

(No Model.)

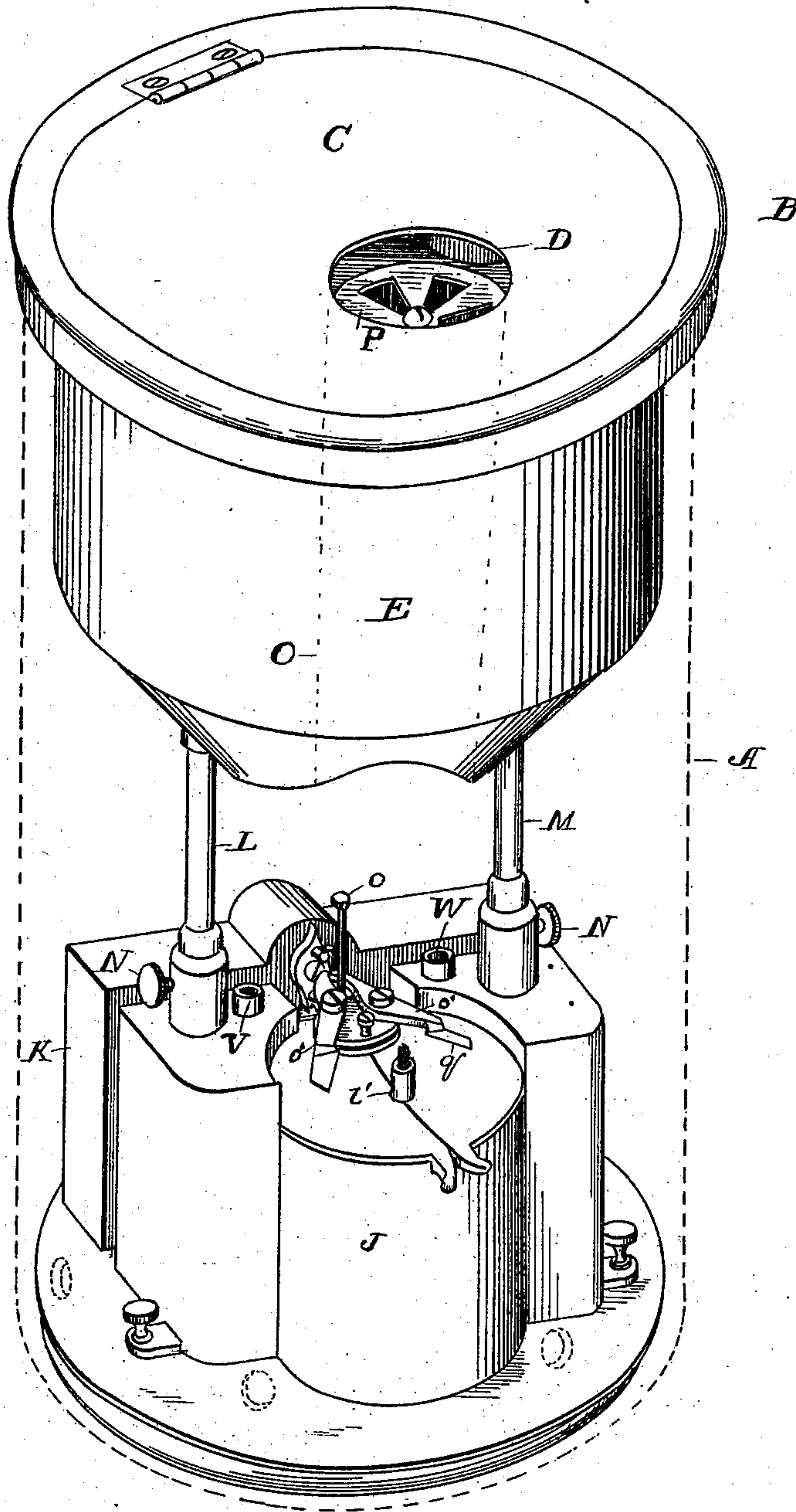
B. J. M. MENGE.

6 Sheets—Sheet 1.

LAMP.

No. 373,083.

Patented Nov. 15, 1887.



WITNESSES:

Fig. 1.

INVENTOR :

Robert Kirk
Hughald M. Killok

Bernard Joseph M. Menge
[Signature]
Attorney.

(No Model.)

6 Sheets—Sheet 2.

B. J. M. MENGE.

LAMP.

No. 373,083.

Patented Nov. 15, 1887.

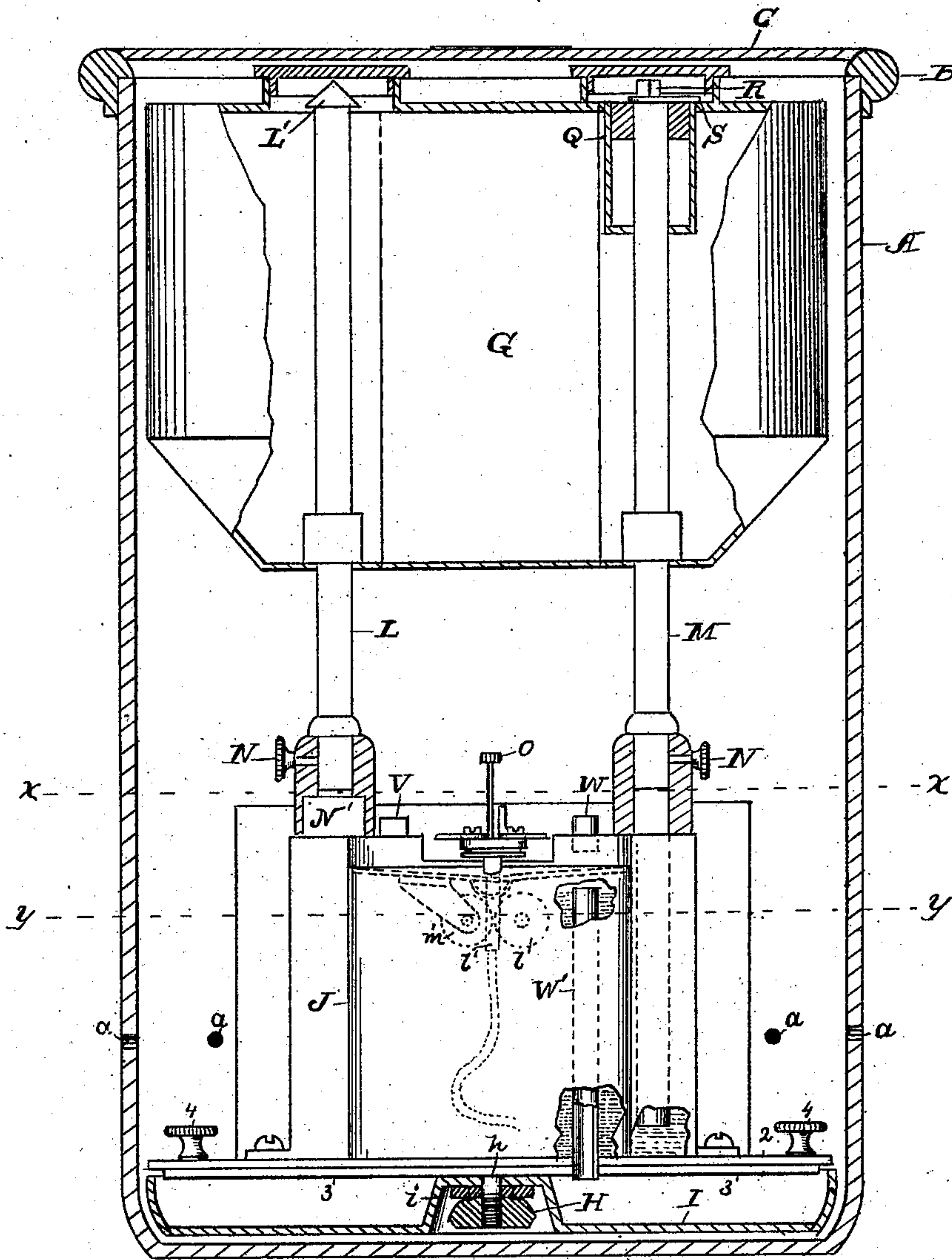


Fig. 2.

WITNESSES:

Robert Kirk
Hughald McKillop

INVENTOR :

Bernard Joseph M. Menge

By

L. D. Gerber

Attorney.

(No Model.)

6 Sheets—Sheet 3.

B. J. M. MENGE.

LAMP.

No. 373,083.

Patented Nov. 15, 1887.

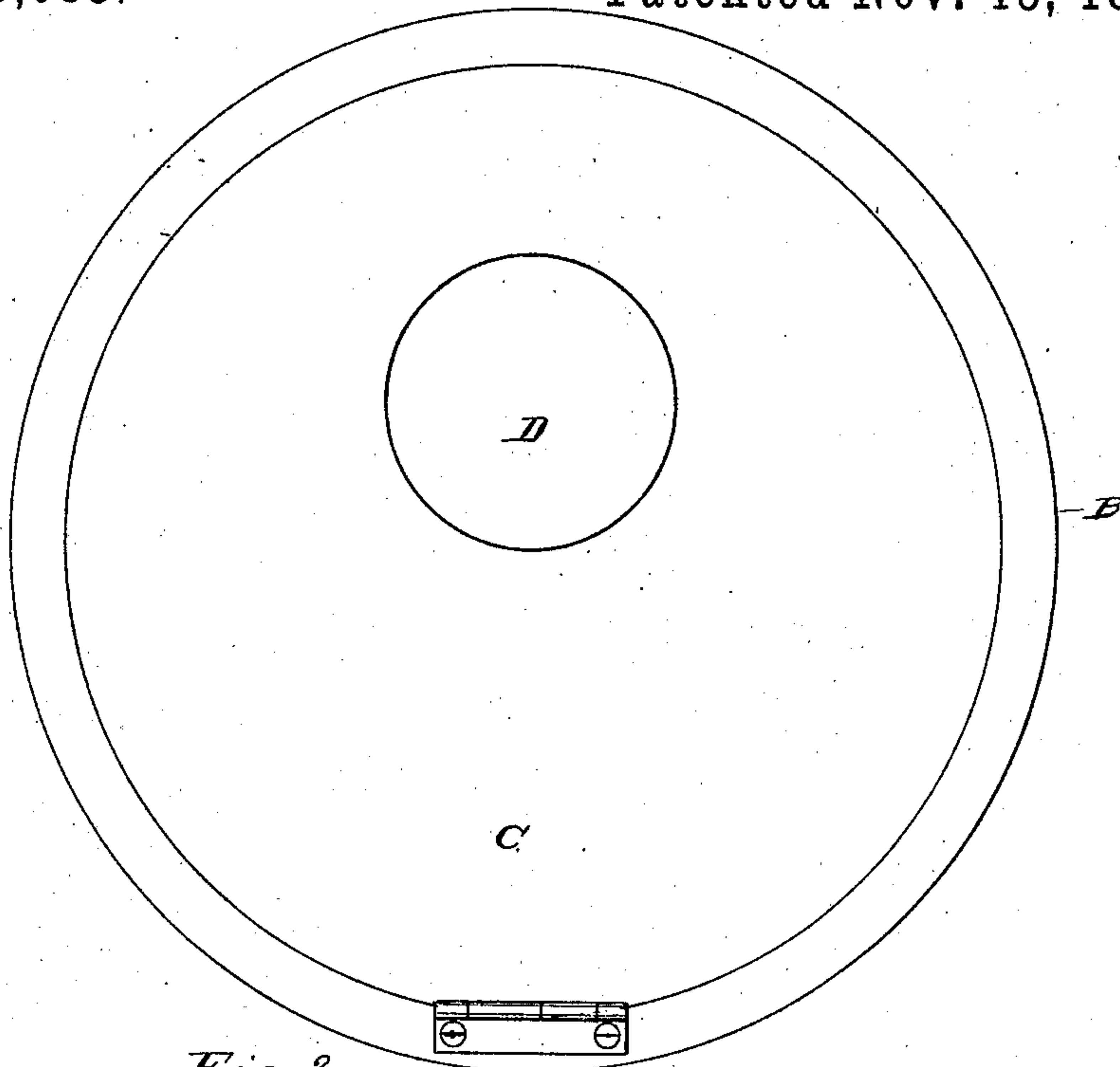


Fig. 3.

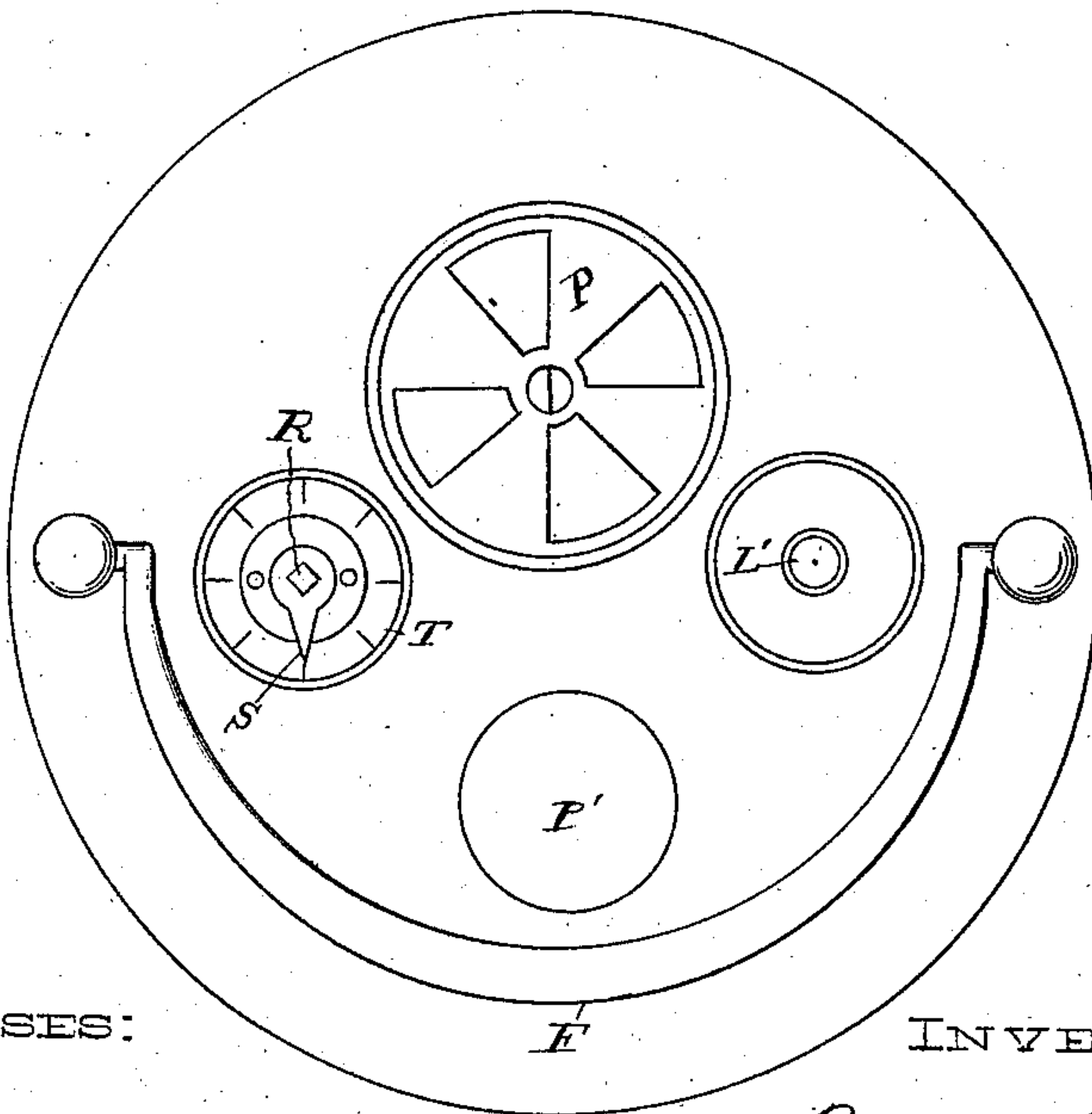


Fig. 4.
By

WITNESSES:

Robert Kirk
Dugald McKillop

INVENTOR :

Bernard Joseph M. Menge
[Signature]
Attorney.

(No Model.)

6 Sheets—Sheet 4.

B. J. M. MENGE.

LAMP.

No. 373,083.

Patented Nov. 15, 1887.

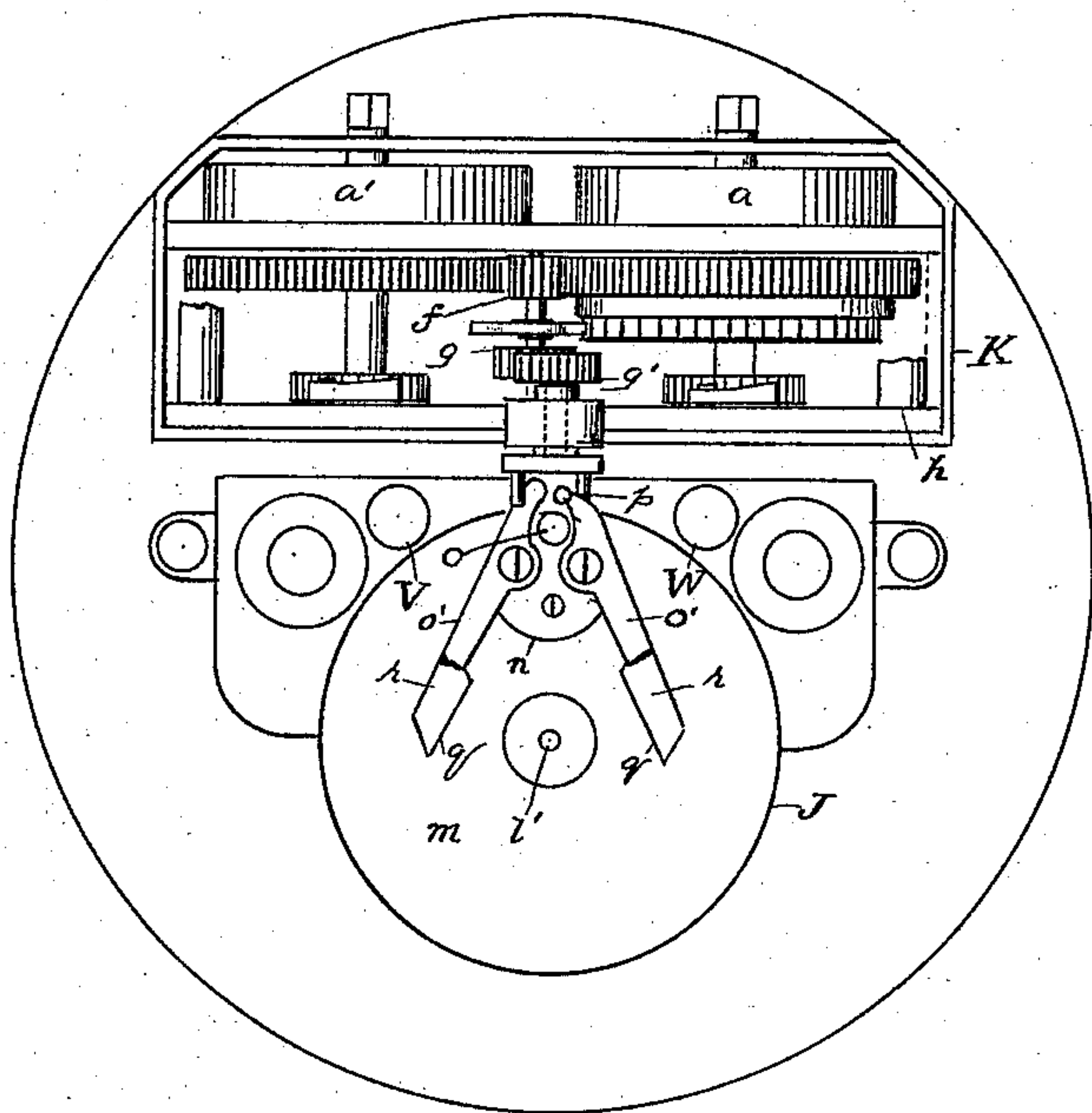


Fig. 5.

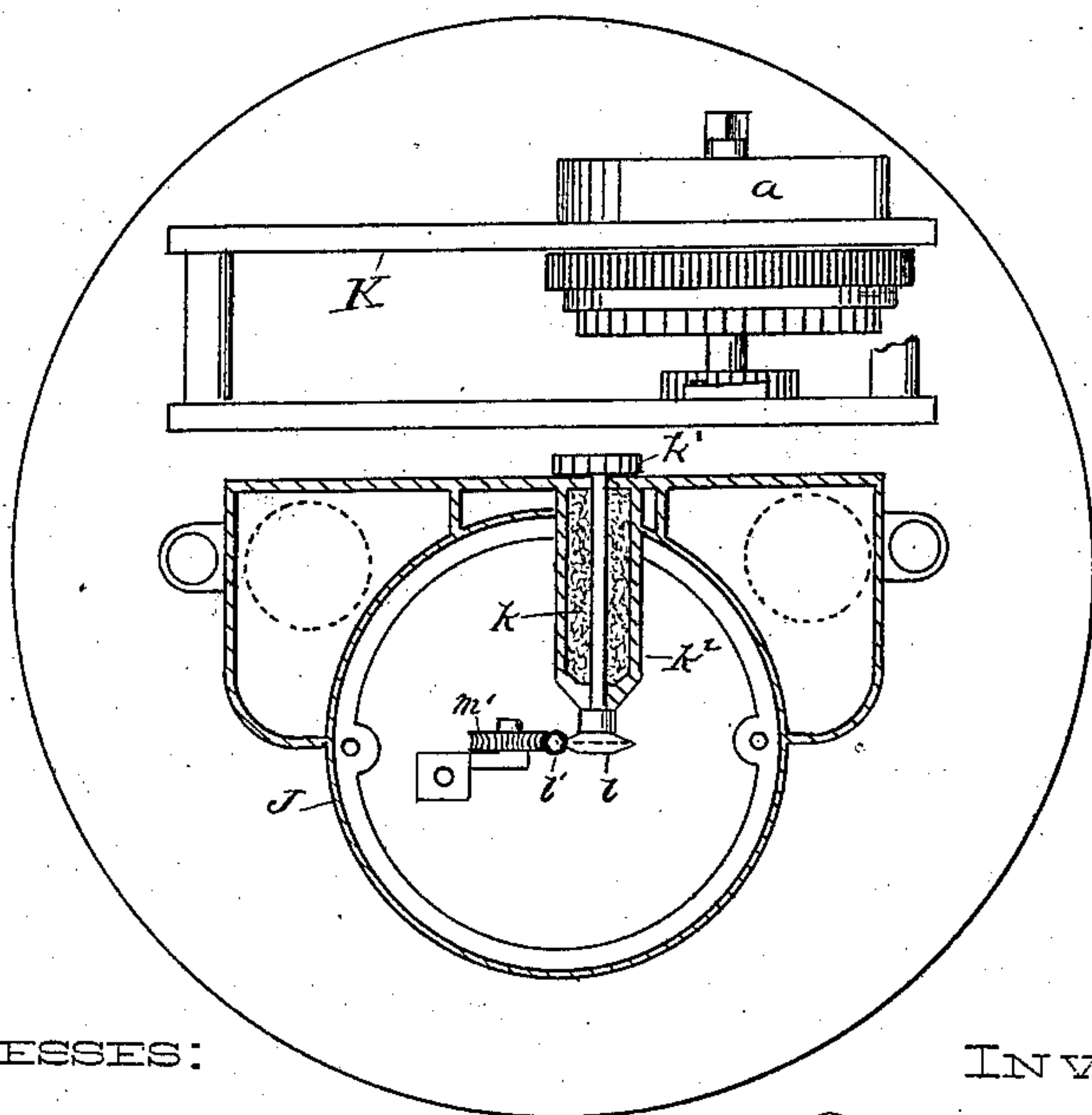


Fig. 6.

WITNESSES:

Robert Kirk
Dugald McKillop

INVENTOR :

Bernard Joseph M. Menge

By

[Signature]

Attorney.

(No Model.)

6 Sheets—Sheet 5.

B. J. M. MENGE.

LAMP.

No. 373,083.

Patented Nov. 15, 1887.

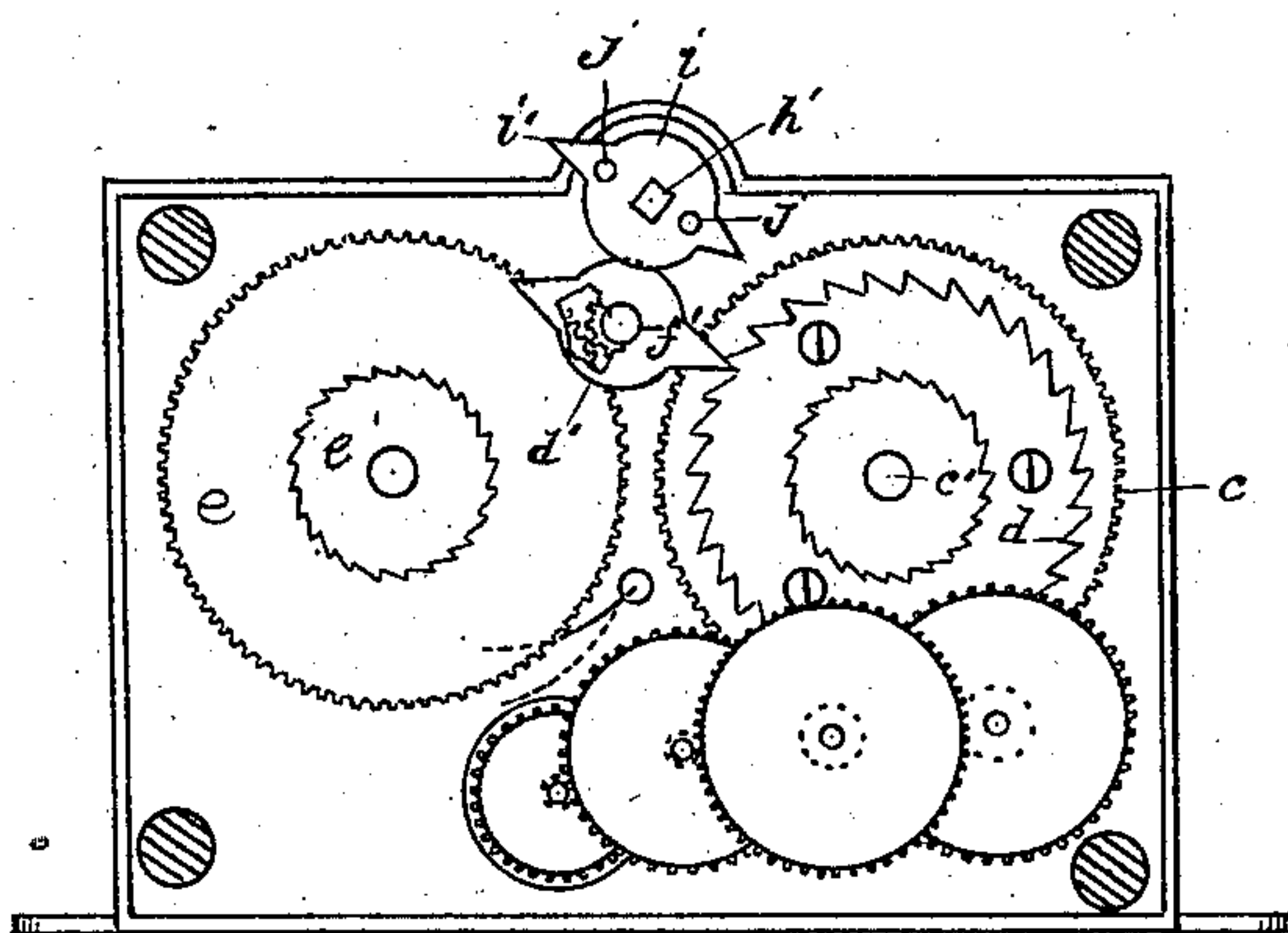


Fig. 7.

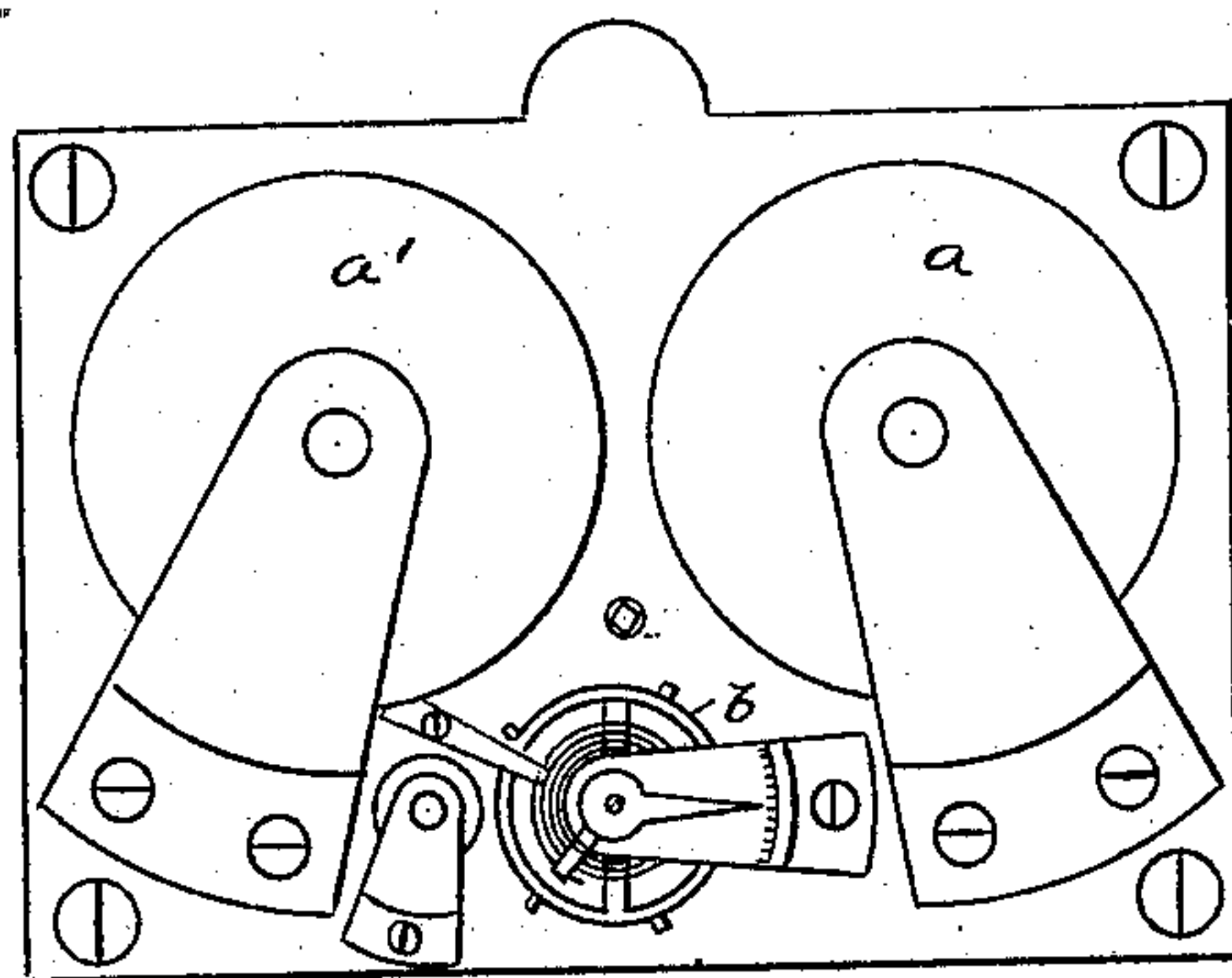


Fig. 8.

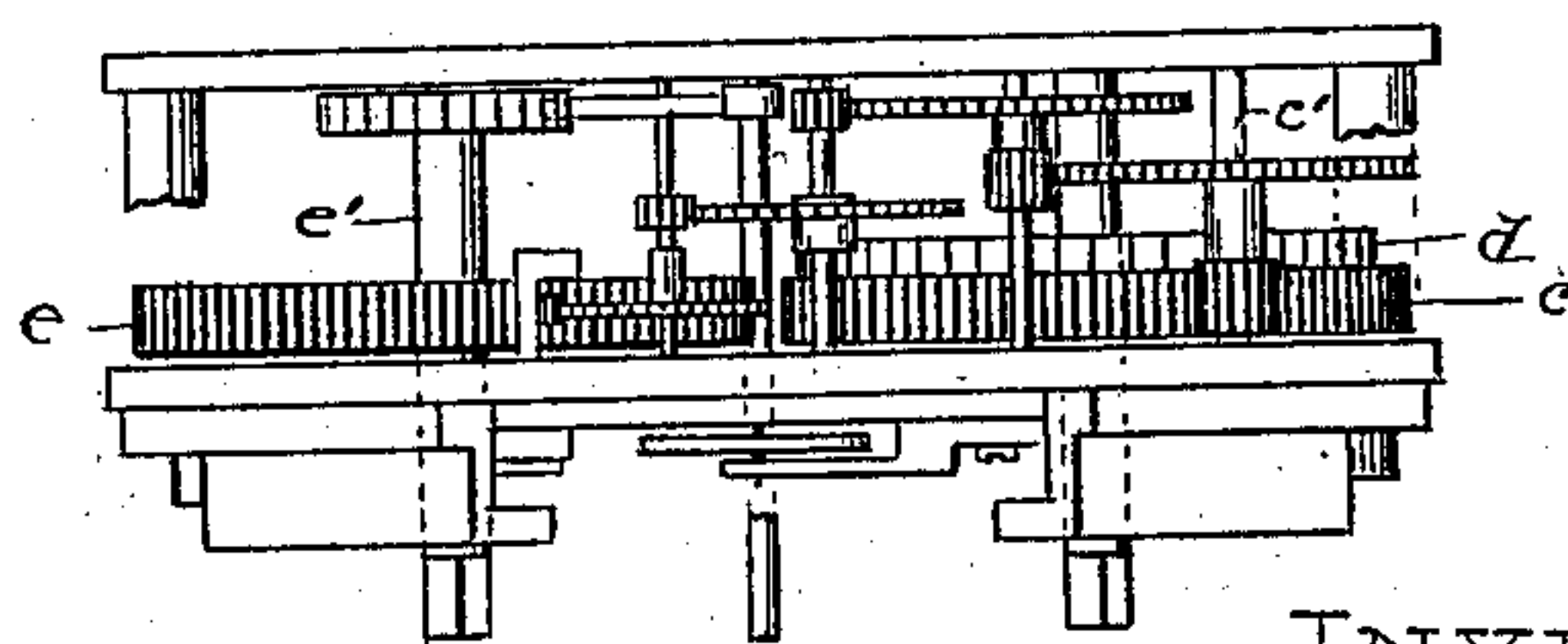


Fig. 9.

WITNESSES:

Robert Kirk
Hughald McKillop

INVENTOR :

Bernard Joseph M. Menge

By

[Signature]

Attorney.

(No Model.)

B. J. M. MENGE.

6 Sheets—Sheet 6.

LAMP.

No. 373,083.

Patented Nov. 15, 1887.

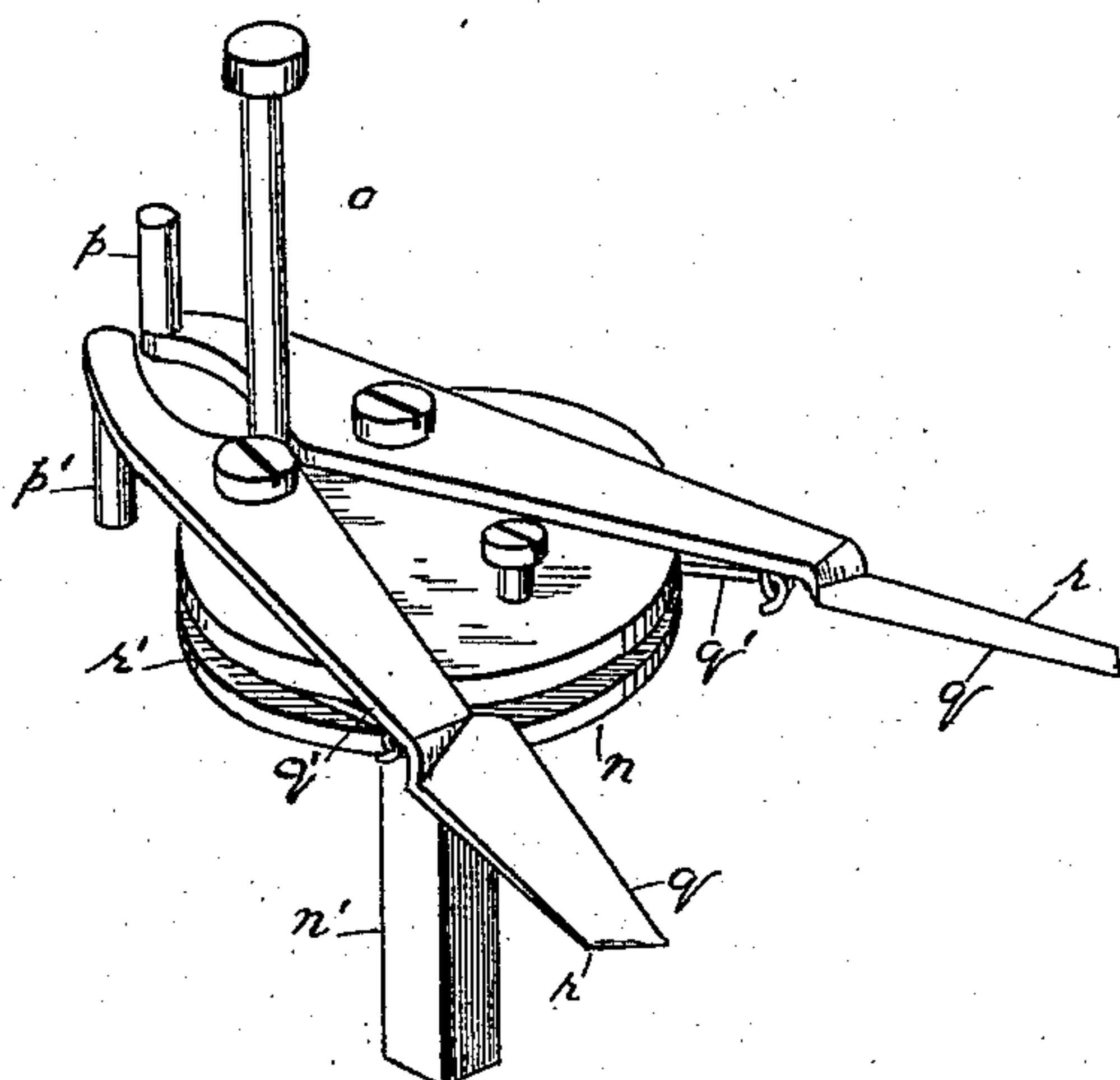


Fig. 10.

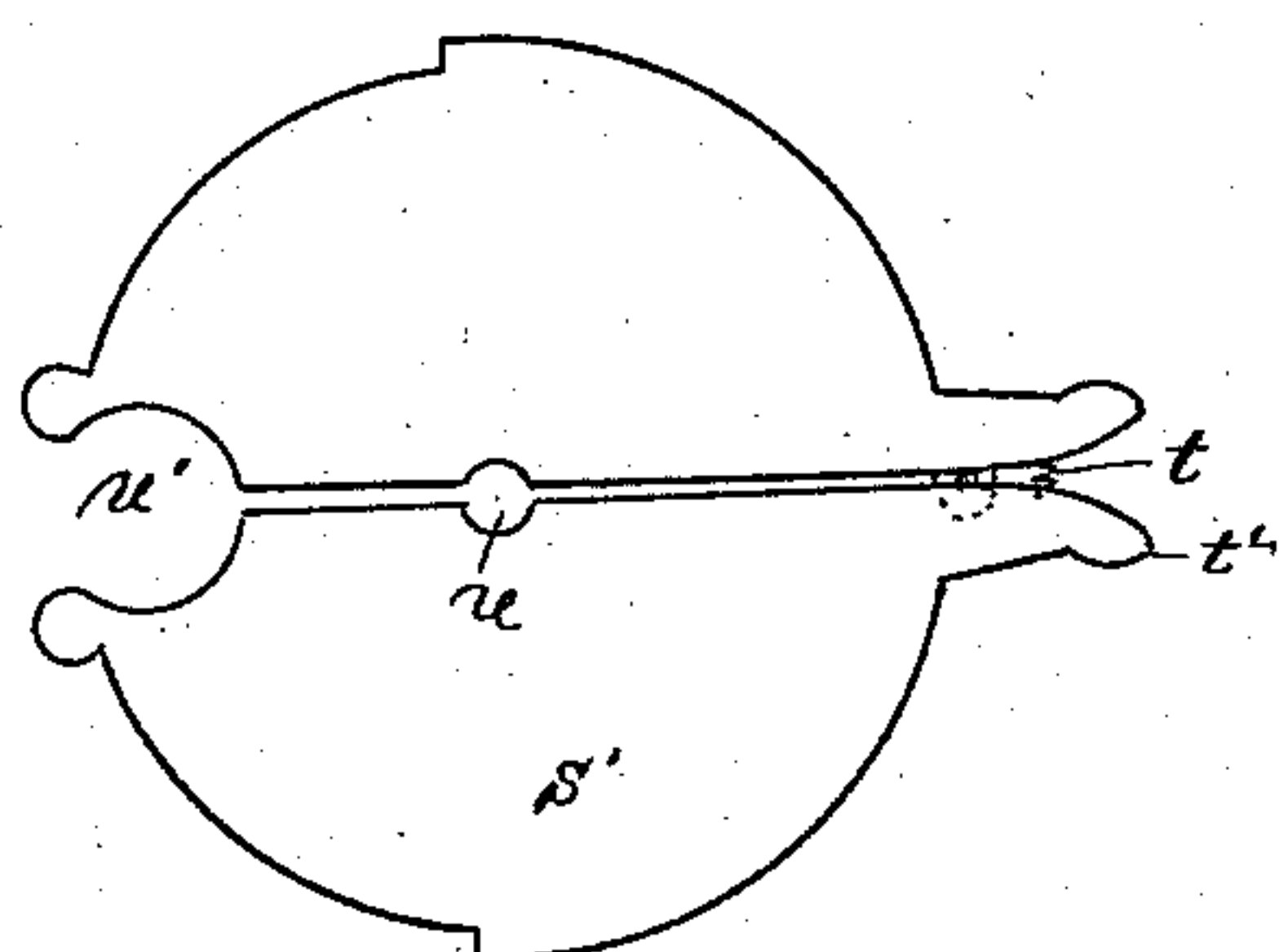


Fig. 11.

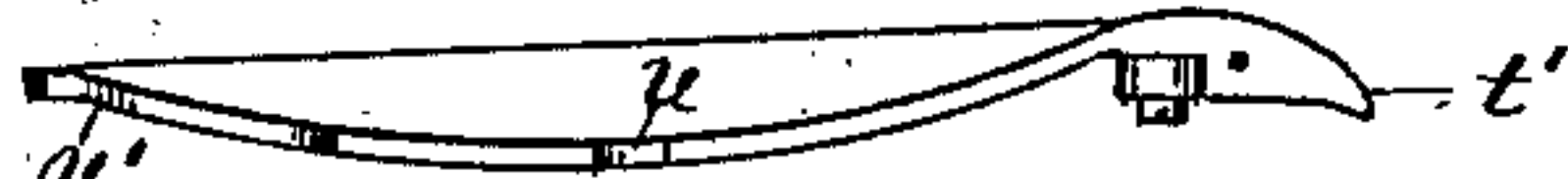


Fig. 12.

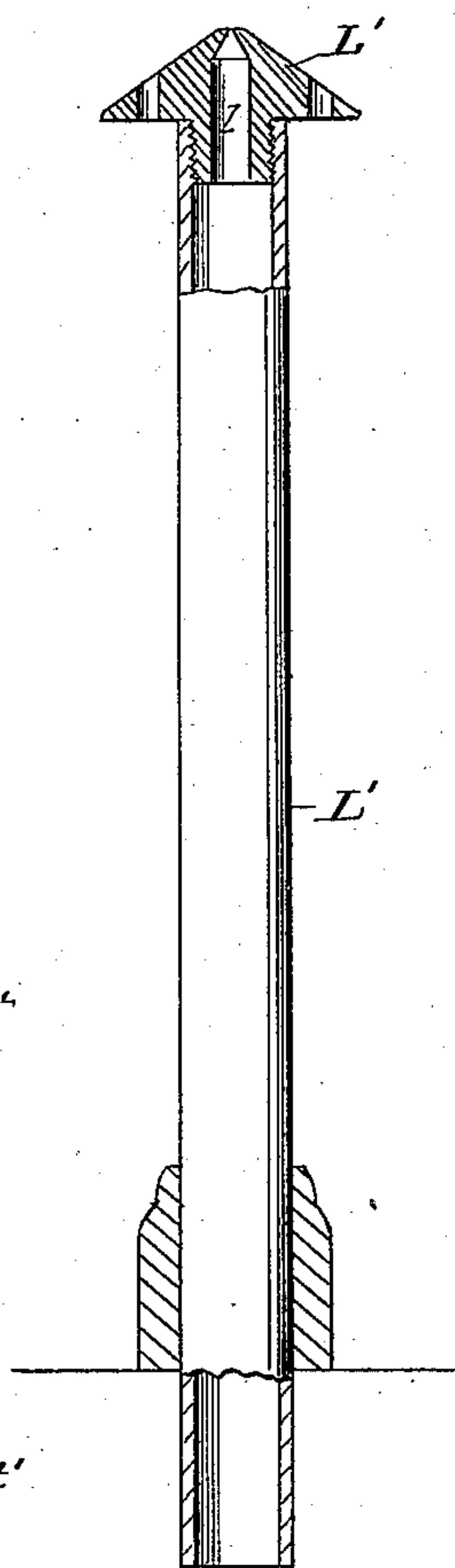


Fig. 13.

WITNESSES:

Robert Kirk
August M. Kilop

INVENTOR:

Bernard Joseph M. Menge

By

J. J. Zeller
Attorney.

UNITED STATES PATENT OFFICE.

BERNARD JOS. M. MENGE, OF CINCINNATI, OHIO.

LAMP.

SPECIFICATION forming part of Letters Patent No. 373,033, dated November 15, 1887.

Application filed May 29, 1886. Serial No. 203,616. (No model.)

To all whom it may concern:

Be it known that I, BERNARD JOSEPH M. MENGE, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Lamps, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a perspective view of my improved lamp; Fig. 2, a vertical central section of the same; Fig. 3, a plan view of the top of the external case; Fig. 4, a plan view of the lamp-top; Fig. 5, a plan view through line X of Fig. 2; Fig. 6, a plan view through line Y of Fig. 2; Fig. 7, a front view of the movement removed from the casing; Fig. 8, a view from the rear side of the movement; Fig. 9, an under central view; Fig. 10, an enlarged perspective view of the snuffers; Fig. 11, a plan view of the supplementary lamp-plate; Fig. 12, a central view of the same; Fig. 13, an enlarged sectional view of one of the tubes and cap.

My invention relates to an improvement in lamps, consisting of an automatic oil-heating, oil-feeding, wick-raising, wick-trimming, wick-crust-removing, air-supplying, and light-regulating lamp, so disposed as to use vegetable or similar oils, which necessitates constructing it in such a manner that it will prove an automatic oil-heating device; hence the reservoirs containing the oil are placed directly above the light, with a funnel passing through the reservoir near the central part, to assist in circulating the heat, the flow of heat being regulated by the damper at the upper part of the reservoir, so that in accordance with the season or climate more or less heat can be retained within the globe surrounding the whole apparatus, and the heat thus retained circulates around and pervades all parts of the lamp, keeping the oil in the lamp always in a liquid state.

The device is provided with oil and air tubes, the first connecting with a faucet having an air-tight packing-box provided with a shaft extending down to the faucet within, and with dial-plate and fingers at the upper end of the reservoir, for the purpose of shutting off the flow of the oil when necessary, the lower end of the said tube extending to the bottom of the lamp-vase, so that the oil newly entering into the vase shall continually press upward

the oil already in the vase, thus acting as an automatic oil-feeding lamp and always keeping the oil fresh and preventing settling. Rearwardly the device is provided with a movement connecting with a wick-stem, whereby the wick is automatically raised intermittently, and also having an automatic trimming device connected with the same movement, so that whenever the wick is raised it will be snuffed, with the snuffers so disposed that the loose snuff may be thrown away from the wick-stem, and, in addition to these features, the external casing of the lamp supplies fresh air at all times without the usual draft, which would be unavoidable without this provision, all of which will now be fully set forth.

In the accompanying drawings, A represents an enveloping glass case provided at its upper part with a metal top, B, having a hinged lid, C, therein, with an aperture, D, near one side for the escape of the heat and gas from the lamp. This glass case is perforated at *a*, near the lower end, and is of such a size in connection with the lid C that the lamp E may be easily placed within or removed therefrom, as desired, by means of the handle F, as shown in Fig. 4.

The lamp E consists of two principal parts, the upper containing the reservoir G and the lower containing the vase and movement. The entire device is rotated on a central pivotal point, *h*, within the upturned and perforated part *i* of the metal catch-basin I. The lower end of this point is screw-threaded, and over this the nut H fits. Thus the device is capable of being freely rotated on this pivoted point, as may be desired. This part *h* may be made integral with the lower plate, 2, of the revoluble part, or it may be a part of the supplemental piece 3, which passes from side to side under the bottom and is secured thereto by set-screws 4 4 at each side of the plate 2.

Forwardly the lower part of the device is provided with an oil-vase, J, and immediately in the rear, within a separate case, is a movement, K.

The upper and lower parts of the device, as already shown, consists of two principal parts, the lower having the oil-vase and movement for operating the same, while the upper contains the reservoir G. These two parts are con-

nected by means of oppositely-disposed oil
 and air tubes L and M. For convenience of
 construction, these two parts are detachable
 by means of the set-screws N, thus permitting
 5 the removal of the lower ends of these tubes
 from sockets at the upper part of the vase.
 The forward part of the reservoir has a verti-
 cal flue, O, therein, immediately over the stem
 of the lamp-vase, with a damper, P, at its upper
 10 part, by means of which the gas from the jet
 may be regulated in its passage through the
 said reservoir. This damper comes directly
 under the opening P' in the cover or lid C, and
 so can allow the products of combustion to
 15 pass off. The oil within the reservoir E thus
 surrounds the flue O, and as the said flue is
 heated while the lamp is in operation the oil
 will always be in a fluid state, and thus pre-
 vent freezing. The chief advantage of the
 20 damper is to control the amount of heat that
 shall be directed upon the inside of the reser-
 voir. In warm weather the damper can be
 kept wide open. So, also, when a lamp is al-
 ways placed in a warm room; but when used
 25 in a cold room or in cold weather it will be
 necessary to place the damper at such a suit-
 able incline as will insure the greatest amount
 of heat inside the reservoir, and also to keep
 it carefully regulated.
 30 Rearwardly the top of the reservoir is pro-
 vided with an opening and cap P' thereon
 for the introduction of the oil into the reser-
 voir. A vertical tube, M, forming one of the
 supports of the reservoir, extending from the
 35 reservoir E downwardly, passing into the vase
 J, terminates near the bottom of the said vase,
 so that the oil may pass downwardly into the
 said vase. The upper end of this tube has a
 faucet, Q, having a stem, R, passing through
 40 the said reservoir, and having at its upper
 end outwardly a dial-finger, S, so disposed as
 to be rotatable on the graduated face-plate T, as
 shown in Fig. 4, so that the said faucet within
 the upper end of the oil-tube may be entirely
 45 closed when necessary or desirable. Opposi-
 tely to this tube M is the tube L, already
 shown, supporting the reservoir, which passes
 upwardly through the reservoir E, terminat-
 ing just within the upper part in a cap, L',
 50 having a cone-top with a very small opening,
 l, centrally therein, (see Fig. 13,) for the pas-
 sage of the air therefrom. The lower end pass-
 ing down, connects with a bulb, N', in the vase
 J, forming an air-pipe. The small aperture
 55 at its upper end is intended to restrain too
 great flow and pressure of the air on the oil
 and keep the air back in the tube to be prop-
 erly heated and thereby expanded before en-
 tering into the reservoir. Thus an overflow of
 60 the vase is avoided. The cap on the top of
 this tube is inclined toward the sides, in order
 that the oil may not collect there and close up
 the opening. The wide bulb below does not
 permit the tube to be easily stopped up, and
 65 permits the air to flow more freely into it, and
 hence the feeding of the oil will be more fre-
 quent, regular, and effectual. In this connec-

tion I desire to state that the lamp-vase has a
 special addition at the rear, and thus no room
 is lost outside, as the tubes are brought as close
 as possible to the light and space gained for
 the oil to additionally facilitate the action of
 the air. Inwardly from these vertical tubes
 L and M are tubes V and W, open at their up-
 per ends. These tubes extend but a slight
 70 distance into the vase beneath the top. A sec-
 ond tube, W', beneath the tube W, extends
 entirely down through the vase and opens at
 the lower end directly into the catch-basin.
 This is used as a surplus or overflow pipe in
 80 case too much oil should be fed into the vase.

The movement K, rearwardly within the
 device, is provided with a main spring, a, and
 a supplementary spring, a'. The main spring
 a connects with a balance-wheel, b, by means
 85 of a train of wheels, b', the last pinion of the
 series engaging directly with the large spur-
 wheel c upon the spring-stem c'. This spur-
 wheel c is provided laterally with a ratchet-
 wheel, d, somewhat smaller, which in turn en-
 90 gages with a tappet, d'. The opposite suppl-
 ementary spring, a', has a spur-wheel, e, on the
 stem e'. This spur-wheel e engages with a
 pinion, f, on the shaft carrying the tappet d'.
 The shaft, f', carrying this tappet, is also pro-
 95 vided with a small pinion, g, which in turn
 engages with a corresponding pinion, g', on a
 short shaft above this pinion, the said shaft
 being journaled forwardly through the frame
 h of the case, and has a wheel, i, on its for-
 100 ward end provided with oppositely-disposed
 peripheral tappets i', while the disk is pro-
 vided with two projecting lugs, j.

The wheels g g' and i have an intermittent
 motion, and the tappets i' are so disposed as
 105 to engage with a spur-wheel, k', rearwardly
 on the end of the horizontal shaft k, the said
 shaft being journaled through and into the
 oil-vase J, while the lugs j engage with the
 opposite members of the pair of snuffers dis-
 110 posed forwardly on the lamp-vase, which will
 be hereinafter described. The shaft k extends
 through a packing-box, k², which is so con-
 structed that the oil may not seep through.
 The inner end of this shaft is provided with
 115 a star-wheel, l, in close conjunction with the
 wick-stem l', centrally disposed within the
 lamp and extending out through the top m,
 thus corresponding with the movements of
 the wheels d', i, and j, the shaft k and spur-
 120 wheel l having an intermittent motion. This
 spur-wheel, engaging with the wick within
 the stem l', automatically raises the wick at
 intervals. In order to facilitate the raising of
 the wick and preventing its binding against
 125 the opposite side of the stem from the star-
 wheel, I provide a groove and milled wheel, m'.

Above the lamp-vase J rearwardly I pro-
 vide a disk, n, Fig. 5, having at its upper part
 the stem n', Fig. 10, resting within a square
 130 socket, the said disk provided at its upper
 face with a vertical pin, o, by means of which
 the said disk and stem may be readily de-
 tached. The upper face of this disk is also

provided with a pair of snuffers, o' , operating independently of each other, one of them having rearwardly an upwardly-projecting lug, p , while the other has a downwardly-projecting lug, p' , Fig. 10. These lugs are so disposed that the lugs j on the forward face of the wheel i will engage therewith at every revolution. Forwardly the snuffers have cutting-edges q , with laterally-inclined faces r , so disposed that when the snuffers come together and clip the wick the coal may be thrown out laterally by the return movement of the snuffers. In order that the forward or clipping edges of the snuffers may be diverged, I provide a U-shaped spring, q' , Fig. 10, connecting at its forward end beneath the opposite members of the snuffers, while rearwardly it passes around the disk n , resting within the groove r .

Immediately over the lamp-stem is a supplementary cover, s' , as shown in Fig. 11, composed of two plates hinged forwardly, and with a small spiral spring, t , between the wings t' , so as to keep the plates close together. A perforation, u , is placed centrally therein, so as to receive the stem l' , while rearwardly is an opening, u' , to receive the stem n' beneath the snuffer-disk n . Thus when dirt and material is dropped upon the top of the vase it may be readily removed by simply detaching this plate from its position.

The wick within the vase extending up through the stem l' being supplied with oil is lighted and the movement put in operation. At intervals of two hours or so, the spur-wheel d , being rotated sufficiently, permits the tappet d' to make a half-revolution, caused by the supplementary spring a' operating on the shaft f' carrying this tappet. The opposite arm of this tappet then engages with the succeeding cog of the spur-wheel d . At each half-revolution of the shaft f' the wheels g and g' also make half-revolutions, causing the lugs j to engage with the rear part of the snuffer-arms, and thus snuff the wick, while at the same the tappet i' on the wheel i , engaging with the spur-wheel j' , rotates the star-wheel l and raises the wick. Thus as fast as the wick is burned it is automatically snuffed and turned up intermittently. The reservoir G is supplied with oil through the opening P' , and the said reservoir, containing oil, being placed directly above the light, with the funnel D passing directly through the said reservoir and the heat from the lamp regulated by the damper P on the upper side of the reservoir. The oil passes down through the tube M into the vase J , while the air passes through the tube L , the small aperture at the upper end restraining too great flow and pressure of the air on the oil, in order to keep the air back into the tube and be thereby expanded before passing into the reservoir.

As will be noticed, the lower part of the reservoir is made cone-shaped, preferably at an angle of about 45 degrees, and the lamp being placed immediately beneath the reservoir

centrally this cone-shaped portion of the lamp acts as a reflector, thus increasing the efficiency of the lamp as an illuminator. It will also be noticed that by the peculiar construction of the device, as above described, the catch-basin for holding the overflow of oil is entirely beneath the wick-vase and wholly covered by the lower plate, 2, under the wick-vase. By this arrangement of parts there is no danger of exposing the contents of the wick-vase to chance ignition.

Having described my invention, what I claim as new is—

1. In a lamp, the combination of a wick trimmer or snuffer, each limb of which is pivoted independently of the other, with the wick-vase, the wick-raising mechanism, and the wick-tube, whereby said snuffer is placed in convenient relation to the wick to trim it, substantially as shown and described.

2. A lamp having a wick-trimming device composed of two independently-pivoted limbs, one having an upwardly-projecting lug and the other having a downwardly-projecting lug, combined with an escapement and ratchet-wheel having corresponding lugs, and with the wick-tube, whereby said trimmer is operated at regular intervals, substantially as shown and described.

3. In a lamp, a trimming device consisting of two members, each pivoted independently of the other and at the rear of the lamp-case, and combined with a spring, whereby the forward ends are diverged or separated, and with the wick-vase and wick-tube, and with a shaft connected with operating mechanism, whereby said trimmer will be operated intermittently at regular intervals to trim the lamp, substantially as shown and described.

4. A lamp having an oil-reservoir in the upper part, an oil-supply tube and an air-tube connecting with the wick-vase, and an oil-overflow pipe, and a catch-basin at end of said pipe, whereby any excess of oil can be automatically removed, substantially as described.

5. A lamp provided with an oil-reservoir, a wick-vase, and a wick-tube, combined with an escapement and with a wick-trimming device located to operate on this wick, whereby the wick can be automatically moved and trimmed, said reservoir, wick-vase, and escapement being each independent and detachable.

6. The combination, with a lamp-wick tube, of a pair of snuffers operated by mechanism, as described, each member of said snuffers being pivoted independently and each having inclined cutting-faces, whereby, when said snuffers are moved by said mechanism, the wick-crust will be thrown laterally from them, substantially as described.

7. A lamp composed of the upper oil-reservoir and the wick-vase beneath, and the oil and air pipes connecting the two, and the overflow-pipe combined and pivoted in a catch-basin, substantially in the manner and for the purposes described.

8. In combination with the lamp E , oil-pipe

M, air-pipe L, and wick-vase J, the basin I, upturned and perforated in the center, whereby said lamp is pivoted in and is movable upon the pivotal point *h* within said basin, substantially as described.

9. In combination with the wick-vase and its wick-tube, the wick-trimming device, as described, and the detachable metal pieces *S'*, connected together by a spring-hinge, whereby the wick crust, when detached, can be easily removed.

10. The combination of a wick-tube, *l'*, the grooved wheel *m'*, the star-wheel *l*, the packing-box *k'*, the shaft *k*, spur-wheel *j'*, and the wick-vase, with the mechanical movement, as described, whereby the star-wheel and the shaft may be rotated at regular intervals, substantially as described.

11. The combination of the oil-reservoir, the wick-vase, the air and oil tubes L and M, with the overflow-tube *W'*, and the catch-basin I, substantially as described.

12. In a lamp, a wick-trimming device consisting of two members, each member pivoted independently of the other and the two spread apart by a spring, combined with the operating mechanism and with the wick-tube, substantially in the manner and for the purposes set forth.

13. The combination of the reservoir G and tube L, provided at its upper end with a perforated cone top and terminating at its lower end in a vase with a bulb, with a supplementary tube, M, having the regulating-stem R and dial-finger S, said tube extending to the lower part of the vase, so that the oil may be regulated in its discharge from the reservoir G, substantially as herein set forth.

14. The combination of the reservoir G and tube L, provided at its upper end with a per-

forated cone top and terminating at its lower end in a vase with a bulb, the supplementary tube M, having the regulating-stem R and dial-finger S, said tube extending to the lower part of the vase, substantially as herein set forth.

15. The combination of the oil-reservoir, the wick-vase, and the oil and air supply tubes, as set forth, the reservoir having a flue or passage provided with a damper located therein, and the vase having a burner located beneath said reservoir and directly in line with said flue or passage.

16. In combination with a lamp, substantially as described, an enveloping glass case, A, entirely surrounding the lamp except at the top, and having perforations *a*, substantially as and for the purpose described.

17. In combination with a lamp, substantially as described, the glass case A, perforated at *a*, and having at its upper end the metal top B, provided with the hinged cover C, substantially as and for the purpose set forth.

18. In combination with the lamp E, the enveloping perforated glass case A and the lid C, having the damper-opening *P'*, substantially as and for the purpose set forth.

19. In combination with the wick-vase having the overflow-pipe, the overflow or catch basin beneath it and wholly covered by the plate over it, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand, this 16th day of April, 1886, in the presence of witnesses.

BERNARD JOS. M. MENGE.

Witnesses:

DUGALD MCKILLOP,
ROBERT KIRK.