Oct. 15, 1940. O. C. ZACHAR 2,218,371

COMBINATION FILL AND VENT BOX

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Fig. 1.

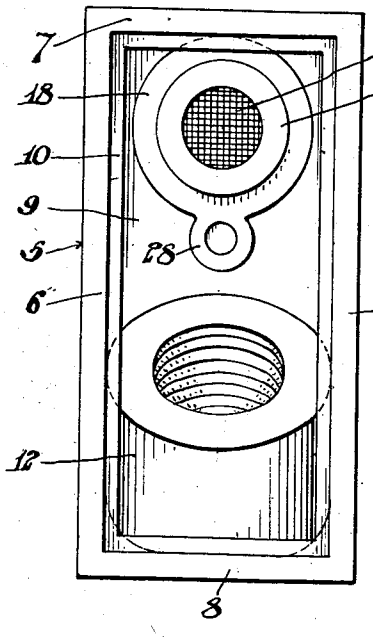

Fig. 3.

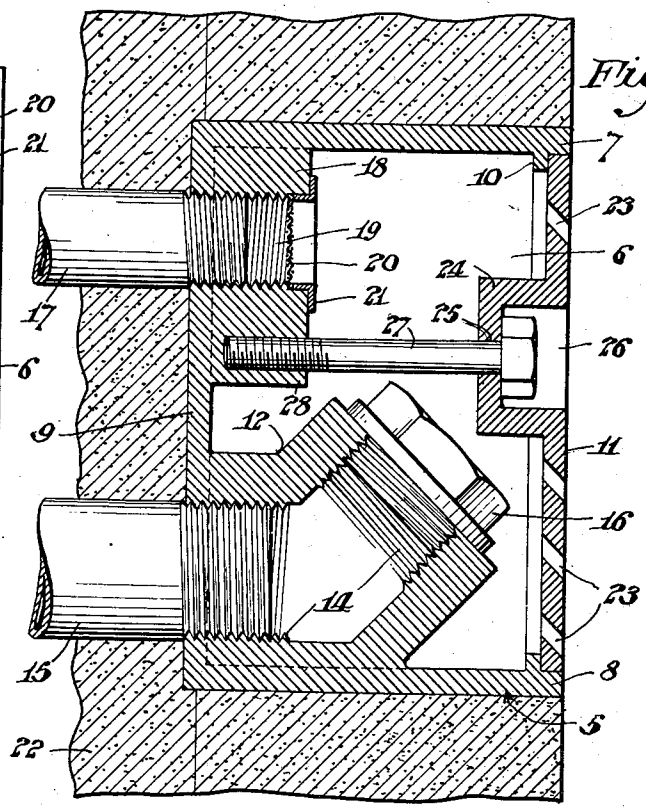

Fig. 4.

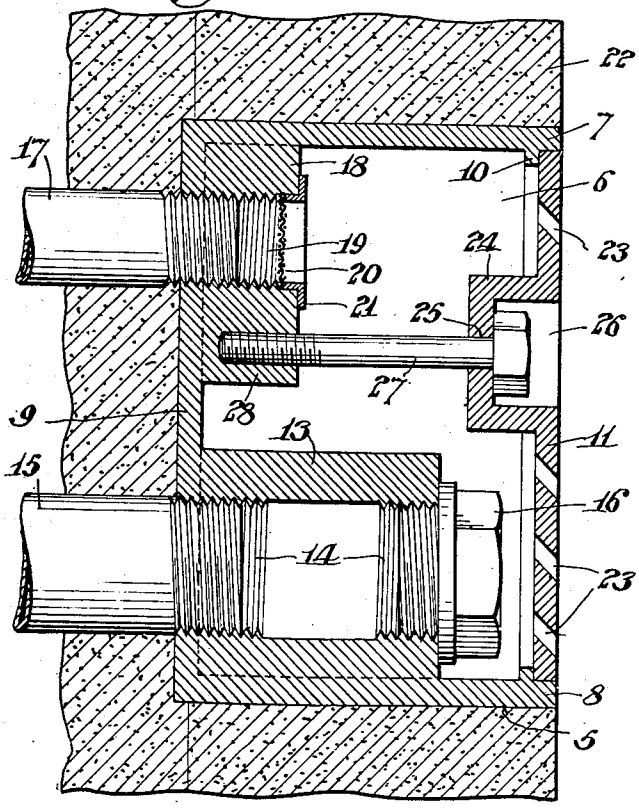

Fig. 2.

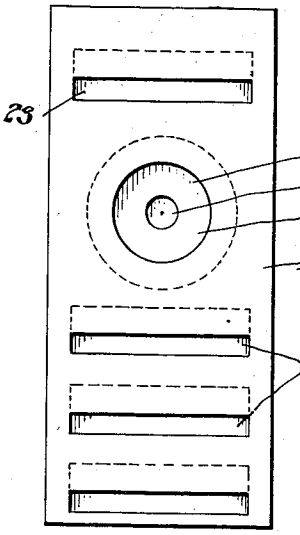

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Fig. 5.

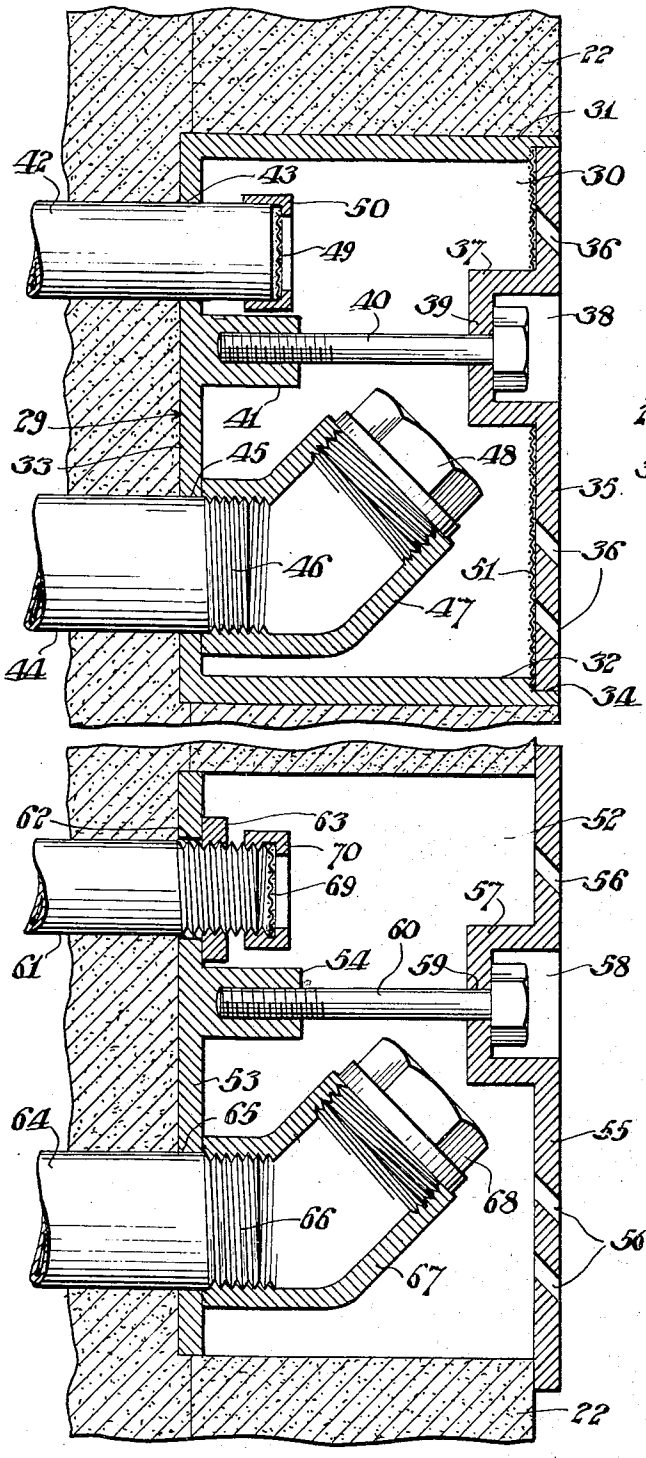

Fig. 6.

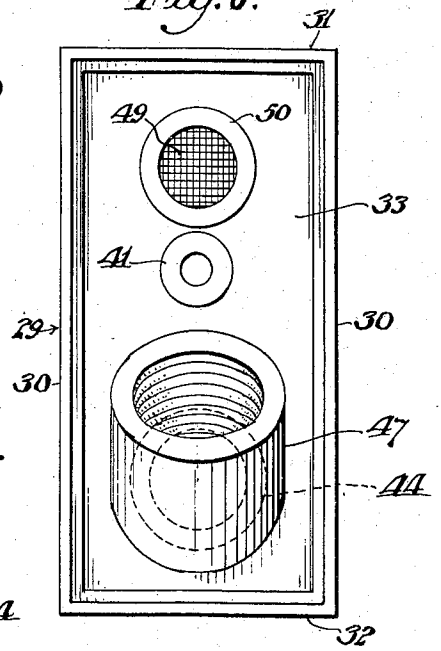

Fig. 8.

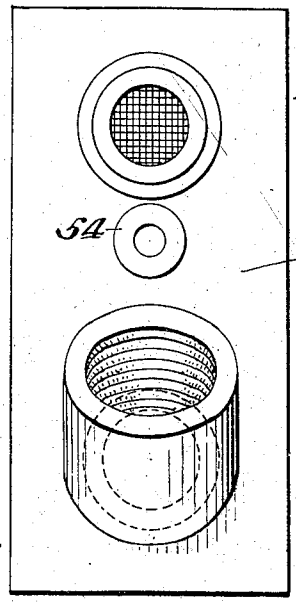

Fig. 7.

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COMBINATION FILL AND VENT BOX

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Application June 14, 1939, Serial No. 279,125

3 Claims. (Cl. 220—3.2)

My invention relates to a new and useful combination fill and vent box adapted for use in connection with the fill and vent pipes of oil storage tanks which hold the fuel oil of oil burners and has for one of its objects to provide a structure that will house the inlet end of a fill pipe and the outlet end of a vent pipe and practically prevent unauthorized access thereto or tampering therewith.

Another object of the invention is to provide an enclosure for the outer ends of a fill and vent pipe whereby said outer ends of the pipes may be located in close proximity to each other which cannot be if they are unprotected. Thus the invention makes possible a considerable saving in material.

Another object of the invention is to provide means that permits the use of a short vent pipe thereby allowing easy escape of air because of a reduction in friction and consequently prevents the oil from backing up in the fill pipe which does occur where the vent pipe is long or has a number of bends to reach a convenient and suitable location as its terminus.

Another object of the invention is to provide a box or housing within a building wall for the outer ends of the fill and vent pipes to eliminate protuberances beyond the building line.

An essential feature of the invention is the safety factor, since there are no projections for a person to come in contact with while walking, running or during a fall, and the vent cannot be stopped up so that the pressure caused by the filling operations would burst the storage tank.

A further object of the invention is to provide a box having fixtures to receive fill and vent pipes, said box including a vented lid or cover detachably secured to the body of the box.

With the above and other objects in view, this invention consists of the details of construction and combination of elements hereinafter set forth and then designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same I will describe its construction, referring by numerals to the accompanying drawings forming a part hereof, in which:

Fig. 1 is a front elevation of one form of my invention.

Fig. 2 is a front face view of the lid or cover.

Fig. 3 is a vertical sectional view of the complete box showing it mounted in a wall of a building and the fill and vent pipes attached thereto.

Fig. 4 is a view similar to Fig. 3 of a modification.

Fig. 5 is a sectional view of another modification.

Fig. 6 is a front view of the box without the cover.

Fig. 7 is a sectional view of a further modification.

Fig. 8 is a face view of the plate.

In carrying out my invention as herein embodied 5 represents the box body which may be of any desirable shape although preferably oblong. Said body includes side walls 6, a top wall 7, a bottom wall 8 and a back wall 9, leaving the front open. Within the body and spaced a short distance from the front edge thereof is a bead 10 against which fits a cover or lid 11 occupying the space between said bead and the front edge of the box body so that the front face of said cover is flush with the front edge of the body.

Inside of the box body at one or the bottom end is formed an integral angular conduit, boss, or fixture 12 as in Figs. 1 and 3, or a straight conduit or boss 13 as in Fig. 4. The conduit or boss, either the angular or straight one, opens out through the back of the box body while its inner end terminates inside of the body short of the bead 10 and both ends of the conduit are internally threaded as at 14. A fill pipe 15 is connected to the rear end of the conduit while the forward end of said conduit may be temporarily closed by a screw plug 16.

A vent pipe 17 is projected into the box through the back wall of the body at the other or top end thereof. While it is not essential that said vent pipe have threaded connection with the box body the latter may have a vent conduit 18 formed as an integral part thereof within the same. This vent conduit may be relatively short and its rear end opens through the back wall 9 to receive the vent pipe and the end may be internally threaded, as at 19, to receive the threaded end of said vent pipe

To prevent foreign matter entering the vent pipe, its inner end may be protected by a screen 20 which may be carried by a ring 21 frictionally held in the inner end of the vent conduit 18.

From the foregoing it will now be obvious that I have provided a chamber for the terminals of both the fill and vent pipes which chamber is temporarily closed by the cover to prevent access to the pipes by unauthorized, curious or mischievous persons. When the chamber is formed by the box, the latter may be embedded in a

building wall 22 and if said building wall is thicker than the depth of the box body, the pipes are projected through suitable holes communicating with the fill and vent conduits.

The lid or cover 11 has vent apertures 23 therethrough preferably in the form of transverse inclined slots projecting upwardly and inwardly from the outer face of the cover to prevent rain, snow and the like from entering the box and to hinder the insertion of wires, sticks or similar articles into the pipes. The cover is also provided with an inwardly projecting hollow knob 24 having a hole 25 and said hollow knob provides a recess 26 to house the head of a fastening device 27. The fastening device herein illustrated is a bolt which passes through the hole 25 and is screwed into a threaded hole in a boss 28 on the inner face of the back wall of the box body. The recess 26 should be of such size as to permit the insertion of the proper tool for tightening or loosening the fastening device but prevent the use of ordinary tools, wrenches or improvised instruments.

From the foregoing description it will be apparent that since the fill and vent pipes from the same storage tank terminate in the one fill and vent box, said pipes will be of substantially the same length so that there will be a considerable saving in installation time and material. Due to the fact that the fill pipe is generally short, an installation with a box according to my invention will also provide a short vent pipe, thus reducing to a minimum the likelihood of trapping the air and backing up oil into the fill pipe.

In operation, when oil is to be delivered, the fastening device 27 is withdrawn and the cover 11 removed so that access may be had to the chamber or the interior of the box where the outer ends of the fill and vent pipes terminate. The screw plug 16 is now removed and the filling hose from the tank truck connected to the filling conduit, either 12 or 13, and the oil allowed to flow or be forced through the fill pipe 15 to the storage tank. The air in the storage tank will readily escape through the vent pipe and not interfere with the filling operations. After said filling operations are completed the hose is disconnected and the cover 11 replaced to protect the pipes and associated parts.

By making the filling conduit 12 of angular formation, it is much easier to apply tools for operating the screw plug and the hose fittings by which a filling hose is connected to the filling conduit, but by making the filling conduit straight the box may be installed with said filling conduit at the top, bottom or either side thereof.

In Figs. 5 and 6 I have illustrated a box body 29 which like the previously described form is set in a recess or chamber in the building wall 22 and this box body comprises side walls 30, a top wall 31, a bottom wall 32 and a back wall 33, leaving the front open. The front edge of the body is provided with a rabbet 34 to receive the cover 35 having vent apertures 36. An inwardly projecting hollow knob 37 is formed on the cover providing a recess 38 from which leads a hole 39 through the inner or end wall of the knob. A fastening means 40, such as a bolt, is projected through the hole 39 and screwed into the boss 41 which is provided with a threaded hole for this purpose so the cover may be held in place.

A vent pipe 42 is projected through a hole 43 in the back 33 of the box body and allowed to stick into the recess or chamber thereof. This eliminates the necessity of threading that end of the vent pipe which enters the box. The fill pipe 44 also has an end projected through a hole 45 in the back 33 of the box body and this end is threaded, as at 46, to receive the fitting of fixture 47 to provide means for connecting a hose to the fill pipe. The fitting 47 is internally threaded at both ends so that one end may be attached to the fill pipe and the other end closed by a screw plug 48. In practice the fill pipe with the fitting 47 thereon may be inserted through the front of the box body, the hole 45 and a hole in the building wall and the inner end of said fill pipe connected by a union coupling to some suitable part of the pipe line in the cellar or other portion of the building where the oil storage tank is located.

The end of the vent pipe 42 may be covered by a screen 49 held in place by a ring 50 snugly fitting over said vent pipe or in lieu of this construction a screen 51 may be placed on the inside of the cover 35. If desired, both screens can be used at the same time and it is to be understood that the screen 51 can be used in conjunction with any of the structures disclosed.

In that form of the invention illustrated in Figs. 7 and 8 the building wall 22 about the recess or chamber 52 forms the top, bottom and side walls of the box and in said chamber is set the plate 53 provided with a boss 54. Disposed across the open front of the chamber 52 so as to engage the face of the building wall surrounding the chamber is a cover 55 having vent apertures or slots 56 and provided with an inwardly projecting hollow knob 57 supplying a chamber 58 from which leads a hole 59 through the inner or end wall of the knob. A fastening means 60, such as a bolt, is projected through the hole 59 and screwed into the boss 54 which is provided with a threaded hole for this purpose. When the fastening means is in place the cover will be held in position and the head of said fastening means will be within the chamber 58 of the knob.

A vent pipe 61 is projected through a hole 62 in the plate 53 and the end of said vent pipe may be threaded to receive a lock nut 63 which will bear against the outer face of the plate and thereby assist in holding the plate in place. The fill pipe 64 also has an end projected through a hole 65 in the plate 53 and this end is threaded, as at 66, to receive the fitting or fixture 67 the same as described in connection with the showing in Figs. 5 and 6. The fitting 67 may be temporarily closed by a screw plug 68.

The vent pipe 61 is shown as protected by a screen 69 held in place by a ring 70 placed over the end of said vent pipe, but as previously stated, a screen 51 may be used instead of or in conjunction with the screen 69.

It might be well to state at this point that I am aware of the use of service boxes in many instances, but what I consider novel and of utility is the provision of a structure wherein the terminal ends of both a vent pipe and a fill pipe of an oil storage tank used in connection with an oil burner may be housed in one location. This not only makes possible the use of two pipes of practically the same length but when oil is being placed in the storage tank, the vent pipe is visible to the operator so he may become aware of any overfilling of the tank.

Of course I do not wish to be limited to the exact details of construction herein shown and described, as these may be varied within the scope of the appended claims without departing from the spirit of my invention.

Having thus described my invention, what I claim as new and useful is:

1. In a device of the kind described, a vent and fill box comprising a casing having a base portion, a rear wall, top and side walls with its front face open, said rear wall having two openings only arranged in vertically spaced relation, means wholly within the casing adjacent the base thereof providing a chamber in open communication with the bottom opening and in sealed relation with said back wall, said chamber having a threaded outlet opening upwardly towards the open front face at an angle of substantially forty-five degrees to the back wall, the bottom wall of said chamber adjacent the front of said casing being inclined upwardly, an apertured plate covering said open front face of said casing, and means for holding said plate in closed position.

2. An outlet box for vent and fill pipes adapted to be placed in a flush relationship with a building wall, comprising a box having a continuous side wall and being open at the front, a rear wall having two openings therein arranged whereby each opening will lie in a plane wherein one plane is above the other plane, a hollow boss formed integral with the box and being located within the lower portion of said box, said boss having its end internally threaded and having its rear end in communication with the lower opening and defining a filling passageway extending towards the front of and terminating within said box, the other of said openings being adapted to receive a vent pipe, and an apertured cover detachably connected to the front of said box and being adapted to communicate at all times with the atmosphere.

3. A combined unitary vent and fill box comprising an integrally formed casing having a continuous closed wall, a front face portion of said box being open, a rear wall portion of said box integrally formed with said closed wall, said rear wall having two bores defining openings therein, said openings being arranged in a spaced relationship with one opening being spaced above the other opening, a hollow boss located in the lower portion of said casing, said boss communicating with the lower opening and defining a filling passage inclined upwardly towards the front of said box and terminating within said box, the other of said openings being adapted to receive a vent pipe, and an apertured cover detachably connected to the front of said casing and being adapted to communicate with the atmosphere at all times.

OTTO C. ZACHAR.