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3,387,404

TOY GASOLINE PUMP

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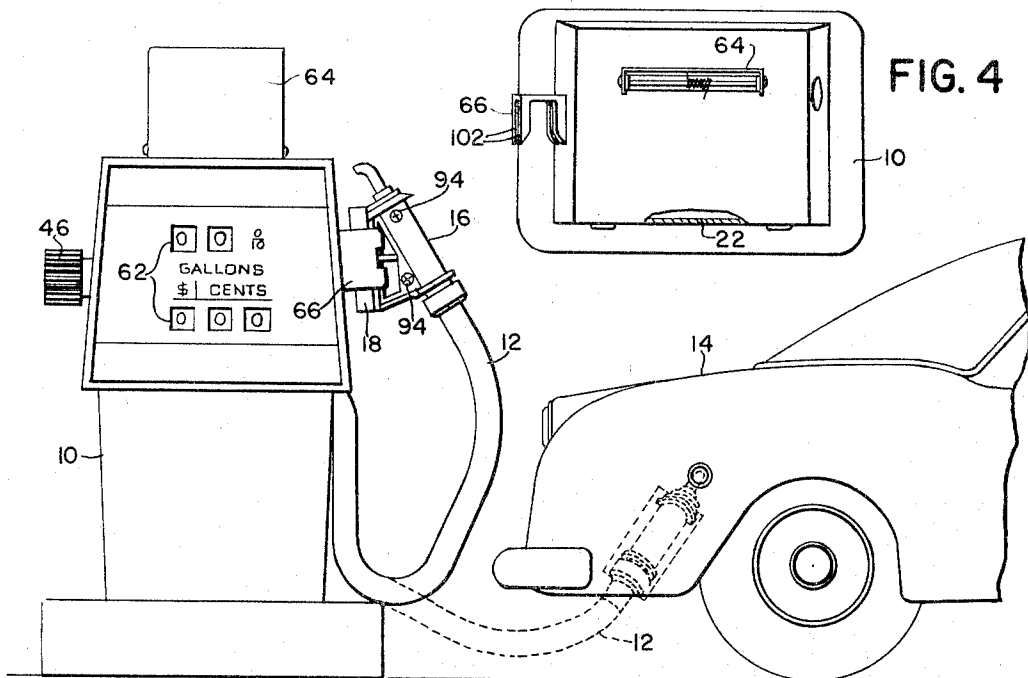


FIG. 1

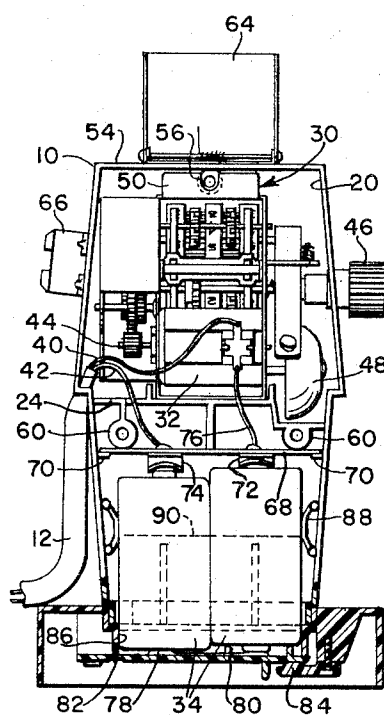


FIG. 2

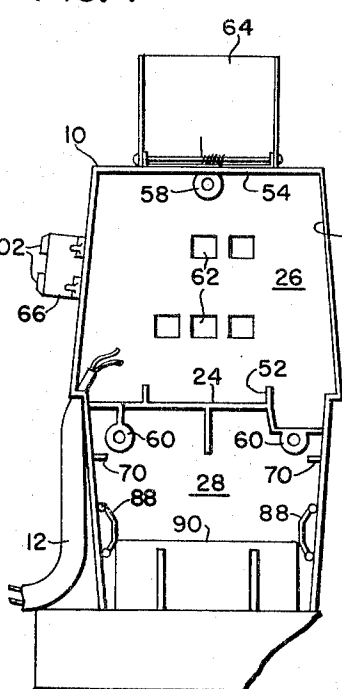


FIG. 3

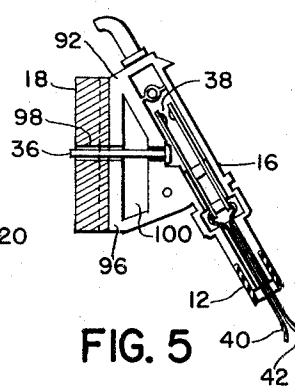


FIG. 5

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ABSTRACT OF THE DISCLOSURE

A toy pump including register means driven by an electric motor housed with the simulated pump body and activated by a switch contained in the simulated nozzle of a simulated hose, the switch including a projecting actuator associated with a nozzle-mounted permanent magnet that attracts itself to the metallic structure of an associated toy vehicle so as to depress the actuator to close the switch.

This invention relates to a toy gasoline pump or the like and has for its principal object the provision of a novel toy in which can be simulated the typical transaction involving the pumping of gasoline from a service station pump to a vehicle, the pump incorporating therein register or counter mechanism for recording the gallons and price. In its broader aspects, the invention contemplates the simulated transfer of a flowable medium from a source to a receiving unit, the gasoline pump in the present case being representative of the source and the vehicle receiving unit. The pump hose from the pump to the vehicle represents the conduit.

Another important object of the invention is the embodiment in the pump or equivalent source unit of electrically driven means including one or more indicating elements to signal or record the transaction, together with switch means actuated upon temporary attachment of the conduit to the receiving unit. A still further object is the provision of means for causing the outlet element or nozzle of the conduit to temporarily engage or attach itself to the receiving vehicle or equivalent unit. More specifically, it is an object to utilize a permanent magnet for that purpose and to associate therewith a switch actuator that is depressed to actuate the switch when the outlet element or nozzle attaches itself to the vehicle. A still further object resides in the construction of the pump or base unit as a box-like structure compartmented to receive the counter or register means and its driving motor in one compartment and a plurality of dry cell batteries and associated components in the other compartment, together with a novel arrangement whereby these components may be removed as units from their respective compartments without interfering with the others.

The foregoing and other important objects and features inherent in and encompassed by the invention will become apparent as one embodiment thereof is disclosed, by way of example, in the ensuing description and accompanying drawing, the figures of which are described below.

FIGURE 1 is a front view of the pump, illustrating in dotted lines the use of the hose or conduit with a vehicle.

FIGURE 2 is a rear view, with the rear cover plate removed and with the lower part of the base unit in section.

FIGURE 3 is a rear view in elevation, showing the structure with all interior components removed.

FIGURE 4 is a plan, with a portion in section, of the base unit of FIGURE 3.

FIGURE 5 is an enlarged sectional view of the nozzle or outlet element.

The pump or base unit 10 is representative of a source of flowable medium subject to transfer by a conduit or

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hose 12 to a receiving unit such as a toy vehicle 14, the hose having at its free end an outlet element or nozzle 16 equipped with a permanent magnet 18 as representative of means for effecting temporary engagement or attachment of the nozzle 16 to a metallic part of the vehicle 14. The base unit or pump may be made of any suitable material, such as any of the well-known plastics so popular in toy manufacture, and is a box-like structure having associated walls and initially open at its back, as at 20; although, in use, the back is closed by a removable cover plate 22 (FIG. 4). A support or partition 24, integral with the basic structure, divides the interior of the pump into upper and lower compartments 26 and 28 for containing electrically driven means including counter or register mechanism 30, together with its accompanying electric motor 32 in the upper compartment, and a pair of dry cell batteries 34 in the lower compartment. These components are appropriately mechanically and electrically connected so that when the nozzle is attached to the vehicle a nozzle-carried actuator 36 closes a normally open switch 38 in the nozzle to energize the motor 32 by means of conduit-carried conductors 40 and 42, whereby the counter mechanism records the gallons and price of the gasoline being "pumped." The counter means may be of any conventional construction, as in the U.S. Patent to Wales 2,808,208 and its details, being without significance in this application, are not described. Suffice it to note that the motor has a pinion drive 44 to this means. The counter may be reset to zero by a reset knob 46 which may be pressed in to disengage the counter means from the motor whereby the counter may be reset to zero without acting against the motor. Also associated with the counter is a gong 48 which rings as each dispensed gallon is recorded. Here again the details are not material. The arrangement is such as to duplicate the visible and audible elements of a typical full-scale transaction.

The counter and electric motor are carried as a unit in a frame or support 50 which is forwardly insertable into and rearwardly removable from the upper compartment 26, the upper face of the partition 24 having a fore-and-aft channel 52 which slidably receives the lower part of the unit, the upper part of which fits closely below a top wall portion 54 of the pump body. The top of the frame 50 is notched at 56 to align with a tapped boss 58 integrally dependent from the top 54 and which receives a screw (not shown) when the cover plate 22 is in place, it being understood that this plate overlies and closes the entire open back of the pump and confines the counter-frame unit in place. Additional tapped bosses 60 are integral with the pump body for receiving additional screws (not shown) to fasten the cover plate. Windows 62 render visible the counter wheels, and a spring-loaded downwardly retractable sign 64 is provided at the pump top for displaying the price of the gasoline. An appropriately slotted hanger 66 is provided at one side of the pump for hanging up the nozzle.

Another component of the electrical means is an insulator plate 68 that is forwardly and rearwardly slidably received between the bosses 60 and a pair of integral inward projections 70 in the lower compartment 28. This plate carries a pair of metallic contacts 72 and 74, the former of which is connected by a flexible conductor or wire 76 to one side of the motor 32 and the other of which is connected to the conduit conductor 40, the other conduit conductor 42 being connected to the other side of the motor 32. The contacts respectively engage the opposite ends of the typically reversed side-by-side batteries 43, and the other ends of these batteries engage a contact strip 78 carried by a bottom cover 80 that is hinged to the bottom of the pump at 82 and which is normally retained closed, to confine the batteries, by a

pivoted catch 84. When the cover is opened, it uncovers a bottom opening 86 through which the batteries may be removed.

The attachment of the pump-proximate end of the hose or conduit is via insertion through an aperture (not shown) in the pump body, and the electrical conduits are sufficiently flexible and of enough length to permit rearward slidability of the counter-frame unit and insulator plate from their respective compartments when the rear cover plate 22 is removed. The converse makes for easy assembly of the components. The batteries are additionally located by integral locators 88 in the lower compartment and by integral upright flanges or webs 90. When the rear plate is in place it of course prevents withdrawal of the insulator plate 68.

The simulated nozzle is composed of two symmetrical halves 92 held together by screws 94 (FIG. 1), and each half is of internal half-round construction so that together they provide a cylindrical recess for housing the switch 38. Each half further has a projection in the form of a shoe or base portion 96 to which the magnet 18 is secured, preferably by an adhesive. The magnet has a central hole 98 through which the actuator pin projects, the head of the pin engaging one of the spring-loaded parts of the switch 38 so that the switch is open unless the pin is depressed. As seen, the conduit is hollow and the conductors 40 and 42 extend therethrough. The shoe portion of the nozzle is open at 100 to accommodate legs 102 on the hanger 66.

The counter mechanism is driven whenever the switch 38 is closed, whether this be done manually by simply depressing the actuator 36 with the finger or whether the actuator be depressed automatically upon magnetic attachment of the nozzle to a metallic part of the vehicle being "filled" with gasoline. The latter is of course more realistic. When the nozzle is removed from its magnetic connection to the vehicle, the actuator again projects because of the inherent spring loading in the switch.

The toy here disclosed is simple, attractive and inexpensive to manufacture. In operation, it is realistic and presents no complications to the user. It may be easily manufactured of any of the well-known toy materials and its compartmentation and associated supporting and guiding structure makes assembly quick and easy. Features in addition to those enumerated will readily occur to those versed in the art.

What is claimed is:

1. A toy fuel pump for simulating the transfer of fuel from a source to a receiving unit, comprising a base structure representing the source, a conduit connected at one end to the base structure and having its other end free, said free end being provided with an outlet element, a permanent magnet on said element for temporary engagement with the receiving unit, electrically driven means on the base structure for indicating the transfer of the flowable medium from the base structure, a normally open switch including electrical contact means car-

ried by the outlet element, conductor means connected to the switch means and extending coextensively with the conduit and connected to the electrically driven means, and an actuator movably carried by the outlet element and normally projecting adjacent to the magnet for closing the switch means and adapted to be moved upon attractive engagement of the magnet to a portion of the receiving unit.

2. The invention defined in claim 1, in which: the actuator normally projects adjacently to the magnet and is movable relative to the element for closing the switch means upon magnetic engagement of said element with the receiving unit.

3. The invention defined in claim 1, in which: the actuator normally projects adjacently to and is movable relative to the element for closing the switch means by and upon temporary engagement of said element with the receiving unit.

4. The invention defined in claim 2, in which: the magnet has a flat face adapted to engage the receiving unit and further has an aperture therethrough leading to the switch means, and the actuator projects through said aperture.

5. The invention defined in claim 1, in which: said structure is box-like and has upper and lower rearwardly opening compartments and a bottom, the electrically driven means includes a support removably mounted in the upper compartment, a drivable indicator element carried by the support, an electric motor carried by the support and connected to said indicator element, an insulator plate removably carried in the lower compartment in upwardly spaced relation to the aforesaid bottom and having a pair of contacts adapted to engage the respective ends of a pair of series-disposed dry cells receivable in said lower compartment between said plate and said bottom, a contact strip on said bottom to engage the opposite ends of the batteries, and electrical conductors connected among the contacts, the motor and the aforesaid conductor means.

6. The invention defined in claim 5, in which: said bottom has an opening through which batteries may be inserted and withdrawn and a cover releasably mounted over said opening and including said contact strip.

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