

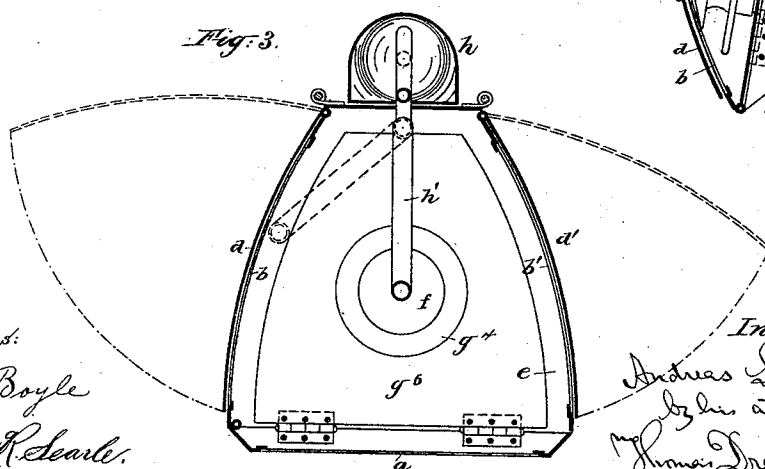
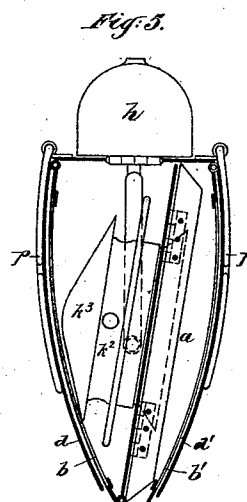
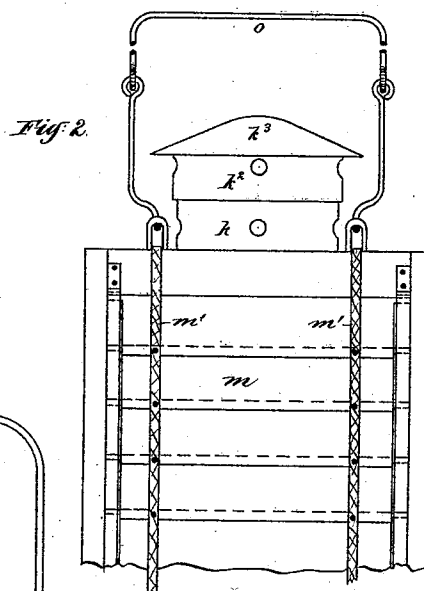
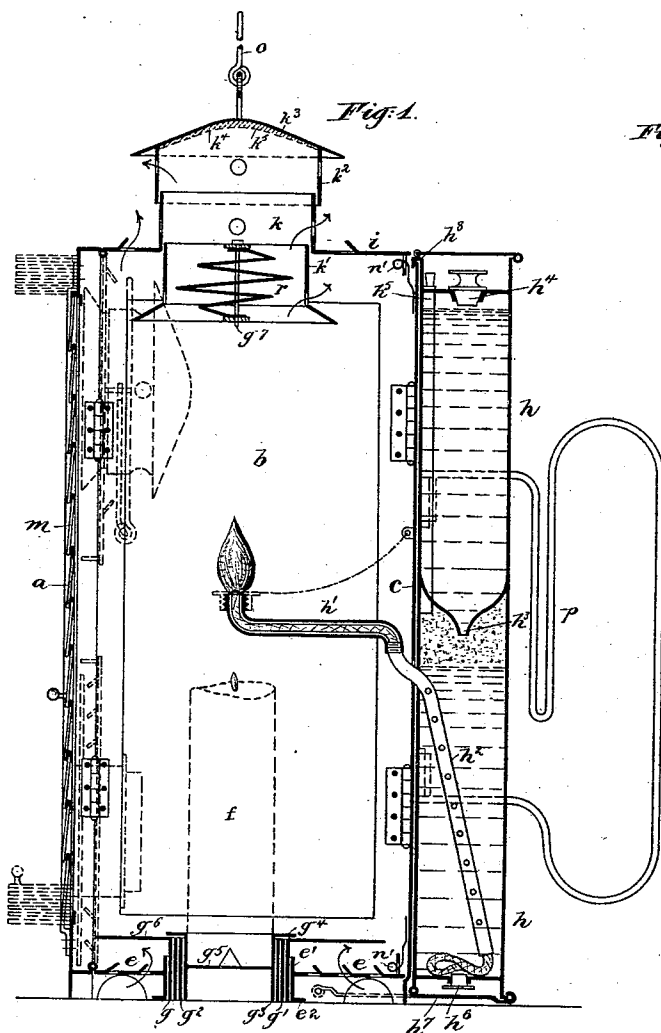
(No Model.)

2 Sheets—Sheet 1.

A. SÖHNER.
LANTERN.

No. 492,896.

Patented Mar. 7, 1893.



Witnesses:

M. F. Boyle

Charles R. Searle.

Inventor:

Andreas Löhrer

By his attorney

Thomas Drew Stetson

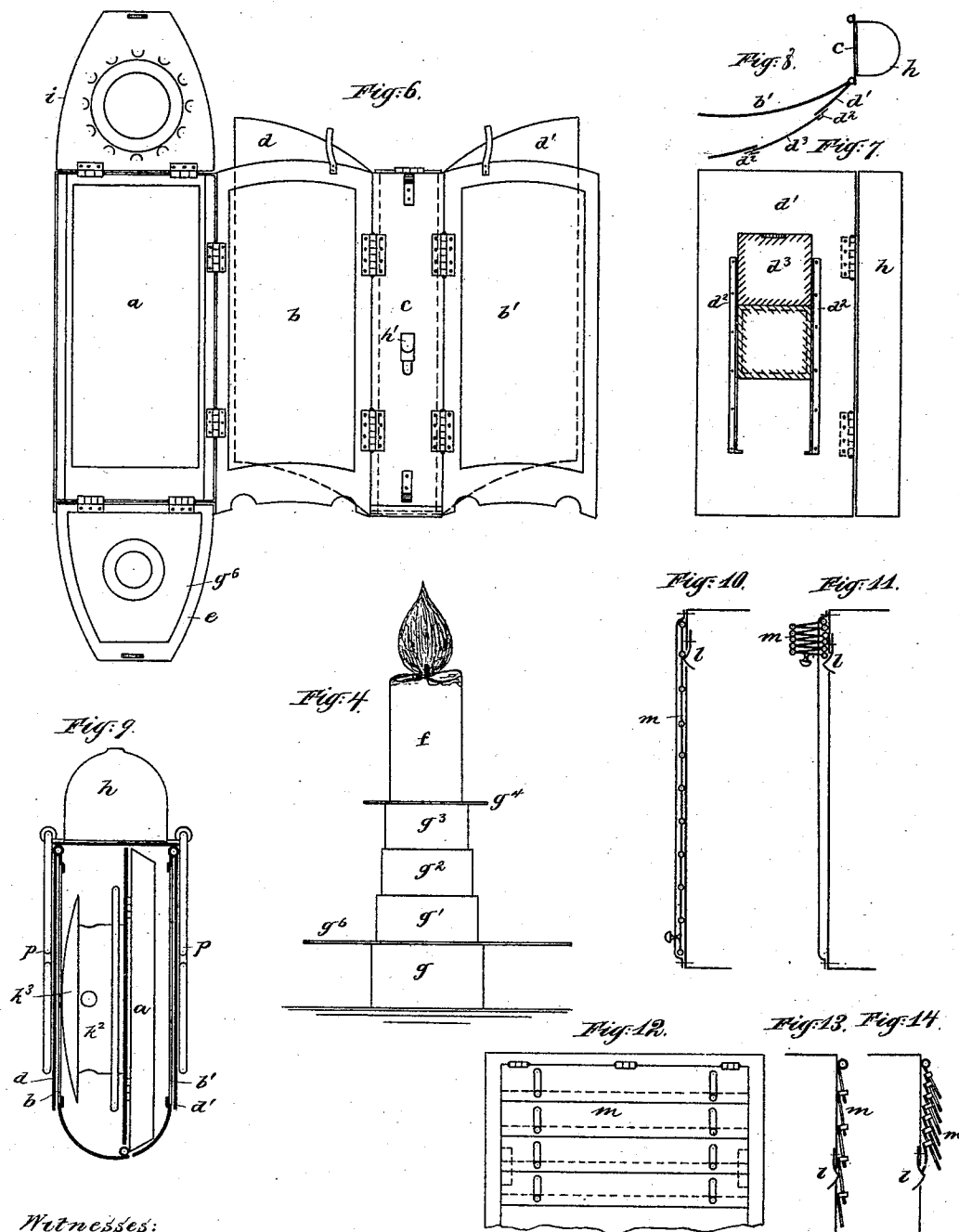
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UNITED STATES PATENT OFFICE.

ANDREAS SÖHNER, OF BERLIN, GERMANY.

LANTERN.

SPECIFICATION forming part of Letters Patent No. 492,896, dated March 7, 1893.

Application filed May 23, 1891. Serial No. 393,798. (No model.)

To all whom it may concern:

Be it known that I, ANDREAS SÖHNER, a subject of the Emperor of Germany, residing at Berlin, Prussia, Germany, have invented a certain new and useful Improvement in Lanterns, of which the following is a specification.

My improved lantern is capable of being folded in a small compass when not required for use. It is lighted both by a lamp using a liquid, as oil, and a candle, with provisions for detaching and using either or both of these lighting means independently. External shields defend the sides from injury and by means of highly reflective inner surfaces increase the amount of light thrown outward through the front. The air inducted through the perforated bottom is deflected outward against the interior of the lantern to insure that the glass shall be kept at a moderate temperature. I provide special means for obscuring parts when the lamp is to be used for signaling.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a vertical section. Fig. 2 shows the upper portion of a vertical section at right angles to that in Fig. 1, and Fig. 3 is a horizontal section. These show the lantern in the condition for use. Fig. 4 shows the candle-holding parts with a remnant of candle, detached, and extended. Fig. 5 is a horizontal section showing the lantern folded for packing or transportation. Fig. 6 is an elevation on a smaller scale showing the parts extended, in folding or unfolding. Fig. 7 is an elevation of one of the side shields detached, giving an inside view. Fig. 8 is a corresponding horizontal section. The remaining figures show modifications. Fig. 9 is a horizontal section corresponding to Fig. 5, but with the main portion of each side plane. Fig. 10 is an outline showing the front screen extended from the top downward quite to the bottom. Fig. 11 is a corresponding outline showing the front screen drawn upward into the smallest compass and held by a spring. Fig. 12 is a front view of a portion of a front screen of a slightly different construction. It is shown as extended from the top downward. Fig. 13 is a corresponding vertical section. Fig. 14 is

a corresponding vertical section showing the screen drawn upward and retained out of use.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

Referring to Figs. 1, 2, and 3, *a* is a flat plate of glass, and *b b'* two sides of curved glass, each set in a suitable border or frame of metal *c*. The bottom *e* is of metal, perforated to admit air to support combustion, and *i* is the top, of metal, similarly perforated, and having in addition a large cylindrical aperture. These parts are hinged together, the two sides being hinged to the back and the top and bottom to the front, in the manner shown more fully in Fig. 6. There are also hinged to the back, shield plates *d d'*, matching closely to the exterior faces of the curved glass *b b'*. The inner faces of these shields *d d'* are polished to reflect light.

Around the large aperture in the top *i* is a short tube *k*, extending upward as shown in Fig. 1. Into its interior is matched from below a corresponding tube *k'* with its lower end flared. Upon the exterior of the tube *k* is matched a short tube of corresponding depth *k²*. These parts move one upon the other like the sections of a telescope. The upper length *k²* is surmounted by a cap *k³*, which is lined or faced on the under side with a layer of asbestos *k⁴*, held in place by wire cloth *k⁵*. All these telescopic parts are perforated and allow the hot air rising into the chimney to escape. The lower part *k'* is formed with two cross pieces sustaining a vertical spindle, *g'*, in the center, on which revolves a light screw or helicoidal piece *r*, which, when the lantern is in use revolves with the action of the ascending current of air. Its employment gives steadiness to the out-going current and guards against any down current in any part of the chimney. It also defends against the effect of gusts of wind. The bottom *e* has also a circular aperture, surrounded by a short tube *e'* which extends both upward and downward, the lower edge having a flange *e²*. Within this is fitted a series of successively smaller tubes, *g g' g² g³*, which are capable of being extended upward telescopically as shown in Fig. 4. The innermost tube *g³* has a flange *g⁴* at its upper edge, and carries a horizontal partition *g⁵*. This tube is adapted to support a

candle f . At the upper edge of the outermost tube is a broader flange g^5 , of a form corresponding with the interior of the lantern, but smaller. The air rising through the apertures 5 in the perforated bottom e is deflected outward by the flange g^6 and cools the entire inner surfaces of the lantern.

The provision for lighting by oil is independent. In rear of the back c is a chamber h 10 extending the whole height of the lantern and having a tube h' , extending laterally therefrom at about the mid-height and carrying a suitable burner. This tube is extended inward and downward as indicated by h^2 , and 15 carries a wick which serves as will be obvious, to convey the oil or other combustible fluid from the lower part of the chamber h to the burner. The upper portion of this vessel is formed with a hook h^3 which engages over 20 the upper edge of the back c , and holds the parts reliably together. At about the mid-height of the vessel h is a horizontal partition having a small aperture h^3 . Above this is a considerable chamber which holds a supply 25 of oil or analogous fluid introduced through an aperture closed by a tight-fitting screw-plug h^4 . An air-tube h^5 , open at both ends extends up and down past this upper reservoir. The bottom of the lower reservoir is 30 stopped by a tight fitting screw plug h^6 .

The partition dividing the chamber h into an upper and lower portion, allows a large quantity of oil to be received and stored in the upper part without affecting the level or 35 pressure of the oil in the lower part. The partition which separates these chambers, allowing them to communicate only by the contracted aperture h^3 in the extended base of the upper chamber allows the oil above this 40 partition to be retained by atmospheric pressure and to be delivered automatically by the admission of bubbles of air through the passage h^3 , which rise to the surface of the oil in the upper reservoir and relieve the vacuum 45 which there obtains. In case it does not sufficiently descend through such automatic action the plug h^4 may be lifted a little at intervals or in extreme cases may be set loosely so as to allow air to leak in and to allow the 50 oil to descend.

The bottom of the oil vessel h is provided with a folding plate h^7 which when the lamp is used in the lantern makes a finish and protects the plug h^6 , and when this oil-supply 55 vessel h with its attached burner h' is removed from the lantern and used independently it may either rest on the plate h^7 as in the position shown in full lines, or preferably the plate h^7 may be extended into the position shown in dotted lines in Fig. 1. In the 60 latter case it serves to extend the base of the body and increase its stability, the hinge being made with a stop to arrest it stiffly when sufficiently turned.

65 The back plate c is formed with a sufficient aperture (see Fig. 6) to allow the wick tube to be inserted and removed.

The wick-tube h' is capable of being partially revolved horizontally on the tube h^2 , as indicated in dotted lines in Fig. 3. When- 70 ever it is desired to light by the candle f , the tube h' may be swung out of the way without removing the other portions of the provision for lighting by oil. This means of producing 75 the light by oil may be, in emergencies, used simultaneously with the candle f by turning it into an intermediate position, and in such case the light of both will be made available. A screw-cap, shown in dotted lines in Fig. 1, 80 may be applied on the wick-tube h' when this part of the apparatus is to remain long out of use.

An aperture in the shield plate d' is exposed at will by means of a slide d^3 , guided in ways d^2 d^2 . This is useful in signaling. I provide 85 for making the front of the lantern opaque either in whole or in part, at will by means of sliding shutters m of metal, analogous to what are sometimes known as Venetian blinds. The full lines in Fig. 1 show these shutters 90 extending from the bottom up to the mid-height, and from the top down to the same level. The dotted lines at the top and bottom respectively, show these movable shutters or Venetian blinds in their closed position. 95 The shades are held in their withdrawn position by means of spring dogs l . These are shown more fully in the modification, Figs. 10, and 11. In that modification only one series of slats is provided extending from the 100 top down quite to the bottom.

In the modification shown in Figs. 13 and 14 there are closely analogous conditions, but the shutters are allowed to droop or incline downward when in their closed position. In 105 this latter form the slats are secured together by pins and slots and allowed to slide one upon the other while in the form shown in Figs. 1, 10 and 11, they are secured by hinges folded one upon the other. The slats are 110 guided in suitable ways which embrace their ends, and they are flexibly connected together by cords or chains $m' m'$. (See Fig. 2.)

o is a bail of wire hinged to the top and allowing the lantern to be easily carried in a 115 pendent position, the cap k^3 with its non-conducting lining k^4 defending the hand against the heat. A handle p is also provided which allows the lantern to be carried like a pitcher.

Spring catches n' hold the parts together 120 in their condition for use. When it is desired to fold the lantern these catches are liberated and the tubes g g' g^2 &c. carrying the candle, which may have been before extended as shown in Fig. 4, are brought into their shortest 125 condition, as shown in Fig. 1. Then the shield plate d' and the adjacent side b' are swung outward, (see dotted lines in Fig. 3.) Now the chimney k k' k^3 is also shortened to its smallest limit; the top i with its attach- 130 ments turned down into the position indicated in dotted lines in Fig. 1, and the whole is rapidly and easily brought into the compact condition shown in Fig. 5.

Further modifications may be made without departing from the principle or sacrificing the advantages of the invention.

The modification Fig. 9, shows a construction similar to Fig. 5, but with plane side-pieces joining the front with short round curves. This form is about as compact when folded as that in Fig. 5, and the lantern when extended has about the same qualities.

I claim as my invention—

1. The folding lantern described having the front *a*, sides *b b'*, back *c*, bottom *e*, and top *i*, hinged together and adapted to be extended to form a capacious lantern or to be folded to stow in a small space, in combination with a perforated telescopic chimney *k, k', k²*, mounted in the top and adapted to fold into the interior of the structure for packing, as herein specified.

2. The folding lantern described, having a front *a*, sides *b, b'*, back *c*, bottom *e* and top *i*, hinged together and adapted to be extended to form a capacious lantern or to be folded to stow in a small space, in combination with a perforated chimney *k, k', k²* adapted to fold into the interior of the structure for packing and with the freely revolving scroll *l*, mounted in the chimney, the cap *k³* and non-conducting lining *k⁴*, and with the bail *o*, above the cap so that the hand grasping the bail is pro-

tected from the heat of the flame, substantially as herein specified.

3. The folding lantern described, having a front *a*, sides *b b'*, back *c*, bottom *e*, and top *i*, hinged together and adapted to be extended to form a capacious lantern or to be folded to stow in a small space, in combination with the telescopic candle-stick *g*, having a broad plate *g⁶*, adapted to serve as an air deflector, as herein specified.

4. In a folding lantern having a front *a*, sides *b b'*, back *c*, bottom *e*, and top *i*, hinged together and adapted to be extended to form a capacious lantern or to be folded to stow in a small space, and the detachable lamp *h*, having a reservoir for combustible fluid in the upper portion, in combination with each other and with means as the plug *h⁴* for regulating the induction of air to let down such supply to maintain the level of the oil in the lower portion, as herein specified.

In testimony whereof I have hereunto set my hand, at Berlin, this 13th day of April, 1891, in the presence of two subscribing witnesses.

ANDREAS SÖHNER.

Witnesses:

CARL GRONERT,
PAUL KÜHNE.