

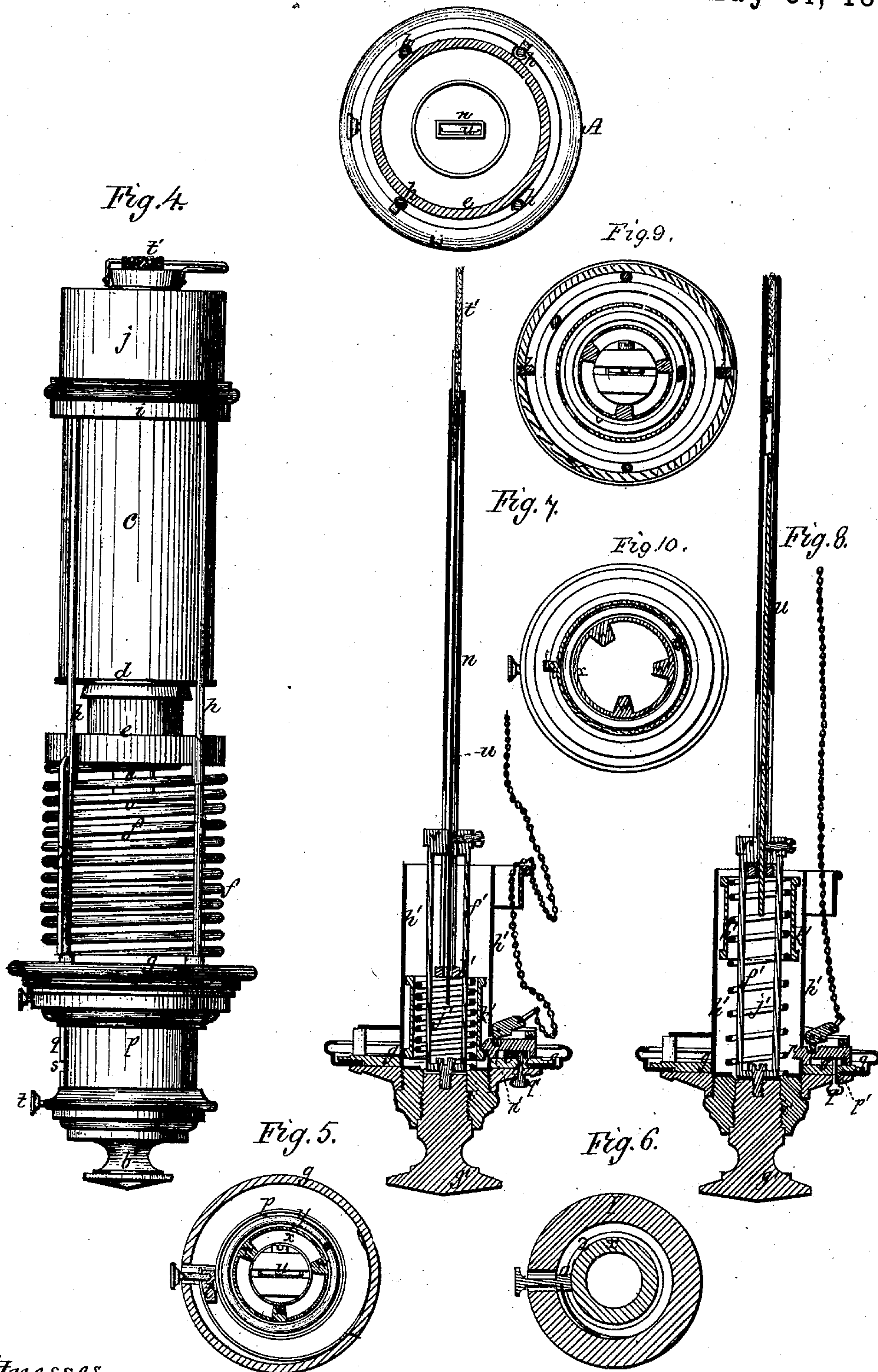
WILLIAMS & TABER.

2 Sheets—Sheet 1.

Car Lamp.

No. 103,810.

Fig. 3. Patented May 31, 1870.



Witnesses.
 Edward Griffith.
 Geo. A. Loring.

Thomas Scott Williams.
 and
 Freeman Augustus Taber.
 by their Attorney
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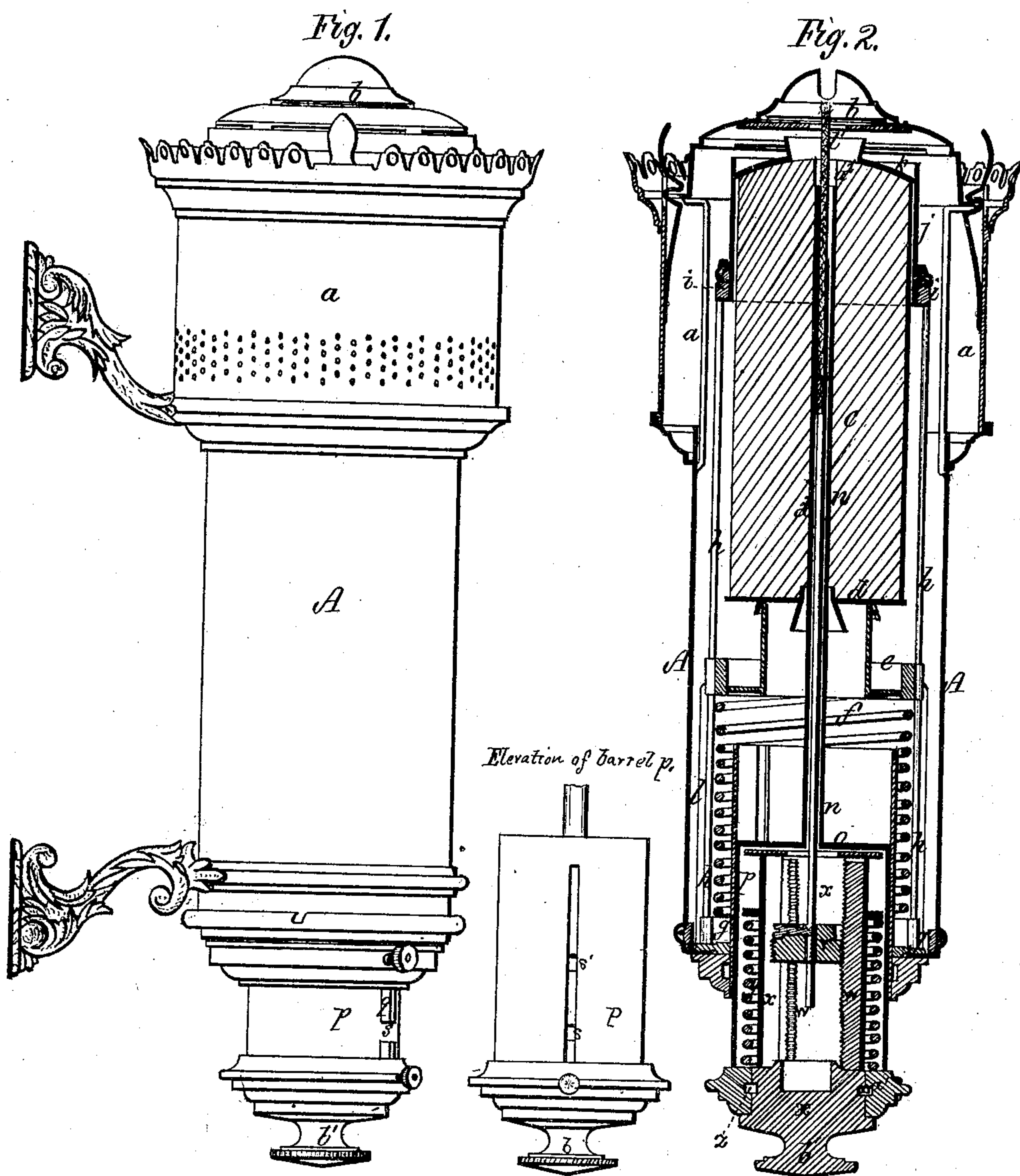
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United States Patent Office.

THOMAS SCOTT WILLIAMS AND FREEMAN AUGUSTUS TABER, OF BOSTON,
MASSACHUSETTS.

Letters Patent No. 103,810, dated May 31, 1870.

IMPROVEMENT IN CANDLE-LAMPS.

The Schedule referred to in these Letters Patent and making part of the same.

To all to whom these presents shall come:

Be it known that we, THOMAS SCOTT WILLIAMS and FREEMAN AUGUSTUS TABER, of Boston, in the county of Suffolk and State of Massachusetts, have made an invention of certain new and useful Improvements in the Construction of Devices for Burning Tubular Candles, which might properly be termed lamps, rather than candlesticks; and do hereby declare the following to be a full, clear, and exact description thereof, due reference being had to the accompanying drawing making part of this specification, and in which—

Figure 1 is an elevation.

Figure 2 a vertical section.

Figure 3 a horizontal section of our invention.

Figure 4 is an elevation of its interior candle-supporting devices, as removed from the outer shell.

Figures 5 and 6 are horizontal sections of the invention taken through the spring-latches, to be hereinafter explained.

Figures 7 and 8 are vertical sections of modifications of our invention.

Figures 9 and 10 are horizontal sections of the invention taken through the spline and groove connection hereinafter referred to.

The improvements herein described are based upon a class of lamps or devices for containing illuminating candles in which is employed a candle of large size, having a central passage for reception of the wick, the liquefaction of the candle serving to supply the wick with fuel.

Our present improvements relate, first, to means for enabling the flame of a tubular candle to be extinguished instantly and easily without detaching any portion of the lamp or holder, the purpose of such a result being self-obvious; and

This invention relates, secondly, to means for enabling the wick-tube of a tubular candle-burner or holder, of the class before explained, to be elevated about the candle, and about the upper part of the wick, or so much of the latter as would be in contact with the candle but for the interposition of the said tube, the purpose of this, the second portion of our invention, being, upon extinguishing the candle, to insulate the wick therefrom, in order that the two may be readily detached when occasion requires, (for instance, when renewing the wick or candle,) since it happens that the metal of the tube adheres with much less tenacity to the candle, when cold, than would the fibrous material of the wick; and

This invention has for a third object the production of devices or means for effecting, in a convenient and expeditious manner, the raising and lowering of the

wick while being inflamed, or as it is consumed, such feed motion being accessible from the exterior of the lamp, and encompassing and actuating the wick, or the metallic strip with which it is connected, as hereinafter explained; and

This our invention consists, fourthly, in providing the under side of the slotted disk or follower, which supports the candle, with a trumpet-shaped or flaring guide, which serves to direct the wick into the bore of the candle, and protect it from fracture or injury which would ensue should it abut forcibly against such disk, as would frequently be the case were the guide or its equivalent omitted.

Minor features of our invention will be explained as they present themselves.

The mechanical construction of a lamp or candle-holder embodying our invention is exhibited in the drawing accompanying this specification, and in which A represents the outer cylindrical shell or tube which constitutes the main body of what we term a bracket-lamp or candle-holder, such outer shell containing and concealing the working-parts of the invention, and, when in use, is to be secured in an upright position upon the wall or roof of an apartment, or of a railway-car, for which latter use the invention is, in part, destined.

The upper part or burner, *a*, as it may properly be called, of the shell A is somewhat enlarged in diameter to supply a plentitude of oxygen to the flame, and is provided with a convex cover, *b*, which is formed and applied with respect to the burner, and to the wick of the same, substantially after the manner of the "cone" of kerosene-lamp burners.

The candle-making part of this application is exhibited at *c*, in the drawing, as a cylinder of paraffine, having a central orifice, *a*², oblong in horizontal section, formed through its longest axis, the tubular candle thus made being supported in perpendicular position upon a disk or circular shelf or follower, *d*, which, in turn, is mounted upon or makes part of an elevating carrier or cup, *e*, such carrier being, in turn, supported upon the top of a long coiled spring, *f*, the bottom of this spring resting upon an annular base or support, *g*, the cup or carrier *e* being maintained in a vertical position by confinement between several posts or guides *h h*, erected upon the base *g*, and upon which it freely slides, such guides being united at top by an annulus, *i*, of a diameter about equal to that of the cup *e*, and which serves to estop the movements of the said cup as it is elevated by the elongation of the spring *f*.

Upon the top of the candle *c* is placed a cylindrical cap or cover, *j*, this cap being connected to the annu-

lus *i* by a "bayonet," or other suitable connection or joint, which will permit of its ready application or removal.

This last-named cap *j* is of a diameter somewhat larger than that of the candle, in order to permit of access of air to the exterior of the latter, by which its fusion is retarded, the length of the cap, in combination with its extensive top *k*, serving to prevent escape of melted or softened paraffine, which usually results at the extreme upper part of the candle, and which, but for the length of the sides of the cap, would ooze out below it, owing to the upward pressure upon the candle.

The act of placing a candle in its position, between its supports *d* or *e* and cover or cap *j*, necessitates a contraction of the spring *f*, the power and length of such spring being sufficient to elevate the support *d* and candle, until the former reaches the annular head or stop *i*, before mentioned.

The candle-cap *j*, and support *d*, the annulus *i*, rods or posts *h h*, spring *f*, and base *g*, constitute the candle supporting and elevating device, and are inserted within the outer shell or case *A*, as exhibited in the drawing, the annular base *g* being confined to the bottom of the said shell *A* by a bayonet, or other connection, the height of the posts or guides *h h* being such as to maintain the cap *j* in position within the burner *a* and immediately below the convex disk or cone *b*, before mentioned as constituting part of such burner.

The base *g* is to be provided with an upright key or spline, *l*, which plays within a groove, *m*, cut in the lower part of the interior of the shell *A*, the purpose of this spline and groove being to insure the insertion of the candle-supporting device within such shell in one direction only, in order that the wick, which we shall presently refer to, shall be presented to and enter the bore of the candle, and be presented parallel to the flame-orifice of the cone in the proper manner, which the oblong form of these parts renders necessary.

The wick-tube of the lamp is shown at *n* as a flattened tube extending through the whole length of the candle, and is erected upon the top of a disk or shelf, *o*, making the top of a cylindrical tube or barrel, *p*, this barrel being of an outside diameter slightly less than the interior of the spring *f*, which it enters, as shown in the accompanying drawing in fig. 2, the height of said barrel being about one-third that of the guides *h h*, before mentioned.

The connection between the annular base *g* and the barrel *p* is a spline and groove, one similar to that hereinbefore named as uniting the said annular base and the shell *A*, the latter-mentioned spline being seen at *q*, and the groove at *r* in the drawings, such spline being provided with two lateral notches or cross-cuts, *s s'*, the upper ones being situated about midway of the length of the barrel, and the latter near the bottom of said barrel, for purposes hereinafter stated, it being observed that a spring catch, *t*, is applied to the annular base *g*, which, by taking into either of the notches *s s'*, serves to insure the fixture of the barrel within the base, and to allow its altitude to be varied with respect thereto as occasion requires, under conditions which will be duly referred to.

The wick of the lamp is a flat one, and is shown at *t'* in the drawing as being united at bottom to a flat metallic strip or carrier, *u*, both wick and carrier being contained and sliding within the wick-tube, as represented, the said carrier or strip *u* being erected upon or connected in an upright position to a short male screw or block, *v*, which is disposed within the barrel *p*, such male screw being embraced by a sectional nut composed of several toothed ribs, *w w w*, confined within a closed cylinder or drum, *x*, disposed within the barrel *p*, a coiled spring, *y*, enveloping the said drum, and extending between an annular ledge formed upon the upper part of the same and the bottom of

the barrel, the spring *y* serving, by its expansion, to drive the wick and its carrier upward, and to elevate the drum *x* until its top abuts against that of the barrel.

As the wick and its carrier, owing to the form of the latter and of the wick-tube, are susceptible of sliding motions only in the direction of their length, without power of rotation, and as the sectional nut is free to revolve, it results that, by means of the nut, when rotated in one or the other direction, a feed-motion is obtained, for elevating or depressing the wick as it becomes consumed, the extreme lower end of the drum *x* protruding from the bottom of the barrel *p* to allow of the necessary rotations of such drum and the sectional nut or female screw, of which it constitutes a component part, it being here remarked that the threads of the said nut are "left-handed," so called, in order that rotations of the nut to the right of the operator shall elevate the wick, as this relative movement of the two is considered the most desirable, although not essential.

The base of the sectional nut, or its drum *x*, is provided with a circumscribing-channel, *z*, into which enters a spring catch, *a*, which is applied to an adjacent part of the base of the barrel *p*, such spring catch and channel, while serving to confine the drum and barrel together, permitting of the necessary rotations of the former within the latter during the "feeding" of the wick.

The wick-tube *n* is of such respective length that when the barrel *p*, which carries it, is elevated to its greatest extent, the top of such wick-tube shall rise above the top of the candle, or its surmounting cap, in order to insulate the wick from contact with the candle, the purpose of thus insulating the wick and candle being, as before briefly premised, for the reason that the metallic character of the tube allows it to be withdrawn from the bore of the candle much more readily than the wick would permit of when the two become, as it were, seated together by the hardening of the melted portion of the candle. The removal of the wick or its tube becomes necessary when a candle is burned out, or a wick consumed.

The lower notch *s* of the spline *g* maintains the barrel and wick-tube in their highest position with respect to the candle and its cap, while the upper notch *s'* insures the lowest position of the same, in which latter case the wick-tube descends to a point sufficiently below the top of the candle to allow of free access of the melted paraffine to the upper part of the wick.

The above construction embraces the mechanical features or organization of our invention. To prepare it for use, the candle-supporter or operating device is detached from the shell *A*, the candle-cap *j* removed, and a candle placed upon the top of the shelf *d*, which makes part of the candle-carrier *e*, the said candle, and support, and spring *f* being depressed, and the cap *j* restored to place, the release of the spring serving to elevate the candle into contact with the cap, and feed it upward thereto as it gradually becomes consumed, the candle-operating device being then returned to place within the shell *A*, and duly locked thereto, it being remarked that the wick and its carrier should be introduced to the proper position before the return to the shell *A*.

As before explained, the feed-motion is imparted to the wick by the agency of the sectional nut or its ribs *w w* and the male screw or actuator *v*.

When it becomes necessary to extinguish the inflamed wick, the knob *b'*, composing the lower termination of the drum *x*, is seized in one hand, the spring catch *t* released with the other, and the drum *x* lowered to its fullest extent, or nearly so, (the spring *y*, by this act, being forcibly compressed,) which withdraws the wick within the upper end of the candle,

and extinguishes its flame, the release of the hold upon the knob *b'* permitting the extension of the spring *y* to return the wick to its highest position.

Should it be deemed best at this time, for reasons hereinbefore expressed, to insulate the wick from direct contact with the candle, the spring catch *t*, between the barrel *p* and the annular base *g*, is to be released, and the said barrel and wick-tube elevated, until the lower notch *s'* of the spline *q* coincides with the said spring catch, which is then permitted to enter it, the wick-tube being raised to such an extent by the movement as to present a barrier between the wick which it incloses and the candle which it enters.

It will thus be seen that the feeding of the wick, extinguishing its flame, and insulating it from contact with the candle, may all be effected in the most expeditious and convenient manner.

The pressure of the spring *f* causes the cup or carrier *e* to follow the rise of the bottom of the candle as its body is consumed, until such cup brings up against the annulus *i*, before mentioned, when the remains of the candle are removed, and a new one substituted.

We would here call attention to the fact that, when the cup *e*, which supports the candle, arrives in contact with the annulus *i*, (its highest point,) a small space or chamber intervenes between such cup and the top of the cap *J*, which surmounts the candle.

The purpose of this is to cause a small portion of the candle to remain in the cap, to which the cup at such times forms a bottom, in order that the presence of the solidified portion of the candle shall serve to prevent escape of such portion of it as may have become softened, as well as for other purposes.

The purpose in constructing the plate or follower *d* and the cup *e*, or its equivalent, which operates or elevates the candle, is to allow of easy and ready removal of the waste portion of the latter, which remains after the consumption of the main portion.

Were it not for this arrangement of parts, that is to say, were the follower *d* and cup *e* in one piece or joined inseparably, the hardening of the candle would seal the candle-supporting and operating parts of the lamp to the cap which surmounts and incloses such candle, in a closed box, which could not be easily opened.

As the follower *d* merely rests upon the cup *e*, it adheres to the candle and detaches itself from the cup, thus allowing the candle to be withdrawn, which would otherwise stick fast.

Detached from the lamp the follower may be cleared from the candle very readily by the use of a knife or by heating.

A new wick may be substituted at any time, without regard to the condition of the candle, the proper time, however, for renewing the wick being when the male screw or block *v* arrives at its highest point, in which case the wick is consumed, or nearly so.

It will be observed that the wick-carrier *u* is applied to the male screw by a set-screw, which enables it to be readily detached.

A new wick having been substituted, the male screw or block *v*, which actuates it, is to be lowered to its greatest extent before inflaming such wick.

We have contemplated modifications of our invention in regard to the manner of operating the wick and wick-tube, such modification being shown in figs. 7 and 8 of the accompanying drawing, in which case the male screw is dispensed with and the block *v* connected with a furcated or slotted rod or bar, *f'*, extending downward through the bottom of the burner or lamp, and which is swiveled to a knob, *g'*, representing the knob *b'* hereinbefore mentioned, the rod *f'* passing through a thimble, *h'*, screwed into the lower part of the annular base *g*, as represented.

The shank of the knob *g'* screws into this last-mentioned thimble, as shown at *i'*, and serves the purpose,

when engaged therewith, not only of feeding the wick but of depressing the same and its tube.

Sliding within or about the rod *f'* is a tubular carrier or cross-head, *k'*, to the upper part of which the wick-tube *n* is fixed, a coiled spring, *j'*, enveloping the rod *f'*, and extending between the cross-head *k'* and the thimble *i'*, and serving by its elongation to elevate the wick-tube.

The carrier *k'* is provided at its lower part with an encircling lip, *m'*, which, when the carrier is depressed to its lowest extent, takes under a tripper or spring latch, *n'*, which is pivoted to the base *g*, and to one side of said carrier, as shown in fig. 8 of the accompanying drawing, this spring catch being operated by a cam, *o'*, placed below it, and mounted upon a rod, *p'*, which passes through the base *g*, and is provided with a button or head, *q'*, for rotating it.

While the wick is inflamed the parts remain as shown in fig. 7 of the drawing, that is, with the wick elevated to its highest position and the tubular carrier at its lowest position and held there against the force of its spring by the tripper or catch *n'*.

When it becomes desirable to extinguish the flame of the wick, the cam *o'* is rotated by means of the button *q'*, and the spring catch released, which allows the carrier *k'*, and with it the wick-tube to be elevated and the latter interposed between the wick and the candle, for purposes hereinbefore stated, and as shown in fig. 8 of the drawing.

The tripper or bolt may also be operated by a chain attached to the carrier-cup *e*, in such manner that, upon arrival of the carrier at its highest point, the chain or cord shall tighten and release the latch.

On relighting the wick, the knob *g'* is seized and the wick-tube lowered and locked to the tripper, to allow of access of the wick to the candle, the wick and its suspensory block *v* of necessity following it, the wick, however, before lighting, being pushed back to its highest point, and the screw of the knob *g'* caused to enter the threads of the thimble *i*, for the purpose of feeding the wick.

a' in the drawing represents a trumpet-shaped or flaring mouth or entrance to the orifice of the candle-supporting plate or follower *d*, such mouth or guide being placed upon the lower side of said follower, and being for the purpose of insuring a proper entrance of the wick through said orifice into the bore of the candle, and, as before premised, protecting such wick from fracture or injury which would otherwise result to it by coming forcibly in contact with the follower.

Claims.

We claim—

1. The combination with the candle and a wick-tube passing wholly or partly through the same, of a wick moving independently of the said tube, so that it may be withdrawn therein or into the softened part of the candle, substantially as and for the purposes shown and set forth.
2. The combination with the candle, of a wick-tube having a movement independently of the wick which it incloses, so that said tube may be interposed at any time between the wick and candle, substantially as and for the purposes set forth.
3. The combination, with the wick-tube and wick, of a tubular candle, of instrumentalities for elevating the same, and feeding the wick as herein described, so as to raise the wick-tube and the wick either separately or simultaneously and together, as shown and set forth.
4. Applying to the orifice of the candle-supporting plate or device, a trumpet-shaped or flaring mouth or guide for insuring safe entrance of the wick to the bore of the candle.
5. The application of the wick-tube to a candle-holder or lamp for burning candles, in such manner as to permit of its elevation or depression with re-

spect to the wick and candle for purposes before stated.

6. The combination of the barrel *p* with its wick-tube *n*, the drum *x* with its sectional nut or toothed plates *w w w*, and spring *a'*, or its equivalent, the male screw or carrier *v*, and the wick *t'*, with or without its plate or carrier *u*, the whole being organized as before set forth.

7. The combination of the cup *e*, supported upon the spring *f*, and guided by the posts *h h*, the annulus *i*, and the cap *j*, the same being constructed, arranged, and operating as explained.

8. The construction and arrangement, substantially as herein described, of the devices for feeding and suddenly lowering the wick, for the purpose stated.

9. In a candle-holder or lamp containing a flat wick the employment, in combination with the object

which supports such wick, and with the device which upholds and operates the candle, of a spline and groove connection, or its equivalent, for properly presenting the wick to the bore of the candle and to the flame orifice of the "cone."

10. The spline and groove connection, or its equivalent, between the candle-supporting device and the outer shell of the burner or lamp, for the purpose of maintaining the proper relationship of the two, and guiding the former correctly into the latter, for purposes before set forth.

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Witnesses:

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