

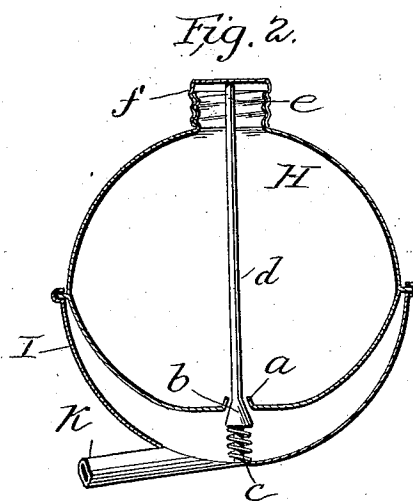
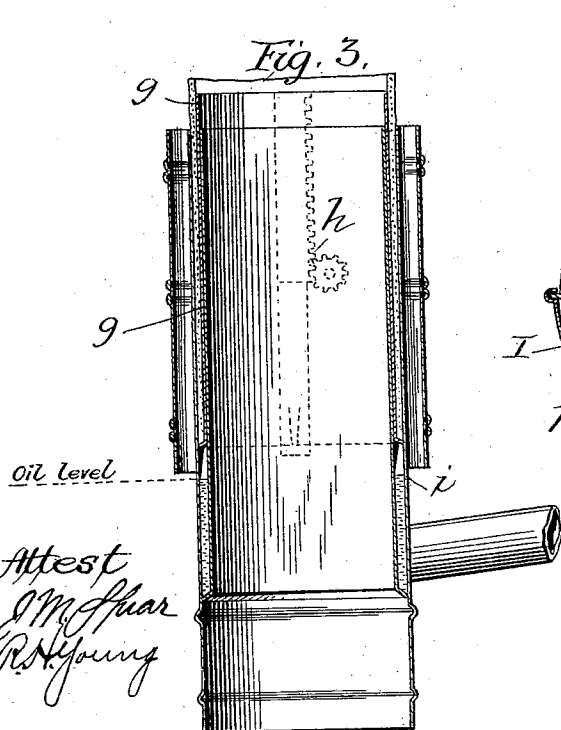
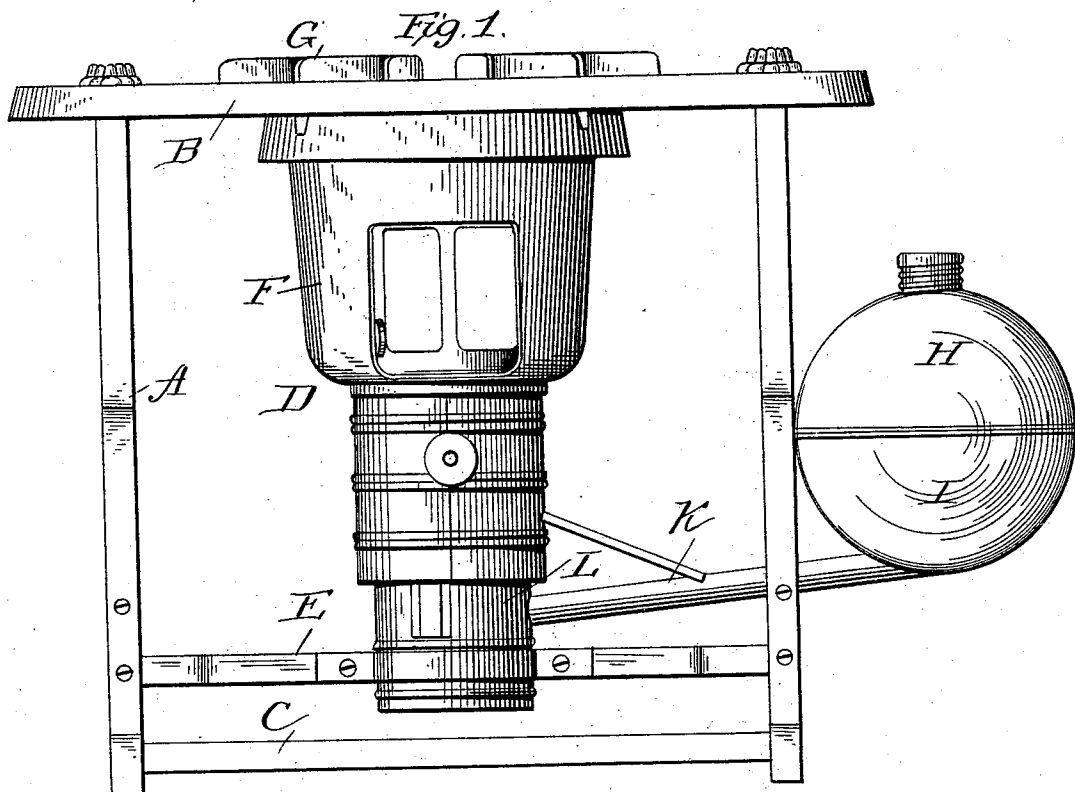
(No Model.)

W. H. WILDER.

OIL STOVE.

No. 543,790.

Patented July 30, 1895.



Attest
J. M. Spear
R. N. Young

Inventor
William H. Wilder
by *Walter Donaldson*
Attys. Co

UNITED STATES PATENT OFFICE.

WILLIAM H. WILDER, OF NORTHAMPTON, MASSACHUSETTS.

OIL-STOVE.

SPECIFICATION forming part of Letters Patent No. 543,790, dated July 30, 1895.

Application filed March 26, 1895. Serial No. 543,268. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. WILDER, a citizen of the United States, residing at Northampton, (Florence,) in the county of Hampshire and State of Massachusetts, have invented certain new and useful Improvements in Oil-Stoves, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to oil-stoves of that class in which a wick is used, and while I have shown the invention as applied to this class of stoves adapted for cooking and other domestic purposes, the invention may also be applied equally as well to stoves adapted wholly for other purposes, such as heating.

It is the object of my invention to dispense with the reservoir heretofore generally in use, surrounding the wick-tube and communicating therewith by an oil duct or passage, and to place the reservoir at a distance from the wick-tube and in communication therewith by means of a supply-pipe or other passage.

Further, it is my object to provide for the automatic feed of the oil from the reservoir to the wick-tube, so that the oil-supply in the said wick-tube shall be maintained at a uniform level at all times, thus giving a more regular combustion and a more uniform heat.

It is a further object of the invention to not only maintain the oil at a uniform level in the wick-tube and to automatically add to this supply, but also to have the oil-level sustain a certain relation to the top of the wick-tube, whereby, with a standard quality of wick having a determined lifting or capillary power, the distance between the said oil-level and the top of the wick-tube will be such that only sufficient oil for perfect combustion can be raised to the burning-point of the wick, the result being that should the wick be raised too high or beyond the proper point the supply of oil will immediately diminish by reason of the height of the wick exceeding its lifting power from the oil-level, and the serious and objectionable smoking so common in this class of stoves will thus be avoided.

A further object is to provide such a relation between the wick-ring or other means for securing and carrying the wick, the wick-raiser, and the oil-level, definitely determined and automatically maintained as aforesaid,

whereby the wick in the operation of the wick-raiser will be lifted entirely out of the oil or above its level in any abnormal position of the raising means, or, in other words, the relative arrangement of the parts is such, where the ordinary wick-ring is used, that the bottom of the wick will leave the level of the oil as soon as the wick-ring projects beyond the top of the wick-tube; and finally I have aimed to provide a simple form of valve for the reservoir adapted to the automatic feeding of the oil.

The invention consists in the devices and combinations of devices for attaining the objects above referred to.

In the accompanying drawings, Figure 1 is a front elevation of an oil cook-stove embodying my improvements. Fig. 2 is a sectional view through the reservoir, showing the valve mechanism. Fig. 3 is a detailed sectional view showing the relative arrangement of the wick-tube, the raising means, the wick-ring, and the oil-level.

In the accompanying drawings, the frame of the stove is shown at A as composed of flat metal bars suitably braced and strengthened with a top plate B and a drip-pan C beneath the burner D. The burner is supported by a frame E, connected at its ends to the legs of the main frame, being bent together to embrace the lower part of the burner and to hold the same securely in place. The burner is composed of a wick-tube with inner and outer air-tubes, and is of the type known as a "central-draft" burner, and needs no particular description in this case, except as hereinafter referred to. The combustion-chamber F surmounts the burner, and located above the combustion-chamber is a grate G supported by the top plate of the frame.

Located to one side of the burner and at a suitable distance therefrom is a reservoir H, which is supported in a receptacle I, having an oil-chamber, and from this chamber I extends an oil-duct K to the wick-tube L. There is an oil space or chamber, as shown in the sectional view, between the reservoir H and the receptacle I, and the reservoir is in connection with this chamber through an opening in the bottom of the reservoir, as at *a*, this opening being closed by a valve *b*, the spring *c* encircling the lower reduced end of said valve and

tending to force it constantly upward to close the opening *a*. The valve has a stem *d*, which extends up through the reservoir, and through a filling-opening in the top thereof, into a space *e*, covered by a removable cap *f*. On the removal of the cap *f* to fill the reservoir the spring *c* immediately closes the valve *b* and the reservoir can then be filled without the loss of any oil from the reservoir through the opening *a*, but after the reservoir has been filled and the cap *f* is screwed in place, the movement of the cap in contact with the stem *d* forces the stem downward, which opens the valve *b*. The oil will flow out into the space below the reservoir, and from this space will flow down the tube or passage *K* to the wick-tube *L* until the oil in said wick-tube reaches the level of that in the chamber *I*. As the oil is lowered in the chamber *I* to uncover the opening *a* to the reservoir, air enters the same to discharge more oil, and thus the feed is made automatic and the level of the oil is maintained.

One of the most serious objections to the use of oil-stoves has been the care necessary to prevent the smoking of the stove and the disagreeable odor incident thereto. This arises from the fact that the wick is turned up at the time the stove is lighted, and as it takes a little time to get the oil flowing, what appears to be a small flame in starting the stove will soon grow as the feed of the oil increases, and in a little while will begin to smoke, because the wick is too high and the amount of oil fed thereto is in excess of what is required for perfect combustion. I have overcome this serious difficulty in a very simple manner by providing for the automatic feed of the oil and maintaining the oil in the wick-tube at a predetermined level holding a certain relation to the top of the wick-tube or the burning-point of the wick projecting therefrom, this relation varying slightly within certain definite limits, depending somewhat upon the character of the oil, but to a greater extent upon the quality of the wick used and its capillary or lifting power. When the qualities of the oil and wick have been ascertained the level of the oil is maintained in the wick-tube at a height from which the wick is only capable of lifting a sufficient quantity to produce perfect combustion, and it will thus be seen that as soon as the wick is raised above its normal position the flow of the oil immediately diminishes and the flame, instead of smoking, as under ordinary conditions, subsides with the subsidence of the oil.

Another important advantage arises from the relative location of the oil-level and wick-tube top, in that all "seeping" is prevented, by which term I mean the action of the wick when the stove is not lighted, of lifting the oil and causing it to overflow the wick-tube in case the wick projects slightly, but by rea-

son of the relation of the oil-line to the wick-tube top not only is the smoking prevented, but also this seeping action.

The wick is ordinarily connected to a wick-ring or an equivalent device, and is raised or lowered by wick-raising means engaging said wick-ring, and it sometimes occurs that the wick is raised to an extent which exposes the wick-ring or raising devices and an undue portion of the wick, subjecting the former to the action of the flame, and in order to obviate any difficulty of this kind I have made provision, by the relation of the wick-ring with the wick-raiser and the oil-level, whereby the wick is lifted from the oil in any abnormal movement of the raising means, such as in the lifting of the upper edge of the wick-ring above the top of the burner, which would expose a part of the wick in excess of its working surface, and while in this position the wick itself of course will burn, and the small amount of oil which it contains, yet no more oil would be fed to it and the danger would be reduced to a minimum.

In the detailed figure the wick-ring is shown at *g*, the wick-raiser at *h*, and the oil-level at *i*, the relative position of the parts to accomplish the end sought being shown in this figure.

What I claim is—

1. In an oil burner, a wick tube and wick, an oil chamber, a reservoir adapted to automatically discharge into the oil chamber, and maintain the oil supply at a uniform level, the top of the wick tube holding such a relation to the ascertained oil level that with a wick of an ascertained capillary power, sufficient oil and no more will be constantly delivered to the flame for perfect combustion, substantially as described.

2. In an oil stove, a wick tube and wick, an oil chamber, a reservoir adapted to automatically discharge into the oil chamber and maintain the oil supply at a uniform level, wick raising means bearing a uniform relation to the bottom of the wick and having such relation to the ascertained oil level whereby the wick is invariably lifted above the said oil level in the abnormal position of the raising means, substantially as described.

3. In an oil stove in which a uniform oil level is automatically maintained, a wick tube, an oil chamber, a wick ring and wick raising means arranged relatively to the wick ring whereby the bottom of the wick invariably leaves the ascertained oil line at the moment the wick ring reaches the top of the wick tube, substantially as described.

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

WILLIAM H. WILDER.

Witnesses:

HERBERT D. BURNHAM,
HATTIE M. GATES.