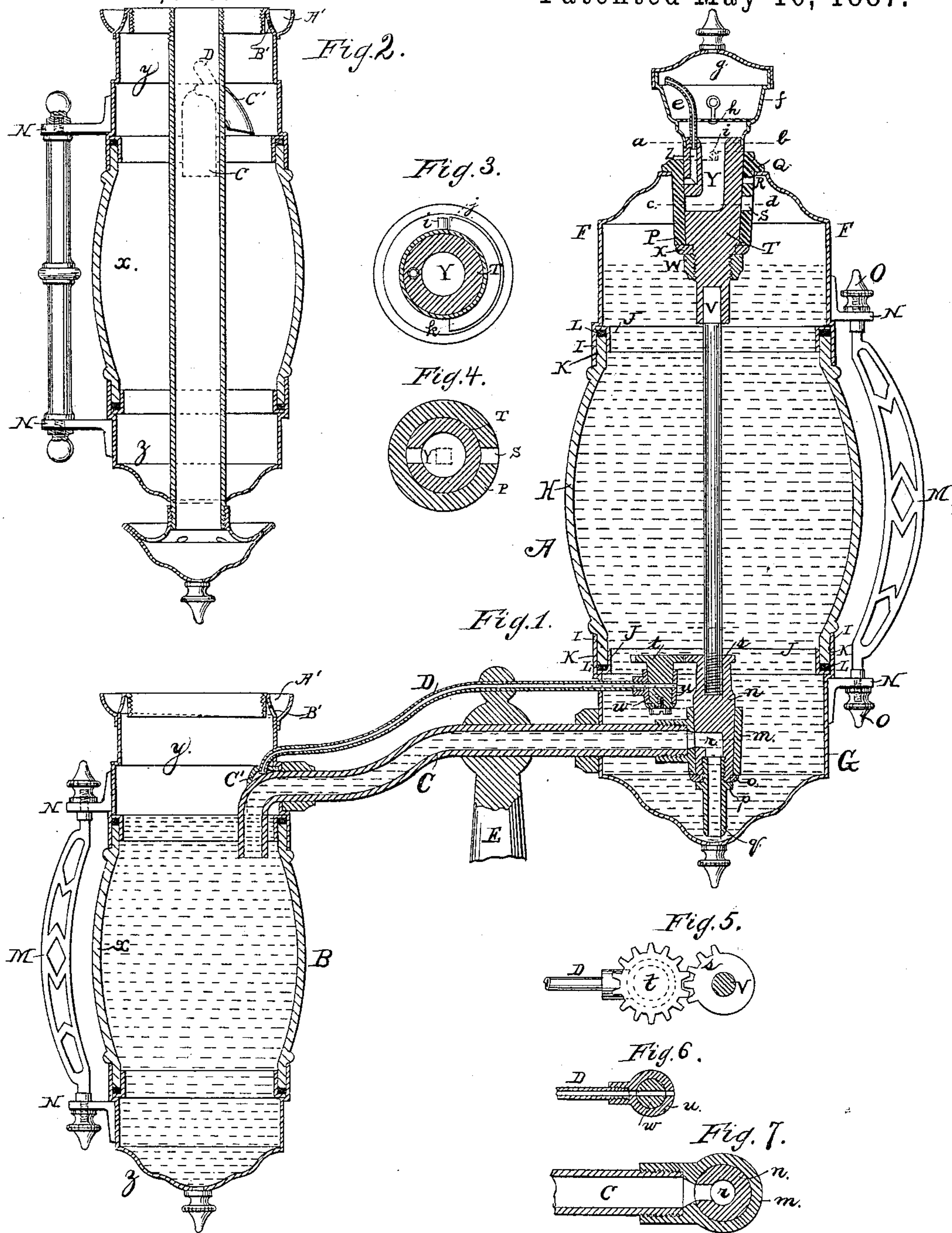


(No Model.)

E. B. REQUA.  
LAMP.

No. 362,918.

Patented May 10, 1887.



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# UNITED STATES PATENT OFFICE.

ELIAS B. REQUA, OF JERSEY CITY, NEW JERSEY.

## LAMP.

SPECIFICATION forming part of Letters Patent No. 362,918, dated May 10, 1887.

Application filed January 19, 1887. Serial No. 224,763. (No model.)

*To all whom it may concern:*

Be it known that I, ELIAS B. REQUA, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Lamps, of which the following is a specification.

The invention relates to improvements in lamps; and it consists in certain elements of construction and arrangement, hereinafter described, and particularly pointed out in the claims.

The object of the invention is, in part, to insure the proper passage of oil from an elevated reservoir to a burner-fount without any danger of the latter being overflowed or the flame being disturbed.

Referring to the accompanying drawings, Figure 1 is a central vertical longitudinal section of a lamp embodying the invention, the burner of the lamp being omitted and the operative parts being in position to permit the lamp being used without further manipulation. Fig. 2 is a central vertical transverse section of the burner-fount shown in Fig. 1, with the addition of a central draft-tube adapting it for an Argand burner. Fig. 3 is a horizontal section on the dotted line *a b* of Fig. 1. Fig. 4 is a like section on the dotted line *c d* of Fig. 1. Fig. 5 is a top view of the gearing for controlling the air-tube, hereinafter referred to. Fig. 6 is a horizontal transverse section of the inner end of said air-tube and regulating-valve, and Fig. 7 is a like view of the inner end of the tube through which the oil passes from the reservoir to the burner-fount.

In the drawings, A denotes the oil-reservoir; B, the burner-fount; C, the tube for conveying the oil from the reservoir to the fount; D, the air-tube, and E the stand, of any suitable construction, for supporting the lamp. The reservoir A is composed of the metallic end caps, F G, holding between them the glass body H. Upon the inner ends of the caps F G is formed the vertical flange I, and said ends are provided with the auxiliary flange J, said flanges forming between them the annular space K, in which is placed the packing L, and which receives the upper and lower edges, respectively, of the body A, as illustrated in Fig. 1. The said end caps, F G, are retained

in position upon and caused to securely hold the body A by the connecting-braces M, the upper and lower ends of which are secured to or in the brackets N, rigidly affixed to the outer walls of said ends F G. Any suitable number of the connecting-braces M may be employed, according to the style of the lamp and the wish of the manufacturer, and their ends may be provided with suitable nuts, O, of ornamental configuration. The connecting-braces M are of special advantage, since thereby the ends F G of the reservoir may be brought as closely against the respective edges of the body A as desired, and a liquid-tight joint between said body and ends thus effectually secured.

In Fig. 2 I illustrate a form of connecting-brace M which may be used with special convenience and advantage, the said brace consisting merely of a straight ornamental rod provided at its ends with right and left hand threads engaging threads in the brackets N, any suitable caps being applied thereon. It will be evident that in the use of the braces M of the description shown in Fig. 2 the ends of the reservoir or burner-fount may be readily brought together by merely rotating the braces.

In the upper end of the cap F is provided an aperture, through which is inserted the valve-casing P, the upper end of said casing being provided with a laterally-extending flange, Q, which is seated upon the upper end of the cap F. The casing P is provided upon one side with the ports R S, and is of suitable size to snugly receive the valve T, the lower end of which contains a square aperture fitting upon the valve-rod V, and is provided with a screw-thread to receive the nut W, between which and the lower edge of the casing P is placed the washer X, the purpose of the nut and washer being to retain the valve within the casing P.

Within the valve T is formed the central receiving-opening, Y, the lower end of which is adapted to be brought into communication with the port S when the valve is turned, to permit the filling of the reservoir with oil. The valve T is also provided in its upper part with the vent Z, the upper end of which joins the tube *e*, while its lower end is arranged to be brought into communication with the port R during the time the reservoir A is being filled with oil. Upon the upper end of the valve T,



which projects above the casing P, is secured the bowl *f*, provided with a removable cap or cover, *g*, and an interior sieve, *h*, as indicated in Fig. 1, the purpose of the sieve being to prevent particles of foreign matter from entering the reservoir with the oil during the filling of the former.

Upon the side of the upper end of the valve T is provided a pin, *i*, which is arranged to come into contact with the shoulder *j* of the flange Q, as shown in Figs. 1 and 3, when the valve is in the position illustrated in Fig. 1, the ports R S being at that time closed, and to come into contact with the shoulder *k* when the opening Y and vent Z are thrown into communication with the ports R and S by giving the valve T a one-half revolution.

When the lamp is in use for lighting purposes, the valve T will be turned to the position illustrated in Fig. 1, and when it is desired to introduce oil to the reservoir said valve will be turned to an opposite position, the oil passing into the reservoir through the bowl *f*, opening W, and port S, the air being at the same time permitted to escape upward through the port R, vent Z, and tube *e*.

Upon the inner end of the tube C, within the lower part of the reservoir A, is applied the valve-casing *m*, containing the valve *n*, the latter being held in position by the washer *o* and collar *p*, the said collar forming a rigid part of the tube *q*, the upper end of which is threaded and enters the lower end of the opening *r* in the valve *n*, the lower end of said tube *q* terminating adjacent to the base of the reservoir and slightly above the horizontal plane of the burner-fount end of the pipe C. The opening *r* in the valve *n* may be thrown into communication with the pipe C, as indicated in Fig. 1, or turned to an opposite position, so as to close said pipe at will by rotating the valve-rod V, which is secured, preferably, by a screw-thread in the upper end of the valve *n*.

It will be observed upon reference to Fig. 1 that when the ports R S at the upper end of the reservoir A are closed the passage *r* through the valve *n* from the reservoir into the pipe C is open. These elements may be given in opposite position from that mentioned by merely giving the valve T a one-half revolution, thereby opening the ports R S and closing the passage *r* in the valve *n*, this operation being practiced only when it is desired to fill the reservoir A. The purpose of closing the passage *r* through the valve *n* when the ports R S are open is to prevent the pressure of the entering air through the bowl *f* from forcing the oil into the burner-fount B and overflowing the same.

Upon the upper end of the valve *n* is formed the toothed segment *s*, (illustrated more clearly in Fig. 5,) which, when the passage *r* in said valve is open, will be in engagement with the gear-wheel *t*, formed in the upper end of the valve *w*, which is seated and secured within the valve-casing *u*, the latter being secured upon the end of the air-pipe D, located within

the lower portion of the reservoir A. In the valve-casing *u* is formed the transverse passage illustrated in Fig. 1 in line with the transverse passage through the valve, the latter passage when in the position illustrated forming a continuation of the air-pipe D, the said continuation being broken when the valve is turned a partial revolution. The operation of the valve *w* and the gearing *s t* will appear hereinafter.

The burner-fount consists of the body *x* and end metallic portions, *y z*, connected by braces M, such as those described in connection with the oil-reservoir. The metallic part *y* of the burner-fount is open at its upper end and suitably threaded to receive a lamp-burner. At the outer edges of the end *y* of the burner-fount is formed the annular channel A', which is open at its upper side and has its inner wall provided with a suitable number of perforations, B', for the admission of the air to the burner-fount and to permit the return to said fount of any oil that might pass down the outside of the burner and into said channel, one side of the channel, adjacent to the perforations, being a little lower than the other side thereof, as denoted in Fig. 1, the dotted line representing the lower plane of the channel. The lower end of the pipe C passes through the side of the metallic end *y* of the burner-fount and turned downward, its lower end terminating on a slightly lower plane than the pipe *q* in the reservoir. The pipe D for air passes from the oil-reservoir through the side of the metallic end *y* of the burner-fount, and terminates, as indicated in Fig. 1, in the upper end of the casing, compartment, or enlarged pipe C', which inclines to one side of the burner-fount end of the pipe C and terminates on a slightly higher plane than the same, as denoted in Fig. 2, the lower edge of said pipe C' being at an angle to the surface of the oil in the burner-fount.

While the reservoir A is being filled with oil, as aforesaid, the valve T will be turned to open the ports R R, this operation closing the valves *n* and *w*, controlling the pipes C and D. After a sufficient quantity of oil has been poured into the reservoir A, the cover *g* will be applied to the bowl *f*, and the valve Y then turned to its former position, being that illustrated in Fig. 1, opening the valves *n* and *w*, whereby the oil is permitted to flow through the pipe C into the burner-fount and the air effect an entrance from said fount into the reservoir through the pipe D. The arrangement of the segment *s* on the upper end of the valve *n* is a matter of importance in the operation of the valve mechanism. It will be observed that in order to close the pipe C the valve *n* is turned a one-half revolution until the pin *i* strikes the stop *k*, hereinbefore described, and that during the first quarter of this movement of the valve *n* the teeth of the segment *s* will rotate through the gear-wheel *t*, the valve *w*, and close the passage through the valve-casing *u*, after which said teeth will pass entirely



clear of the gear-wheel *t* for the remaining quarter-revolution of the valve *n*. During the return movement of the valve *n* to open the pipe C the teeth of the segment *s* will be brought into engagement with the teeth of the gear-wheel *t* during the last quarter of the revolution of said valve, and open the pipe D. The effect of the arrangement of gearing described is to permit the valve *w* to close the pipe D when the passage through said valve is at right angles thereto, and render the operation of the moving parts positively effectual.

It will be observed that during the opening of the valve T the valves *w* and *n* will be closed, and that during the closing of the valve T the valves *w* will open, the valve *w* ceasing to be acted on after the first one-quarter revolution of the valve T while the latter is being opened, and not being actuated during the closing of the valve T, except upon the last quarter of the revolution of same. The object of this arrangement of the valves, and of having their ports arranged as described, is to prevent at any time any possibility of the oil overflowing the burner-fount, whether by accident or careless handling of the lamp by a servant. Owing to the construction shown, there will be no possibility of the valves becoming so moved that the upper valve may be slightly open and the lower ones slightly closed, or to become otherwise so related in their positions to each other as to render their operation ineffectual. One of the main features of the invention is to prevent the oil from flowing unduly into or from overflowing the said burner-fount under any circumstances likely to arise, and this my construction and arrangement of valves thoroughly accomplishes.

After the lamp has been burned sufficiently to cause the oil in the fount to fall below the level of the pipe C, the air from the apertures B' will pass into the said pipe, and thence find an outlet through the pipe D into the reservoir and cause a proportionate quantity of oil therein to flow through the valve *w* and pipe C into the oil-fount, in order to maintain a uniform level in the latter.

The pipe D discharges the air into the body of the oil in the reservoir, and the pipe C delivers the oil during the use of the lamp below the level of the oil in the burner-fount; hence neither the operation of the pipe C or pipe D will cause a sufficient disturbance in the oil to affect the flame. During the use of the lamp the pipe D remains free from oil, but the enlarged section C' will become more or less filled with the same as the oil rises in the burner-fount. As soon as the level of oil in the fount lowers below the edge of the section C', however, the air immediately rushes into said section, displacing the oil therein and passing through the pipe D into the oil-reservoir. Were the section C' exactly perpendicular with a horizontal lower edge, the oil might possibly be held therein; but by giv-

ing the section an inclination and inclining its lower edge the entrance of air thereto and the displacement of the oil is rendered instantaneous upon said lower edge being exposed wholly or in part.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a lamp, the elevated reservoir provided with valve-casings in the upper and lower ends, the burner-fount, and pipes C D, combined with the valves T, *n*, and *w*, the said valves being seated in said casings and connected by mechanism which will cause them to have a simultaneous operation, the valve T being open when the other valves are closed and being closed when the other valves are open, substantially as set forth.

2. In a lamp, the oil-reservoir, burner-fount, oil-pipe C, and air-pipe D, combined with the valve T, seated in a casing secured in the upper end of the reservoir and provided with the opening Y and vent Z, the connecting valve-rod V, the valve *n*, seated in a casing connected with the end of the pipe C and having an opening *r*, the valve *w*, seated in a casing connected with the end of the pipe D, and the gear-wheel *t* and segment *s*, the latter being upon the upper end of the valve *n* and the former upon the upper portion of the valve *w*, substantially as set forth.

3. In a lamp, the elevated oil-reservoir and the burner-fount, combined with the oil-pipe C, passing from within the lower portion of the reservoir into the fount and having a valve on its end within the reservoir, the air-pipe D, also passing from within the reservoir into the burner-fount and having a valve on its end within the reservoir, mechanism connecting said valves to cause them to have a simultaneous motion, a valve in the upper end of said reservoir, and an operating-rod connecting said last-mentioned valve with the valves in the lower portion of the reservoir, substantially as and for the purposes set forth.

4. In a lamp, the elevated reservoir and the burner-fount, combined with the connecting-pipes C D and the section C', the lower end of pipe C being within the fount and the adjacent end of pipe D being in communication with the section C', located above the end of pipe C, substantially as set forth.

5. In a lamp, the elevated reservoir and burner-fount, combined with the connecting air-pipe D and oil-pipe C, valve mechanism for controlling said pipes, and the inclined section C' within the burner-fount above the lower end of pipe C and in communication with said air-pipe, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 15th day of January, A. D. 1887.

ELIAS B. REQUA.

Witnesses:

CHAS. C. GILL,  
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