

(No Model.)

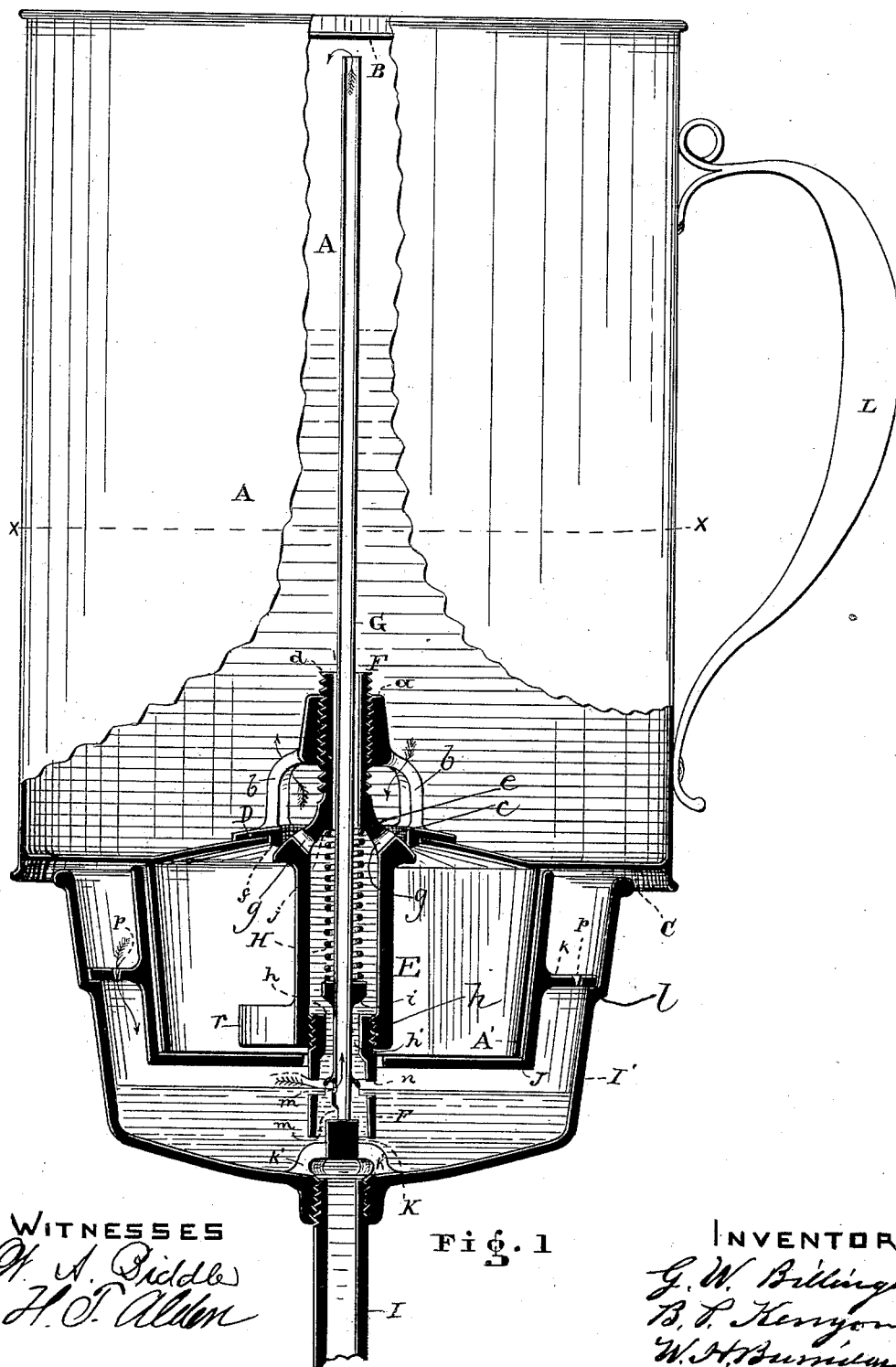
2 Sheets—Sheet 1.

G. W. BILLINGS & B. P. KENYON.

REMOVABLE TANK FOR VAPOR STOVES.

No. 423,117.

Patented Mar. 11, 1890.



WITNESSES
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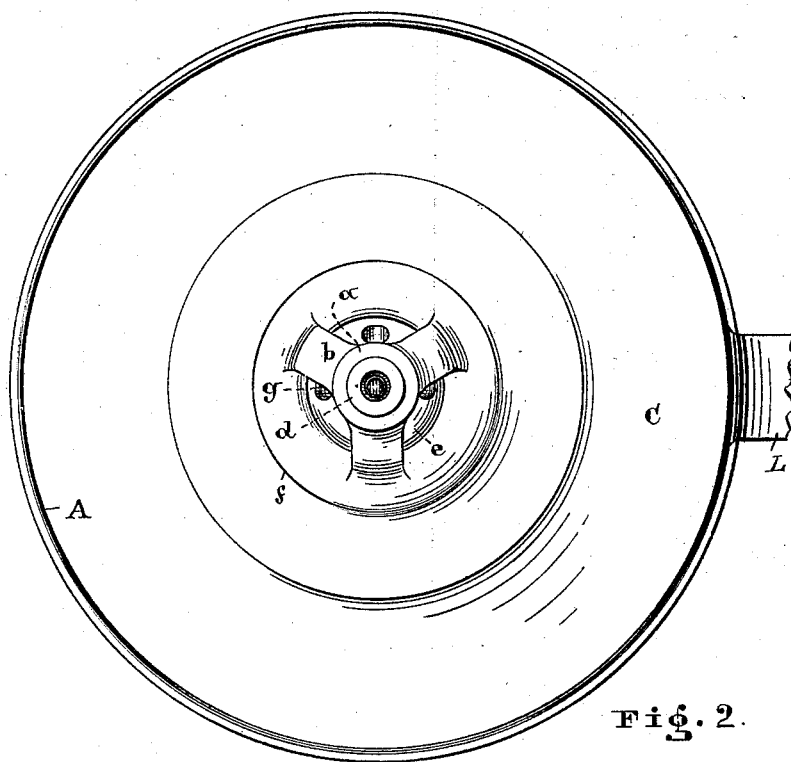


Fig. 2.

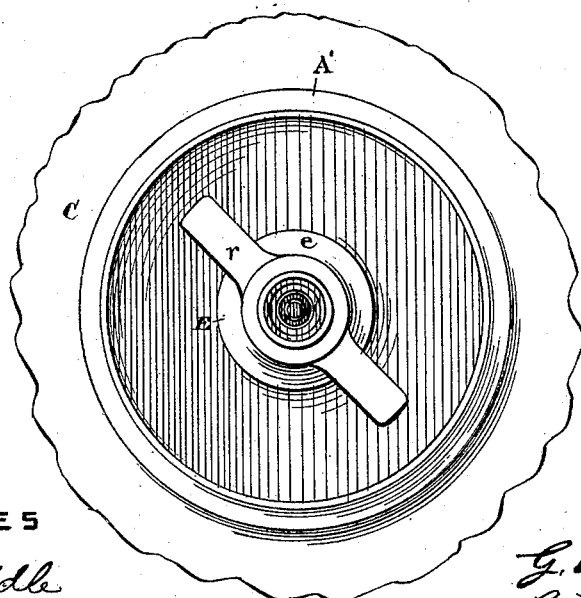


Fig. 3

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UNITED STATES PATENT OFFICE.

GEORGE W. BILLINGS AND BERTRAND P. KENYON, OF CLEVELAND, OHIO.

REMOVABLE TANK FOR VAPOR-STOVES.

SPECIFICATION forming part of Letters Patent No. 423,117, dated March 11, 1890.

Application filed October 4, 1889. Serial No. 326,047. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. BILLINGS and BERTRAND P. KENYON, both of Cleveland, in the county of Cuyahoga and State of Ohio, citizens of the United States, have invented a new and Improved Removable Tank for Vapor-Stoves; and we hereby declare that the following is a full, true, and exact description thereof.

Our invention consists in a removable tank or reservoir used in connection with vapor-stoves, the object of which is to render said stoves safer in their use and to prevent the danger of an explosion while filling the tank.

This improved tank is constructed to be filled from the under side only. Thus to enable filling it must be removed from the stove and turned upside down.

That the invention may be fully understood reference will be had to the following specification and the annexed drawings, in which—

Figure 1 represents a vertical central section of said tank and attachments of the oil-supply pipe. Fig. 2 is a horizontal section on line *x x*, Fig. 1, and Fig. 3 is a partial exterior view of the lower end of said tank.

Like letters of reference denote like parts in the drawings and specification.

In Fig. 1, A represents the tank proper; B, the top and C the bottom thereof, in connection with which the means for filling and operating said tank are arranged. Said means substantially consists of the yoke-plate D, the plug E, with nozzle F, and the air-tube G, with spring H. The yoke-plate D, which is centrally attached to the bottom C, is provided with a sleeve *a*, which by means of the arms *b* is held suspended concentrically with and over the opening *c* of the plate or ring *f*, forming the base of said yoke, as seen in Fig. 1. The bore of said sleeve is threaded to receive the threaded stem *d* of the plug E, by means of which communication with the exterior and interior of the tank is controlled—that is, the head *e* of said plug is seated and tightened upon the ring *f* when the tank is in operation and relieved or unscrewed when it is to be filled. In the head *e* of said plug E are perforations *g*, which cause an open relation of the interior of the tank with that of the plug, which at the free end has a nozzle F inserted, as seen in Fig. 1. The inner face *h*

of said nozzle serves as a seat for the valve, which is formed by the swell *i* of said tube. Thus the passage *h'*, leading from the interior of the tank, is controlled by said valve. Between said valve or swell and the shoulder *j* of the plug E the spring H is interposed, as seen in Fig. 1, which spring holds the valve in contact with its seat when and while the tank is detached from the stove.

For connecting this can to the stove the supply-pipe I is provided with a pan I', within which are held concentrically suspended the cup J and the stud K, as seen in Fig. 1, it being the cup J into which the extension A' of the can A is set for support of the can. Simultaneously with placing the can into the cup J the tube G will also be brought in contact with the stud K and pressed inwardly, so as to lift the valve *i* off the seat *h*, and thereby establish automatically open relation with the interior of the can and the pan or pipe respectively.

The cup J is provided with a flange *k*, which bears upon the shoulder *l*, and the stud K with arms *k'*, which connect with the bottom of the pan.

The nozzle F is threaded into the lower end of the plug E, as seen in Fig. 1, to allow of insertion and removal of the tube G and spring H. Said nozzle, as well as the tube, has openings in the sides, as seen at *m* and *n*, to admit of air passing up through the tube G and into the tank A to enable the liquid therein to run out. The flow of gasoline from the tank will continue until the air-supply to the interior is cut off, in which instance the atmospheric pressure upon the fluid in the pan will check said flow. The air enters through the openings *p* in the flange *k* of the cup J.

When the burners are in operation, the level of the gasoline in the pan will remain unchanged—that is, the supply follows the consumption of gasoline instantaneously and continuously so long as there is gasoline in the tank or can. The moment the level of the gasoline in the pan falls below the openings *m* and *n* air will enter through the said openings, and if atmospheric pressure is prevailing inside the can as well as outside, then the gasoline will seek its equilibrium, which motion again is checked as soon as the air-

inlets *m* and *n* become closed or the passage of air into the tank arrested.

The openings *n* and *m* leading to the only inlet of air to the interior of the tank controls the level of the gasoline in the pan *I'* in so far as the gasoline cannot fall without being replenished, and not rise appreciably without circulation of air, for the reasons above stated.

When the tank is to be filled, it must be removed or lifted out of the cup, turned over, and the plug *E* loosened before gasoline can be poured in. Thus the danger of filling the tank while the burners are in operation is avoided in so far as the filling can be or is done remotely from the stove. As long as the tank is removed from the position as shown, the action of the spring *H* will close the valve, so that no liquid can run past its seat; hence on turning of the tank for replacement into the pan no gasoline can be spilled. The moment, however, the pipe *G* touches the stud *K*, then the former will be lifted by the latter and the valve at *i* opened to supply the burners in the manner as hereinbefore stated.

The nozzle *F* extends over the pipe *G* to protect the latter from being accidentally opened when not in use.

The tube *G*, while it internally conveys air through the openings *m m* to the tank for supplying and controlling the passage of oil for the burners, as set forth above, serves externally, in the form and under conditions as shown, as a self-closing valve, and is thus of triple use—viz., an air-tube, a valve, and a holder for rendering said valve self-closing.

The plug *E* is provided with wings *r*, as shown in Fig. 2, to facilitate the opening and closing of the same, while the handle *L* on the tank admits of an easy removal and replacement from and upon the pan.

In filling the tank the extension *A'* serves

as a funnel, and when in position as a means for properly holding said tank in connection with the means above referred to.

What we claim, and desire to secure by Letters Patent, is—

1. A removable supply-tank for vapor-stoves, having the plug *E*, with an interior self-closing valve, the tube *G*, and nozzle *F*, arranged in connection with the yoke-plate *D* of the bottom of said tank, constructed and arranged substantially as and for the purpose set forth.

2. In a vapor-stove, the supply-tank having a threaded perforated plug *E* in the bottom thereof, with the nozzle *F*, tube *G*, and spring *H*, arranged co-operatively within and by said plug, in combination with the pan *I'* of the supply-pipe, the cup *J*, and stud *K*, constructed and arranged substantially as and for the purpose set forth.

3. The combination, with a vapor-stove, of a tank arranged for ready connection with the supply-pipe of said stove and provided at the under side with an extension *A'*, yoke-plate *D*, and the plug *E*, having threaded connection with and being seated upon said plate, in the manner and for the purpose set forth.

4. In a removable supply-tank for vapor-stoves, the combination, with the bottom thereof, of a yoke-plate *D*, the plug *E*, with nozzle *F*, and tube *G*, with spring *H*, said plug being adapted to receive said tube, and the tube provided with a valve *i* for control of the oil-outlet, constructed and arranged substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE W. BILLINGS.
BERTRAND P. KENYON.

Witnesses:

W. H. BURRIDGE,
W. A. BIDDLE.