G. PATTERSON.

COLLAPSIBLE LANTERN.

APPLICATION FILED MAR. 1, 1918.

1,304,088.

Patented May 20, 1919.

3 SHEETS—SHEET 1.

Fig. 1.

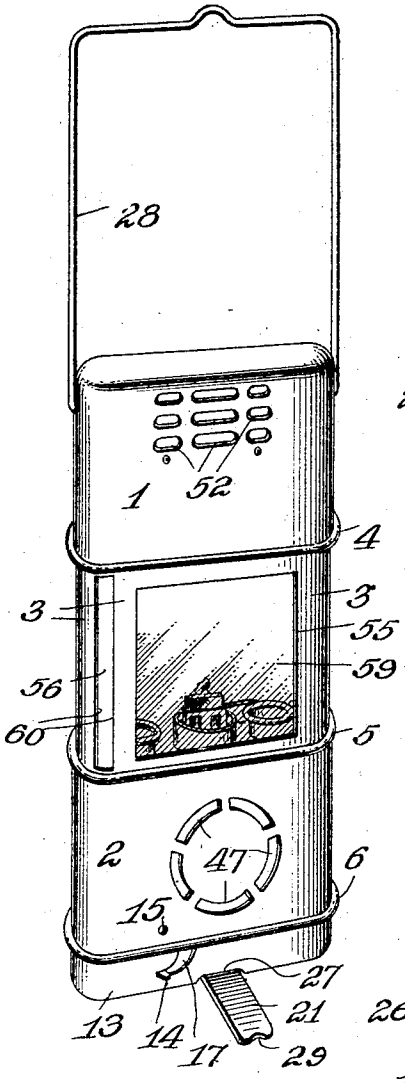


Fig. 2.

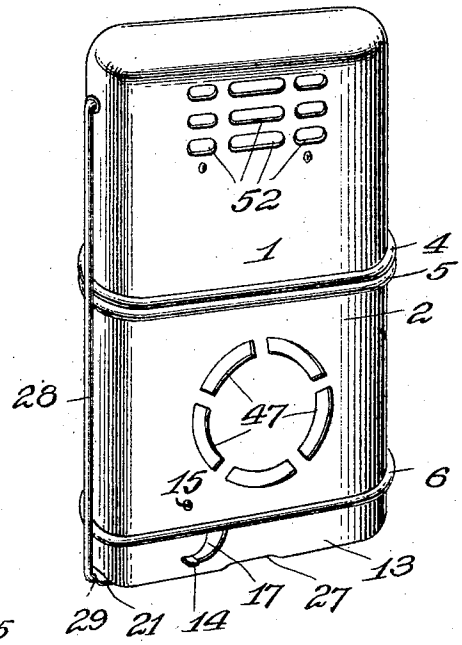


Fig. 3.

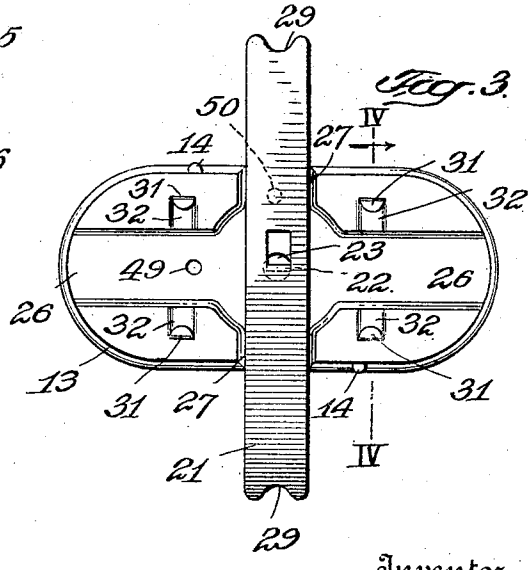
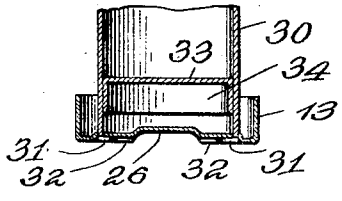


Fig. 4.



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3 SHEETS—SHEET 2.

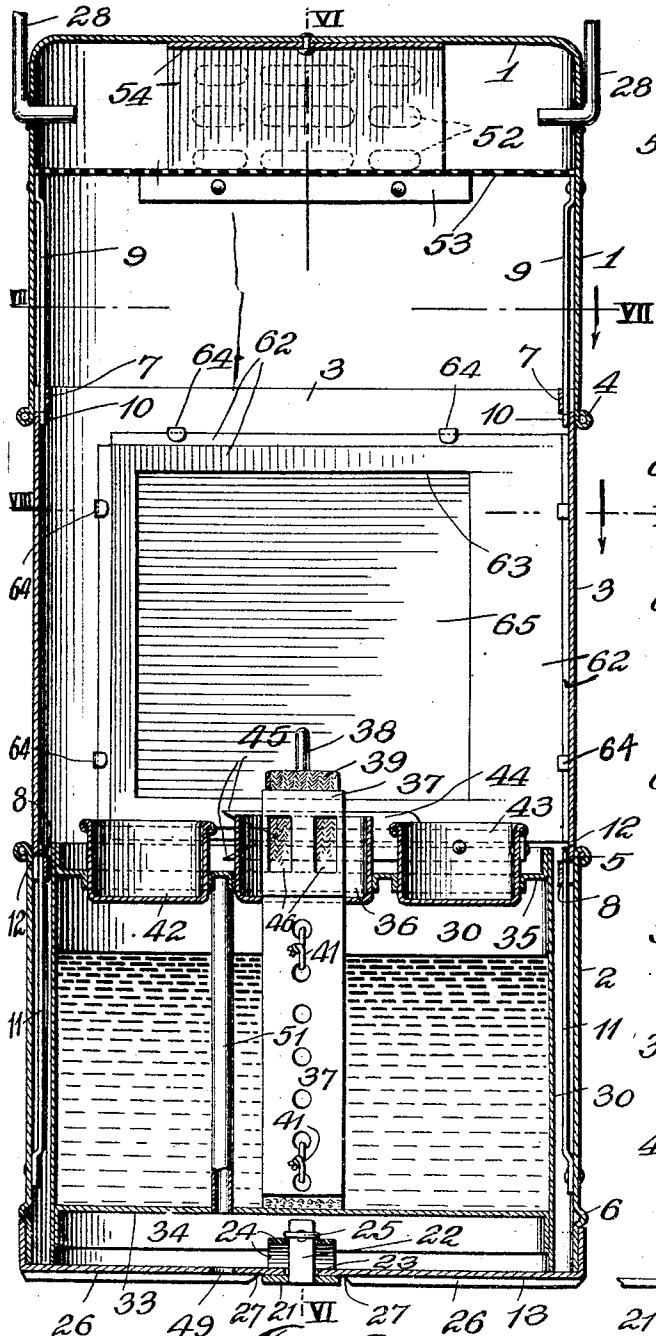


Fig. 5.

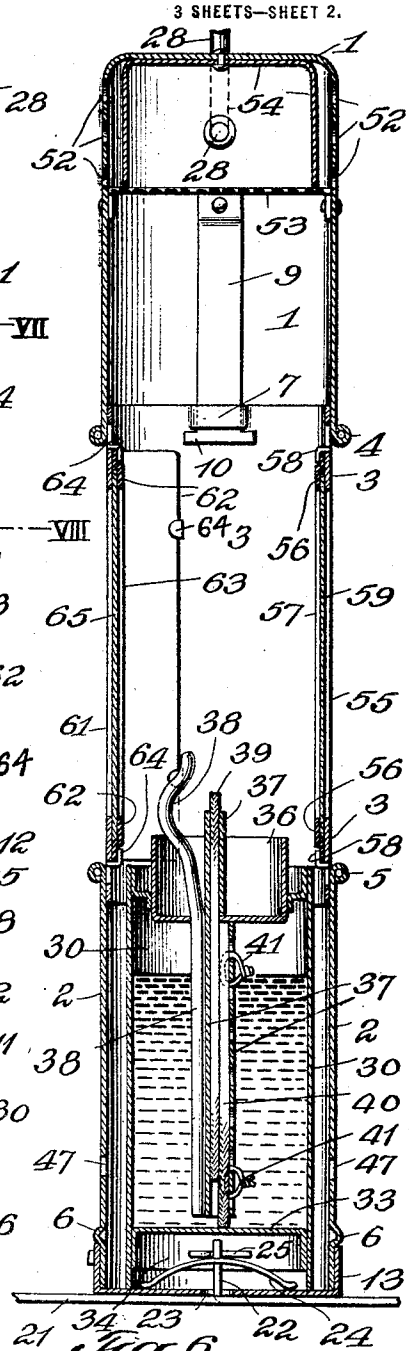


Fig. 6.

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3 SHEETS—SHEET 3.

Fig. 7.

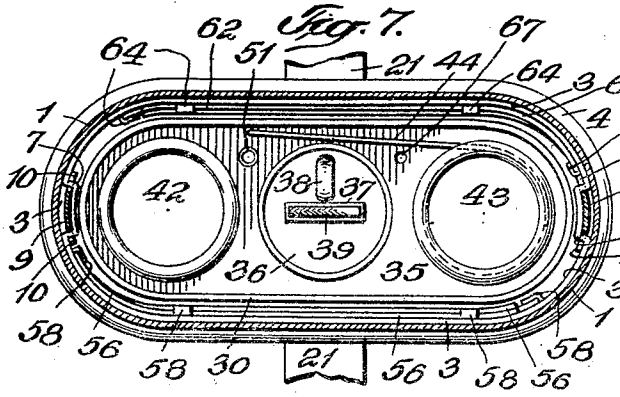


Fig. 8.

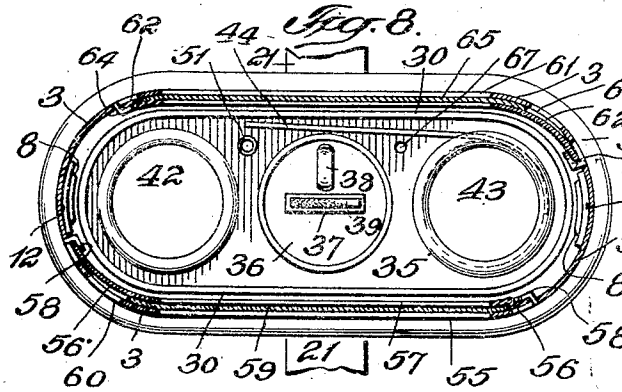


Fig. 9.

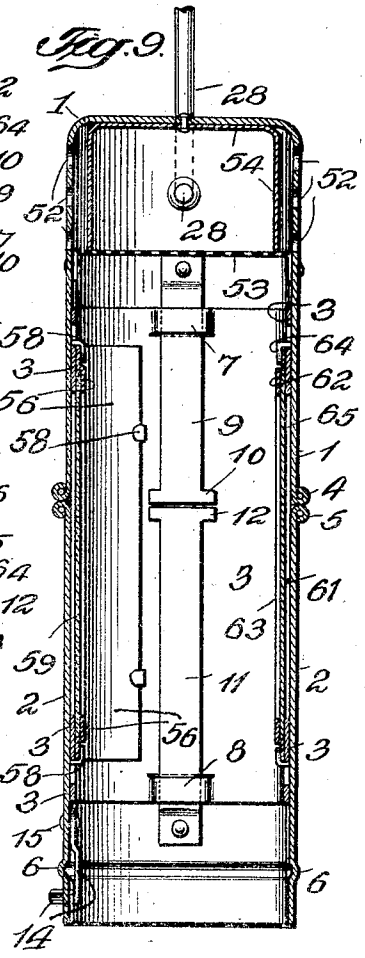


Fig. 10.

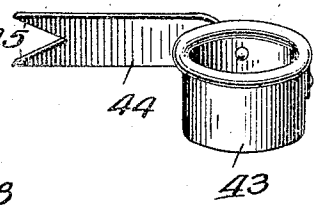


Fig. 11.

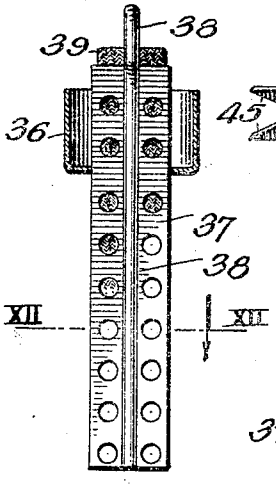


Fig. 12.

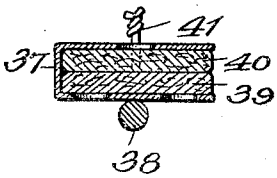
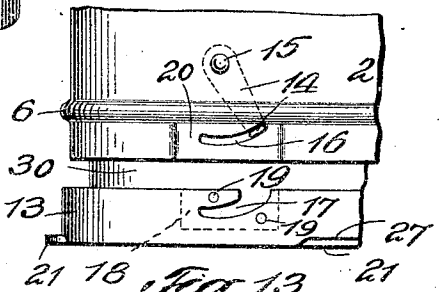


Fig. 13.



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COLLAPSIBLE LANTERN.

1,304,088. Specification of Letters Patent. Patented May 20, 1919.

Application filed March 1, 1918. Serial No. 219,860.

To all whom it may concern:

Be it known that I, GILBERT PATTERSON, a citizen of the United States, and resident of Duluth, county of St. Louis, and State of Minnesota, have invented certain new and useful Improvements in Collapsible Lanterns, of which the following is a specification.

This invention relates to improvements in lanterns or lamps and is especially applicable for use in connection with lanterns, lamps or heaters burning wax, paraffin, or other heavy congealable material.

One of the principal objects of the invention is to provide a portable lantern, lamp, or heating device which may be readily collapsed into a very small or compact form to enable the user to carry the device in a garment pocket, or to permit the same to be readily carried in a kit or pack such as is used by soldiers or the like.

Another highly important object of the invention is to provide a device of the class set forth which may be lighted and will continue to burn when the device is in a collapsed or partly collapsed condition.

A further important object of the invention is to provide a collapsible lantern which is so constructed that the diffusion of light may be either entirely prevented or reduced to any desired extent by collapsing, or partly collapsing, the lantern, without the necessity of adjusting the wick or extinguishing the light.

Another object of the invention is to provide a collapsible device especially adapted for use by military forces as a trench lantern or heating device, so constructed that it may be readily carried about and used for heating or cooking purposes, without omitting any light to attract the attention of the enemy, and which may be instantly adjusted to give a small or a full degree of illumination when desired.

Another important object of the invention is to provide a collapsible lantern or lamp so constructed that the glass, isinglass, or other translucent material, will be protected against breakage when the lantern is collapsed, thus permitting the lantern to be readily transported or packed with other articles in a soldier's kit or other receptacle, without danger of breaking the glass or other fragile translucent material.

A further object of the invention is to provide a lantern having a swinging handle or bail adapted to be folded about the lantern, and to provide a foldable supporting foot or standard for the lantern adapted, when in folded position, to serve as a latching means for holding the handle in its folded position.

In the drawings, Figure 1 is a front elevation of the device in its fully extended position;

Fig. 2 a similar view of the device in its fully collapsed position;

Fig. 3 a detail bottom plan view of the detachable fuel reservoir and base, showing the supporting foot or standard in its extended position;

Fig. 4 a fragmentary vertical section on the line IV—IV of Fig. 3;

Fig. 5 a vertical longitudinal sectional view of the device in extended position;

Fig. 6 a vertical transverse sectional view on the line VI—VI of Fig. 5;

Fig. 7 a horizontal sectional view on the line VII—VII of Fig. 5;

Fig. 8 a horizontal sectional view on the line VIII—VIII of Fig. 5;

Fig. 9 a vertical transverse sectional view showing the casing collapsed and the fuel reservoir and attached parts removed;

Fig. 10 a detail perspective view of the combined filling-opening cap and wick adjuster;

Fig. 11 a detail side elevation, partly in section, showing the detachable preliminary burning receptacle and wick casing;

Fig. 12 a fragmentary sectional view on the line XII—XII of Fig. 11; and

Fig. 13 a detail view showing the manner of removing the fuel reservoir and attached parts from the collapsible casing.

In the accompanying drawings illustrating the preferred embodiment of the invention, the collapsible casing of the lantern or heating device is shown as formed of three telescoping sections, the upper section 1 and the lower section 2 being adapted to telescope upon the intermediate section 3. The casing is preferably formed of aluminum, sheet steel, or the like, and the sections 1 and 2 have a close frictional contact with the outer surface of the intermediate section 3 so that the sections may have a relative sliding movement to extend and collapse the casing, and will be frictionally held in their adjusted positions. The adjacent edges of the sections 1 and 2 are preferably rolled or beaded

as shown at 4 and 5, and the section 2 is preferably formed with an annular rib 6 adjacent its lower end.

The section 3 is stamped to form loops 7 at each side thereof adjacent its upper edge, and is stamped or otherwise formed with similar loops 8 adjacent its lower edge. The section 1 is provided at each side thereof with metal straps 9 riveted at their upper ends to the inner side of the section 1 and having their free lower ends extending through the loops 7 on the section 3. The straps 9 are formed with enlarged lower end portions 10 adapted to abut against the under sides of loops 7 to limit the extent of the relative sliding movement between the sections 1 and 3 when the casing is extended. The section 2 is provided with straps 11 riveted at their lower ends thereto and formed with enlarged upper end portions 12. The straps 11 extend through the loops 8 on section 3 of the casing and serve to limit the extent of the relative movement between sections 2 and 3 when the casing is extended.

The lower section 2 of the casing is provided with a detachable base or bottom member 13 formed with upstanding edges adapted to fit about the lower end of section 2 below the annular rib 6. The base 13 may be detachably locked in place by any suitable means. As shown, the locking means comprise two swinging latches 14 pivotally held by rivets 15 at opposite sides of section 2 and to the inner side of said section. The latches 14 are formed with outwardly projecting portions extending through arcuate slots 16 in section 2 and adapted to engage in cam slots 17 formed in the upstanding edge of the base 13. If desired, the edges of base 13 adjacent the slots 17 may be reinforced by slotted plates 18 held to the inside thereof by rivets 19 as indicated in dotted lines in Fig. 13, the section 2 being offset or pressed inwardly at 20 to receive the reinforcing plates 18 when the base is locked in place.

To increase the stability when the lantern is placed upon the ground, or a table or other surface, the base 13 is provided with a foldable foot or standard comprising a bar 21 formed with an upstanding lug 22 stamped from the bar centrally thereof and extending loosely through an aperture 23 in the base 13. The upper end of the lug 22 passes through a central aperture in a bowed spring 24 and a cotter pin 25 or other suitable device is passed through said lug above the spring. The ends of spring 24 frictionally engage the upper surface of base 13 and the spring is adapted to hold the bar 21 in a longitudinally extending groove or depression 26 formed on the under face of the base 13, or in a groove or depression 27 extending transversely of the base and intersecting groove 26. It will be obvious that by pulling downwardly on bar 21 and then rotating the same about the lug 22 as a pivot, the bar may be shifted from a compactly folded position, as shown in Fig. 2, to an extended position, as shown in Figs. 1 and 3. A swinging bail or handle 28 is held to the section 1 of the casing and is adapted to be swung downwardly, as shown in Fig. 2, with the cross-bar thereof extending under the base 13 and its side bars extending downwardly closely adjacent the opposite sides of the collapsed casing. The foldable foot or standard 21 is notched at each end at 29 and the side bars of the handle 28 are adapted to be sprung into said notches to lock the handle in its folded position, as shown in Fig. 2.

The reservoir or font 30 for the wax, paraffin, or other fuel, is removable with the detachable base 13 and is rigidly held thereto by lugs 31 formed on the lower edge of the side walls of the reservoir and extending through apertures in the base 13. The base 13 is preferably formed with depressions or recesses 32 and the ends of lugs 31 are bent laterally in said recesses, as shown in Figs. 3 and 4, thus rigidly locking the reservoir and base together. The reservoir 30 is formed with a bottom wall 33 welded or otherwise held to the side walls thereof at a point above the lower edges of the side walls, as shown in Figs. 4, 5 and 6, and the spring 24 and lug 22 are confined in the chamber 34 thus formed.

A combined wick tube and wax-melting device is detachably held to the top wall 35 of the reservoir. This device comprises a small metallic receptacle or cup 36 frictionally fitting in a central aperture in the top wall 35 of the reservoir, a metallic wick tube 37 extending through the bottom of said receptacle and rigidly held thereto, and a heat-conducting metallic rod or wire 38 extending alongside the wick tube and formed with a curved upper end extending above the receptacle 36 and the upper end of the wick tube in position to be heated either by fuel burning in the receptacle 36 or by the flame from the wick 39. The wick tube 37 is perforated substantially throughout its length both above and below the bottom of receptacle 36 to permit the melted wax or other fuel from the preliminary burning or wax-melting receptacle 36 and from the main reservoir 30 to feed to the wick 39. A supplemental feed wick 40 may be held in the wick tube 37 by wire loops 41, or otherwise, if desired.

It will be obvious that by placing a quantity of wax, paraffin, or other suitable material in the small reservoir or cup 36 and lighting the same, the cup 36, wick tube 37, heat-conducting rod 38, and the walls of the main reservoir 30 will become heated and melt the wax in the main reservoir suffi-

ciently to supply the wick 39, in order that the wick may be lighted independently or by the flame from the preliminary fuel supply in cup 36. The metallic wick tube and the rod 38 serve to continuously conduct heat to the main reservoir to melt the wax therein until the flame at wick 39 is extinguished, and the metal walls of the reservoir 30 also serve to conduct heat to melt the wax in said reservoir.

The top wall 35 of reservoir 30 is provided with filling openings at opposite sides thereof on either side of cup 36, one of said openings being closed by a cup-shaped closure or cap 42 frictionally fitting therein, and the other opening being closed by a similar cap or closure 43 to which one end of a wick adjusting device 44 is rigidly secured by rivets or otherwise. The wick adjusting device 44 is formed of a metal plate having its outer end notched to form prongs 45 adapted to be inserted through elongated openings 46 formed in one side of the wick tube 37 to adjust the wick 39.

The lower section 2 of the casing is provided at each side with a series of openings 47 to permit air to pass into the casing for the purpose of supporting combustion. As the openings 47 are closed to a greater or less extent when the casing is partially or wholly collapsed, I provide apertures 49 and 50 in the base member 13 in the raised portions or grooves 26 and 27, one of which is adapted to admit an additional supply of air into chamber 34 in whatever position the bar 21 may be, as shown in Figs. 3 and 5. The air thus admitted to chamber 34 passes upwardly through a tube or flue 51 and into the intermediate section 3 of the casing adjacent to the wick tube, thus insuring a constant supply of air to support combustion in both the extended and collapsed positions of the casing. A suitable air vent 67 is provided in the top wall 35 of the main reservoir 30.

The upper section 1 is provided with a series of apertures 52 at opposite sides thereof, adjacent its upper end, through which the heated air and products of combustion may pass out of the casing. A screen 53 extends across the section 1 beneath the openings 52 and is held by rivets, or otherwise, to the side walls of said section of the casing. A baffle plate 54 of substantially inverted U-shape in cross-section is held to the under side of the top wall of section 1, and the depending side plates of said baffle extend across the series of openings 52, said side plates being spaced slightly from the walls of the casing to permit the passage of the products of combustion to the openings 52, but being adapted to exclude the emission of light rays through said openings. The baffle plate and screen also serve to prevent dirt and dust from blowing into the interior of the casing and to prevent the wind from extinguishing the flame or causing abnormal flickering thereof.

The front wall or side of the intermediate section 3 of the casing is cut away to form a rectangular opening 55, and a plate or retaining frame 56 formed with an aperture 57 registering with the opening 55 is held to the inner side of said front wall of section 3 by means of lugs or tongues 58 stamped from said front wall and bent around the edges of the frame 56. The plate or retaining frame 56 is offset around the edges of the opening 57 therein, as shown in Figs. 5 to 9, to form channels to receive the edges of a sheet 59 of isinglass, glass, or other suitable translucent material which is inserted through a vertical slot 60, formed in section 3 adjacent one side of the opening 55, and is frictionally held in place. The rear wall of section 3 is formed with a rectangular opening 61 similar to and opposite the opening 55 in the front wall, and a retaining plate or frame 62, having an opening 63 registering with opening 61, is held to the inner side of said rear wall by lugs or tongues 64 in the same manner as the retaining frame 56. The retaining frame 62 is also offset around the edges of the opening therein to form channels adapted to receive the edges of a metal reflector 65 which is inserted through a vertical slot 66, similar to slot 60, formed in section 3 along one side of opening 63. The reflector 65 is frictionally held in place and, if desired, may be removed and a plate of isinglass or other translucent material inserted in place thereof.

While I have shown the openings in the front and rear walls of the intermediate section 3 as being rectangular in form, it will be obvious that said openings may be of any suitable shape. I have shown the casing as being relatively flat and as having rounded edges, in order that the device may be conveniently carried in a pocket or in the hand when collapsed, or conveniently packed with other articles in a soldier's campaign kit, but it will be obvious that the shape of the device may be greatly varied without departing from the spirit of the invention. It will also be obvious that the device is adapted to burn liquid fuel such as kerosene, or the like, as well as wax, paraffin or similar heavy congealable material.

From the foregoing it will be observed that I have provided a simple, light and inexpensive device adapted for use as a lamp, or lantern, or as a heating and cooking device, which may be readily collapsed into a very small compact form, and which may be readily carried in a pocket, or packed in a soldier's campaign kit or the like.

It will also be observed that the device may be rapidly collapsed and extended while the wick is burning, and that when fully collapsed the isinglass or other trans-

lucent material is entirely covered and protected against breakage.

It will also be seen that the device may be only partially collapsed, if desired; that the parts are frictionally held in their adjusted positions, and that by varying the extent to which the parts are shifted relatively to each other the amount of light emitted may be quickly regulated or entirely cut off without adjusting the wick or extinguishing the flame.

It will be observed also that the device is so constructed that it may be used singly, or placed side by side with similar devices, to form a heating or cooking means suitable for use by soldiers or others, and that the device is particularly applicable for use by soldiers in the field as it can be used for heating or cooking, or carried about while lighted, without emitting any light to attract the attention of an enemy.

What I claim is:

1. A lamp consisting of three sections, the base section containing a bowl and burner, the intermediate section being the light-diffusion section, and the top section being the ventilating section, said intermediate section having telescopic connection with the other sections and being adapted to telescope entirely within the same, whereby the three sections may be collapsed to the extent of the height of the intermediate section.

2. A lamp consisting of three sections, the base section containing a bowl and burner, the intermediate section being the light-diffusion section, and the top section being the ventilating section, said intermediate section being arranged to telescope at its upper part into the top section and at its lower end into the lower section to enable the lower end of the top section to be brought into juxtaposition to the top edge of the base section to thereby entirely inclose the intermediate section and compact the lamp to the extent of the effective length of the intermediate section.

3. A lamp consisting of three sections, the base section containing a bowl and burner, the intermediate section being the light-diffusion section, and the top section being the ventilating section, said intermediate section being arranged to telescope at its upper part into the top section and at its lower end into the lower section to enable the lower end of the top section to be brought into juxtaposition to the top edge of the base section to thereby entirely inclose the intermediate section and compact the lamp to the extent of the effective length of the intermediate section, means being provided for limiting or checking the upward movement of the intermediate section with respect to the base section and also the top section with respect to the intermediate section.

4. A lamp consisting of three sections, the base section containing a bowl and burner, the intermediate section being the light-diffusion section, and the top section being the ventilating section, said intermediate section being arranged to telescope at its upper part into the top section and at its lower end into the lower section to enable the lower end of the top section to be brought into juxtaposition to the top edge of the base section to thereby entirely inclose the intermediate section and compact the lamp to the extent of the effective length of the intermediate section, means being provided for limiting or checking the upward movement of the intermediate section with respect to the base section and also the top section with respect to the intermediate section, said means consisting of longitudinally-arranged bars attached respectively to the top section and the base section and having headed free ends adapted to engage loops on the intermediate section.

5. A device of the class set forth comprising a fuel reservoir, a burner, an inclosing casing adapted to be extended vertically relatively to the reservoir and to be collapsed into compact relation therewith, a swinging bail held to the casing and adapted to be folded with its cross-member extending beneath the bottom of the casing when the casing is collapsed, and a lamp-supporting means adjustable to position for use as a support and also to a position out of use as a support, means being provided whereby when adjusted to said non-use position it locks said bail.

6. A device of the class set forth comprising a fuel reservoir, a burner, an extensible casing adapted to inclose the reservoir and burner in both its extended and collapsed positions, a bail pivotally held to the casing adjacent its upper end and adapted to be swung downwardly with its cross-bar extending beneath the bottom of the casing when said casing is collapsed, and a lamp-supporting bar pivotally attached to the bottom of the fuel reservoir and adapted to be swung from the position for use as a support to a non-use position as a support, means being provided whereby when the bar is adjusted to its said non-use position it will engage and lock said bail.

7. A device of the class set forth comprising a fuel reservoir, a burner, an extensible casing adapted to inclose the reservoir and burner in both its extended and collapsed positions, a bail pivotally held to the casing adjacent its upper end and adapted to be swung downwardly with its cross-bar extending beneath the bottom of the casing when said casing is collapsed, and a flat bar held to the casing for locking the bail in its folded position, said flat bar being resiliently held to the bottom of the casing and

adapted in one position to lock the bail and in the other position to broaden the base-support of the device.

8. A device of the class set forth comprising a fuel reservoir, a burner, an extensible casing adapted to inclose the reservoir and burner in both its extended and collapsed positions, a bail pivotally held to the casing adjacent its upper end and adapted to be swung downwardly with its cross bar extending beneath the bottom of the casing when said casing is collapsed, and a supporting bar pivotally held centrally thereof centrally of the bottom of the casing and adapted to extend materially beyond the front and rear walls of the casing when swung at right angles thereto, said bar being formed with notched ends adapted to project slightly beyond the side walls of the casing and receive the side bars of said bail when the bar is swung parallel with the front and rear walls of the casing and said bail is swung to its folded position.

9. In a lamp having a bail and also intersecting grooves in its bottom, a supporting-bar pivoted at the intersection of the grooves and resiliently held to the bottom, said bar being adapted when lying in one groove to broaden the supporting-base of the device and when lying in the other groove to serve as a lock for said bail.

10. A device of the class set forth comprising a fuel reservoir, a burner, an inclosing casing relatively flat in cross section and embodying relatively slidable sections adapted to be extended vertically and to be collapsed into compact relation with the reservoir and to inclose said reservoir and burner in both the extended and collapsed positions of said sections, a support adapted to fold beneath the bottom of the casing and to be extended forwardly and rearwardly thereof, and a swinging bail pivotally held to said casing adjacent the upper end of the casing and adapted to be swung downwardly with its cross bar extending beneath the bottom of the casing, said support being provided with means adapted to engage and hold the bail in its folded position.

11. A lantern comprising a fuel reservoir, a burner, a combined inclosing casing and chimney divided transversely into tubular sections adapted to be telescoped upon each other to reduce the height of the lantern, one of said sections having a translucent portion adapted to be covered when the sections are telescoped upon each other, and the uppermost section of the casing being provided with openings at opposite sides thereof for the escape of the products of combustion, a screen extending across said section below said openings, and a baffle member held to the top of said section and having depending portions extending below said openings and spaced from the walls of said section.

12. A lantern comprising a fuel reservoir, a burner, a frame shiftable vertically relatively to the reservoir and burner, a sheet of translucent material held in one side of said frame, a reflector held in the opposite side of said frame, said reflector and sheet of translucent material being adapted to move from points at opposite sides of the flame from said burner to points at opposite sides of said reservoir when the frame is shifted downwardly, and a tubular casing adapted to inclose said reservoir, burner and frame when the frame is shifted downwardly about the reservoir.

This specification signed this 21 day of January, A. D. 1918.

GILBERT PATTERSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."