle of inclination of the frame 28 may be quickly adjusted to a limited degree by simply drawing the top of said frame forward without disturbing or changing the position of the bottom rail thereof, as shown in Figs. 1, 2, and 4, and if a greater degree or angle of inclination is desired it may be had by releasing the turn-buttons 29, which are pivoted to the bottom rail thereof, from engagement with the frame 23 and pushing back the lower end or bottom of frame 28 and drawing forward the upper end or top of the frame, as shown in dotted lines in Fig. 1.

The hood 6 is formed of any suitable fireproof flexible material and is formed with a tubular part 30, adapted to be slipped over the wire 5 to form the tube, and with a top piece 31, a rear piece 32, side piece 33, one of which is slitted, as at 34, to provide means of access to the apparatus and formed so that one edge of the slitted part overlaps the other and having buttons or other suitable means for securing the slitted edges together, and with a bottom piece 35 and a front piece 36, the whole being stitched or otherwise secured together to form a hood of one piece, as shown in Fig. 5. The material of the front piece 36 is made of fireproof material, but is more translucent than the balance of the hood in order to more readily permit of the passage of the light therethrough.

The bracket 38 is hinged to the rear frame 2, so as to fold against the same, and it is held in position by a hook 39, pivotally secured to said frame, engaging an eye 40, secured to the

bracket. To the top of the bracket is secured a metal plate 41, the side edges of which are bent so as to overlap the plate in order to receive the edges of a base-plate 42, which supports the reflector 43, the latter being supported by rods 44, connecting said base-plate and the top of the reflector, and the brace 45, connecting the rear of the reflector to the end of said base-plate. The base-plate 42 is also provided with catches 52, under which the ends of the base-plate of the flash-lamp 48 may pass in order to hold the lamp firmly in place. The reflector is formed with a curved flaring top 49 and with a curved rear or back portion 50, whereby the light is concentrated on the front screen of the hood 6.

The lamp may be of any desired type or form and provided with a pneumatic bulb 51 to operate it, as shown.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a photographic flash-light apparatus, of a foldable frame the front end of which is adjustable to different angles of inclination relative to the top of said frame, a flash-lamp support within said frame, a flexible covering surrounding said frame and having a collapsible smoke and fumes conductor communicating with the inclosure.

2. The combination, in a photographic flash-light apparatus, of a foldable frame having its front end adjustable to different angles of inclination relative to the top of said frame, a flexible fireproof covering inclosing the body of said frame and forming a bottom therefor, a collapsible smoke and fumes conductor communicating with the interior of the frame, a flash-lamp within the inclosure, and means for expelling the smoke and fumes through the conductor.

3. The combination, in a photographic flash-light apparatus, of a foldable frame having a front end adjustable relative to the top of said frame, means for holding said end in its adjusted position, a flexible fireproof covering having an escape-opening for the smoke and fumes, and a support for a flash-lamp within said covering.

4. The combination, in a flash-light apparatus, of a cabinet comprising a foldable frame having flexible fireproof walls, top, and bottom and formed with a smoke and fumes escape opening and means for permitting access to the inclosure, a support for a flash-lamp within the cabinet, and means for expelling the smoke and fumes through the escape-opening.

5. The combination, in a flash-light apparatus, of a foldable frame having its front end adjustable to different angles of inclination, a flash-lamp support within said frame, a reflector, a flash-lamp, a fireproof covering for said frame provided with a smoke-conductor, and a fan for expelling the smoke through said conductor.

6. The combination, in a flash-light appa-



5 ratus, of a cabinet comprising an upright rear end, a collar arranged over an opening in said rear end, a rigid base-frame, a frame hinged to said base-frame, a front end, a system of levers connecting the front and rear frames at their tops and bottoms, said levers being pivoted to hinged cleats secured to the front end and to rigid cleats at the rear end, turn-buttons for holding the bottom of the front end steady, a lamp-bracket hinged to the rear end, a shaft, a fan secured to one end of said shaft, a grooved wheel secured to the other end of said shaft, a grooved wheel journaled to the frame, a belt connecting said wheels, a flexible covering for inclosing the space within the frame, a collapsible tube or conductor secured over the collar, and a rod

for holding the frame and tube or conductor extended.

7. The combination, in a photographic flash- 20 light apparatus, of a cabinet comprising a foldable frame having its front end adjustable to angles of different inclinations, a flexible fireproof covering forming the walls of said cabinet, the material for the front end 25 thereof being translucent, and a smoke-conductor connected to said cabinet.

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

HARRY B. SHAEFFER.

Witnesses:

MARIE L. SPELLMAN,  
EDWIN S. CLARKSON.