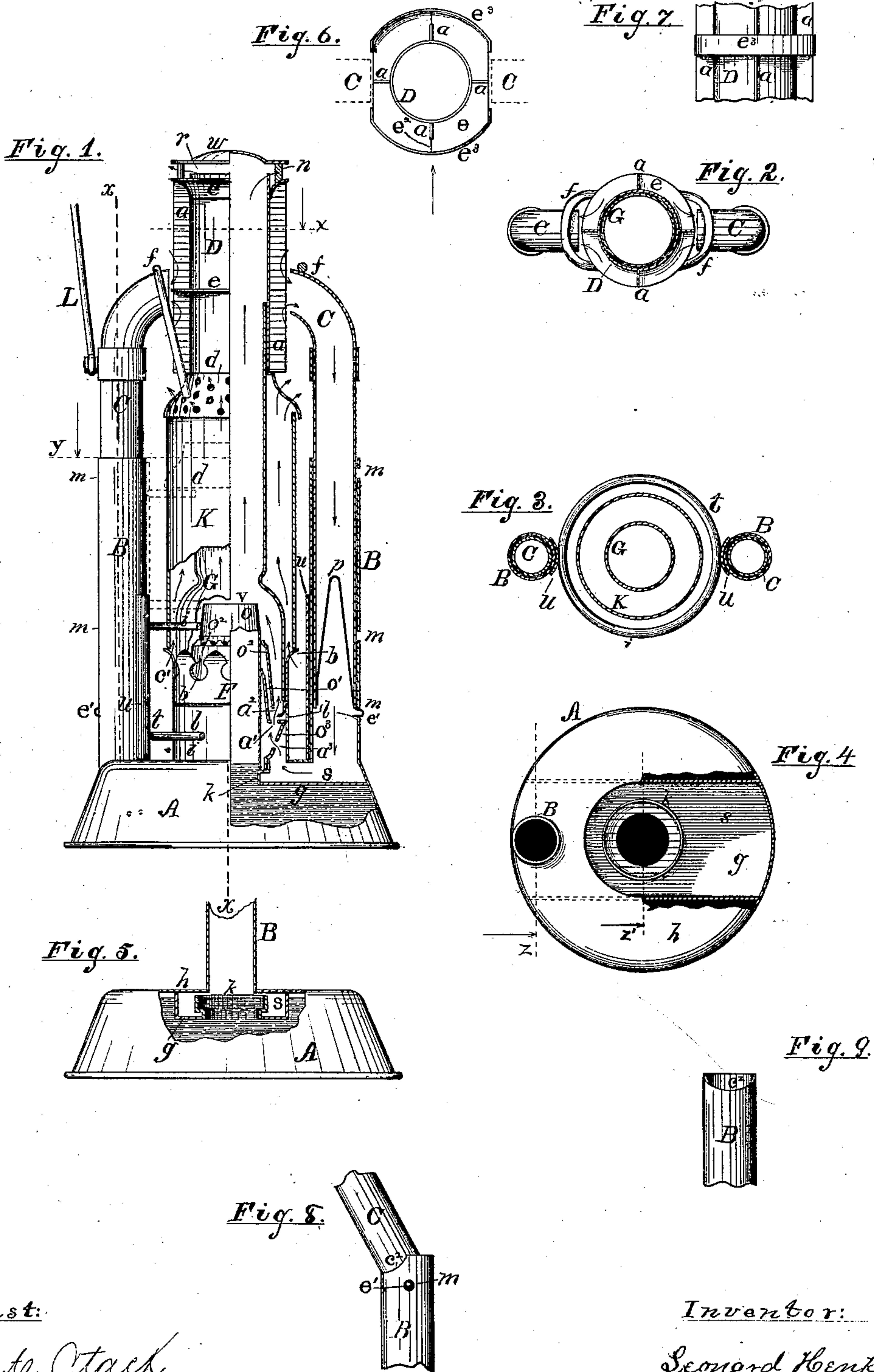


(No Model.)

L. HENKLE.  
HAND LANTERN.

No. 253,865.

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Attest:

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# UNITED STATES PATENT OFFICE.

LEONARD HENKLE, OF ROCHESTER, NEW YORK.

## HAND-LANTERN.

SPECIFICATION forming part of Letters Patent No. 253,865, dated February 21, 1882.

Application filed December 27, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, LEONARD HENKLE, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Hand-Lanterns, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to hand-lanterns for common use, or for use upon railroads for signaling, employing an Argand burner and burning kerosene-oil; and it consists in combining with certain old parts various new and improved parts and devices, by means of which a better lantern is produced than those heretofore used, all of which devices and parts are fully described in the following specification, and more particularly pointed out in the claims.

Figure 1 of the accompanying drawings is a side elevation of my improved lantern, the right-hand half of which is centrally sectioned by a vertical plane, with parts to the left broken away; Fig. 2, a horizontal cross-section of some of the upper parts of the lantern, taken upon the dotted line *x* in Fig. 1; Fig. 3, a horizontal cross-section of the parts near the middle of the lantern, taken upon the dotted line *y* of Fig. 1; Fig. 4, a plan of the oil-reservoir, with a part of the upper plate broken away to uncover a portion of the horizontal air-passage within; Fig. 5, a side elevation of some of the lower parts of the lantern, view taken at right angles to that shown in Fig. 1, having a part of the shell of the oil-reservoir broken away and vertically sectioned along the dotted line *z* in Fig. 4, with the exposed interior parts sectioned upon the dotted line *z'* in said figure. (The planes in which said sections are taken are also indicated by line *x x*, Fig. 1.) Figs. 6 and 7 are modifications of the form of certain parts there shown; and Figs. 8 and 9 show the means provided for inclining the upper parts of the lantern away as a matter of convenience in inserting the globe and chimney.

Referring to the figures, A is the oil-reservoir of the lantern; B B, vertical tubes rising from the reservoir or base of the lantern at opposite sides thereof; C C, tubes telescoped respectively within the tubes B B; D, a vertical thimble over the burner, receiving the up-

per end of the chimney; F, an Argand burner of common form used in lamps; G, a glass chimney, of common construction, used with Argand burners, held at its base within the fringed band *b* of the burner F; K, an outer glass globe resting upon the band *b* and surrounding the chimney G, and L the bail.

The thimble D has secured to its lower end an inverted perforated dish-shaped piece, *d*, which forms a cap and rest for the upper end of the globe K. Stout wires *f f* are bent over the upper inwardly-curved ends of the respective tubes C C, and secured rigidly thereto and to the cap *d* at their downward-turned ends, by means of which the thimble is secured firmly to said tubes C C without coming in direct contact therewith. The thimble is provided with four vertical strips of sheet metal, *a*, equally spaced around the same, reaching from the cap *d* to the outwardly-curved ring or flaring flange *e*, near the top of the thimble, two of which opposite strips cross the respective centers of the upper open ends of the tubes C C, as shown. A horizontal circular disk or ring, *e*, encircles the thimble, near the middle thereof, intersecting the four strips *a* at right angles, and passes centrally across the ends of the said tubes C C. The strips *a a* and disk *e* do not touch the ends of the tubes C C, but are held a little way therefrom for the purpose that heat from the thimble may not be communicated to the tubes and be conveyed downward along the metal thereof toward the reservoir, the said thimble and tubes being held together and relatively in position by the wires *f f*, above mentioned.

If the ends of the tubes and the adjacent parts of the thimble were in actual contact, and the former became heated in consequence, the air flowing downward through said tubes would of necessity reach the flame in a state of higher temperature than that of the outside free atmosphere and be proportionately rarefied and expanded—circumstances which in this invention I wish to avoid. By insulating the thimble, with its exterior parts, from the tubes by connecting them by indirect means, as shown, the air flows downward through the tubes without experiencing any change in temperature or density.

The upper end of the thimble is covered by



a dome, *w*, held by posts *n* a little distance above the thimble, leaving a space, *r*, for the escape of the gases and heat from the flame.

A trough-shaped piece, *g*, is placed horizontally within the oil-chamber, immediately beneath the upper plate, *h*, of the reservoir, passing diametrically across the same from side to side, which forms an air-passage, *s*, leading to the burner. The lower ends of the tubes B B pierce the plate *h* and communicate with the passage *s*. A central circular opening is made through the bottom of the trough *g* into the oil-chamber, into which is inserted the usual socket, *k*, provided with an internal screw-thread to receive the burner F.

The Argand burner, as commonly constructed and employed in my lantern, is composed, together with other parts, of an external wick-tube, *o*, inner conical ring, *o'*, with perforations *a'*, outer conical ring, *o''*, with perforations *a''*, fringed or scalloped band, *b*, and lower inverted conical ring, *o'''*, with openings or perforations *a'''*. The air to supply the flame enters at the upper inwardly-turned ends of the tubes C C, as indicated by arrows, and flows downward into the tubes B B along the horizontal passage-way *s*, upward through the perforations *a'''*, *a'*, and *a''*, to the flame at *v*.

Ordinarily in the common Argand lamp air to supply the flame darts directly through the openings *a'''* of the lower ring, *o'''*, from the outer free atmosphere, and flows thence to the flame, as above described. This, in my present lantern, I wish to prevent, which I accomplish by adding to the burner in common use a close band or apron, *l*, secured to the base of the conical ring *o''* encircling the conical ring *o'''*, and forming a close joint with the fringed band *b*. When the burner supplied with this band *l* is screwed to its place in the socket *k* the lower edge of the said band rests against the outer surface of the plate *h* and effectually prevents any inflow of air through the openings *a'''* of the ring *o'''*, except what flows down through the tubes C C and B, as above described. The gases from the flame pass upward through the chimney G and escape through the opening *r* above the thimble, as indicated by arrows.

The outer globe, *k*, which may be cylindrical in form, as shown, or swelled laterally near the middle thereof in such form as may be desired, may be used with the lantern or omitted therefrom, as required. In railroad service it is designed to have these globes made of blue, red, or other colored glass, as may be required for signals. This globe has for a support at the lower end the fringed band *b*, resting upon the points of the scallops, as shown in Fig. 1, and currents of air for cooling both the globe and the chimney enter freely the openings of the fringe, as indicated by the arrows *c'*, and move upward between said globe and chimney, escaping through the perforations in the cap *d*, as indicated by arrows.

The tubes C C each contain interiorly springs *p*, Fig. 1, which form catches to hold or lock

said tubes at different positions of vertical adjustment within the tubes B B, holes *m* in the sides of the latter tubes being provided in which to receive the free ends *e'* of the springs, as shown. The springs automatically enter the holes *m* when presented, and to draw the tubes C out of the tubes B the ends *e'* of the springs are pressed back within the latter tubes by the thumb and finger. This locking together by the springs *p* of the tubes C and B also holds the upper and lower parts of the lantern firmly together, so that the whole may be carried safely by the bail L, attached to the upper part, as shown.

A vertically-adjustable guard, *t*, for the globe and chimney is provided, fitted to slide upward or downward along the inner exterior surfaces of the tubes B B, which form posts or ways for the same to move upon, to protect said globe and chimney from lateral blows. This guard is composed of two vertical strips, *u u*, Figs. 1 and 3, curved to fit the tubes B B, and connected by horizontal rings of wire *i i*, which encircle the globe and chimney.

The vertical strips *u*, Figs. 1 and 2, of the thimble passing across the mouths of the tubes C C, as above set forth, are designed to prevent wind from blowing horizontally across the mouths of these tubes, which might result in reversing the direction of the flow of air in said tubes, and thus extinguish the flame. Vertical blasts of wind which, passing across the mouths of the tubes, might prove equally destructive to the flame, are arrested by the horizontal disk *e*.

When the globe K is omitted from the lantern the tubes C C, with the upper part of the lantern, may be pressed downward to the bottom of the tubes B, which brings the cap *d* nearer the enlarged lower part of the chimney G, as shown in dotted position of said cap, and causes it to act as a covering to shed or carry off drops of rain that would otherwise beat upon and possibly break said chimney.

If the thimble be raised by drawing the tubes C well out of the tubes B, a higher column of heated air above the flame is obtained, which increases the strength of the draft, adding to the brilliancy of the flame.

I prefer to cut the tops of the tubes B B away on one side, as shown at *e''* in Figs. 8 and 9, to allow the upper part of the lantern to be inclined away to one side, while the springs occupy the upper holes, *m m*, of the tubes B B, for the purpose of facilitating the placing or removal of the globe and chimney.

It may be desirable to make the disk *e* of larger diameter than shown in Figs. 1 and 2, and cut from its opposite sides two segments, as shown in Fig. 6, to admit it between the ends of the tubes C C. Also, as a matter of convenience in construction, the disk may be divided upon a line, *e''*, and placed upon the thimble in halves, said halves being bound or held together by peripheral bands *e'''*, as shown.

The air-passages, placed within the oil-cham-



ber, as above described, is out of the way and leaves the upper surface of the reservoir clear to receive the superincumbent parts, besides adding to the appearance of the lantern.

5 The socket *k*, for holding the burner, is in this construction of parts wholly within the air-passage *s* and beneath the upper plate, *h*, of the reservoir.

A strong wind blowing horizontally across  
10 the upper end of the thimble or part D of a lantern over the flame I find by experiment to act injuriously upon the flame by causing an excessive eduction of air from within the chimney, and producing a correspondingly violent  
15 inflow of air down the tubes and against said flame. Some lanterns of faulty construction have the upper end of the part corresponding to the said thimble herewith shown contracted or made tapering upward, in order to give  
20 any horizontal current of air impinging against it an upward direction, to increase this eductive action upon the contents of the chimney. The flame of a lantern with a sufficient height of heated column over the flame will burn bril-  
25 liantly and satisfactorily, if the lantern be reasonably well constructed in other respects, if said lantern be standing in statical air.

It is the injurious effects that blasts of wind have upon the flame that are to be guarded  
30 against in the construction of lanterns, one of which is the excessive eduction of air from the chimney above mentioned. To tend to neutralize this injurious effect and reduce it as nearly to zero as possible, or, in other words,  
35 to assist the flame to burn as nearly as possible in blasts of wind as it would in statical air, I add an external ring, *e*, to the thimble, at or near the upper end thereof, made tapering  
40 downward in order to turn horizontal currents of air downward that sweep across said thimble, the effect of which I find to be beneficial as modifying the eductive tendency above mentioned.

I claim as my invention—

45 1. A thimble, D, provided with strips *a* and flange *e*, and side tubes, C C, with means to hold said tubes and thimble rigidly together, and leaving a clear air-space between the ends of the tubes and said strips *a* and flange *e*, for  
50 the purpose of insulating said latter parts from the tubes, so that heat may not be communicated to the tubes, substantially as shown and described.

2. The reservoir or base A of a hand-lantern,  
55 provided with tubes B B, in which are fitted respectively smaller tubes, C C, and made to slide freely therein, which latter tubes support upper parts of the lantern, said tubes C C being vertically adjustable within the tubes  
60 B B, as and for the purposes set forth.

3. The reservoir or base A of a lantern, provided with tubes B B, and tubes C C, arranged to slide within said tubes B B respectively, and means to hold said tubes C C in positions of vertical adjustment within the tubes B B, 65 substantially as shown, and for the purpose set forth.

4. In combination, the fringed or perforated band *b* of the burner-cone F, the thimble D, provided with the perforated globe cap or 70 holder *d*, globe K, and chimney G, substantially as shown and described.

5. The combination, with the conical ring *o*<sup>2</sup>, fringed band *b*, and inverted conical ring *o*<sup>3</sup>, of an ordinary Argand burner for lamps, a close 75 band, *l*, forming a curtain to cover the said ring *o*<sup>3</sup>, and plate *h*, substantially as shown.

6. The combination, in lanterns, of an Argand burner, F, provided with a close band, *l*, and reservoir A, provided with an internal 80 air-passage, *s*, and socket *k*, to receive said burner, substantially as shown.

7. The reservoir or base A of a lantern, provided with tubes B B, and tubes C C, arranged to slide within said tubes B B, the tubes C C 85 being provided with locking devices *p m*, by means of which said tubes C C are held in any desired position of vertical adjustment within the tubes B B.

8. The chimney G of a lantern, in combination with vertically-adjustable tubes C C, and thimble D, provided with a cap or part, *d*, for shedding rain away from said chimney, substantially as shown, and for the purpose set 90 forth.

9. In combination with air-supply tubes B B of lanterns, a reservoir, A, provided with an air-passage, *s*, within the oil-chamber leading to the burner, substantially as shown and described. 95

10. In combination with the burner and chimney of a lantern, a reservoir, A, containing an internal air-passage, *s*, and extensible air-supply tubes B B and C C, substantially as shown. 100

11. An oil-reservoir, A, for a lantern, in which the socket *k*, for receiving the burner, is depressed below the surface of the upper plate of said reservoir. 105

12. Tubes B B of a lantern, provided with 110 holes *m* and indentations *e*<sup>2</sup>, in combination with tubes C C, provided with locking devices *p*, substantially as shown, and for the purpose set forth.

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Witnesses:

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