Jan. 18, 1944. I. W. BALDWIN ET AL 2,339,668

FUEL DISPENSING APPARATUS

Filed Oct. 1, 1940 2 Sheets-Sheet 1

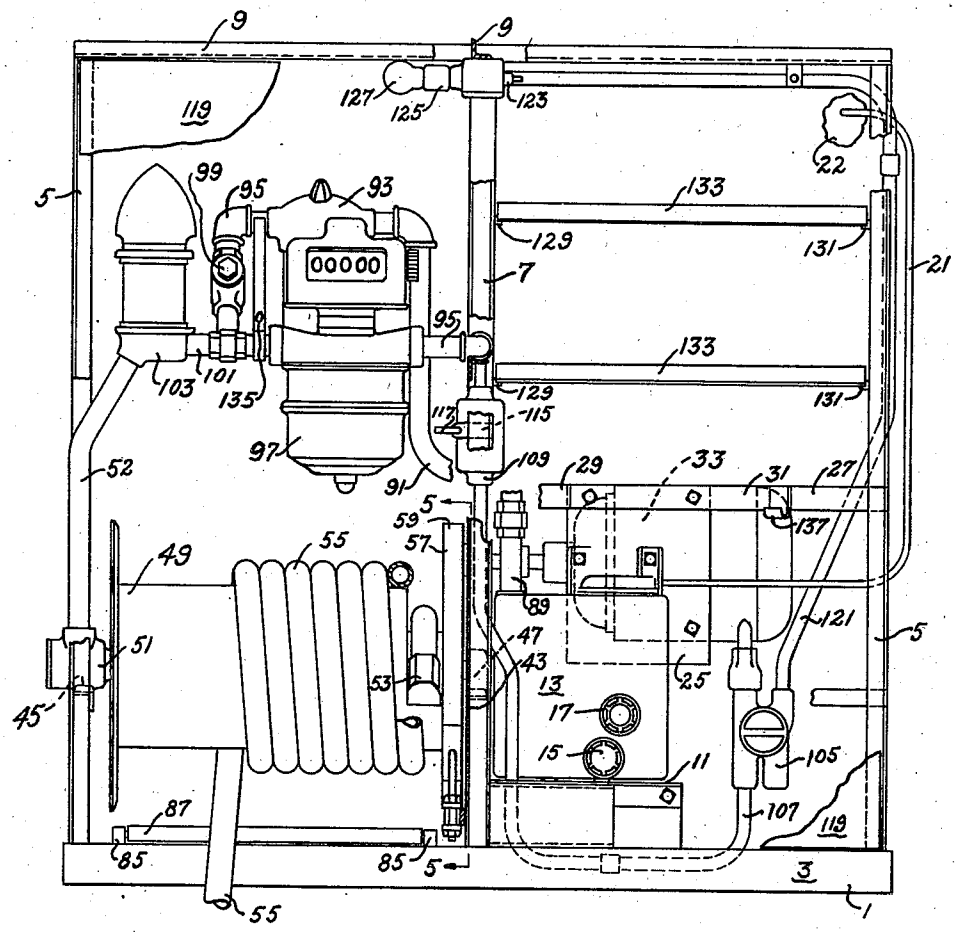


Fig. 1

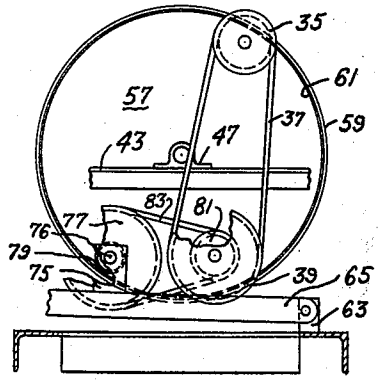


Fig. 5

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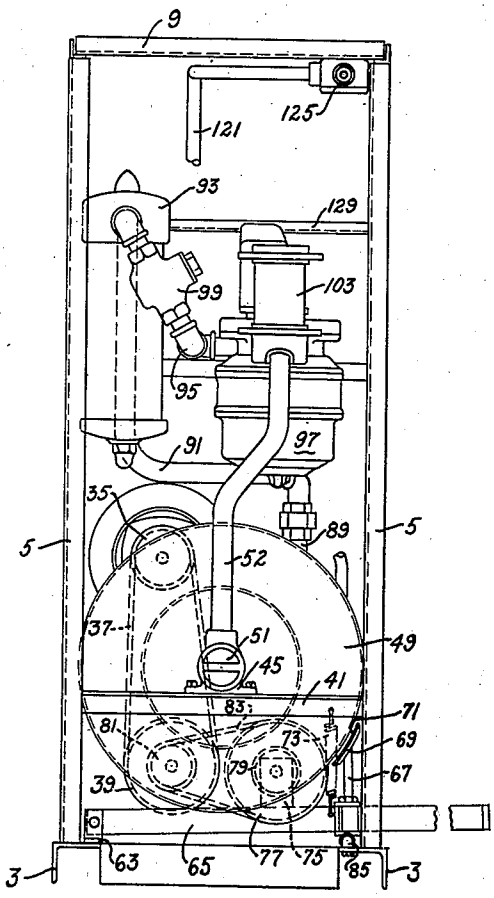


Fig. 2

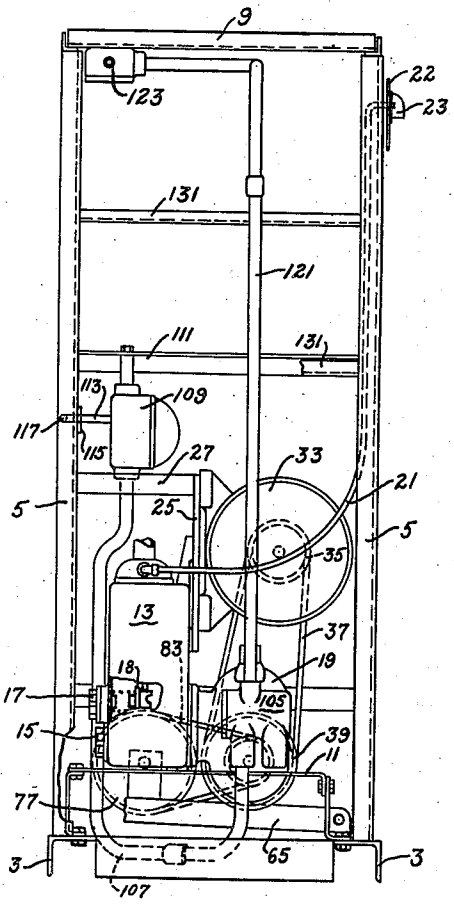


Fig. 3

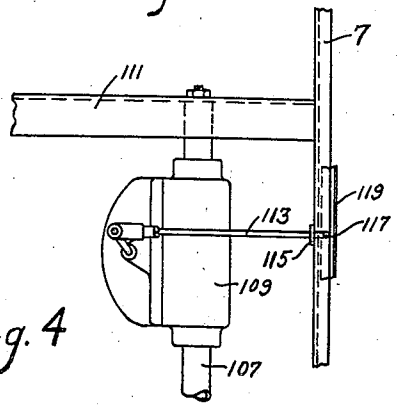


Fig. 4

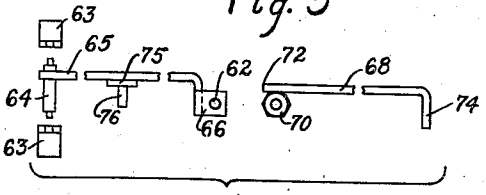


Fig. 6

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UNITED STATES PATENT OFFICE

2,339,668

FUEL DISPENSING APPARATUS

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Application October 1, 1940, Serial No. 359,260

3 Claims. (Cl. 242—86)

This invention relates to a fuel dispensing apparatus which is particularly adapted for servicing airplanes. More specifically, it relates to a fuel pumping and metering apparatus which utilizes a hose storing reel which is actuated by power in the hose retrieving direction.

It is an object of the invention to provide a dispensing mechanism wherein the fuel pumping motor is utilized to rewind the hose on the reel at the completion of dispensing.

It is a further object of the invention to provide a reel control mechanism whereby the reel is braked except when it is being actuated by the motor.

Still another object of the invention is to provide motor control means which is automatically operated to the "off" position when the housing door is closed.

Yet another object of the invention is to provide a dispensing apparatus housing in which accessories, oils and other saleable commodities may be stored.

Still another object of the invention is to provide a power operated, foot controlled reel actuating mechanism.

These and other objects will become apparent from a study of this specification and the drawings which are attached hereto and made a part hereof and in which:

Figure 1 is a front elevation of the dispensing apparatus with the parts mounted in their cooperative relationships.

Figure 2 is a side elevation viewed from the left of Figure 1.

Figure 3 is a side elevation viewed from the right of Figure 1.

Figure 4 is a side elevation of the switch operating mechanism with the switch in the "off" position.

Figure 5 is a view taken on the line 5—5 of Figure 1 showing the reel driving and control mechanism.

Figure 6 is an exploded view of the treadle structure.

Referring now to Figures 1 to 3, the numeral 1 refers to a base which is preferably made up of angle irons 3 welded together and which supports angle irons 5 at the corners thereof. Central channel irons 7 are fixed to the base and support, with the elements 5, a top frame 9 made of angle irons.

Mounted on the base 1, adjacent and to the right of the central channels (Figure 1) is a base 11 upon which is mounted a body 13 which houses the air separator, the usual screens and a by-pass valve. The screen which is not shown is disposed in a cavity which is closed by cap 15 and the by-pass valve 18 is disposed in a cavity covered by cap 17. A pump 19 is fixed on the body 13 and communicates with the screen chamber on the suction side and with the by-pass valve and air separator on the discharge side.

This structure is fully disclosed in the patent to Clement P. Griffith, Number 2,213,857, issued September 3, 1940.

A vent pipe 21 leads from the gas outlet of the separator through the rear wall 22 of the housing to an outlet fitting 23 which prevents the entrance of rain, etc., into the pipe.

Fixed to the rear side of body 13 above the pump is a motor supporting plate 25 which is braced at its upper end by a flat bar 27. The bar is fastened to the front channel 7 and the front angle 5 on the right side and is bent at 29 and 31 so that it will extend parallel with the plate 25. A motor 33 is fixed on the plate and is provided with a pulley 35 which is connected by belt 37 with pulley 39 on the pump 19.

A reel support is formed by members 41 and 43 which are mounted between the elements 5 on the left end of the frame (Figure 1) and the central channels 7 respectively. Bearings 45 and 47 are mounted on the reel supports respectively and serve to support the journals on the reel 49. A rotary seal 51 is associated with bearing 45 so that liquid may pass from the stationary pipe 52 to the outlet hose connection 53 which is mounted to rotate with the reel and which receives the end coupling of hose 55. The other end of the hose is equipped with the usual valve controlled nozzle which is not shown. This hose is relatively long, that is, 50 or 100 feet or even longer.

The flange 57 at the right end of the reel (Figure 1) is provided with an annular rim 59 of substantial depth. The inner surface of this rim is provided with a friction material 61 such as that used for automobile brakes. The material may be riveted to the rim in the manner usually followed in lining brakes.

As is clearly shown in Figures 2, 5 and 6, two brackets 63 are mounted on the rear angle 3 adjacent the rear channel 7 and to the left thereof (Figure 1). These brackets support the ends of shaft 64 which is fixed in the end of the long arm of an L-shaped lever 65.

Two aligned ears 66 are fixed on the end of the short arm of lever 65 and these ears are provided with aligned perforations 62 which are not threaded.

A second L-shaped lever 68 has attached to it

near the end of the long arm, a nut 70. The arm projects beyond the nut as at 72 and this projection serves as a stop which engages the short arm of lever 65 and prevents rotation of lever 68 counter-clockwise beyond the position shown in Figure 6.

A threaded shaft 67 is inserted in the perforations 62 and the nut 70 and serves to support the lever 68 for rotation. A jam nut may be provided to hold the shaft 67 in adjusted position.

The short end 74 of lever 68 is the portion which is engaged by the operator's foot when it is desired to rewind the reel.

The shaft 67 carries at its upper end a brake shoe 69. The shoe carries friction material 71 which is adapted to be held in yieldable engagement with the exterior surface of the rim 59 by means of a spring 73 which is anchored at one end to the lever 65 and at the other end to the member 43 disposed above the lever.

Intermediate the shaft 67 and bracket 63, a pulley support 75 is fixed to the lever and extends upwardly therefrom. This support carries a fixed spindle 76 which is directed toward the reel flange and which carries a pulley 77. Fixed to the pulley is a friction wheel 79 which is adapted to engage the lined portion of the rim 59 to drive it. This wheel may have a friction material, such as leather, on its exterior if desired.

The shaft 76 is so arranged that the friction wheel is not in engagement with the rim 59 when the lever 65 occupies its upper position under the action of spring 73.

A second pulley 81 is fixed to rotate with pulley 39 and is in the same plane as pulley 77 so that the latter may be driven from the former by means of a belt 83.

Two brackets 85 are mounted on the front angle 3 and a roll 87 is journalled in the brackets. The purpose of the roll is to prevent scuffing of the hose as it is being retrieved by the power driven reel.

The outlet pipe 89 from the separator is connected by pipe 91 with a water separator 93. The outlet pipe 95 from this separator is connected to the inlet of a meter 97 by way of a combined check and relief valve 99. The meter is connected by pipe 101 to a sight glass 103 and the outlet of the glass is connected with the pipe 52 heretofore described.

The meter, water separator and sight glass may be of any desired form or construction.

A junction box 105 is provided for making the necessary electrical connections. A conduit 107 leads from this box to a switch 109 which is mounted at a convenient height upon a central frame member 111.

An L-shaped switch operating rod 113 is connected at one end to a switch and rides in a guide 115 which is fixed to the front channel member 7. The short end 117 of the rod is so positioned that the door 119 cannot be closed without contacting it when the switch is on. The switch is of the "snap switch" type.

Another conduit 121 leads to a switch 123 and a lamp socket 125 which is controlled by the switch. An electric lamp 127 furnishes the light for the cabinet interior.

Pairs of small angles 129 and 131 are fixed to the central channel members 17 and the corner angles 5 on the right side of Figure 1 respectively. These angles form guides for receiving removable shelves 133.

Two doors 119 are provided and are hinged one on the left angle member 5 and the other on the right angle member 5 (Figure 1). The doors swing outwardly from the central channel member 7 and are provided with latching mechanisms (not shown) of any desired type.

A peg 135 may be fixed in any convenient manner to the pipe 101 to serve as a support for the hose nozzle.

A hook 137 is fixed to the brace 27.

Operation

The operator in servicing a plane will unlatch the left-hand door 119 and swing it open. This gives him access to the switch rod 117 which he pulls to actuate the switch 109 which, in turn, energizes the motor 33. He will also move the outer treadle lever 68 into the extended position.

Since the nozzle valve is closed, the fuel will be by-passed from the pressure side of the pump back to the suction side through the by-pass valve.

The operator may then remove the nozzle from peg 135 and draw the hose off the reel to the plane which is to be serviced. This action is resisted frictionally by the brake 69 which rides on the rim 59 of reel flange 57 under the action of spring 73. The resistance is sufficient to prevent spinning of the reel after the pull has been relaxed but not great enough to require extraordinary exertion on the part of the operator.

When the nozzle tip is inserted in the fuel tank, and the nozzle trigger is pressed to open the nozzle valve, fuel will be drawn by the pump from the storage tank and since the by-pass valve will close, liquid will be delivered to the air separator in 13, the water separator 93, the valve 99, meter 97, sight glass 103, pipe 52 into the reel, through connection 53 to hose 55 and thence to the nozzle where it is discharged.

When the required amount of fuel has been dispensed as shown by the register on the meter, the nozzle valve will be closed and the operator will return to the apparatus carrying the nozzle.

He will then depress the treadle lever 65—68 with his foot. This releases the brake 69 from the rim 59 and at the same time causes the friction wheel 79 to engage the lining 61 on the inside of the rim. The rotation of motor 33 will accordingly be transmitted through pulley 35, belt 37, pulleys 39 and 81, belt 83, pulley 77 and friction wheel 79 to the reel.

The speed at which the hose is retrieved may be varied by varying the pressure upon the treadle. The hose may be held up from the roll 87 and guided onto the reel by the operator or it may be permitted to feed itself onto the reel. In the latter case, the roll 87 prevents the angle 3 from scuffing the hose.

When the hose is substantially all rewound the operator will place the nozzle on the peg 135. Another application of pressure on the treadle will then take up the slack hose and upon release of the treadle, the brake 69 will again become effective to hold the reel against unwinding. The switch rod 117 may then be pushed in to stop the motor.

The outer treadle lever 68 will then be pivoted to a position substantially parallel with and inside of the door so that the door may be closed and latched. If the switch has not been opened, the door will not close completely so that the

operator will be warned of the condition and can actuate the switch to the "off" position.

The right-hand door gives access to the shelves 133 on which may be stored lubricating oils, windshield cleaning equipment, accessories, etc. The hook 137 is adapted to support a fire extinguisher.

It is obvious that various changes may be made in the form, structure and arrangement of parts without departing from the spirit of the invention. Accordingly, applicants do not desire to be limited to the specific embodiment disclosed herein primarily for purposes of illustration; but instead, they desire protection falling fairly within the scope of the appended claims.

What we claim to be new and desire to protect by Letters Patent of the United States is:

1. In a liquid dispensing apparatus, the combination of a dispensing housing, a dispensing line comprising a hose, a hose storing device adapted for movement to yield or retrieve said hose, power means, and means for connecting said power means to move the storing device, all mounted in said housing, said last named means comprising a treadle having operative and inoperative positions and which is extensible beyond the housing to its operative position and which is adapted to be retracted into the housing to its inoperative position.

2. In a liquid dispensing apparatus, the combination of a dispensing housing, a dispensing line comprising a hose, a hose storing device adapted for movement to yield or retrieve said hose, power means, and means for connecting said power means to move the storing device, all mounted in said housing, said last named means including a treadle adapted, when in operating position, to extend beyond the housing and comprising two levers, a hinge and hinge pin for connecting said levers, said treadle being adapted to fold at the hinge so as to be contained within the housing, and a brake mounted on said hinge pin and adapted to cooperate with said hose storing device.

3. In a liquid dispensing apparatus, the combination of a dispensing housing, a dispensing line, comprising a hose, a hose storing device adapted for movement to yield or retrieve said hose, power means, and means for connecting said power means to move the storing device, all mounted in said housing, said last named means including a treadle comprising two levers, a hinge for connecting said levers, said treadle having an operating position in which it extends beyond the housing and being adapted to fold at the hinge so as to be contained within the housing, and means on said levers for limiting the relative movement of the levers.

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