

(No Model.)

2 Sheets—Sheet 1.

N. ROITMAN.
CENTRAL DRAFT LAMP.

No. 484,242.

Patented Oct. 11, 1892.

Fig. I.

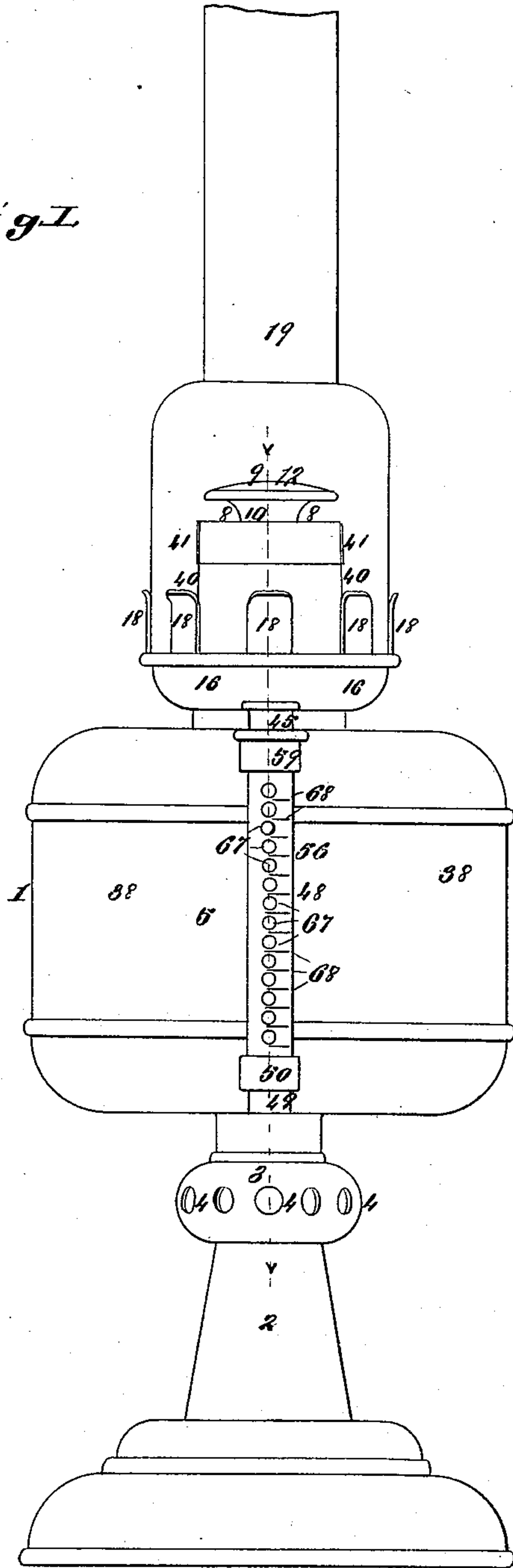


Fig. II.

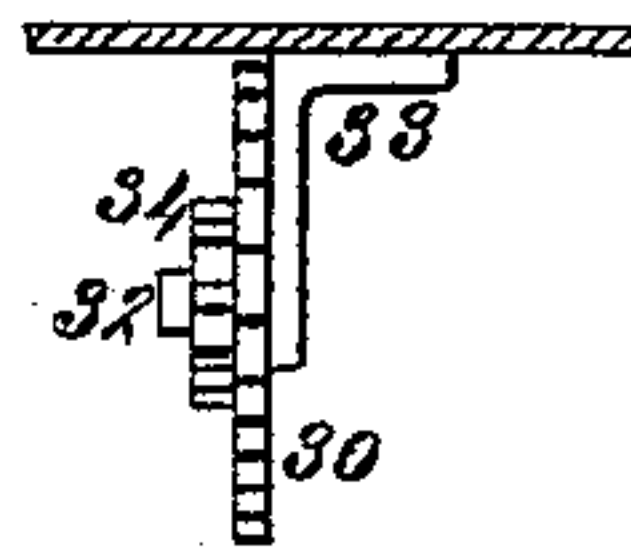


Fig. IV.

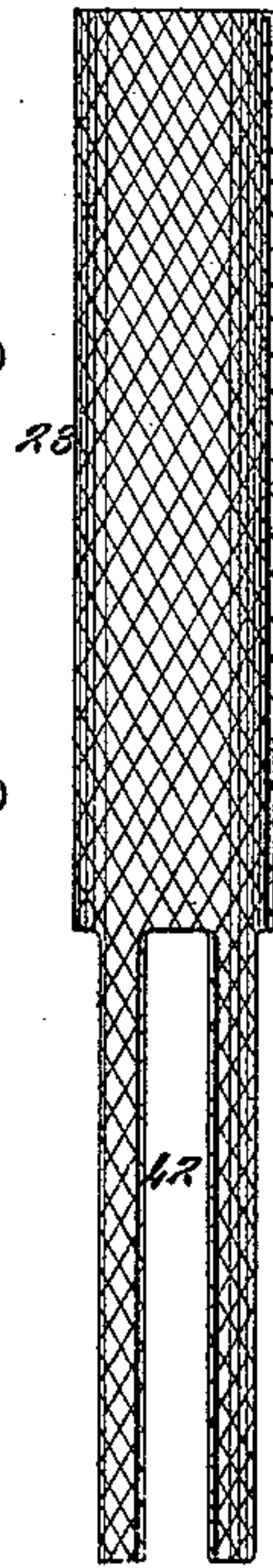
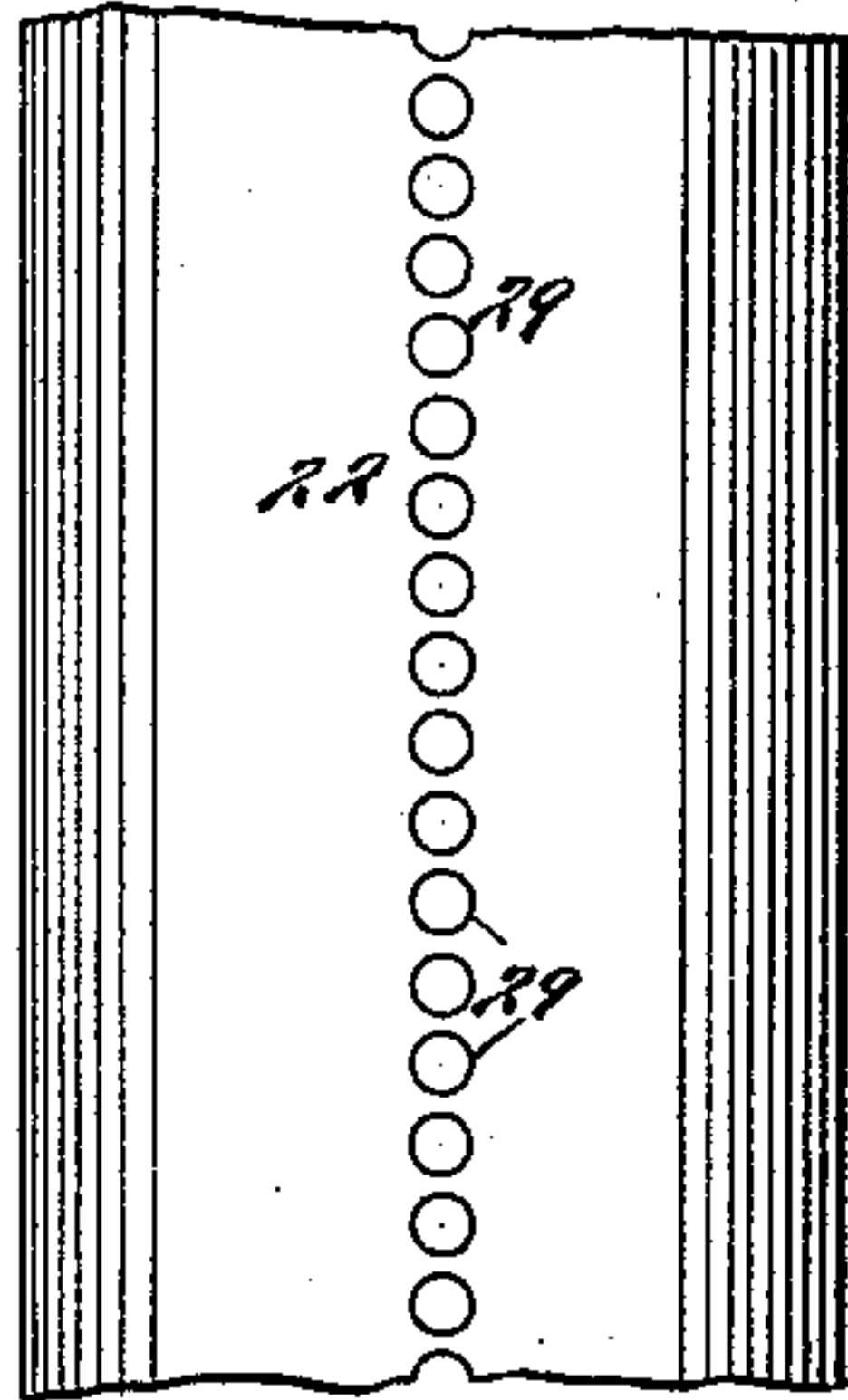


Fig. III.



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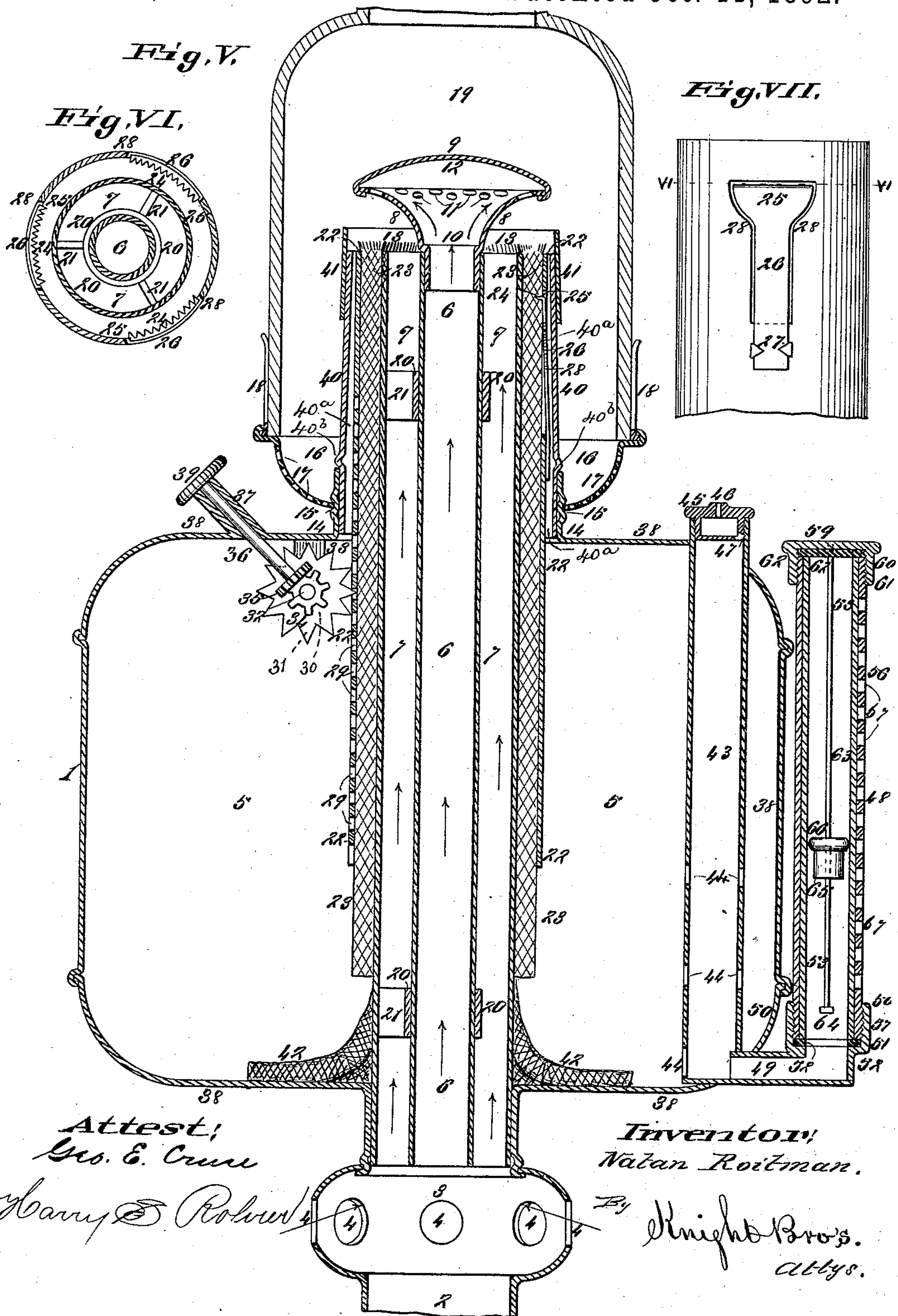
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

NATAN ROITMAN, OF ST. LOUIS, MISSOURI.

CENTRAL-DRAFT LAMP.

SPECIFICATION forming part of Letters Patent No. 484,242, dated October 11, 1892.

Application filed July 2, 1891. Serial No. 398,290. (No model.)

To all whom it may concern:

Be it known that I, NATAN ROITMAN, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Central-Draft Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

10 This invention relates to a lamp whose circular wick is made captive to an elevating-tube that insures its equable elevation all around the circle, the said wick being provided with extension absorbent legs, which, 15 when first inserted and said wick is of its full length, sprawl outwardly in the bottom of the reservoir of said lamp, and when elevated as the wick burns the bottom or feet of said legs act as absorbent mediums to furnish the wick 20 with oil. An annular and a central air-tube supply air to the flame, the former to its base, and the latter after heating in the dome-chamber in the center of the blaze escapes through perforations around the under flanged support of said dome and feeds the upper portion 25 of said blaze with pure hot air. A perforate tube supplies air to the reservoir as the oil exhausts and a floating puppet in a graduated register-tube denotes the stage of said exhaustion; and the invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is an elevation of a lamp in which my invention is incorporated. Fig. II is an enlarged vertical section and shows the angle-cogged star-wheel that elevates the wick-carrier tube and its operating-pinion. Fig. III is an enlarged detail of the wick-carrier tube. Fig. IV is an elevation of the circular wick 40 and shows two of its pendent legs. Fig. V is an enlarged vertical section taken on line V V, Fig. I, and shows a detail of the lamp-frame, the perforated aerating swell-chamber in its stand, the reservoir, the annular and central air-flues that ascend from said 45 chamber, the central tube surmounted by the perforate flanged dome, the perforated wick-carrier tube, the wick secured in and to said tube by the spring-tappet temple-teeth secured to the periphery of said tube, two of the pendent legs of said wick, the outer tube and surmounting collar-tube that confines the base

of the flame, the star carrier-pinion that elevates the wick-carrier perforate tube, the perforate aerating-tube, and the puppet graduated register that indicates the amount of oil 55 in the reservoir. Fig. VI is an enlarged horizontal section taken on line VI VI, Fig. VII, and shows the teeth of the temple-springs that hold the circular wick to the wick-tube; 60 and Fig. VII is an enlarged detail of the wick-tube and shows one of the temple-springs secured thereto, the teeth of which springs hold said wick to said tube.

Referring to the drawings, 1 represents the lamp; 2, the pedestal on which said lamp 65 stands; 3, the aerating swell-chamber in said pedestal, through whose periphery is a series of perforations 4 for the introduction of air to feed the flame 70

5 represents the reservoir of said lamp for holding the oil.

6 is a central air-tube, and 7 an annular air-tube, both of which tubes have free communication with said perforate air chamber 3 and 75 pass up through the center of said reservoir, from the oil in which they are closed by the oil-tight joint between the air-tubes and the reservoir, above which reservoir said air-tubes mount to the burner 8 at their summit. 80

9 represents the circular dome that surmounts the central air-tube, whose expanding flange 10 is provided with perforations 11 around its upper periphery and is surmounted by a circular dome-cap 12, around which expanding flange and dome the flame 13 of the lamp burns. 85

14 represents the vertical angle-flange collar that surmounts the reservoir, which collar is provided with circumferential corrugations 90 15, between which the base of the chimney-carrier collar 16 is seated. The latter collar is provided with perforations 17, through which air freely passes for an outer air-feed to the flame, the inner air-feed to which is 95 supplied through the aforesaid central and annular tubes. Attached to the said perforate collar are the vertical spring lamp-chimney holders 18, that embrace said lamp-chimney 19. 100

20 represents the attachment-collars that embrace the inner air-tube 6, and 21 are the radial arms that connect said collars to the outer wall of the annular tube 7.

22 represents the wick-carrier tube, between which and the outer wall of the annular tube 7 the circular tube-wick 23 is located and is held to the carrier-tube by the teeth 24 of the head 25 of the temple-springs 26, which springs are secured to the outside of said carrier-tube by the flange-clutches 27 and have play through the open ports 28 in said wick-carrier tube to enable their teeth to pierce and hold the wick at a uniform elevation all around the tube. The said wick-carrier tube is provided with perforations 29 on one side, which are utilized in the elevation of said tube and the wick secured thereto by the following means:

30 represents a star sprocket-wheel, whose pointed angle-teeth 31 engage in the said perforations 29 of said wick-carrier tube 22. The said sprocket-wheel is loosely mounted on the projecting journal-pin 32, that angularly projects from the hanger 33, which hanger is secured inside to the top of the oil-reservoir.

34 represents a sprocket-pinion keyed or otherwise secured to the star sprocket-wheel 30 and alike mounted on the journal-pin 32, and with said sprocket-pinion the drive sprocket-wheel 35 engages and drives it when turned by the stem-shaft 36, on which it is fast mounted. The said stem-shaft has bearings in the inclined journal-bearing 37, that surmounts the reservoir 38, and said stem, with its attached drive-sprocket, is turned by the hand-disk 39 at its upper end. Now it will be seen that as said hand-disk is turned left-handed, as with a left-hand screw, it will through its drive-pinion turn the star-sprocket in the direction (by means of its spur-gear in the perforations of the wick-carrier tube) to raise said tube, and with it the wick it carries. When turned in the other direction, it will lower it.

40 represents a telescopic wick-tube whose base fits inside the angle-flange collar 14 and which tube surrounds the perforate wick-carrier tube and forms an annular air-passage 40^a around it, which connects with the reservoir and prevents the access of side drafts through the perforations of said tube, and 41 is a surmounting collar to said tube, that leads the ascent of the flame and prevents its flickering from the effects of side drafts.

When the wick-carrier tube has been elevated to about or a little past the summit of the wick-tube 40, but not to the summit of its collar 41, the lamp-chimney and said collar and wick-tube are removed to get access to said wick-carrier tube. The heads of the temple-springs are then drawn back until the teeth release their hold of the wick, which is then elevated slightly to renew the ignition-surface and trim the same, if necessary. The temple-springs are then allowed to spring forward and again grip and hold the wick to the tube that carries it. The hand-disk 39 is then turned in its reversing direction and by means of its star sprocket-wheel the wick-carrier tube is lowered to any required degree, so as to bring

the summit edge of the wick in the right respective position as regards the summit of the sleeve-tube 40.

The process of the readjustment of the wick in the tube is of infrequent occurrence, as after being correctly trimmed and equably held and elevated by the temple-springs to its carrier-tube there is but slight exhaustion or consumption of the wick. It is the irregular presentation of the wick in oil-lamps that in a great measure is responsible for the rapid combustion of the wick and the production of a smoky obscure light.

The outer wick-tube 40 is formed with an external bead or corrugation 40^b, by which it is supported on the collar 14.

42 represent the pendent legs of the wick, the number of which may vary in accordance with the size of the lamp and wick. Four of said pendent legs would be a sufficient number for an ordinary-sized tube-wick and serve as absorbents, after the tube portion of the wicks have been elevated above the oil, to still supply said wicks with oil. By the use of said pendent legs the effective duration of the wick is much extended. When the wick is first inserted, the legs sprawl along on the bottom of the reservoir, their individual sectionality allowing them thus to radiate, and allow the depression of the long wick to its initial position for use.

43 represents a combined aerating and oil-supply tube, which enters at the top of the reservoir, to which it is securely attached with oil-tight joints, and reaches to near the bottom of said reservoir. The said tube at near its lower end is provided with a number of perforations 44, through which air and oil have a free intercommunicatory connection with that in the reservoir.

45 represents a screw stopper-cap, which covers the mouth of said tube 43, in the screw of which it engages. When it is required to fill the reservoir, the said cap is unscrewed and removed during said filling.

46 represents a center perforation through the head of the stopper into its hollow screw-plug body, and 47 is a like perforation through the bottom of said plug near its periphery. The air finds free entrance through said perforations 46 and 47 into said aerating-tube and through the perforations 44 from said tube into the main body of the reservoir, through which perforations the oil also passes.

48 represents the indicating-register, which is constituted of the following parts:

49 represents a horizontal offset tube, which has an open connection with the interior base of the tube 43, with which and with the globe of the reservoir said tube has a steam-tight joint, the oil having a free intercommunicatory passage back and forth. A vertical internally-screw-threaded angle-flange 50 is integral with and enlarged from the diameter of the tube 49, that carries it.

51 represents a rubber ring-gasket that is seated on the enlarged shoulder 52, sur-

mounting the tube 49 within said enlarged angle-flange 50.

53 represents a vertical glass cylinder open at bottom and top, the base of which glass cylinder presses on said ring-gasket 51.

56 represents the register-tube, open at both bottom and top and whose peripheral screw-base 57 engages in the aforesaid screw-threaded angle-flange 50 and is screwed down in its said seat until it tightly presses on the rubber gasket-ring 51 to effect an oil-tight joint at said base of said register-tube. The said tube protects said glass cylinder 53 from breakage.

59 is the surmounting cap of said register-tube, whose inner screw 60 engages with the peripheral screw 61 at the summit end of said register-tube 56.

62 represents a rubber disk gasket that is inserted within the flange of the surmounting cap 59. When said cap 59 is screwed down on its seat, it presses said gasket 62 both against the summit of the register-tube 56 and against the glass cylinder 53, pressing said cylinder also against the ring-gasket 51 at its base, so as to effect oil-tight joints at both said gasket-packings.

63 represents a pendent rod that passes through the center of said gasket 62 and is screwed or otherwise secured in and to the center of the cap 59, from which it hangs pendent down the center of the register-tube into the oil within, and 64 is a buffer stay-foot at the bottom of said rod.

65 represents a perforate puppet cork float that is loosely seated on said pendent rod, and 66 is a perforate enamel white porcelain cap that surmounts said cork float, to which it is secured. The white porcelain cap is carried by said cork puppet and sliding therewith, respectively, up and down the pendent rod 63 as the supply of oil is increased by filling in the reservoir or diminished by burning.

67 represents spy-holes in the registry-tube to enable the observer to see to and through the inclosed glass cylinder the position of the puppet-indicator and the consequent amount of oil in the reservoir. The white porcelain cap that surmounts the puppet-float enables the observer to see clearly the position of the float, and, as said porcelain cap registers with the respective graduation-marks 68, the amount of said oil is thus marked and recorded. The large number of spy-holes 67 enables sufficient rays of light to penetrate to and through the glass cylinder to clearly show the registering position of said white porcelain enamel cap of the puppet-float. As the reservoir and its stand are of metal, to prevent the danger of breakage, said registering-indicator is of advantage both to register the exhaustion of the oil when burning and the filling of the reservoir when refilling.

It will be seen that the blaze of the lamp has two distinct aerations, that through the annular tube 7, which delivers around close to the wick feeding the base of the flame, while at the same time the air which is furnished and ascends through the center tube enters within the circular dome-cap, around which the flame is burning. It there becomes heated without the usual combustive exhaustion by being in a large measure consumed as it passes through or in contact with the base of the flame on its way to supply the necessary atmospheric gases to the upper portion of said flame. In said heated, inflammable, and unexhausted condition the air is discharged through the perforations 11 beneath the dome-cap 12 in close vicinity to the upper portion of the flame, with which it intermingles, causing said portion of the flame to produce as bright or a brighter light than the lower portion, thus adding largely to the illuminating power of the lamp. It will also be seen that as the wick is always equably elevated by the above-described wick-carrier tube, to which it is secured by the teeth of the temple-springs, and also by the novel heating of the air-supply and its delivery direct to the upper part of the flame without its vitality having been burned out of it by passage through the base of said flame a much clearer light is obtainable, and not only is the flame not obscured by smoke, but also the oil is not wasted by producing said worse than useless smoke.

I claim as my invention—

1. The combination of the reservoir having a central draft-tube, a wick-carrier tube, an outer wick-tube forming an annular air-passage around the carrier-tube, a collar surrounding the outer wick-tube, by which the latter is supported on the reservoir, and a collar surmounting the outer wick-tube, substantially as described.

2. The combination, with a reservoir, of the horizontal tube having an angle-flange, the glass cylinder and the register-tube supported in the angle-flange, the said register-tube provided with perforate spy-holes for sighting the registering-float, and the cap having a pendent rod and a float sliding on the rod, substantially as described.

3. The combination, with a reservoir, of the aerating and oil-supply tube having perforations for the passage of air and oil, the horizontal tube connected with the supply-tube, having an angle-flange, the glass cylinder and the register-tube supported in the angle-flange, and the float, substantially as described.

NATAN ROITMAN.

In presence of—

BENJN. A. KNIGHT,
SAML. KNIGHT.