Oct. 29, 1929. E. R. SAGE 1,733,559

SEALED GASOLINE FILL BOX

Filed Sept. 23, 1927 2 Sheets-Sheet 1

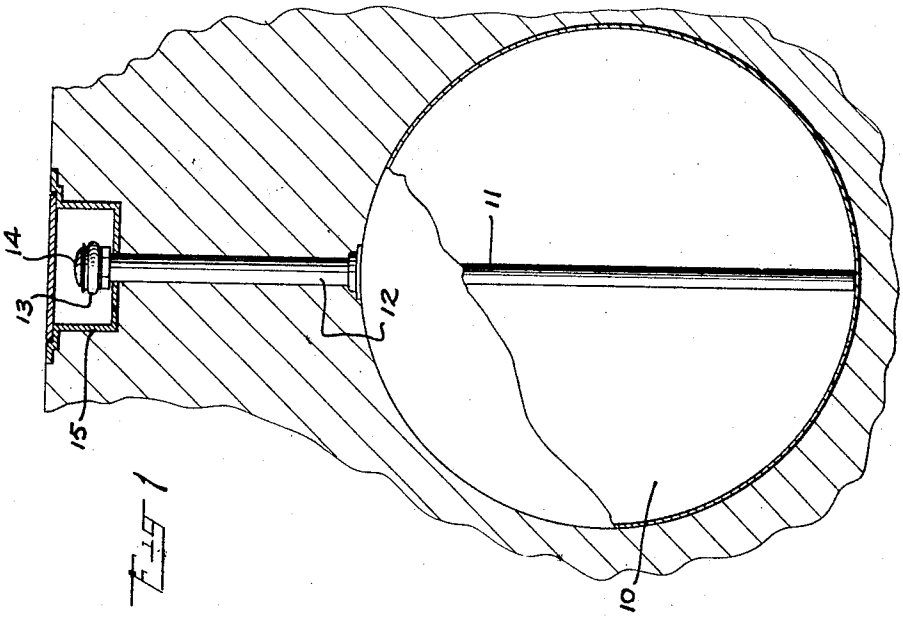

Fig 1

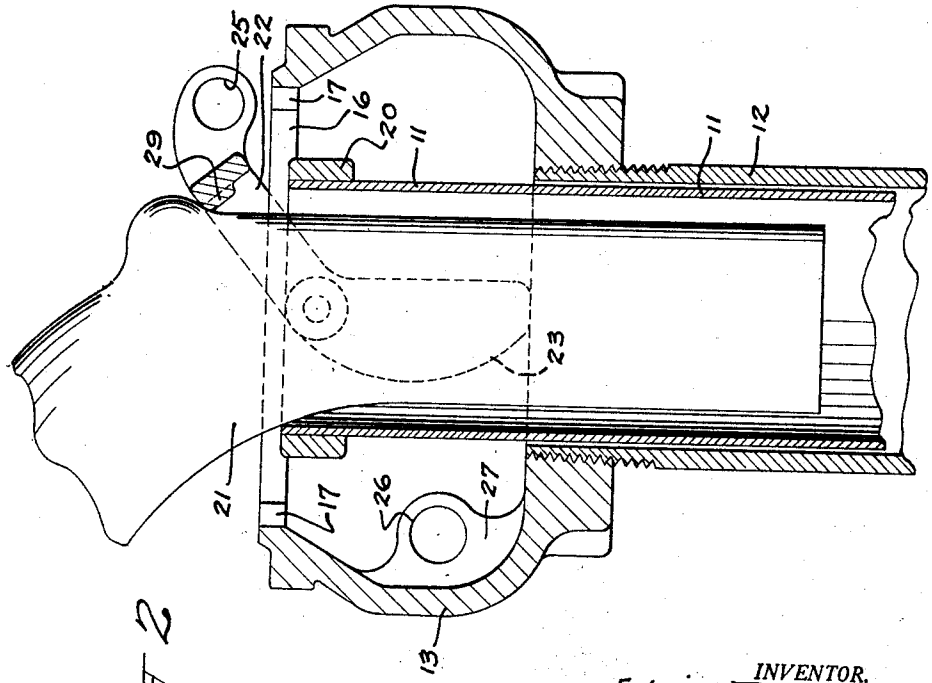

Fig 2

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Fig 4

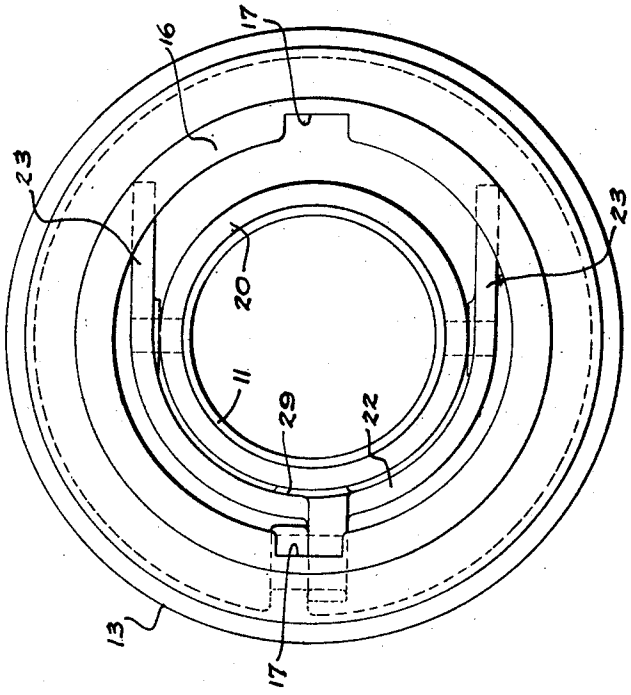
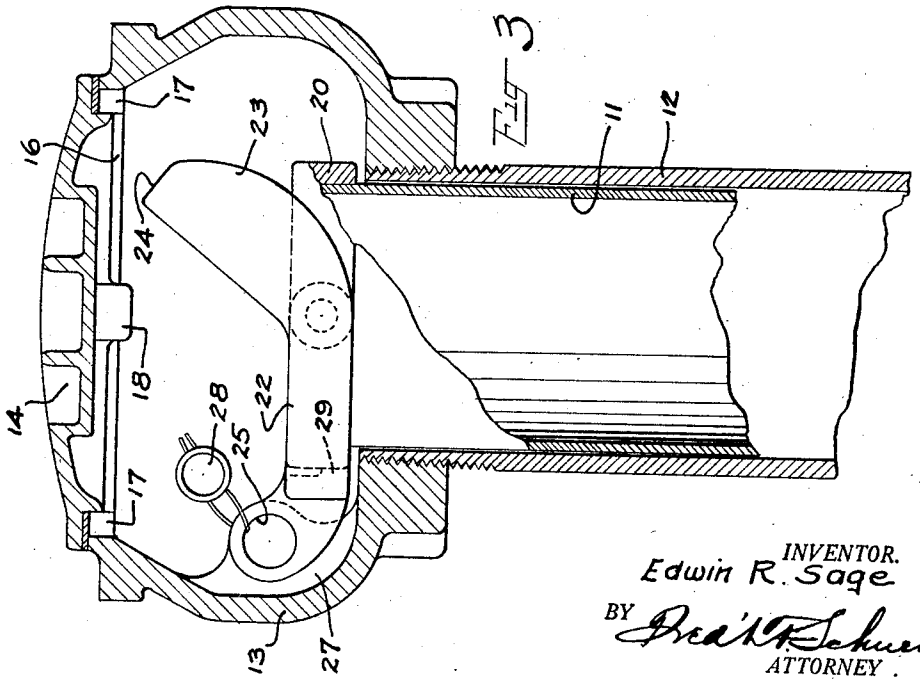


Fig 3



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Patented Oct. 29, 1929

1,733,559

UNITED STATES PATENT OFFICE

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SEALED GASOLINE FILL BOX

Application filed September 23, 1927. Serial No. 221,604.

The invention relates to gasoline storage tanks such as are used at gasoline filling stations to serve as a reservoir for the dispensing apparatus, and is more particularly concerned with the fill pipes employed in connection therewith. In the use of these tanks, it is desirable that the operation of filling the same with gasoline be restricted to authorized parties so that an inferior grade of gasoline can not be substituted.

The invention has for its object a novel filling tube arrangement for use in connection with these tanks which, while allowing of the necessary accessibility, as for measuring purposes, will adequately insure against filling of said tank except by an authorized agent, the tank being normally sealed so that it is necessary first to break the seal before the filling operation may be conducted. However, it is very desirable that the sealing means should not interfere with determining the volume, or rather the level, of the liquid in the tank as usually conducted by inserting a graduated wooden stick through the fill pipe, and estimating the level of the gasoline from the wetted portion of the stick. The novel arrangement in nowise interferes with this procedure, yet positively insures against unauthorized filling of the tank.

A further object of the invention resides in the specific means set forth for maintaining the sealing fill tube in elevated position during the operation of filling the tank.

These various objects are attained by providing a bodily movable fill tube which extends into the tank for contact with the bottom thereof so that the said tube at its inner end will be substantially sealed at this point and prevent any appreciable filling of gasoline or the like into the tank. Means are provided, also, in connection with this tube whereby its aforesaid position is fixed and sealed in any suitable manner so that it may not be raised off the bottom of the tank except by an authorized agent, said means, also, when the seal is broken, permitting as well the elevation of the tube to clear the outlet at the bottom and allow of the introduction of the gasoline into the tank.

The nature of the invention, however, will best be understood when described in connection with the accompanying drawings, in which:

Fig. 1 is an end view of the filling tank and novel sealing arrangement of its fill tube therein, a portion of the end of the tank being broken away to disclose said tube extending therein and the tank being shown as sunk in position in the ground.

Fig. 2 is a fragmentary vertical section of the head of the fill tube with the latter shown in elevated position and maintained in this position by engagement with the filling nozzle introduced into said tube.

Fig. 3 is an enlarged vertical section through the head of the fill tube.

Fig. 4 is a plan thereof with the cover removed.

Referring to the drawings, 10 designates a tank of suitable capacity indicated, in accordance with the usual practice, as sunk into the ground which has been excavated for this purpose, said tank having a fill tube 11 extending therein and surrounded closely by a protecting tubular casing 12 which in practice is the usual fill pipe. To the upper end of said casing is screwed a housing 13, the latter being provided with a removable cap 14 and the whole mounted and sealed in the usual sunken type of fill box 15 the top of which is flush with the surface of the ground, as indicated in Fig. 1 of the drawings; or any other suitable outer terminal may be provided for the outer end of the fill tube so as to render it conveniently accessible when it is desired to fill the tank. The cap or cover 14 may conveniently be locked to the housing 13 in providing an inwardly directed circular lip or flange 16 thereof with notches or recesses 17 through which diametrically disposed lugs 18 of the cover may pass and then be locked underneath said lip in giving the said cover, for example, a quarter turn.

In accordance with the invention, the fill tube 11 extends beyond the outer end of said tubular casing 12 into the body of the housing 13; and a collar 20 is brazed, riveted or welded to said outer end of the sleeve, while the latter is of such a length as to rest normally substantially on the bottom of the tank 10, as indi-

cated in Fig. 1 of the drawings, and thereby substantially seal said tube at its inner end. It will be understood, of course, that a perfectly tight joint is not effected at this point and that liquid could be slowly filled into the tank therethrough as well as betwen the pipe and its casing; but the procedure would be entirely too slow for practical purposes, it being impossible to fill the tank in any reasonable time.

Provision is made, however, for elevating slightly the said fill tube 11 to open more or less the aforesaid sealing joint at its lowermost end and thereby permit of filling the tank in the usual manner by inserting a nozzle 21 therein, as indicated in Fig. 2 of the drawings, which shows, also, the filling tube in its elevated position. The elevation of this tube is readily accomplished by pivoting to the collar 20 a bifurcated lever 22, the pair of arms 23 of which embrace the outer end of the tube and serve as cams to engage the bottom of the housing for lifting said fill tube when the outer arm portion of the lever is raised. The outer end 24 of each cam arm 23 is more or less flattened so that when the arms 23 are brought to a vertical position lever 22 is substantially fixed and the tube is supported through the arms 23 contacting with the bottom of the housing 13, as indicated in Fig. 2 of the drawings. In this position, also, the outer end of tube 11 is brought into close proximity to the top of the housing so that the filling nozzle 21 may conveniently be inserted therein; and this nozzle, furthermore, serves to obstruct the return of the tube 11 through contact with the lever 22.

When the filling operation is concluded and the nozzle 21 withdrawn, lever 22 is turned over to the position indicated in Fig. 3 of the drawings wherein it lies substantially along the bottom of the housing. Tube 11 is thereby returned to its normal position wherein its innermost end contacts with the bottom of the tank 10; and, in order to prevent unauthorized filling, provision is made to lock or seal the said lever so that the tube may not be elevated except by an authorized agent. This is conveniently accomplished by providing the outer end of lever 22 with an opening or perforation 25 which is adapted, when the lever is in the position indicated in Fig. 3, to register with a similar perforation 26 of a lug 27 directed inwardly from the wall of housing 13. Suitable sealing means such as seal 28 may then pass through the tube perforations and will prevent tampering with the fill device. A projection 29 of the lever 22 further insures registry of said perforations through limiting the downward motion of said lever by contact of said projection with the collar 20, and insures also against relative movement between said lever and sleeve when the former is in the locked position.

The foregoing arrangement does not require any alteration to existing storage tanks and is readily and inexpensively installed. It involves no valves or other devices of this nature, as the fill tube effects a practical seal merely through resting under its own weight on the bottom of said tank, as set forth. It is, furthermore, readily bodily lifted in the manner disclosed to break this seal and maintained in raised position for the operation of filling the tank. It will be noted in this connection, also, that the position of the inner end of the fill tube remains close to the bottom of the tank so that in the filling operation gasoline is introduced below the level of the gasoline therein without the usual splashing and agitation of the same and consequent loss of the more volatile constituents thereof. When the tube is restored to its sealed position, there is, nevertheless, sufficient leakage therethrough so that the level of liquid therein will be the same as the level of liquid in the tank 10; and as the upper end of the tube is at all times open and readily accessible, the usual measuring stick may be inserted to determine the volume of liquid in the tank.

I claim:

1. The combination with a filling tank having a tubular projecting casing extending upwardly therefrom, of a filling sleeve fitting therein, movable longitudinally thereof and adapted normally to rest on the bottom of said tank to effect thereby a substantial seal thereat, a housing about the outer end of the casing and sleeve, and means pivotally connected with the outer end of the sleeve and adapted for engagement with the housing to elevate said sleeve.

2. The combination with a filling tank having a tubular protecting casing extending upwardly therefrom, of a filling sleeve fitting therein, movable longitudinally thereof and adapted normally to rest on the bottom of said tank to effect thereby a substantial seal thereat, a housing about the outer end of the casing and sleeve, and means pivotally connected with the outer end of the sleeve and adapted for engagement with the housing to elevate said sleeve, and means to lock the sleeve against movement relatively to its casing.

3. The combination with a filling tank having a tubular protecting casing extending upwardly therefrom, of a filling sleeve fitting therein, movable longitudinally thereof and adapted normally to rest on the bottom of said tank to effect thereby a substantial seal thereat, a housing about the outer end of the casing and sleeve, a collar secured to the outer end of said sleeve, and a lever pivoted to the said collar adapted to engage the bottom of said housing to elevate said sleeve.

4. The combination with a filling tank

having a tubular protecting casing extending upwardly therefrom, of a filling sleeve fitting therein, movable longitudinally thereof and adapted normally to rest on the bottom of said tank to effect thereby a substantial seal thereat, a housing about the outer end of the casing and sleeve, a collar secured to the outer end of said sleeve, and a lever pivotally connected with the sleeve adapted to engage the bottom of said housing to elevate said sleeve and adapted also when a filling tube is inserted in said sleeve to maintain the latter in elevated position.

5. The combination with a filling tank having a tubular protecting casing extending upwardly therefrom, of a filling sleeve fitting therein, movable longitudinally thereof and adapted normally to rest on the bottom of said tank to effect thereby a substantial seal thereat, a housing about the outer end of the casing and sleeve, a collar secured to the outer end of said sleeve, a lever pivoted to the said collar adapted to engage the bottom of said housing to elevate said sleeve, and means to lock the outer end of said lever to the said housing.

6. The combination with a filling tank having a tubular protecting casing extending upwardly therefrom, of a filling sleeve fitting therein, movable longitudinally thereof and adapted normally to rest on the bottom of said tank to effect thereby a substantial seal thereat, a housing about the outer end of the casing and sleeve, a collar secured to the outer end of said sleeve, and a bifurcated lever pivoted to the collar, embracing the outer end of the said sleeve and adapted to engage the bottom of said housing to elevate said sleeve.

7. The combination with a filling tank having a tubular protecting casing extending upwardly therefrom, of a filling sleeve fitting therein, movable longitudinally thereof and adapted normally to rest on the bottom of said tank to effect thereby a substantial seal thereat, a housing about the outer end of the casing and sleeve, a collar secured to the outer end of said sleeve, a lever pivoted to the said collar adapted to engage the bottom of said housing to elevate said sleeve, and the outer end of said lever being perforated, and a perforated lug extending inwardly from the wall of said housing, the perforation thereof being adapted to register with the perforated end of the said lever to receive locking means.

8. The combination with a filling tank having a tubular protecting casing extending upwardly therefrom, of a filling sleeve fitting therein, movable longitudinally thereof and adapted normally to rest on the bottom of said tank to effect thereby a substantial seal thereat, a housing about the outer end of the casing and sleeve, a collar secured to the outer end of said sleeve, a lever pivoted to the said collar adapted to engage the bottom of said housing to elevate said sleeve, and the outer end of said lever being perforated, a perforated lug extending inwardly from the wall of said housing, the perforation thereof being adapted to register with the perforated end of the said lever to receive locking means, and means to limit the downward movement of the lever to the registering position of its lug.

In testimony whereof I affix my signature.

EDWIN R. SAGE.