

No. 737,993.

PATENTED SEPT. 1, 1903.

E. A. ANDERSON.
OIL STOVE.

APPLICATION FILED SEPT. 13, 1902.

NO MODEL.

Fig. 1.

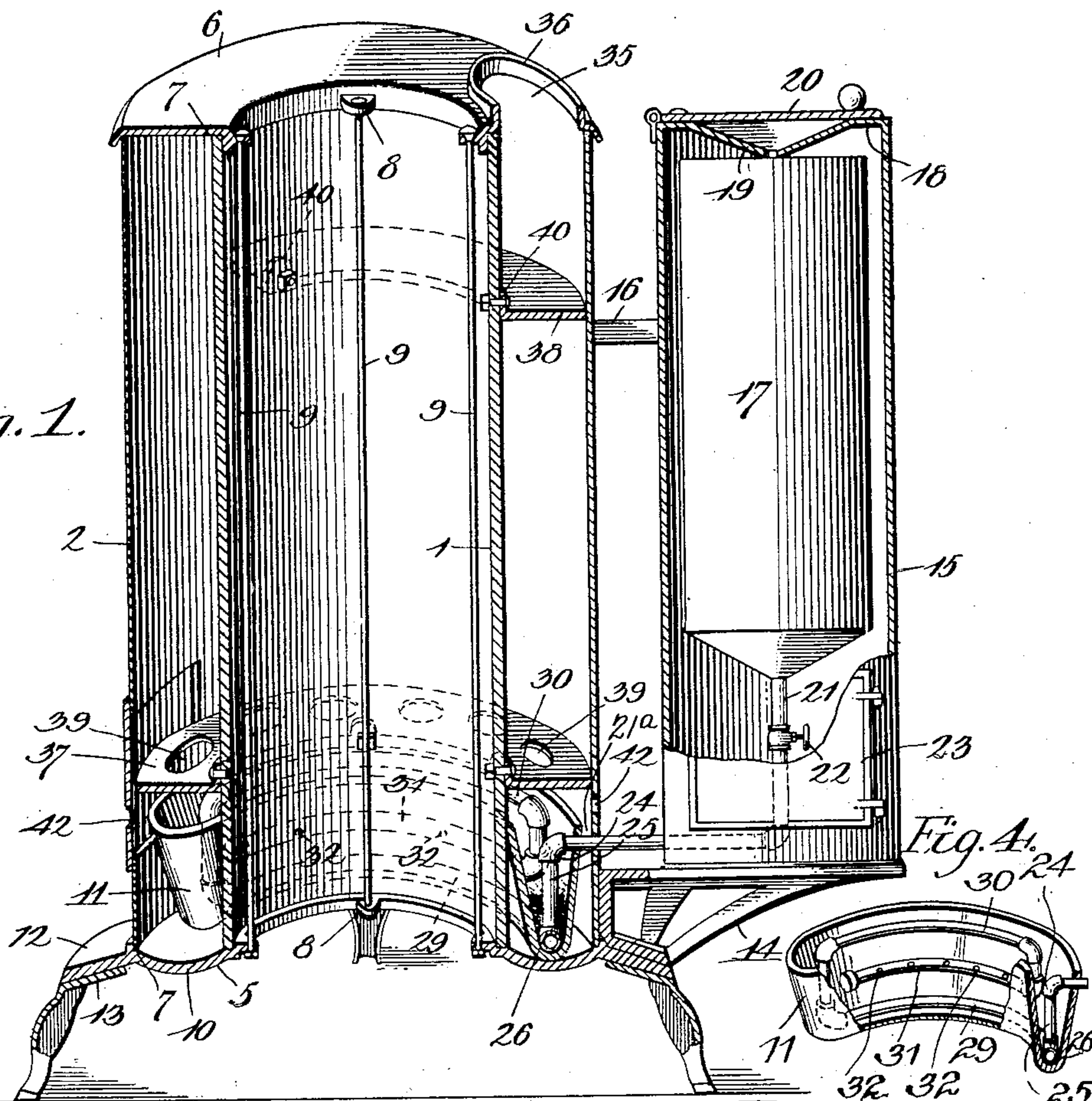
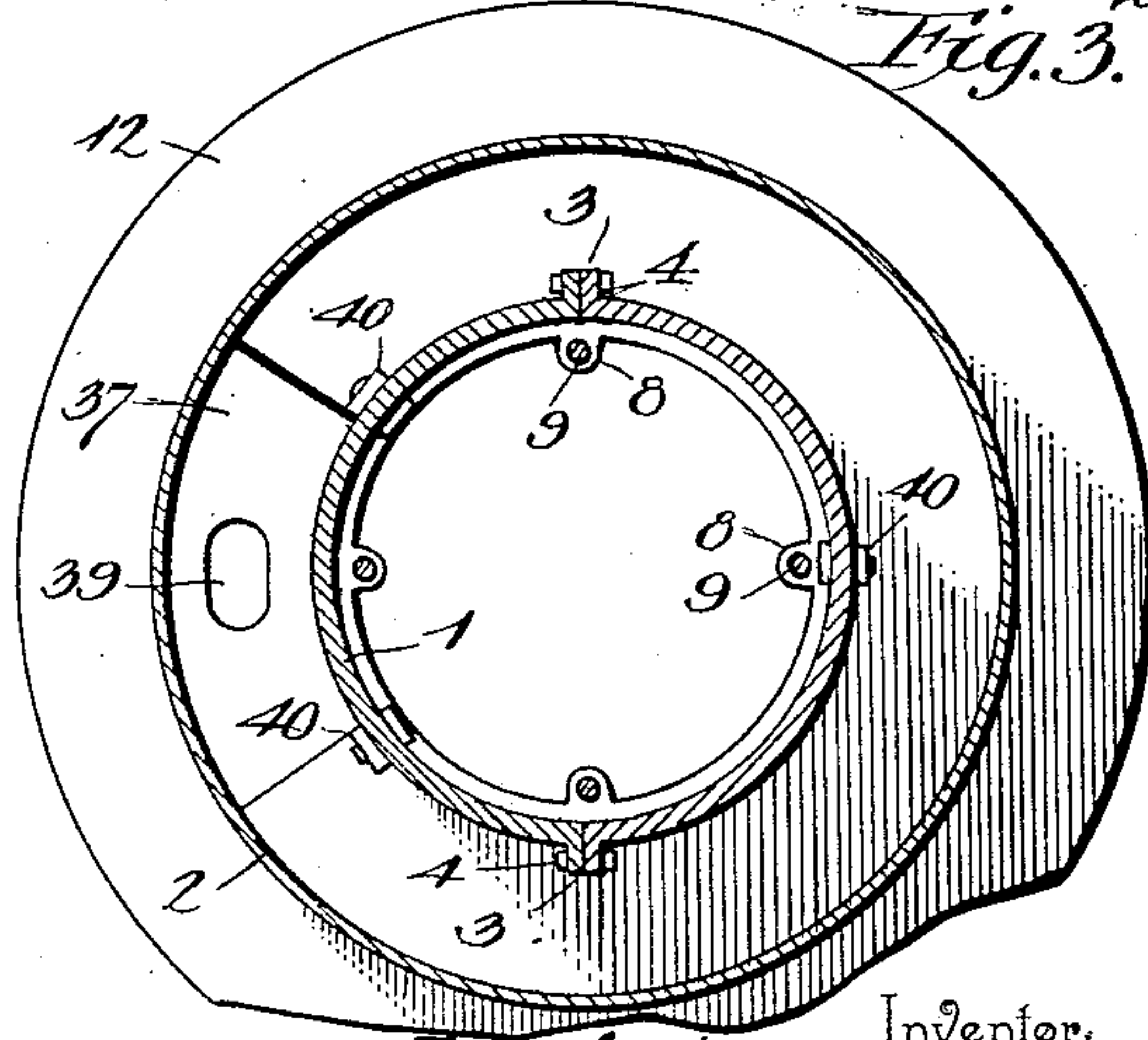
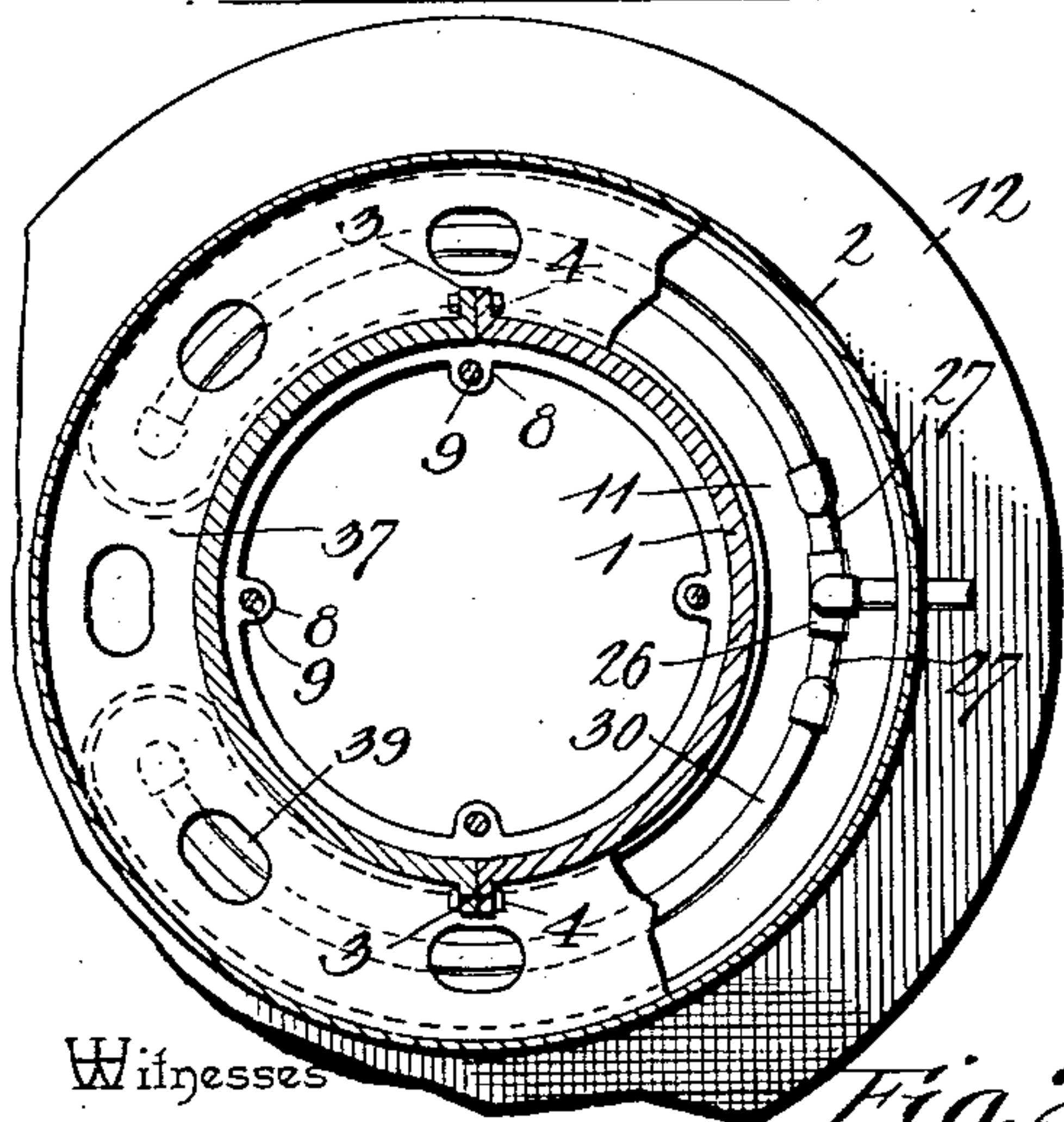
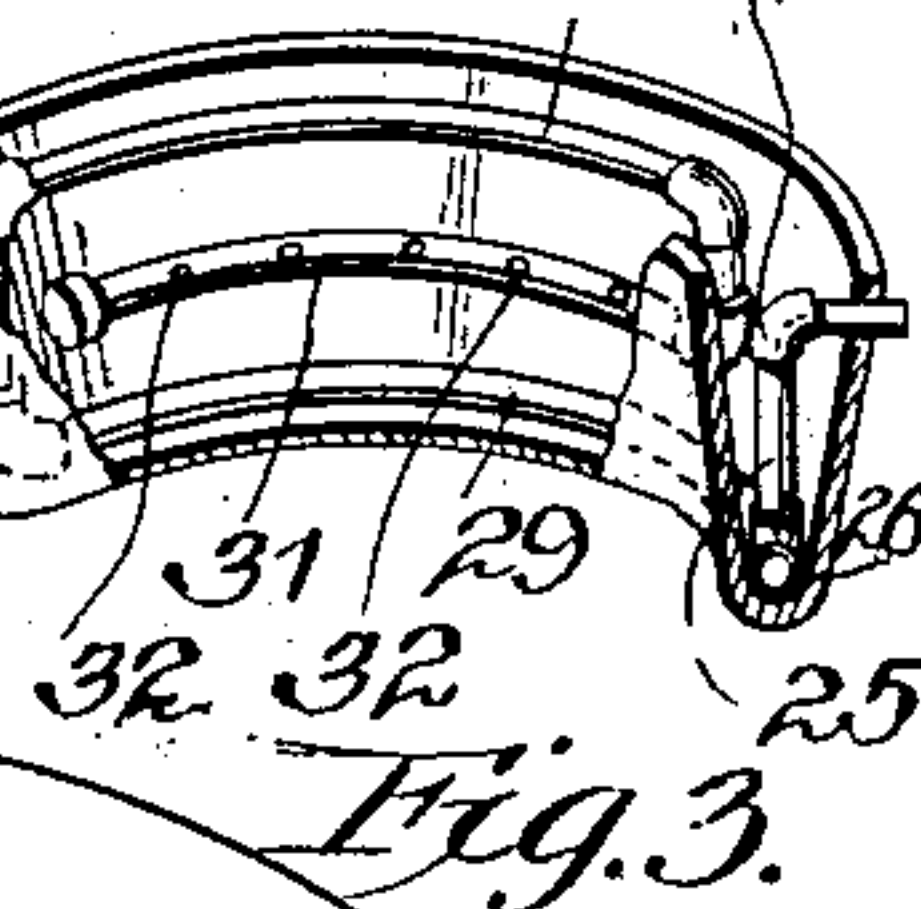


Fig. 4.



Witnesses

C. K. Stewart,
Wm. Bagger

Fig. 2. by

E. A. Anderson, Inventor.

C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

ERIC A. ANDERSON, OF GREENVILLE, ILLINOIS.

OIL-STOVE.

SPECIFICATION forming part of Letters Patent No. 737,993, dated September 1, 1903.

Application filed September 13, 1902. Serial No. 123,302. (No model.)

To all whom it may concern:

Be it known that I, ERIC A. ANDERSON, a citizen of the United States, residing at Greenville, in the county of Bond and State of Illinois, have invented a new and useful Vapor-Stove, of which the following is a specification.

This invention relates to that class of stoves in which oil is used as a fuel; and it has for its object to provide a device of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency.

Specifically, this invention relates to wickless stoves in which the oil previous to being consumed is converted into gas or vapor, and it comprises as its essential elements an exterior and an interior drum forming an annular combustion-chamber, a fire-box within the latter, baffle or retarding plates to check the passage of the products of combustion to the chimney, with which my improved stove is to be connected by means of an ordinary stovepipe, and a magazine supported by the base of the stove and containing a tank from which the fuel is supplied to the burner-pipe.

My invention further consists in the improved construction, arrangement, and combination of the component parts thereof, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective sectional view taken vertically and about centrally through my improved stove. Fig. 2 is a horizontal sectional view taken above the lower retarding-plate, a portion of the latter being broken away to expose the fire-box and burner-pipe lying below. Fig. 3 is a horizontal sectional view taken above the upper retarding-plate. Fig. 4 is a perspective detail view showing one-half of the burner.

Corresponding parts in the several figures are designated by similar characters of reference.

1 designates the inner and 2 the outer drum or cylinder of my improved stove-casing, which are preferably made of such relative sizes that when one is placed within the other an annular space about three inches in width shall be left between the two. These drums or cylinders may be made from sheet metal

of suitable strength or from cast-iron, or one may be of sheet-iron and the other of cast-iron. Thus in Fig 1 of the drawings I have shown an exterior sheet-metal cylinder, while the interior cylinder is assumed to be made of cast-iron and longitudinally divided into two sections provided with laterally-extended lugs or flanges, as shown at 3 in Figs. 2 and 3 of the drawings, for the reception of the connecting-bolts 4.

The inner and outer drums 1 and 2 are connected at their lower and upper ends by the base-plate 5 and a top plate 6, both of which are provided with annular seats or recesses 7 to receive the ends of said drums or cylinders. The said base and top plate are, moreover, provided at their inner edges with laterally-extending lugs 8 to receive the ends of the tie-rods 9, whereby the parts of a stove are joined together.

The base-plate 5 is formed with an annular recess or depression 10, supporting the fire-box 11. The said base-plate is also constructed with an annular outwardly-extending flange 12, having suitable means of connection for the legs 13, upon which the stove-body is supported. This base-plate also supports a bracket 14, upon which is placed a magazine 15, connected with the outer stove-drum by a brace 16 and containing a tank or reservoir 17 for the storage of the liquid fuel.

The magazine 15 is provided with a top 18, having a funnel-shaped depression 19 with a central opening alining with the inlet in the top of the tank 17. The magazine is, furthermore, provided with a lid 20 to present a finished appearance and also to prevent the escape of unpleasant odors from the tank.

The fire-box 11, which is supported in the depression 10 of the base-plate, consists of a trough-shaped tank approximately U-shaped in cross-section and of segmental shape in horizontal section, the ends of said trough being brought together or toward each other in an approximate horseshoe shape occupying about four-fifths of a circle. This segmental curved trough is preferably made of cast-iron and of such dimensions as to fit snugly against the wall of the inner drum of the casing, while a space 21^a is left open between the said trough and the outer drum for the upward passage of draft.

21 designates a pipe extending from the bottom of the tank 17 and having a valve 22, accessible through a door 23 at the lower end of the magazine 15, to regulate the flow of the fuel. This pipe 21 is extended through registering openings in the sides of the magazine, the outer drum of the stove-casing, and the fire-box, where it is provided with an elbow 24 and a downward-depending extension 25, provided at its lower end with a T-coupling 26, which lies flat in the bottom of the fire-box. From this T two curved pipes 27 extend in opposite directions nearly to the ends of the fire-box, thence upwardly to the top of the box, thence back horizontally to a point near the starting-point, and finally in a forward direction between the lower and upper turns already described. It will thus be observed that I have virtually a double burner the members of which extend from near the center to the ends of the drum constituting the fire-box, each burner section or member being composed of three semicoils, a lower one 29, an upper one 30, and an intermediate one 31, the latter, which constitutes the burner proper, being provided with small perforations 32 for the escape first of the liquid fuel and later, when the stove is in full blast, of the gaseous vapor generated by the heat. The operation of this form of burner is well understood. To start the stove, a small quantity of liquid hydrocarbon is permitted to escape into the burner-trough or fire-box, at the bottom of which is placed a quantity of asbestos or mineral wool. When the latter is sufficiently saturated, the oil is ignited and will heat the burner-pipes and the contents of the same, thus developing a gaseous vapor which when escaping through the perforations 32 will burn fiercely, thus keeping the burner-pipes in a constantly-heated state and continuing the generation of gas needed to support combustion. The flame may be regulated by means of the stop-cock or valve 22, which, it will be observed, is accessible through the door of the magazine, thus making it unnecessary to open the stove-door at any other time than when the fire is first started. To extinguish the flame, the supply is simply cut off.

The top plate 6 of the stove-casing is provided with an opening 35, surrounded by a flange or collar 36 to receive the stovepipe, by means of which the interior of the combustion-chamber is connected with the chimney, thereby providing for the carrying off of any smoke and soot, as well as all obnoxious odors that may be developed by the process of combustion. Within said combustion-chamber I have arranged a pair of retarding-plates 37 and 38. The former is of annular shape and of a size to fit snugly in the annular combustion-chamber a short distance above the fire-box, the latter, of segmental shape, occupying about four-fifths of a circle and disposed intermediately between the lower retarding-plate and the top plate of

the casing nearer the latter than the former. The annular plate 37 is provided with a plurality of openings 39, which are of varying sizes, the smallest being located at what may be termed the "back of the stove,"—that is, centrally over the fire-box and in alinement with the exit-opening 35—said openings increasing in size toward the opposite side or front of the stove, where the largest opening is disposed. The upper retarding-plate 38 is imperforated. It extends from the back of the stove forwardly in both directions, where an opening in size about one-fifth of the annulus is left for the passage of the products of combustion. Each of the plates 37 and 38 is provided with lugs or flanges 40 for the reception of bolts or equivalent fastening means, whereby they are secured in the desired position upon the interior drum or cylinder of the casing. The outer cylinder is provided with suitably-disposed draft-holes 42 for the admission of air to support combustion.

The operation of my improved oil-stove will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed, by those skilled in the art to which it appertains. The stove is essentially clean and odorless, a feature the importance of which in a hydrocarbon-burner of any kind is entitled to the greatest consideration. The general construction is simple and by no means expansive. Overflow and leakage of oil either into or from the fire-box is practically impossible. In the unlikely event of an overflow of oil from the fire-box it would gather in the depression of the base-plate, where its presence would not fail to be discovered before injury could ensue. The construction and arrangement of the retarding-plates disposed within the combustion-chamber is such that while the fire will be permitted to burn freely the passage of products of combustion to the chimney will be sufficiently retarded to avoid any unnecessary waste of heat.

I desire it to be understood that while I have in the foregoing described a preferred construction I do not limit myself with regard to the details thereof, but reserve the right to any changes and modifications which may be resorted to without departing from the spirit or sacrificing the utility of the invention. It is also obvious that my invention is applicable equally well to stoves, whether they may be used for cooking or for heating purposes.

Having thus described my invention, I claim—

1. An oil-stove comprising an annular casing consisting of an inner and an outer drum, a base-plate, a top plate and connecting-rods extending through the inner drum leaving the annular space between the inner and outer drums unobstructed, a segmental trough-shaped fire-box supported upon the base-plate in said unobstructed space, and a burner-pipe in said fire-box.

2. In an oil-burning stove, an annular casing having a flanged base, a bracket resting upon said base, a magazine supported upon said bracket and having a door at its lower end and provided at its upper end with a funnel-shaped depression having a central perforation, and a hinged lid, and a tank within said magazine having a valved exit-pipe, the valve of which is accessible through the door of the magazine.

3. In an oil-burning stove, an annular casing comprising an inner and an outer cylinder, a base and a top plate, the latter being provided with an exit-opening surrounded by a flange, a fire-box supported upon the base between the inner and outer drums, a retarding-plate disposed in the annular space above the fire-box and having openings of increasing size from the back toward the front of the stove, and a retarding-plate disposed below the exit-opening in the top of the casing,

said plate occupying about four-fifths of the annulus to prevent the direct passage of the products of combustion to the exit-opening.

4. In an oil-burning stove, the combination of a fire-box consisting of a segmentally-curved trough, of a burner-pipe comprising two parts or sections, connected by a single pipe with the source of supply, each of said sections being composed of upper and lower members curved to correspond to the curvature of the fire-box and an intermediate, likewise-curved member having burner-openings therein, the said several members being suitably joined together.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ERIC A. ANDERSON.

Witnesses:

LAURA TRINDLE,
LA FAYETTE BARNES.