

Dec. 5, 1939.

D. D. HOGARTH

2,182,126

FILLING STATION CONSTRUCTION

Filed Aug. 26, 1938

2 Sheets-Sheet 1

Fig. 1.

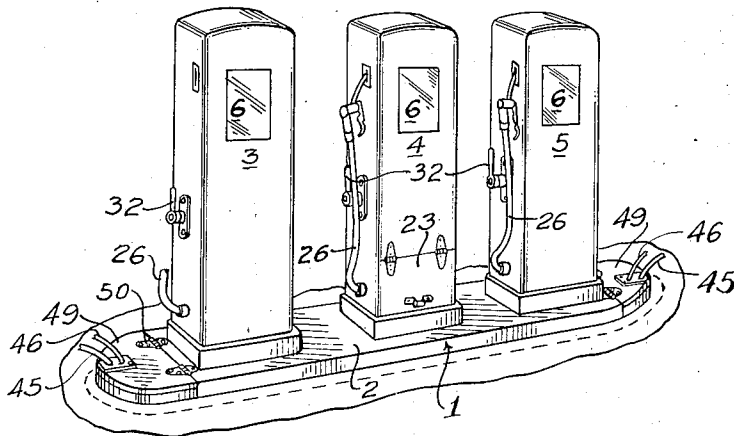


Fig. 4.

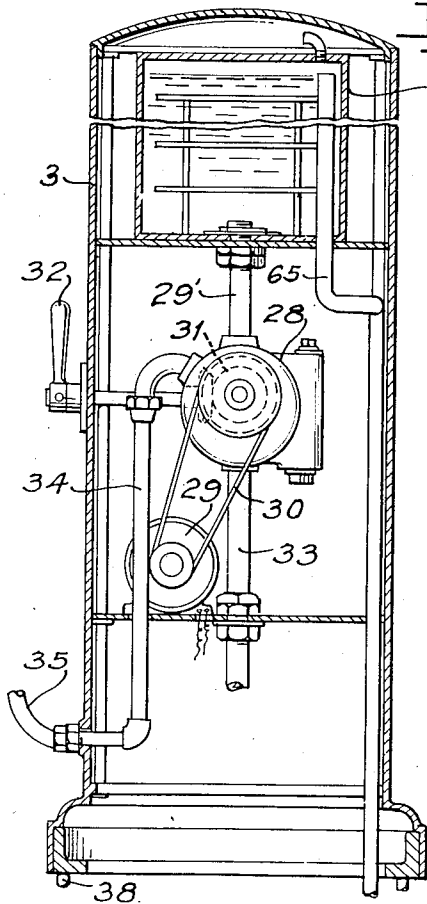
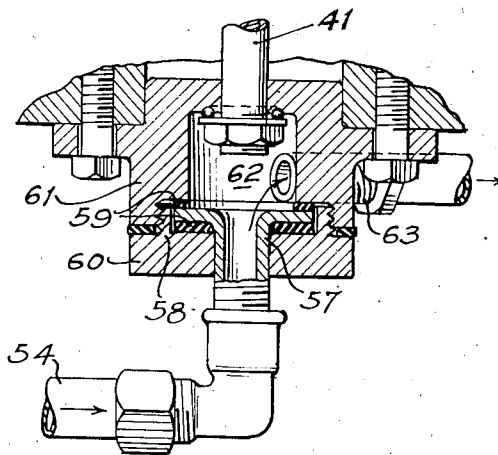


Fig. 5.



INVENTOR.
Donald D. Hogarth
BY *Lyon & Lyon* ATTORNEYS

Dec. 5, 1939.

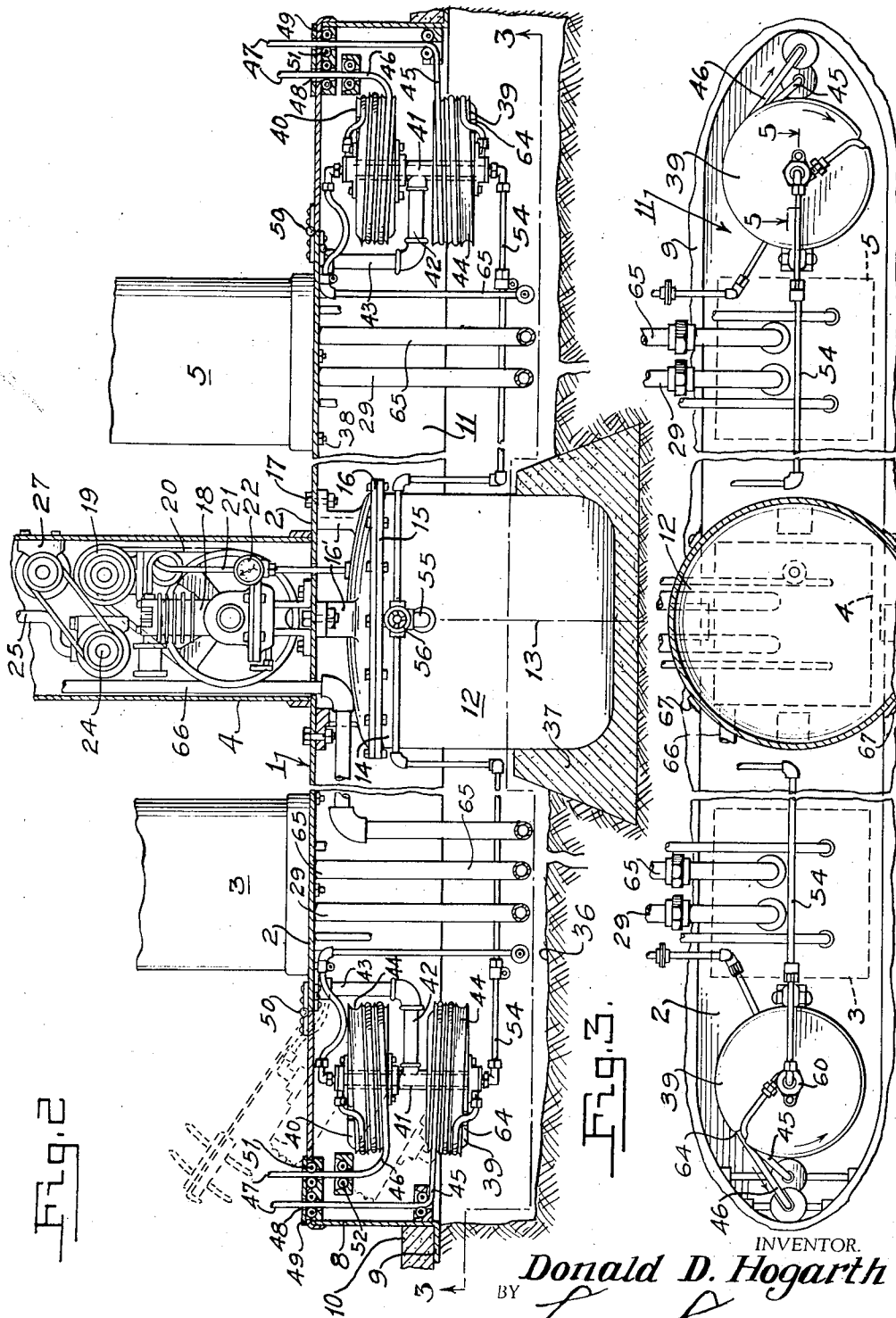
D. D. HOGARTH

2,182,126

FILLING STATION CONSTRUCTION

Filed Aug. 26, 1938

2 Sheets-Sheet 2



INVENTOR.
Donald D. Hogarth
BY *Lyon & Lyon* ATTORNEYS

UNITED STATES PATENT OFFICE

2,182,126

FILLING STATION CONSTRUCTION

Donald D. Hogarth, Los Angeles, Calif.

Application August 26, 1938, Serial No. 226,917

7 Claims. (Cl. 221-95)

This invention relates to the construction of filling stations such as employed for supplying liquid fuel to automobiles, and which also supplies compressed air for inflating the automobile tires, and water for their radiators.

Until recently it was the practice to have the air and water supply of filling stations, located at a different point in the yard from the pump, and reservoir from which the liquid fuel was supplied, but a more improved practice is coming into vogue, involving a placing of the air hose and water hose in the location near the pump. This enables the tires to be inflated and the radiator to be supplied with water without having to move the car to a second position.

Also, in accordance with the present practice, it is usual to construct the stations so that several different kinds of fuel can be supplied to a car at a single location for the car. Usually the housings for the gasoline pumps have been set upon an elongated pier or foundation, the upper face of which is slightly elevated above the ground level. This elongated foundation or base, is usually made of cement, and is relatively expensive to construct because it requires the placing of forms in position for molding the concrete. Furthermore, these concrete bases or "islands" as they are sometimes called, do not lend themselves readily to performance of any function except that of being a support or base for the housings that carry the pumps and the indicators that indicate the readings of the meters or the amounts of fuel supplied to the customer. It is also necessary at such filling stations to provide an air compressor for compressing the air used for the tires, and an air tank which carries the air under pressure. The location of this tank at the filling station involves some difficulty. In accordance with some practice, the compressor and tank have been placed in the office or small house at the filling station for the attendants, but in some cases the tank is constructed as a separate structure and is set up at some point in the yard.

The general object of this invention is to provide a filling station construction, which will provide a satisfactory base for supporting the reservoir housings and the pumps that they carry, and which, at the same time, will provide means for combining the compressed air tank with the base structure.

A further object of the invention is to provide means for supporting a plurality of reservoirs with their housings and pumps without necessitating the building of an elongated base for the

same requiring the use of forms for placing concrete.

A further object of the invention is to provide a unitary structure including an air tank and a base associated with the same, and provided with means for housing the liquid fuel reservoirs and pumps, and which is also capable of housing a hose reel for supplying compressed air and water to the automobiles; also to provide a unitary structure including a base housing providing machinery space within the same and combined with an air tank in such a way that a very simple concrete foundation may be provided for the tank, which will support the entire structure and avoid the necessity for the extended use of concrete to form an elongated base such as is usually provided.

A further object of the invention is to provide a structure of the kind described above, in which a central foundation which can be very readily put in place will, due to the balancing of the weights on the base, operate as an efficient support and base without necessitating the extensive use of concrete.

Further objects of the invention will appear hereinafter.

The invention consists in the novel parts and combination of parts to be described hereinafter, all of which contribute to produce an efficient filling station construction.

A preferred embodiment of the invention is described in the following specification, while the broad scope of the invention is pointed out in appended claims.

In the drawings:

Figure 1 is a perspective of a filling station constructed in accordance with my invention.

Figure 2 is a vertical section through the filling station illustrated in Figure 1, with certain parts broken away. This view is upon an enlarged scale. In this view three upright housings are shown for supporting the liquid fuel reservoirs, one of these housings being shown in cross-section while the other two are indicated in elevation.

Figure 3 is a horizontal section taken about on the line 3-3 of Figure 2, and looking upwardly.

Figure 4 is a vertical section upon an enlarged scale through one of the end housings; that is to say, one of the upright housings located toward the end of the structure. This view is broken away.

Figure 5 is a vertical section taken about on the line 5-5 of Figure 3 through the lower end of one of the mountings for the reels, and particu-

larly illustrating the means for making a fluid-tight connection at the point where the fluid is admitted to the reel.

Before proceeding to a more detailed description of the invention, it should be stated that in practicing the invention I prefer to provide an elongated substantially horizontal housing constructed of metal that operates as a base for a plurality of upright housings which carry the elevated reservoirs and the pumps for filling the same. The upright housings are preferably of an odd number, so as to facilitate the balancing of the entire structure. In the present instance I have illustrated three of these upright housings including a central housing, which is located directly over the compressed air tank. The compressed air tank is rigidly secured to the base housing. One of the upright housings, preferably the central one, carries the air compressor that supplies compressed air to the tank. In setting up the structure, an excavation of sufficient depth is made, and the entire structure is set in place and supported in an upright position. Plastic cement is then placed in the excavation around the lower end of the air tank, and this forms a foundation base to support the entire structure. The structure is symmetrical with respect to this base, and hence requires no other foundation.

The interior of the base housing preferably at its ends, affords space for housing the hose reels and hose that supply compressed air and water to the automobiles.

Referring more particularly to the parts, 1 indicates an elongated base preferably constructed of sheet metal and including a substantially horizontal cover plate 2 on which rest a plurality of upright housings 3, 4 and 5. These housings are preferably of a common box type such as now in use in filling stations, the side walls of which are provided with windows 6 through which the meter readings are indicated to the customer, and at which he can in some cases, observe the level of the liquid in the reservoir from which his automobile has been supplied with fuel. These housings are provided with elevated reservoirs such as the reservoir 7 (see Fig. 4) to which the liquid fuel is supplied. The base housing 1 is preferably of fabricated plates and angle irons, and comprises a marginal flange or vertical wall 8 that extends all around the edge of the cover plate 2. The bottom edge of this vertical wall 8 may have a horizontal flange 9, which is located at about the ground level, and at which the top dressing or cement 10 for the driveway may be placed.

The space or chamber 11 under the base 1, is utilized as a space for carrying the piping of the system, and is also utilized for carrying the air hose reel and the water reel, as will be described hereinafter.

An air tank 12 is provided, which is rigidly secured to the base housing 1, and this air tank is preferably located under the middle point of the base housing so that the weight of the entire unit or system is equally distributed on each side of the vertical center line 13 that passes up through the tank. The tank 12 is, of course, of metal, and preferably of circular form surmounted by a head 14. This head 14 is preferably cast, and is provided with a flange 15 that bolts down onto an abutting flange 16 on the upper end of the body of the tank, and at this point a gasket is used to insure an air-tight connection between the head and the tank. The head is preferably

cast with a plurality of integral brackets 16 extending up from it, the upper ends of which are riveted or secured by bolts 17 to the cover plate 2.

Within the upright housings the machinery is provided for supplying compressed air to the tank 12 and for pumping the fuel up into the elevated reservoirs 7, and while this machinery may be distributed in any desired manner in these housings, I prefer to place the compressor 18 in the middle housing 4. This compressor is preferably located near the base of the housing, and this compressor is driven by a motor, preferably an electric motor 19, through a belt 20. The delivery pipe 21 from the compressor, leads down through a pressure gauge 22, which may be seen by raising the cover 23 on the front wall of the housing (see Fig. 1).

Within the housing 4 I also provide a pump 24, the delivery side of which is connected to a pipe 25 that leads up to an elevated reservoir similar to the reservoir 7. The pump and piping arrangement for the same, providing for connections to the filling hose 26, is disclosed in my prior Patent No. 2,169,529, granted to me on the 15th day of August, 1939. This pump 24 is driven by another motor 27, which is preferably an electric motor.

The two upright housings 3 and 5 are preferably located equidistant from the central housing 4, and each of these housings carries its own pump 28 (see Fig. 4) which is driven by its own motor 29 by any suitable means, for example, through a belt 30.

The pumps 28 are preferably constructed like the pump 24, and the detailed construction of these pumps is fully disclosed and covered in my prior application referred to above. Each of the pumps 28 has a delivery pipe 29 that leads up to a corresponding reservoir 7. The valve 31 is controlled by a handle 32 on the outer side of the housing, so as to enable the pump to fill the reservoir from a supply pipe 33, or to take fuel from the reservoir and deliver it through the delivery pipe 34 to the hose 35, which is similar to the hose 26 through which the pump 24 delivers. In other words, the piping arrangement for the pump 24 is the same as that for the pumps 28, although in Figure 2 the piping arrangement for the pump 24 is not fully illustrated. The entire structure can be installed as a unit. In doing this, the base housing 1 should be put into place in a horizontal position in the location desired for it, after having made a suitable excavation in the earth 36; and while the structure is held in the proper position, the cement grouting 37 is poured in place surrounding the tank 12, and if desired, this grouting may be vibrated to insure a dense character of the concrete. This concrete 37 operates as a footing for supporting the entire weight of the horizontal housing and the upright housing, and it presents quite a considerable area on its bottom side to insure stability of the structure.

Of course, if desired, small foundation piers could be placed under the ends of the horizontal housing 1, but this will usually be unnecessary if the structure is not set up on an earth "fill"; that is to say, if it is set up in a situation where the earth is of the usual density.

The upright housings may be provided with 70 holding-down bolts or studs 38 (see Figs. 2 and 4) that enable them to be secured to the cover plate 2 of the base housing.

In each end of the horizontal housing 1, I prefer to provide hose reels including an air hose 75

reel 39 and a water hose reel 40. In other words, at each end of the base housing I provide a pair of reels disposed in vertical alignment with each other and mounted for rotation on a central spindle 41, which spindle is supported in a vertical position on a substantially horizontal arm 42 that is located in the space between the adjacent ends of the two reels, said arm being supported on a bracket or post 43 that is secured on the under side of the cover plate 2 (see Fig. 2). These reels 39 and 40 are of drum type of large diameter, and formed with helical grooves 44 in which the hose 45 and 46 is coiled. The loose ends 47 of these hose, lead off from the reels, and are guided through openings in the housing; preferably these openings 48 are formed through cover plates or lids 49, which are connected by hinges 50 to the fixed cover plate 2 of the horizontal housing. At the openings 48 the guide rollers 51 may be provided for guiding the hose in or out through the openings, and if desired, similar inside guides 52 may be provided for assisting in guiding the hose on or off of the reels. These reels should be constructed as retrieving reels such as illustrated in my Patent 2,169,529, referred to hereinabove.

The lower ends of the reels 39 are supplied with air through pipes 54 that are connected to the tank 12 by a pipe connection 55 through its side wall, at which point a valve 56 is provided for controlling the flow of air. This valve 56 may be located at any point desired favorable to accessibility, but in Fig. 2 it is illustrated for convenience, as located near the side of the tank.

These air pipes are connected to swivel heads 57 (see Fig. 5). Each of the swivel heads 57 has a shank to which the pipe is connected by a suitable coupling, and has a disc 58 above, the edge of which is held between two gaskets or washers 59. The swivel heads 57 are held in place and clamped against the gaskets by screw caps 60 respectively, that are screwed into the lower hub 61 of the reel. Each hub 61 has an air chamber 62 within it, provided with an outlet nipple 63 to which the end of the hose 44 is attached. This construction is shown clearly in Fig. 5. The hose extend from each nipple in a radial direction, passing through a notch 64 in the bottom flange of the drum.

The upper reels 40, which are water reels, are connected in a similar manner to the water pipes 65 that carry water under city pressure.

The elevated fuel reservoirs of the two end housings 3 and 5, are provided with overflow pipes 65 respectively, and a similar overflow pipe 66 is provided leading down from the reservoir of the center housing 4. These overflow pipes are connected up to the main supply tank of the service station.

From an inspection of Figure 3, it will be evident that the diameter of the air tank 12 is so great that its sides project beyond the width of the horizontal base housing 1. In order to fit these parts together, an opening is cut in the side walls 8 of the housing, and the edges at the opening are bent to the curvature of the shell of the tank and attached to the same by bolts or rivets 67.

It is understood that the embodiment of the invention described herein is only one of the many embodiments this invention may take, and I do not wish to be limited in the practice of the invention, nor in the claims, to the particular embodiment set forth.

What I claim is:

1. In a filling station construction for supplying automobiles with liquid fuel, the combination of a substantially horizontal housing located at about the ground level, a pair of substantially similar upright reservoir housings of substantially equal weight supported on the horizontal housing with fuel reservoirs carried by the same, a compressed air tank located substantially under the middle point of the said horizontal housing supporting the same, and located substantially equi-distant from the said reservoir housings; and a foundation footing under the compressed air tank supporting the compressed air tank.

2. In a filling station construction for supplying automobiles with liquid fuel and compressed air, the combination of a substantially horizontal housing located at about the ground level, a pair of substantially similar upright reservoir housings of substantially equal weight supported on the horizontal housing with fuel reservoirs carried by the same, a compressed air tank located substantially under the middle point of the said horizontal housing supporting the same, and located substantially equidistant from the said reservoir housings, a foundation footing under the compressed air tank supporting the compressed air tank, and extensible air hose connected to the air tank located adjacent each end of the horizontal housing and carried within the same.

3. In a filling station construction for supplying automobiles with liquid fuel and compressed air, the combination of a substantially horizontal housing located at about the ground level, a pair of substantially similar upright reservoir housings of substantially equal weights supported on the horizontal housing with fuel reservoirs carried by the same, a compressed air tank located substantially under the middle point of the said horizontal housing supporting the same, and located substantially equidistant from the said reservoir housings, a foundation footing under the compressed air tank supporting the compressed air tank, a central upright housing located over the tank and supported by the same, and an air compressor in the said central housing for supplying compressed air to the said air tank.

4. In a filling station construction for supplying automobiles with liquid fuel and compressed air, the combination of a substantially horizontal housing located at about the ground level, a hose reel with an extensible air hose located adjacent the end of the horizontal housing, said horizontal housing having a movable lid on its upper side located over the said hose reel, said lid having guiding means for guiding the hose through the same.

5. In a filling station construction for supplying automobiles with liquid fuel and compressed air, the combination of a substantially horizontal housing located at about the ground level, a pair of substantially similar upright reservoir housings of substantially equal weight supported on the horizontal housing with fuel reservoirs carried by the same, a compressed air tank located substantially under the middle point of the said horizontal housing supporting the same, and located substantially equidistant from the said reservoir housings, a foundation footing under the compressed air tank supporting the compressed air tank, a central upright housing located substantially in line with the air tank and supported by the same, a liquid fuel reservoir carried thereby, a pump in the central housing

for filling its reservoir, and an air compressor mounted in the central housing for supplying compressed air to the air tank.

6. In a filling station construction for supplying automobiles with liquid fuel and compressed air, the combination of a substantially horizontal housing located at about the ground level, upright reservoir housings supported on the horizontal housing with fuel reservoirs carried by the same respectively, a hose reel with an extensible air hose located adjacent the end of the horizontal housing with means for supplying compressed air to the same, a water hose reel with an extensible water hose also located adjacent the end of the horizontal housing, means for supporting both of said reels for rotation with their axes substantially in line, said horizontal housing having a movable lid on its upper side located over said reels.
7. In a filling station construction for supply-

ing automobiles with liquid fuel and compressed air, the combination of a substantially horizontal housing located at about the ground level and having a cover plate with an opening at its end, and a lid for closing the same, said opening giving access to the interior of said housing, a pair of reels including an air hose reel with an air hose wrapped upon the same, and a water hose reel with a water hose wrapped upon the same, said housing having guide openings through which the loose ends of the hose extend, a substantially vertical spindle for rotatably supporting said hose reels in axial alignment with each other, said reels being spaced apart on said spindle; and a bracket supported on said housing and having a substantially horizontal arm connected with said spindle between the reels and supporting the same.

DONALD D. HOGARTH.