(No Model.)

Z. DAVIS.

VAPOR STOVE.

No. 383,870. Patented June 5, 1888.

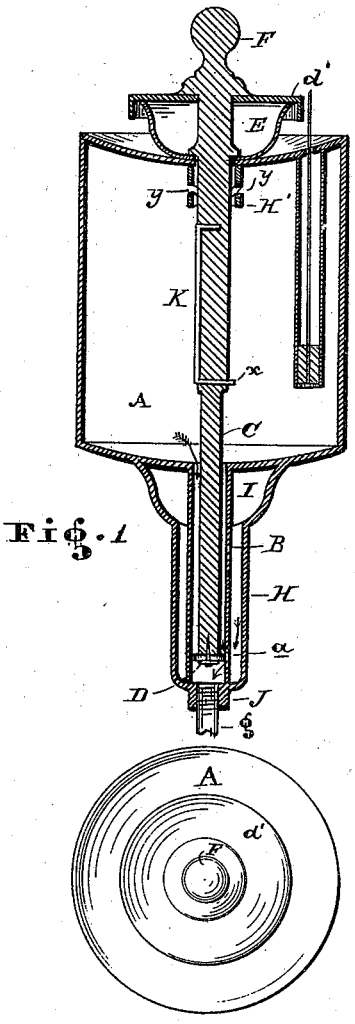

Fig. 1

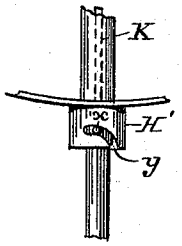

Fig. 3

Fig. 2.

WITNESSES,

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UNITED STATES PATENT OFFICE.

ZEBULON DAVIS, OF CLEVELAND, OHIO, ASSIGNOR TO THE CONSOLIDATED VAPOR STOVE COMPANY, OF CLEVELAND, OHIO.

VAPOR-STOVE.

SPECIFICATION forming part of Letters Patent No. 383,870, dated June 5, 1888.

Application filed July 27, 1887. Serial No. 245,410. (No model.)

To all whom it may concern:

Be it known that I, ZEBULON DAVIS, a citizen of the United States, residing at Cleveland, Cuyahoga county, Ohio, have invented a certain new and Improved Vapor-Stove; and I do hereby declare that the following is a full and complete description thereof.

The improvement in vapor-stoves above alluded to relates to the can or reservoir from which the oil is supplied to the burner; and the object thereof is to prevent the can from being filled while the burners are lighted, thereby effectually rendering the stove safe in its practical use.

The above said invention is an improvement on a safety oil-can for vapor-stoves for which a patent was granted to me the 14th day of November, 1882, No. 267,334. A brief description only of the abovesaid patent will be necessary in this place to enable others skilled in the arts to understand the nature of this improvement as applied to said patent and shown in the drawings.

Figure 1 is a vertical transverse section of the oil-can. Fig. 2 is a top view, and Fig. 3 is a detail view.

Like letters of reference denote like parts in the drawings.

A represents the body of the can above referred to, which is or may be like those in ordinary use. Depending from the bottom of the can is an eduction-pipe, B, in which is loosely fitted a piston-rod, C.

To the lower end of the rod is secured a packing, D, of leather or other suitable material, forming the piston-head of the rod C, and which is adapted to the pipe so as to work air-tight therein, for a purpose presently shown.

The piston-rod ascends up through the top of the oil-can and through the bowl E, and terminates in a handle, F, by which the piston is operated. *d'* is a lid or cover attached to the handle F, and by which the bowl is covered when the piston is pushed down, as shown in the drawings.

Inclosing the pipe B, above referred to, is a tube or pipe, H, opening at the top into an air-chamber, I, and communicating at its lower end with the pipe B by an aperture, *a*, in the lower end of said pipe B. Otherwise there is no communication of the air chamber with the interior of the oil can.

Practically the operation of the above-described device is as follows: By means of a pipe, *g*, screwed into the neck J, the oil-can is put in communication with the burner or burners of the stove, and thereby supplied with fluid from the can. The neck J is secured to the terminals of the pipes H and B in any convenient manner and covers both of the said pipes. (See Fig. 1.) The oil passes down the pipe B to the aperture *a* and runs out through the same above the piston D into the pipe *g*, above referred to. The aperture *a* is located at or near the terminal of pipe B, and sets the pipes H and *g* and parts above and below the piston D of the pipe B in open relation with each other.

In order to fill the can the piston is drawn upward until the wire stop K strikes the bottom or lower edge of the tube H', when by partially rotating the piston from right to left the projecting end *x* of the stop enters one of the inclined slots *y* in the tube H', and the piston is thereby firmly held in position while the can is being supplied with fluid. The stop K is secured to the rod C and projects out laterally from the same, as seen in Fig. 1. The inclined slots *y* are formed in the circumference of the tube H', as seen in Fig. 3, and adapted to receive the stop K and hold suspended the piston D, for the purpose above stated. To lower the piston, a partial rotation of it in the reverse direction will disengage the stop K from the slot and the piston be unlocked. The tube H' is in open relation with an opening in the bottom of the bowl E, and on withdrawing the rod C, which passes through said tube and opening, the cover is lifted from off the bowl and an annular passage formed by the rod C, and the opening in the bowl is exposed or made accessible for filling the can. Said lifting of the piston for the purpose above specified forms in the pipe B a partial vacuum, thereby causing the fluid that is in the pipe (connecting the burners with the oil-can) to flow back from the burners into the pipe B. The supply of oil to the burners is thus drawn off. Said burners then, as a consequence, go out, and thereby prevent the danger attending the fill-

ing of the can with oil while the burners are lighted.

It oftentimes becomes necessary to fill the oil-can when the burners are not lighted. The filling of the can at such times is effected in the same way as when the burners are lighted—that is, by raising the piston, as above described. This lifting of the piston when the burners are not lighted requires considerable force in consequence of the vacuum formed in the pipe below, the piston by the external air being shut off from the pipe in consequence of the valve in the supply-pipe being closed; hence considerable pressure is exerted on the upper end of the piston-rod by the atmosphere, causing the required force above mentioned to lift the piston. To relieve the upper side of the piston from the atmospheric pressure alluded to, so that the rod may be pulled up easily, is the purpose of the air-chamber I, the air in which (on lifting the piston above the aperture *a*) passes through said aperture and follows the upward progress of the piston, thereby filling the vacuum caused by said piston's upward movement, so that the piston is easily drawn upward for the purpose above specified.

It will be proper to remark here that when the oil-can is filled and the piston pushed down, as shown in the drawings, the air in the chamber is thereby subjected to some compression, (more or less,) as the height of the oil may be above the piston, for the reason that the oil will pass up around the pipe B toward the air-chamber and compress the air in the chamber, so that when the piston is raised for filling the can when the burners are not lighted the air in the chamber expands and by its elasticity follows the piston, filling the vacuum below it, thereby preventing the hard pull otherwise required for that purpose, as aforesaid.

What I claim as my invention, and desire to secure by Letters Patent, is—

In vapor-stoves, the combination of the oil-can or reservoir A, having the pipe B downwardly projecting therefrom, a lateral opening at or near the lower end thereof, the tube H, with the air-chamber I, surrounding the pipe B and connected therewith at the lower end by means of the neck J and at the upper end to the can the piston D, within the pipe B, having the rod C extending through the can A and the tube H, and the means for holding said piston suspended, constructed and arranged substantially as and for the purpose set forth.

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

ZEBULON DAVIS.

Witnesses:
W. H. BURRIDGE,
FRANK J. BORT.