

(No Model.)

2 Sheets—Sheet 1.

O. A. STEMPEL.
LAMP STOVE.

No. 371,152.

Patented Oct. 4, 1887.

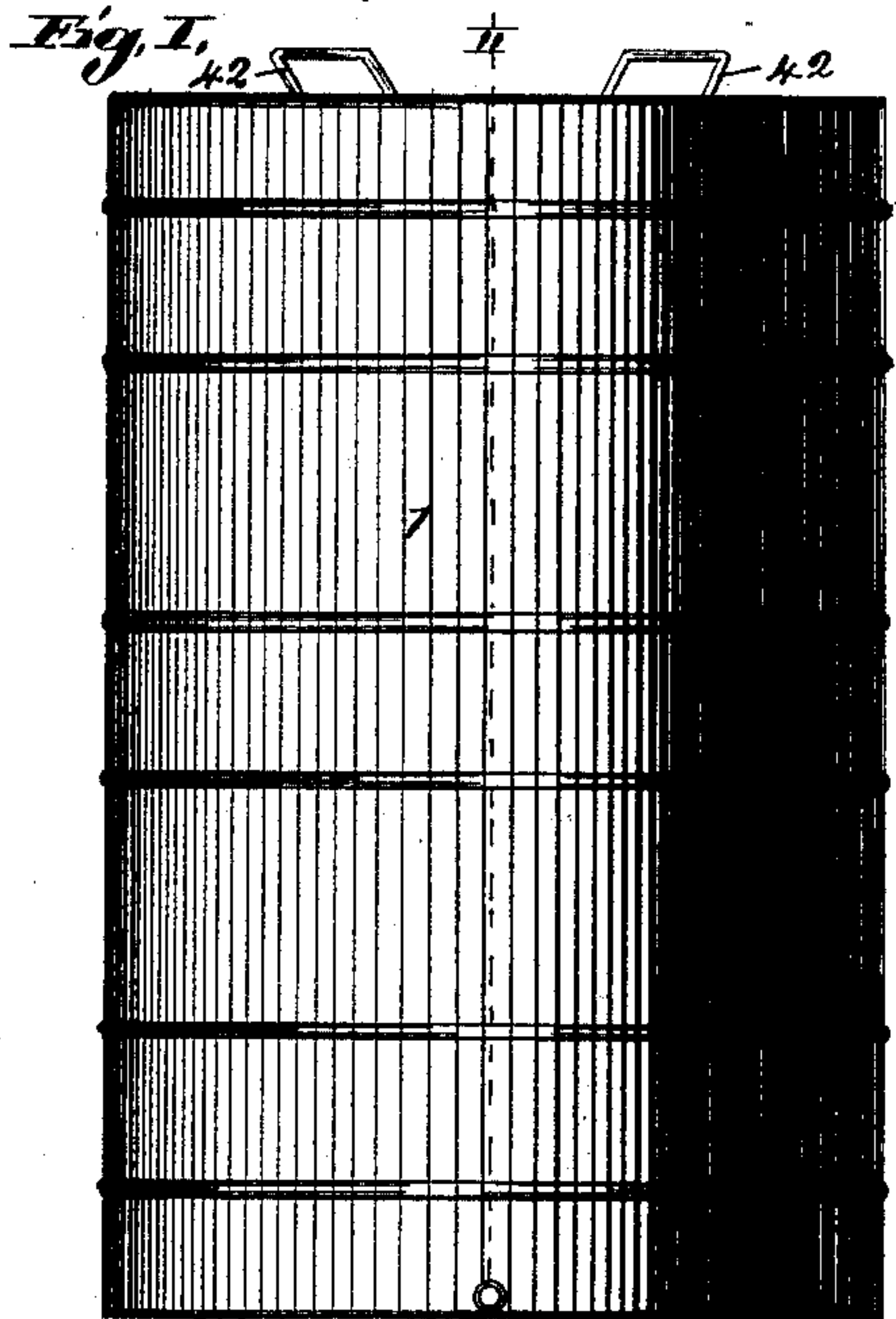


Fig. II,

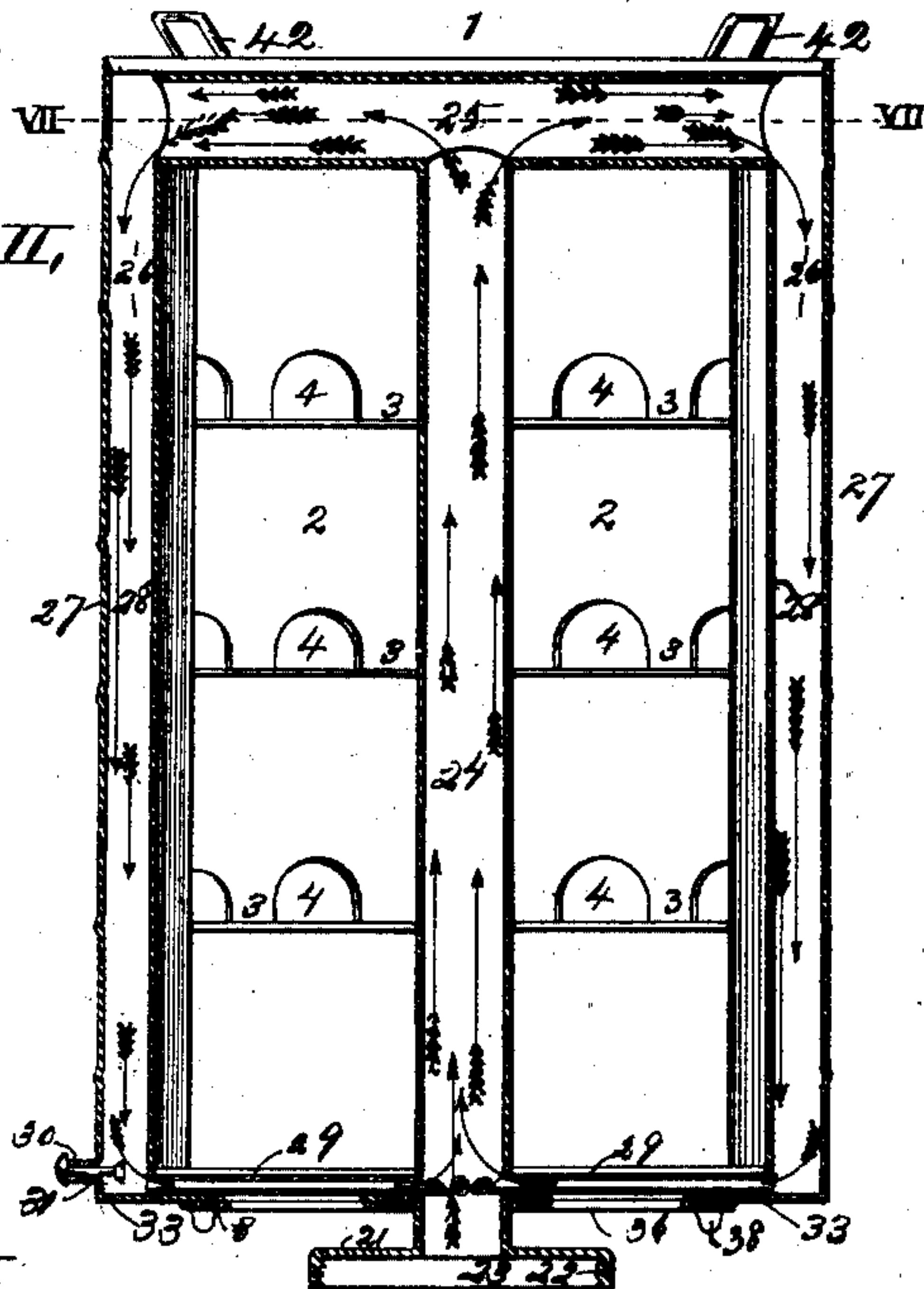


Fig. III

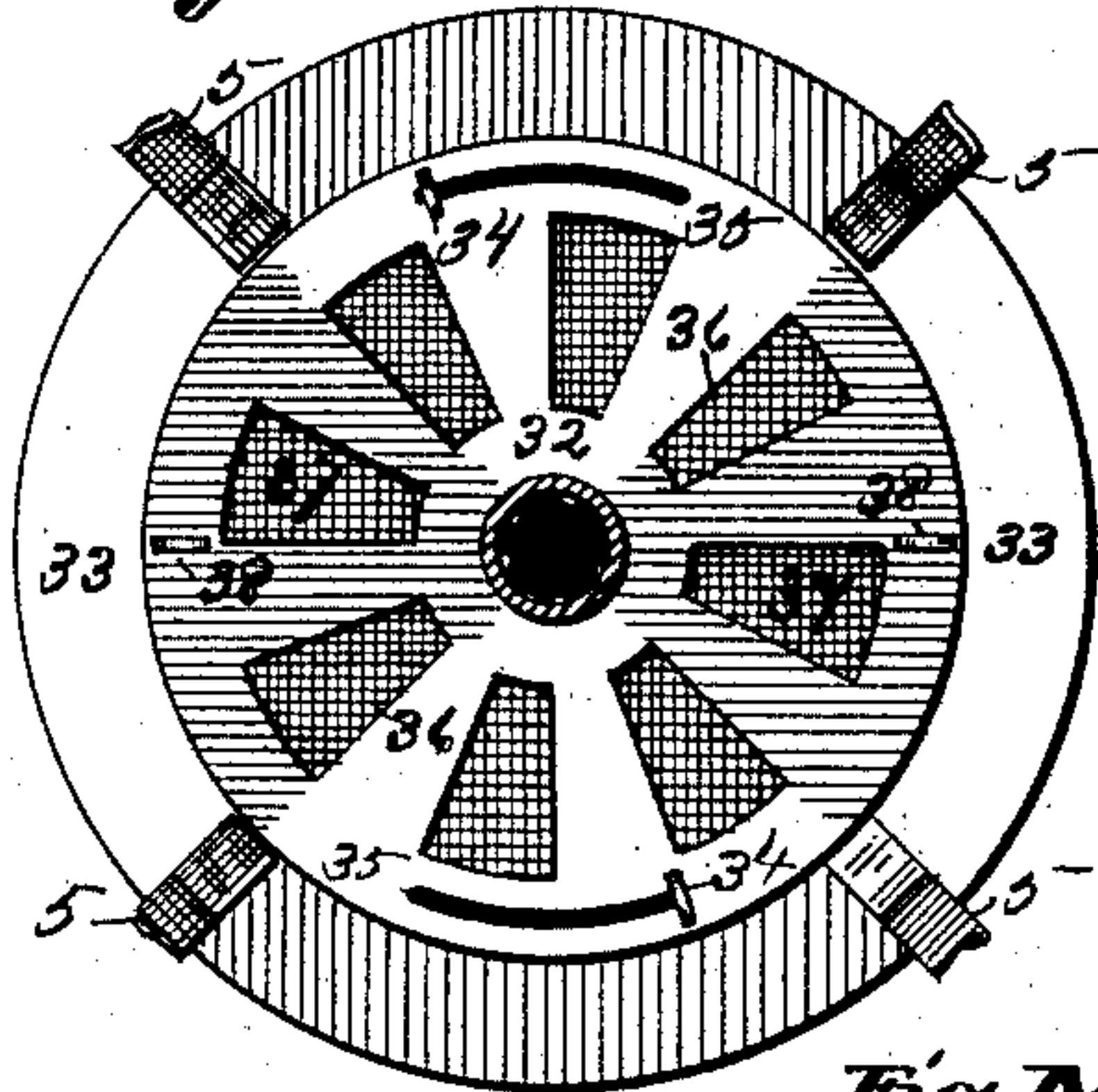


Fig. V,

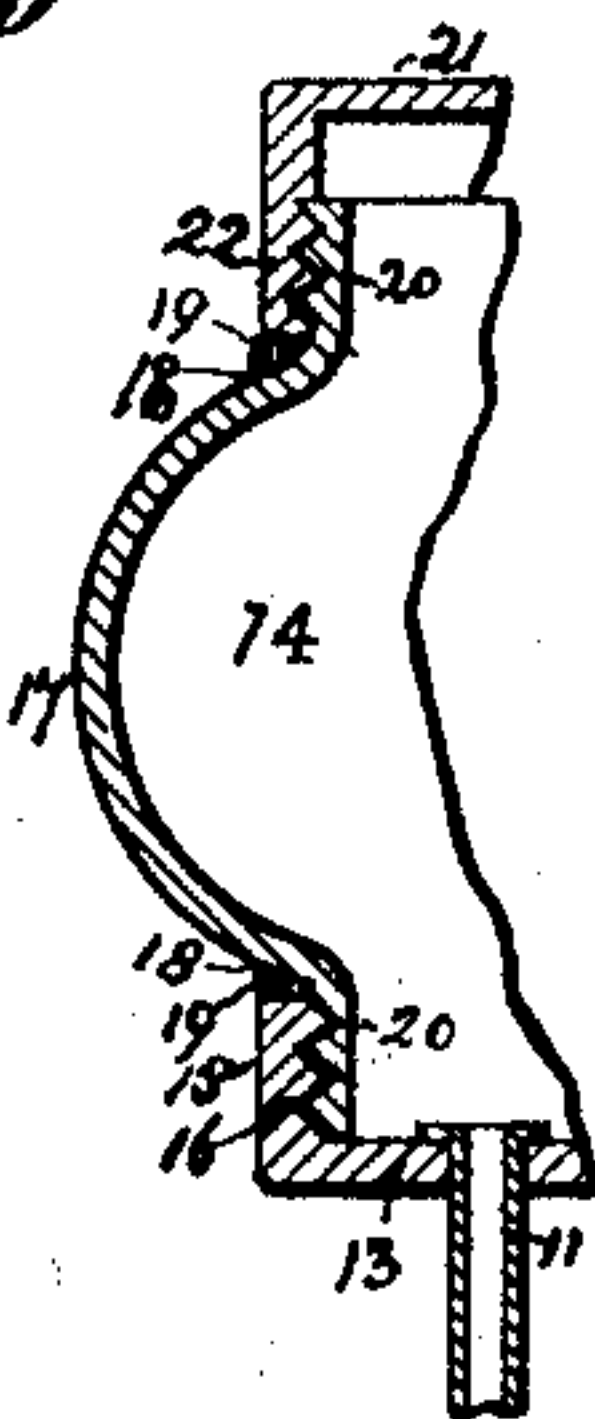
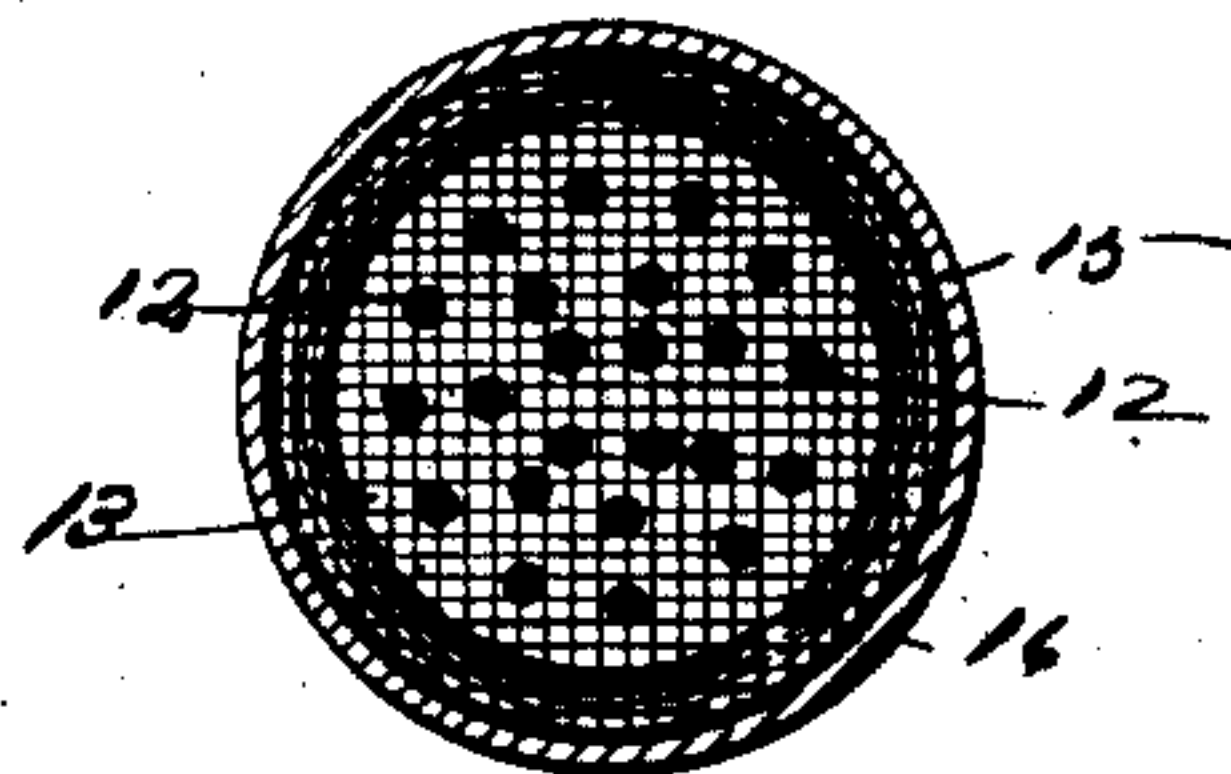


Fig. IV,



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Fig. VI,

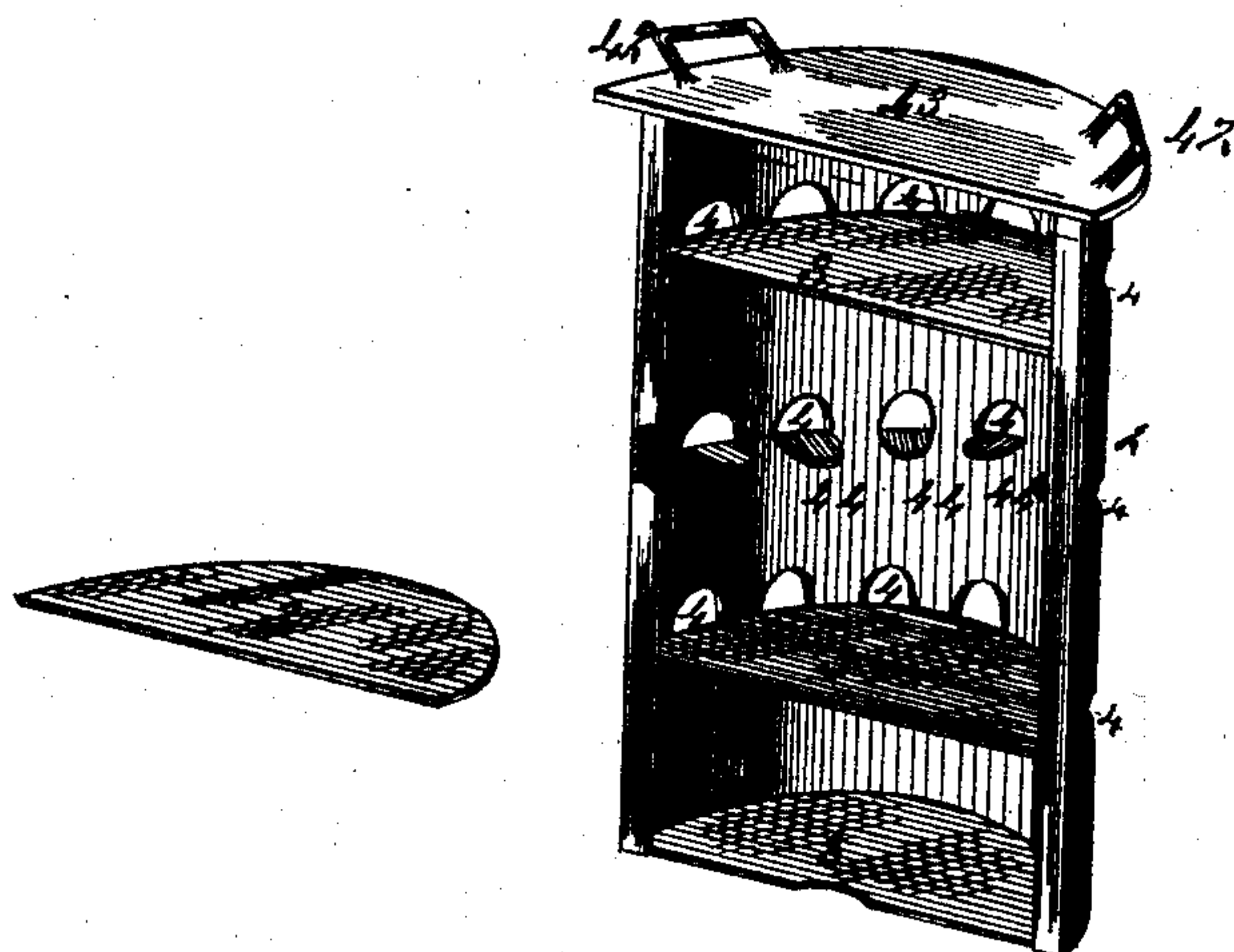
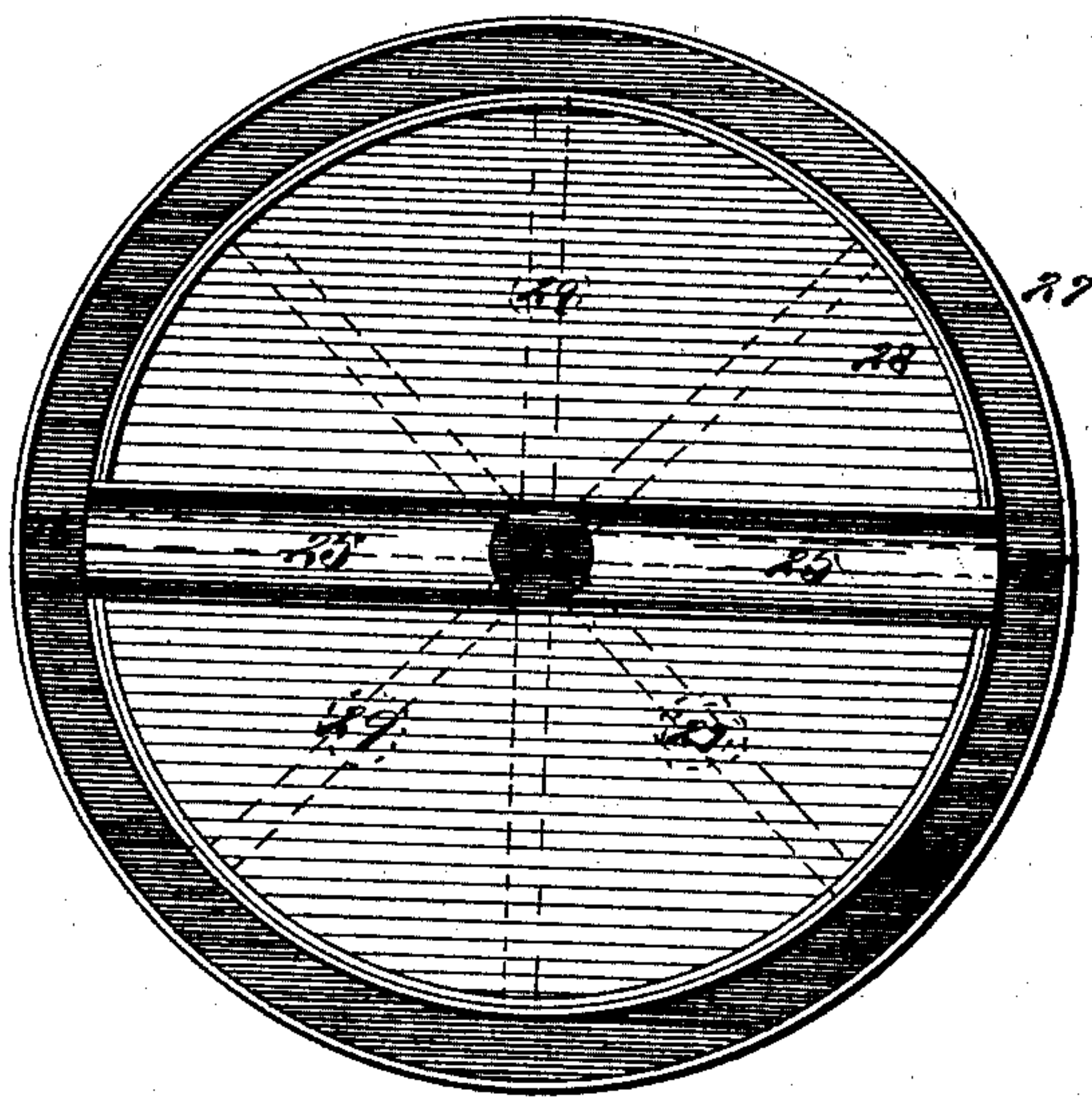


Fig. VII,



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UNITED STATES PATENT OFFICE.

OMAR A. STEMPEL, OF ST. LOUIS, MISSOURI.

LAMP-STOVE.

SPECIFICATION forming part of Letters Patent No. 371,152, dated October 4, 1887.

Application filed January 31, 1887. Serial No. 226,079. (No model.)

To all whom it may concern:

Be it known that I, OMAR A. STEMPEL, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Lamp-Stoves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure I is a side elevation of my combined apparatus with part of the lamp-chimney broken away, showing the outer case of the radiator, the glass boiler, pendent heating-tubes, and the lighted lamp beneath the tubes. Fig. II is a vertical section of the radiator and cooker on line II V, Fig. I, showing the chambers of the oven in operative position and the radiator-flues with the course of the steam through them. It also shows the air-vent for the escape of the dead air as the flues become surcharged with steam. Fig. III is a horizontal section on line III III, Fig. I, showing bottom of the cooker and radiator, and also the rotary damper and means for supporting and operating it. Fig. IV is a horizontal section on line IV IV, Fig. I, looking downward, and shows the entrance to the U-shaped heating-tubes secured in a pendent position from the boiler. Fig. V is an enlarged detail section on line II V, Fig. I, showing the boiler with the steam-tight threaded joints of its metallic end plates and the rubber packing-rings that tighten the joints. Fig. VI is a perspective view of one of the semi-annular ovens and stewing-chambers removed from the radiator and a like view of one of the shelves removed from its place, and also shows the semicircular perforations in the side of the oven for the ingress of the heated air and the manner in which the semicircular pieces cut therefrom are bent down and thus utilized as bracket-supports for the shelves. Fig. VII is an enlarged horizontal section taken on the line VII VII, Fig. II, showing the vertical steam-flue (in the middle of the radiator) that receives the steam from the boiler, the transverse or T flue that surmounts it, and the annulus or annular flue into which the T-flue discharges. It also shows, in dotted lines, the course of the interradiate flues that carry back the steam from the annulus to the base of the central vertical flue.

The invention is a portable apparatus with a combination of devices for cooking, heating, and illuminating purposes; and it consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, in which similar figures indicate like parts in all the figures, 1 represents the radiator of my combined apparatus, and 2 2 are duplicate semi-annular ovens and stewing-chambers, which are provided with shelves 3 and apertures 4, through which the radiated heat can enter.

5 5 represent the standards or legs that support the radiator. The feet 6 of these standards are preferably secured to the platform 7, but can be seated on the floor, table, or any other suitable place where it is desired to set the apparatus.

8 represents a lamp, which may be of any usual construction suitable for such purposes, and is seated on the platform between the standards.

9 is the burner, which is adapted for burning gasoline or any other suitable illuminant, and carries a broad glass chimney, 10, within which hang the pendent heating-tubes 11, that communicate with and pass through perforations 12 in the metallic bottom plate, 13, of the boiler 14, to which bottom plate said tubes are securely soldered and through which they have intercommunication with the boiler. The said bottom plate is surrounded by a vertical flange, 15, in which is impressed an internal screw-thread, 16.

The vertical circumferential side 17 of the boiler is constructed of glass, and is preferably of a globular form, with shoulders 18 18 above and below. Seated against these shoulders are flat rubber rings 19 19, and projecting vertically from said shoulders there are screw-threaded extensions 20 20, the lower one of which engages in the before-mentioned screw-flange of the bottom plate until the periphery of the flange fits and embeds itself in the rubber packing-ring that is seated under the lower shoulder. The cap-plate 21 of the boiler, in its outer conformation, is almost a duplicate of the bottom plate, having a similar screw-threaded flange, 22, that engages in the threaded extension on the upper shoulder of the vertical side piece of the boiler and embeds itself in the flat rubber packing-ring that

is seated on the said shoulder, forming steam-tight joints above and below.

The cap is perforated at 23, and a vertical flue, 24, that fits in said perforation, is securely soldered to the cap, and rises through the intervening space between the boiler and the case of the radiator and passes up through the center of said radiator to the top thereof, where it unites with a transverse or T tube, 25, that connects with an annulus or annular flue-chamber, 26, of said radiator between its outer casing, 27, and inner case, 28. The said annulus or annular flue connects by a series of interradiate flues, 29, at the bottom of the radiator with the central flue near its base. A vent-tube, 30, taps the annular flue at its base to let off the dead air, as will hereinafter more fully be explained. It is provided with a slide-valve, 31.

32 represents a rotary damper that works against the bottom plate, 33, of the radiator, and is held in position by the central flue-pipe, 24, and headed stop-pins 34, (see Fig. III,) that engage in circumferential slots 35 near the periphery of the damper. The damper is pierced with radial openings 36, that correspond with openings 37 through the bottom plate of the radiator when the damper is in its open position, the damper covering them when it is closed. Pendent lugs 38 are provided to turn the damper.

39 represents a safety-valve, which is controlled by a lever, 40, provided with an adjustable sliding weight, 41.

Each section of the semi-annular oven 2 is provided with handles 42, by which they can be lifted from the radiator. Two semicircular top plates, 43, to the oven sections center and tightly fit on the T-flue, and together form the top of the radiator when the ovens are seated therein. Together with the slightly-elevated outer casing, 27, of the radiator these top plates form a griddle-pan.

The operation of the invention is as follows:
The bottom plate of the boiler, with its pendent heating-tubes, is screwed onto the glass globe of said boiler, the upper periphery of its flange embedding itself into the rubber packing-ring beneath the lower shoulder of the globe. (See Fig. V.) A suitable amount of water is then poured into the boiler, filling the heating-tubes and to the requisite height in the boiler, and it is then screwed into the threaded flange of its cap until the peripheral edge of said flange embeds itself in the upper packing-ring. The joints and connections with the radiator-flues are thus made steam-tight. The lamp under the boiler-tubes, which has been supplied with gasoline, coal oil, or other suitable illuminant, is then lighted, and as the water heats in the tubes it rapidly changes place with the denser water in the glass boiler above, and thus keeps up a lively reciprocating movement until the water in the boiler has reached the boiling point and is rapidly giving off steam. As the tubes are arranged in pairs in U form, and as one limb

of the tube will almost invariably be more favorably situated to the influence of the flame than the other, it is evident that in such case the expansion and consequent rarefaction of the water at the higher temperature will exceed in its ascension-power that of the other section of the tube, and together they will have a tendency, in conjunction with the denser water in the boiler above, to generate a circuitous interchange of the fluid, forming a continuous current. Also, when the twin tubes are at an even temperature, the rarefied air with the generated steam will, in that case, simultaneously ascend in both tubes, the interchange not being effected, as in the former case, with a steady a current, but with more violent ebullition, as with the boiling water within a kettle. The steam that has been generated in the heating tubes and boiler then ascends through a central vertical flue within the radiator-chamber, and *via* a transverse flue at top of the radiator to an annular flue formed between an outer and inner casing around said radiator. The steam then returns across the bottom of the radiator through a series of small interradiant flues to its starting-point at the foot of the central flue, the condensed product of the steam dripping back into the boiler and the vapor with that that has since been generated again ascending the central flue. When the steam first charges the flues of the radiator it drives the dead air before it until, on reaching the vent 30, it is forced out of the radiator; but after the expulsion of the dead air the weight of steam soon exceeds that of the atmospheric pressure and closes the slide-valve 31, thereby stopping the escape of steam through the same. The glass boiler, being transparent, is its own gage. The said boiler is provided with a safety-valve, 39, which is controlled by a weighted lever, the weight being adjustable to the pressure desired to be attained.

It will be seen that there are vertical openings between the side walls of the corresponding sections of the oven and a horizontal opening between the bottom plates composing said sections. These openings provide a freer entrance for the heated air within the oven.

It will also be seen that the perforations in the circular wall of the oven-sections, which are also formed for inlets of the heated air, are formed by semicircular cuts in the plate, and when the inclosed metal is bent down inward it makes efficient bracket-supports for the shelves.

The rotary damper that works beneath the bottom of the radiator or cooking-chamber is adjusted by two pendent lugs near its periphery to regulate the temperature while cooking and to facilitate the dispersion of the heated air when used as a heater.

When used as a cooker, the twin sections of the combined oven and stew-chamber are dropped down in their seats within the radiator, the articles to be baked or stewed being previously placed in pans on the shelves.

When it is desired to roast or bake, but little water is required in the pans, as when the oven-sections are in position the outer joints are nearly steam-tight. Consequently the delicate juices and flavors from the material being cooked are not largely wasted with the escaping vapor, as is too often the case in cookers with loose joints. When material is to be stewed, a larger amount of water is placed in the pans.

There is very little waste steam, as, after making the circuit of the radiator-flues and passing *via* the interradiate pipes again into the base of the vertical flue, the condensed product of the steam drips back into the boiler by the force of its own gravity.

I have above described my invention in relation to its cooking devices; but it has other and important functions, as a radiator for heating apartments and also for illuminating the same apartments after dark.

When used as a heater, the ovens are withdrawn from the radiator and the rotary damper is turned round until the openings therein are coincident in position to the openings in the bottom of the radiator. By these means the heated rarefied air is rapidly discharged from the radiator into the apartment which it is required to heat; also as an illuminator in the same apartment, especially when placed on a table or suspended from the ceiling. As the lamp chimney is transparent, there is sufficient dissemination of light to illuminate a large room.

The apparatus can be either set on the floor or on a table, or it can be hung from the ceiling by the usual adjustable lowering devices by running the suspension-chains over pulleys. By this means the apparatus can be lowered, even to the floor if desired, to attend to the

cooking, and afterward elevated out of the way.

I claim as my invention—

1. The combination of the inner casing, 28, and outer casing, 27, forming an annular chamber, 26, between them, and the duplicate semi-annular ovens 2, provided with apertures 4 and the shelves 3, substantially as described.

2. The combination of the inner casing, 28, and outer casing, 27, forming an annular chamber, 26, between them, the central vertical tube, 24, the transverse tube 25, connecting the central tube with the annular chamber at the top, radial tubes 29, connecting the central tube with the annular chamber at the bottom, and the duplicate semi-annular ovens 2, provided with apertures 4 and the shelves 3, substantially as described.

3. The combination of the radiator and a drop-oven, 2, having semicircular apertures 4, semicircular brackets 44, and shelves supported on said brackets beneath the apertures, substantially as described.

4. The boiler comprising a globe, 17, having shoulders 18 and screw-threaded flanges 20, the bottom plate, 13, having screw-threaded flange 15, a cluster of tubes depending from the bottom plate, a cap-plate, 21, having a screw-threaded flange, 22, and packing-rings located between the plates and the shoulders, substantially as described.

5. The combination of the lamp, boiler, and a radiator formed with an inner casing, 28, outer casing, 27, having openings in its bottom plate, and a rotary damper supported from the bottom plate, substantially as described.

OMAR A. STEMPEL.

In presence of—

BENJN. A. KNIGHT,
SAML. KNIGHT.