No. 820,376. PATENTED MAY 8, 1906.

W. H. WILDER.

RESERVOIR FOR OIL AND VAPOR STOVES.

APPLICATION FILED JAN. 2, 1902.

3 SHEETS—SHEET 1

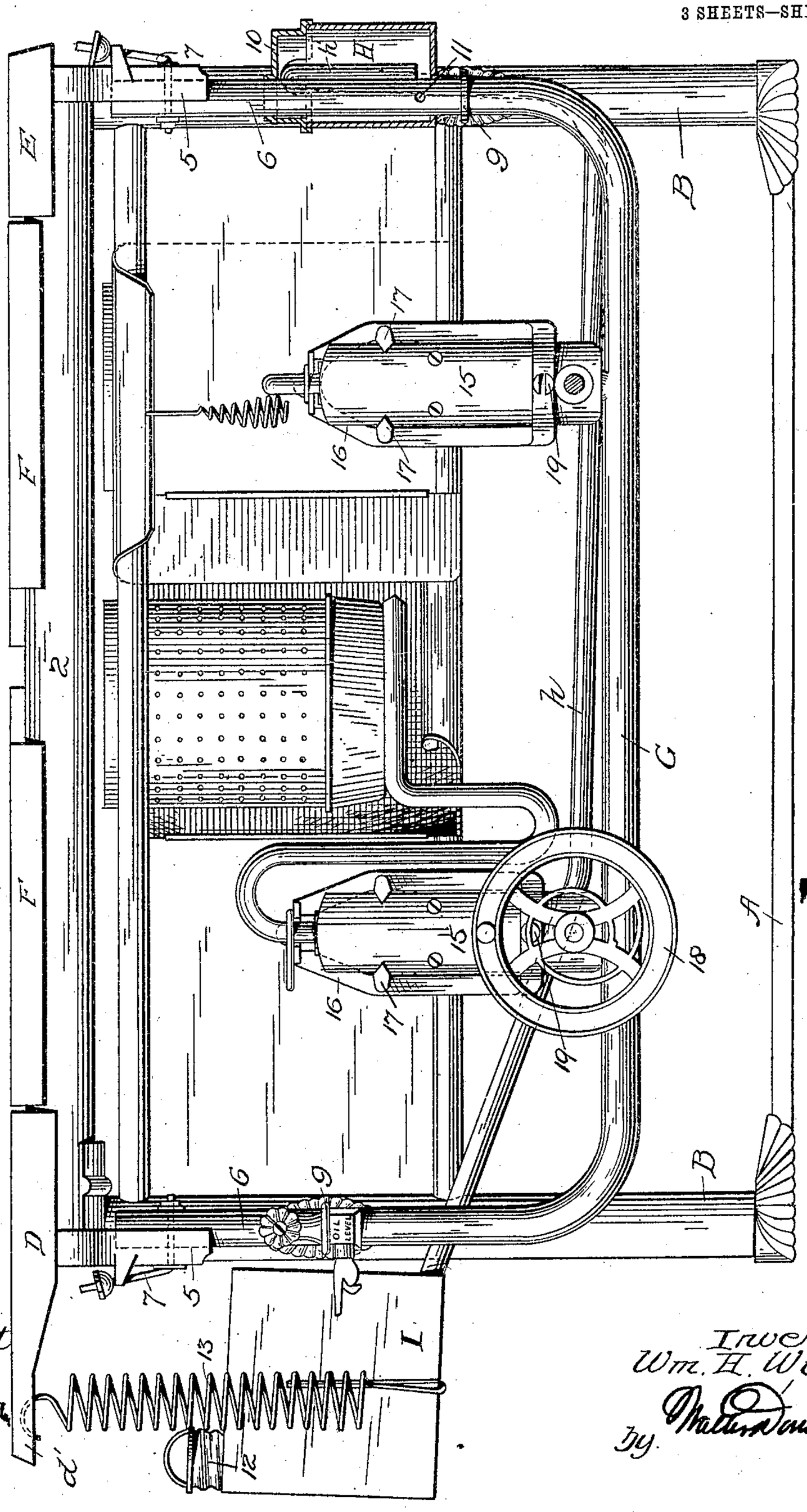

Fig. 1.

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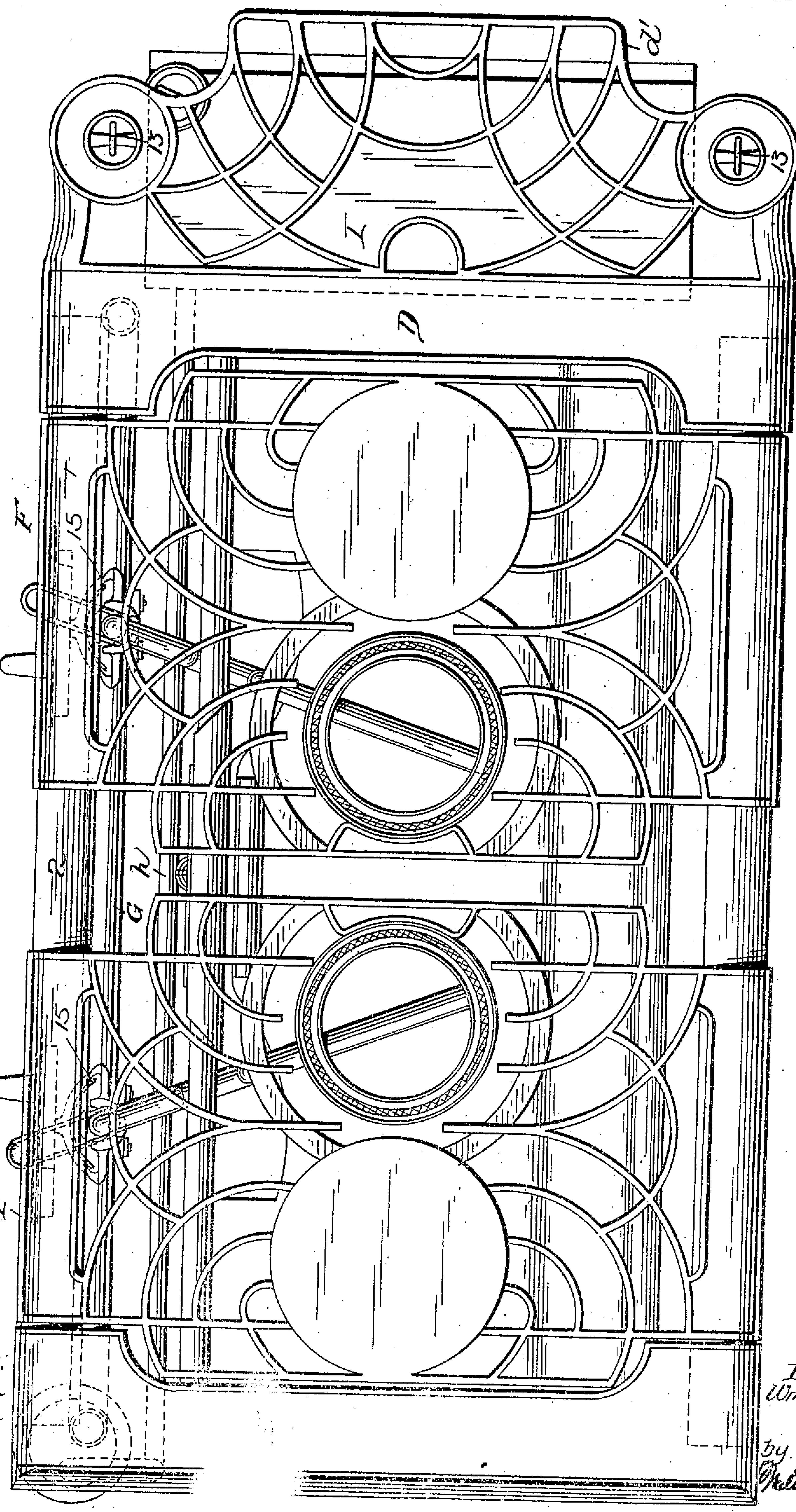
3 SHEETS—SHEET 2.

Fig. 2.



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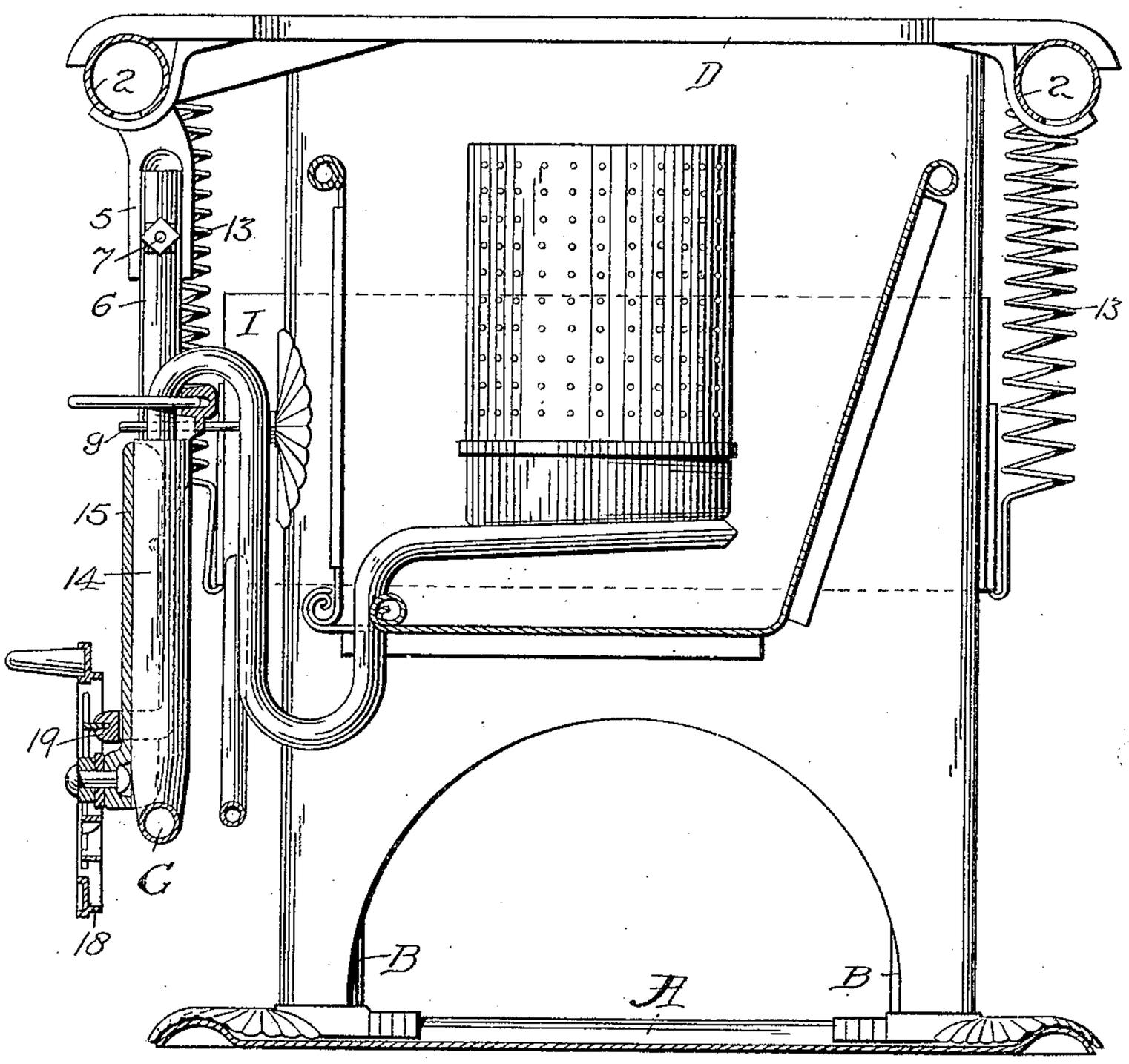
3 SHEETS—SHEET 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

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RESERVOIR FOR OIL AND VAPOR STOVES.

No. 820,376. Specification of Letters Patent. Patented May 8, 1906.

Original application filed April 26, 1901, Serial No. 57,559. Divided and this application filed January 2, 1902. Serial No. 88,220.

To all whom it may concern:

Be it known that I, WILLIAM H. WILDER, a citizen of the United States, residing at Gardner, Worcester county, Massachusetts, have invented certain new and useful Improvements in Reservoirs for Oil and Vapor Stoves, of which the following is a specification.

My invention relates to a form of reservoir for oil-stoves and of that class wherein the reservoir is in the same plane with the burner as distinguished from the class of lamp-stoves using wicks depending directly into a body of oil beneath and lifting the oil to a higher plane for burning.

The invention is further peculiar to the class of oil-stoves having what is known as a "free-level" type of burner or oil-burning bowl, where instead of an elevated reservoir depending upon gravity to feed the oil drop by drop through a valve to a burner (the opposite to the lifting action by wicks from the supply beneath) the reservoir and burner are substantially on a level, making it possible to provide an oil-line which is maintained at the same point, the action to the burners being controlled by the relation of the oil-line thereto. From this oil-line the burners may be raised or lowered, so as to elevate them above the oil-line to empty and to sink them into the oil-line wholly or partially to fill the bowls for use in one form of this type of stove, or in another form the bowls may be stationary and the level of oil in the reservoir adjusted in relation thereto so as not to overflow the bowl and then maintained, and thereafter the supply to the burner is capable of regulation by a valve so as to lessen the flow of oil to the bowl, and thus lower it in the bowl below the maintained line in the reservoir when the flame is to be decreased or diminished. Stoves of the type mentioned embody the same general principle of those first mentioned—namely, a burner-bowl adapted to contain a body of oil and working from a maintained oil-level. Heretofore a so-called "maintained" oil-level has been secured through the use of a reservoir provided with an opening in its bottom depending into an oil-chamber, allowing the discharge of oil from the reservoir into the chamber until the oil rose sufficiently to cover the opening in the bottom of the reservoir. As soon as the oil would fall by use, so as to allow the ingress of air, more oil would flow out. This gives what has been called a "maintained" oil-level; but as a matter of fact as the feed of oil is intermittent and in the nature of a pulsation there is an appreciable difference in the oil-level, and this has its effect upon the burner or the flame thereof in stoves of the type mentioned, as the burners are exceedingly sensitive to any changes in the level of oil contained therein. This pulsation occurs in the ordinary student-lamp, but is not noticeable, as in such a burner the flame depends upon the wick for normal burning with the oil several inches away, whereas in a burner where the flame depends upon the proximity of the oil such pulsation makes the flame fluctuate materially and to a detrimental extent. I have endeavored to overcome this difficulty and to make absolute the level of the oil, so as to prevent such variation or fluctuation, and this I accomplish by the use of what I may term a "poised" reservoir freely movable up or down, the movement being automatic and controlled by the amount of oil, the reservoir lowering as the amount of oil increases and rising as the oil diminishes, and thus the maintained level of oil is constant. In other words, while the reservoir moves up or down the oil-line does not move, the reservoir moving to compensate for the oil added to or taken therefrom, so as to keep the level uniform and constant in its relation to the stove. In order to secure the best results, I have found that the reservoir should be perfectly balanced or poised, supported so as to be bodily movable, and free from frictional contact with surrounding walls or casings, and capable of movement up or down, for the reason that when used with stoves having movable burners it is necessary when the burners are thrown out of action that provision should be made to take care of the oil drained therefrom, and this is readily accomplished by my reservoir, as the surplus oil will flow back into the reservoir, which will sink to the proper degree by reason of the added oil and while thus taking care of the oil returned will still keep the oil at the same constant level. Where the burners are stationary and valves are interposed in the pipe-line, the reservoir may be manually depressed or by the use of weights in order to drain the burners.

It has been proposed heretofore to use what may be termed a "balanced" reservoir with a lamp provided with a wick for raising the oil from the level at which the movement of the reservoir maintains it; but in every in-

stance, so far as I am aware, the reservoir has been supported within a casing closely fitting the same, and thus causing such a degree of friction as to make the construction wholly inoperative for my purposes, or else the reservoir has been permitted movement in one direction only, being prevented free movement in either direction and for this reason ineffective in the situations existing in the modern stove and which my invention is adapted to meet. The conditions differ materially in a lamp using a wick to raise the oil from an oil-stove using a free level of oil in the burner-bowl as to render impracticable in the latter a construction which might prove effective in the former. In my invention the reservoir is supported free from frictional surrounding walls and is perfectly poised or balanced so as to respond to the slightest change in conditions and keep the level of oil invariable at the predetermined line.

This application is a division of my application filed in the United States Patent Office April 26, 1901, Serial No. 57,559.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation. Fig. 2 is a plan view, and Fig. 3 is a sectional view taken laterally and extending alongside one of the burners.

As illustrated in the drawings, the stove comprises a base-plate A, with corner-posts B, preferably connected at the ends by sheet-metal webs and carrying at the top end castings D and E, and intermediate grate-sections F, supported on tubular side pieces 2. The casting D has an extension d' of skeleton work which projects out far enough to protect the reservoir I.

The supply-pipe from which the burners are fed is shown at G in Figs. 1 and 3. This pipe supports the burners, and I have aimed to make this adjustable both longitudinally and laterally, so as to level up the burners when the stove is supported upon an uneven surface. In stoves of this class where a bowl is used containing oil the tilting of the stove, due to the uneven surface, is detrimental, and to overcome this I use a casting 5 at each end of the front of the stove and support the vertical portions of the pipe G, as shown at 6, by these castings, which are hollowed out on one side to receive the pipe, the adjustment being effected by means of an angular bent wire 7, having threaded ends, with a nut on the upper end to allow the ready adjustment of the pipe longitudinally. The horizontal end of the wire 7 (dotted lines Fig. 1, passes through the casting and the end of the pipe G, and has a nut on its end, while the opposite end of the wire 7, through its nut, finds a support on a bifurcated ledge of the casting 5. The upper ends of the castings 5 have horizontal extensions made round to fit into the open ends of the tubular support 2, and this allows the casting to have a turning or pivotal movement in relation to the tube 2. This permits lateral adjustment, such as the swinging in or out of the pipe G, toward or from the stove when the unevenness is in this direction. The pipe is sustained in its adjusted position by screw-eyes, the eye encircling the pipe and the screw-threaded end engaging the post and held by a jam-nut. By loosening the jam-nut the pipe G may be adjusted in or out. These screw-eyes are shown at 9. This constuction provides means for adjusting the burner and reservoir to a level. Normally the pipe G is rigidly supported and held firmly by the screw-eyes 9 to the frame of the stove.

In order to provide a siphon-feed for the pipe G, I arrange a chamber or cup H on the vertical extension of the pipe G, as shown in Fig. 1, serving as a trap. This cup receives the oil from the end of the feed-pipe h, which extends from the reservoir. The end of this pipe is bent as shown at h' and depends into the cup H, the cup having a cover 10. The oil runs from the cup H through the opening 11 into the pipe G, and from thence it is fed, as will be hereinafter explained, to the burners.

Heretofore I have secured the maintained level of oil by the use of an inner reservoir feeding into an outer oil-chamber in which the level of oil was maintained automatically; but for the reasons and objections heretofore stated I have materially changed this form of reservoir and substituted, as herein shown, a poised reservoir bodily movable up or down automatically under the varying weight of oil, so as to maintain the oil-line constant, preferably utilizing spring-supports for suspending the reservoir. As shown, I use a simple oil-chamber I, having a filling-orifice at 12 and supported from the casting d' by means of graduated springs 13. These springs are connected to the oil-chamber, so as to be readily detachable, and they are so adjusted in tension to a predetermined level that the oil as it is poured into the can will depress it automatically to secure the proper level, and as the oil is consumed the level will be maintained by the rising of the can, due to the diminishing quantity of oil, while in the case of movable burners the can is adapted to lower automatically to receive the surplus oil from the draining of the burners, and thus maintain the oil-line. In the case of stationary burners of the free-level type working on a valve the reservoir may be normally depressed to drain the burners and the valve afterward closed. The burners may thus be controlled simultaneously at the reservoir whether a stationary or movable burner is used.

The oil flows through the feed-pipe h to the siphon-cup H, the end of the pipe h simply being hooked over the edge of the cup H, so as to be readily detachable.

The supply-pipe G has a vertical section or stand-pipe extending therefrom, one for each burner, as shown at 14, Fig. 3, and secured to the face of this section is a stationary indicator-plate 15, containing the words "Out," "Low," "High," "Light." An indicator 16 embraces the pipe 14 and the plate 15 and is provided with indicating-fingers 17. The indicator 16 is moved vertically by a scroll-cam 18, engaged by two projections on the part 16, as shown at 19, and in the turning of the wheel the indicator 16 is raised or lowered, and the fingers thereon will indicate the position of the burner on the plate 15. I have so adjusted the scroll to the indications that each half-turn thereof will bring the burner into one of the positions indicated, thus making a very effective construction and one readily operated in the dark, as one half-turn from "Light" will raise the burner to "High," another half-turn to an intermediate position between "High" and "Low," another half-turn to "Low," and another to "Out."

While I have shown my improved form of reservoir in connection with the form of stove with adjustable and vertically-movable burners, described in detail in my former application, hereinbefore referred to, I do not limit myself to its use in connection with a stove of this description, as it is capable of use with any form of stove where an oil-bowl of the free-level type is used and the oil supplied thereto, the flame being controlled by varying the oil-level in the bowl, whether by raising or lowering the burner or by controlling the supply to a stationary bowl by a valve.

A finger or pointer 20 is secured to the left-hand upright extension of the pipe G, as shown in Fig. 1, being secured thereto by a rosette 21, and this serves to indicate the level of the oil in the reservoir.

I claim—

1. In combination with an oil burner or burners of the oil-bowl type, a balanced reservoir maintaining oil therein at a predetermined level and freely movable to discharge oil to the burners or take up oil therefrom, substantially as described.

2. In an oil-stove, a balanced reservoir freely movable vertically and a discharge-pipe connected therewith rigidly at one end and having a loose connection at its opposite end, substantially as described.

3. In an oil-stove, a burner comprising a bowl means for raising and lowering the same, and a reservoir supported by automatically-movable means controlled by the amount of oil within the reservoir, whereby the oil-line is made constant and the burner may be moved in relation to said line, substantially as described.

4. An oil-stove comprising an oil-burning bowl and a single-chamber balanced reservoir, the oil in the reservoir being below the top of the burner-bowl, substantially as described.

5. An oil-stove comprising an oil-burning bowl and a balanced reservoir, the level of oil in the reservoir being the level of oil in the burner-bowl and below the top of the same, substantially as described.

6. An oil-stove, comprising an oil-burning bowl and an automatically-movable reservoir, the oil in the reservoir being automatically maintained below the top of the burner bowl, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. WILDER.

Witnesses:

H. H. MEALS,

FRED COOLIDGE.