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[54] PRICE REGISTER FOR FLUID DISPENSING APPARATUS

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235/61 M

[51] Int. Cl. B67d 5/22

[58] Field of Search 235/94 R, 94 A, 61 FB,
235/61 M; 222/26, 25; 74/348, 354

[56] References Cited

UNITED STATES PATENTS

2,743,622	5/1956	Haupt	.....	74/348
2,836,361	5/1958	Haupt	.....	235/94 R
3,047,220	7/1962	George	.....	235/61 M
3,077,289	2/1963	Rapisarda	.....	222/26

3,175,414	3/1965	Wells	.....	74/354
3,425,291	2/1969	Sundblom	74/348
3,484,021	12/1969	Bickford et al.	222/26
3,587,337	6/1971	Young	222/26

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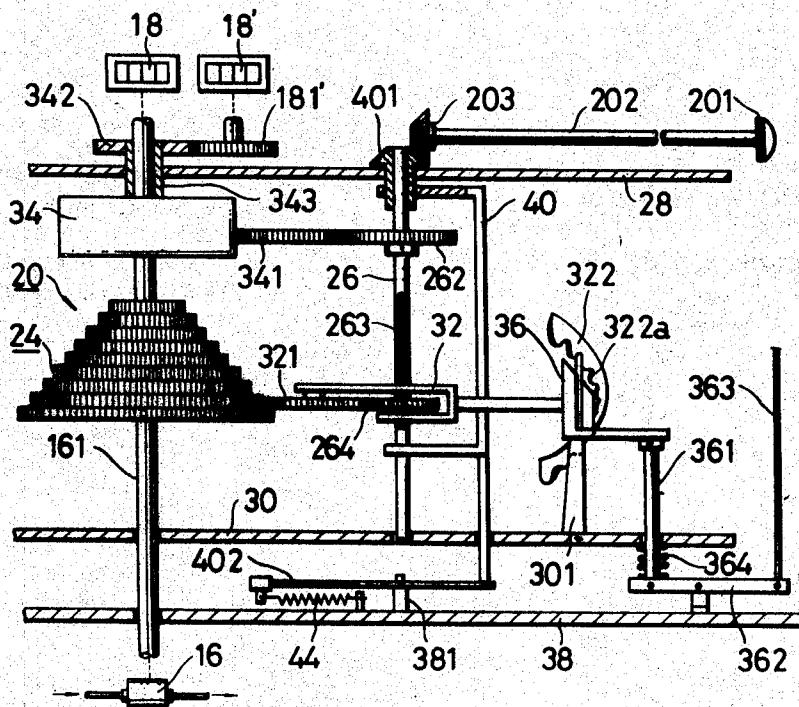
Attorney—Eric H. Waters et al.

[57]

ABSTRACT

A price register for indicating the price of an amount of fluid being dispensed, comprising a calculating means which is selectively connectible to a gearing driven by an output shaft of a flow meter measuring the fluid being dispensed, through a transmission which converts the rotation of said output shaft at a ratio representing the unit volume price of the fluid. The register also includes a variator of unit volume price of the fluid.

17 Claims, 5 Drawing Figures



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FIG. 1

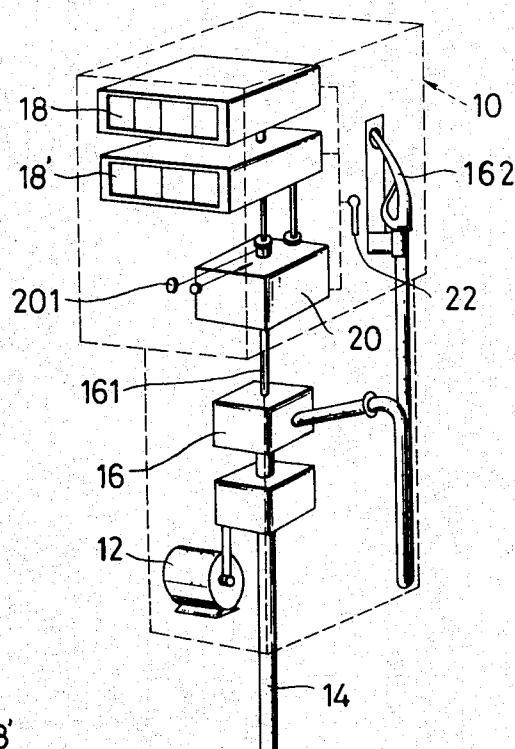
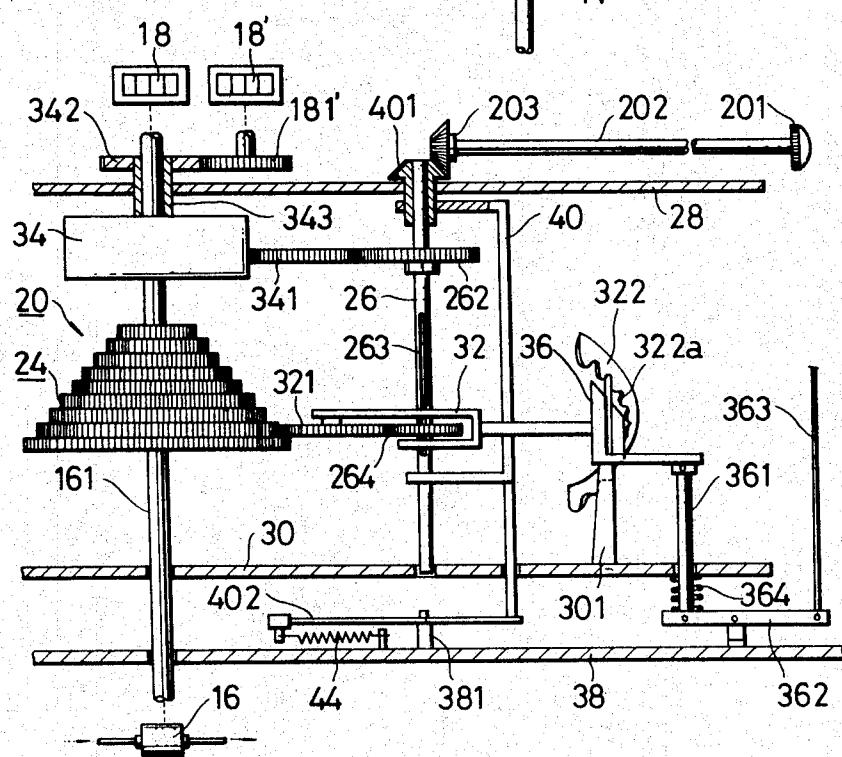


FIG. 2

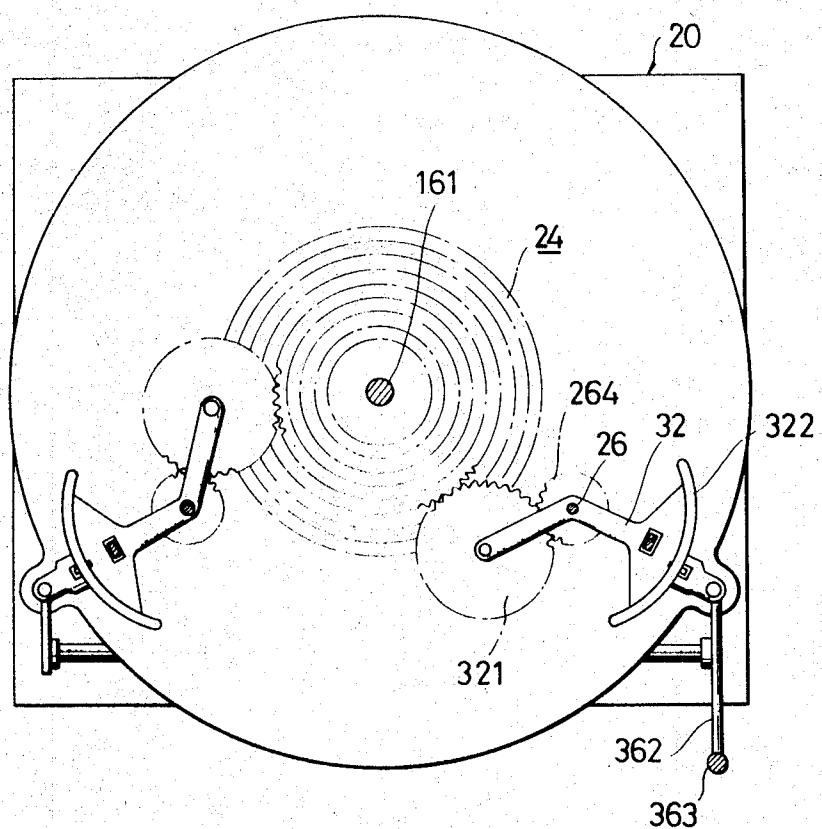


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FIG. 3



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FIG. 4

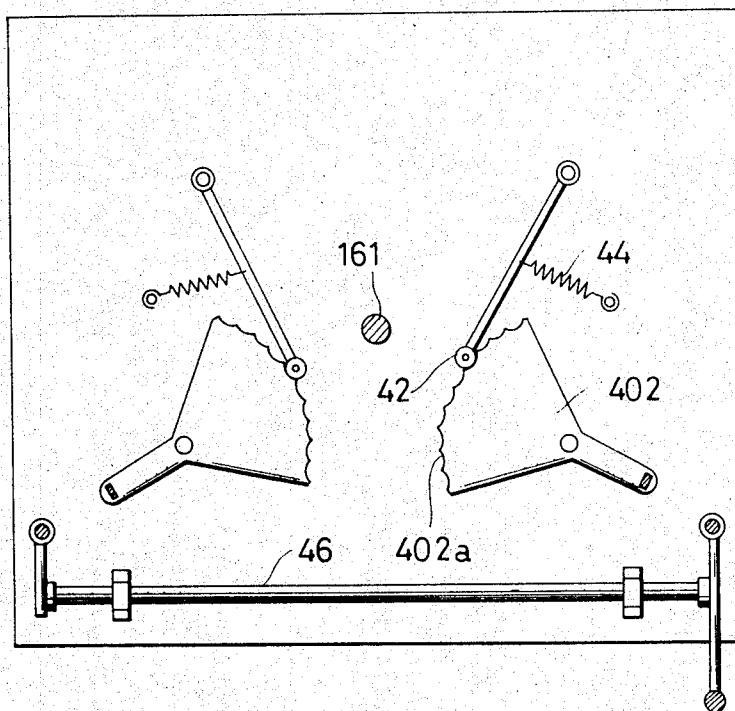
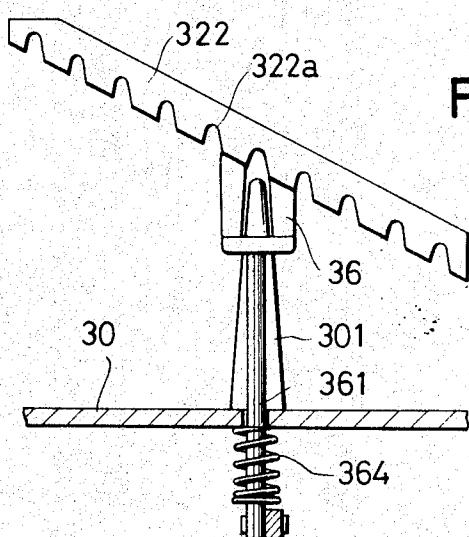


FIG. 5



PRICE REGISTER FOR FLUID DISPENSING APPARATUS

This invention relates to a price register for fluid dispensing apparatus, and more particularly to a price register including an improved variator of unit volume price for the fluid.

Conventional fluid dispensing apparatus, for instance apparatus for selling gasoline, kerosene, heavy oil, liquefied petroleum gas, and the like, includes a register capable of indicating the amount of the fluid being dispensed. It is a recent trend to add a price register to the fluid dispensing apparatus, with the intention of providing customer service and saving time necessary for manually determining the price of the fluid sold, which price register is interlocked with a fluid amount register of conventional construction. The unit volume price of fluid, e.g., gasoline, is usually variable. For instance, a discount may be allowed for customers who regularly purchase but a comparatively dear fixed price may be changed for other customers. In gasoline stations and other retail stores, it is generally desirable to modify the unit volume price depending on the sales and the type of customers. If a price register calculates and indicates the price based on only one unit amount price, the store keeper has to separately calculate the price whenever he sells to a customer to whom he allowed a discount. In practice, a typical gasoline station has a wide variety of price per unit volume of gasoline for different customers, depending on the amount each customer may regularly purchase. Accordingly, there is a need for a price register in a fluid dispensing apparatus which register is readily adjustable for different unit volume prices.

U.S. Pat. No. 3,413,867 to Hamlin and U.S. Pat. No. 3,484,021 to Bickford et al. disclose a variator and a register suitable for meeting the aforesaid need. The variator of Hamlin, however, has a shortcoming in that the setting of unit volume price cannot be changed from the outside thereof, and such change requires an operation of manually opening a front plate thereof. On the other hand, with the register of Bickford et al., the unit volume price may be modified from the outside thereof, but it has a shortcoming in that the setting of unit volume price can be manipulated during the dispensing operation. If an unauthorized person, or a customer, changes the unit volume price setting after the fluid dispensing operation is started with a proper setting of the unit volume price for a given customer, the price register gives a false price. As a result correct account cannot be kept.

Therefore, an object of the present invention is to provide a reliable price register of simple construction for fluid dispensing apparatus, which register includes a means for varying the setting for unit volume price and obviates the aforesaid difficulties of U.S. Pat. No. 3,413,867 to Hamlin and U.S. Pat. No. 3,484,021 to Bickford et al.

Another object of the present invention is to provide a price register for fluid dispensing apparatus, in which setting of unit volume price can easily be modified from the outside thereof but such modification cannot be effected once the fluid dispensing apparatus is made ready for fluid dispensing operation. Whereby, the danger of gear breakage or other damages due to erroneous operation of unit volume price modification during fluid dispensation is completely eliminated.

According to the present invention, there is provided a price register for fluid dispensing apparatus having a means for varying unit volume price setting for fluid, comprising a gearing consisting of a gear cone having 5 coaxially disposed spur gears of different diameters and secured to an output shaft of a flow meter measuring the flow rate of fluid being dispensed by said apparatus; a price indicator; at least one transmission shaft operatively connected to said price indicator and disposed in 10 the proximity of said gear cone and extending in parallel to axis of rotation of said gear cone; a carrier arm means connected to said transmission shaft in an axially slidable and rotatable manner and carrying a transmission spur gear means which is selectively engageable one of said spur gears of cone for transmitting the rotation of said output shaft of said flow meter to said transmission shaft; a first carrier arm operating means vertically reciprocating said carrier arm means along said transmission shaft for selectively disengaging and re-engaging said transmission spur gear means relative to 15 one of said spur gears of said gear cone; and a second carrier arm operating means actuatable from the outside of the register, so as to align said transmission spur gear means with a selected one of said spur gears of said gear cone when the transmission spur gear is disengaged from said gear cone; the gear ratio between the transmission spur gear means and the selected one of the spur gears of said gear cone representing the unit 20 volume price of the fluid.

Other objects and advantages of the present invention may be appreciated by referring to the following description, taken in conjunction with the accompanying drawings, in which;

35 FIG. 1 is a schematic perspective view of a fuel dispensing device incorporating a price register according to the present invention;

FIG. 2 is a diagrammatic illustration of a price register according to the present invention;

40 FIGS. 3 and 4 are a sectional view and a bottom view of the price register, respectively; and

FIG. 5 is an enlarged fragmentary view of a comb-like plate and its holder, with the comb-like plate shown as expanded.

45 Like parts are designated by like numerals throughout the drawings.

FIG. 1 shows a post-type fuel dispenser 10, which is installed on ground level, so as to dispense liquid fuel e.g., gasoline and kerosene, stored in an underground tank (not shown). A motor-driven pump 12 delivers the liquid fuel to a pipe 14, which is connected to a nozzle 162 through a flow meter 16. Upon actuating a trigger (not shown) of the nozzle 162, the liquid fuel is dispensed, for instance, to a vehicle. The flow meter 16 has an output shaft 161 which rotates at a speed proportional to the flow rate of liquid fuel being dispensed therethrough. A volume indicator 18 is directly driven by the output shaft 161 of the flow meter (FIG. 2), while a price indicator 18' is connected to the output shaft 161 through a price calculating mechanism 20 having a known calculating means. A knob or dial 201 is provided at the outside of the price calculating mechanism 20, so as to actuate a means for varying unit volume price of the liquid fuel being dispensed, as will be described in detail hereinafter. The indication of the volume indicator 18 and the price indicator 18' will be reset by operating a resetting lever 22.

FIG. 2 shows the detailed construction of the price calculating mechanism 20. As pointed out in the foregoing, the output shaft 161, which is rotated at a speed proportional to the flow rate of the liquid fuel being dispensed, is directly connected to the volume indicator 18. The indicator 18 includes a suitable integrating means (not shown) for integrating the flow rate information delivered from the flow meter 16, and indicates the total volume of the fluid fuel dispensed in a given dispensing operation. If desired, the volume indicator 18 may be replaced with a flow rate indicator which indicates the instantaneous flow rate of the liquid fuel being dispensed.

A gear cone 24 is coaxially secured to the output shaft 161 of the flow meter 16. In the illustrated embodiment, the gear cone 24 consists of 9 spur gears overlaid one on the other in a coaxial fashion. The diameter of each spur gear in the gear cone is the largest at the bottom of the gear cone and the smallest at its top, while the diameter varies gradually as the gear cone 24 extends downwardly. The gear cone 24 is described as being made by overlaying a number of spur gears, but it is also possible to form the entire gear cone 24 as one block from a unitary material. A plurality of transmission shafts 26 are disposed about the gear cone 24, of which only one shaft 26 is shown in FIG. 2 for simplicity. For instance three transmission shafts 26 may be used, so as to represent three different places of unit volume price of the liquid fuel: namely, digits of 10^0 , 10^1 , and 10^2 places or digits of the orders of 1 cent, 10 cents and 1 dollar, respectively. The three shafts may be disposed along a circle having a center on the axis of the gear cone 24. Each transmission shaft 26 is rotatable, with its top end being journaled by a cover plate 28 of the calculating mechanism and its bottom end being pivotally supported by a supporting plate 30.

Referring to FIGS. 2 and 3, each transmission shaft 26 is provided with one end of a gear carrying or holding arm 32 mounted thereon in an axially slidable and rotatable manner. The arm 32 rotatably carries two spur gears; namely, a spur gear 264 disposed coaxially with the transmission shaft 26 and another spur gear 321 which is kept as meshed with the spur gear 264. The spur gear 264 is rotatable relative to the arm 32 but not rotatable relative to the transmission shaft 26. As can be seen from FIGS. 2 and 3, the spur gear 321 can be brought into operative engagement with one of the spur gears of the gear cone 24, in response to the rotation of the arm 32 about the shaft 26. The particular spur gear of the gear cone 24 to which the gear 321 meshes depends on the vertical position of the arm 32. When the spur gear 321 meshes one of the spur gears of the gear cone 24, the rotation of the output shaft 161 of the flow meter 16 is transmitted to the transmission shaft 26 through the gears 321 and 264. Another spur gear 262 is coaxially secured to the transmission shaft 26 at an upper part thereof. The gear 262 is operatively connected to an adder mechanism 34 of known construction through its input gear 341. Thus, the rotation of the transmission shaft 26 is given to the adder mechanism 34, and the output from the adder mechanism 34 is applied to the price indicator 18' through an output gear 342 of the adder mechanism 34 meshing with an input gear 181' of the indicator 18'. As a result, the price indicator 18' provides an indication of the price of the liquid fuel for the amount being dispensed.

A comb-like plate 322 having a plurality of downwardly open notches 322a is secured to the other end of the arm 32, as seen in FIG. 2. In the illustrated embodiment, the comb-like plate 322 should preferably have ten such downwardly open notches 322a. The comb-like plate 322 has an arcuate edge with its center of curvature at the axis of the shaft 26, as shown in FIG. 3. Such edge of the comb-like plate 322 is also inclined relative to a horizontal, as shown in FIG. 5. A bracket 301 is secured to the supporting plate 30, in such a manner that the top edge of the bracket 301 engages one of the notches 322a of the comb-like plate 322 when the spur gear 321 meshes the corresponding one of the spur gears of the gear cone 24.

To selectively disengage the comb-like plate 322 from the bracket 301, a comb raiser 36 is slidably fitted on the upper end portion of the bracket 301, as can be seen from FIGS. 2 and 5. The comb raiser 36 is connected to one end of a rocker arm 362 through the supporting plate 30 by a vertical link rod 361. The rod 361 may be aligned with the bracket 301, as shown in FIG. 5, or offset from the bracket 301, as shown in FIG. 2. The rocker arm 362 is pivotally supported by a stud secured to a bottom plate 38 of the calculating mechanism 20. Referring to FIG. 2, the opposite end of the rocker arm 362 is connected to the resetting lever 22 (FIG. 1) through a vertically reciprocating lever 363. The lever 22 also acts to reset the indications of the indicators 18 and 18'. A tension spring 364 is wound about the link rod 361 at a portion between the rocker arm 362 and the supporting plate 30.

When the resetting lever 22 is turned in a counter-clockwise direction from its position as shown in FIG. 1, the rod 363 is pulled up so as to pull down the link rod 361 and the comb raiser 36 through the rocker arm 362. The tension spring 364 acts to assist such pulling down of the comb raiser 36, so as to keep the comb raiser away from the comb-like plate 322. Then, as the resetting lever 22 is turned in a clockwise direction, the lever 363 moves downwards, so as to push up the link rod 361 and the comb raiser 36 through the rocker arm 362 against the tension spring 364. As a result, the comb-like plate 322 is pushed up by the comb raiser 36 and removed from the bracket 301.

To turn the gear holding arm 32 after raising the comb-like plate 322, an arm rotating means 40 is provided so as to turn the arm about the longitudinal axis of the transmission shaft 26. It should be noted that the arm rotating means 40 is rotatable relative to the transmission shaft 26. The arm rotating means 40 has its upper end secured to a sleeved bevel gear 401 rotatably mounted on the cover plate 28, and its lower end is secured to a sector plate 402 rotatably carried by a stud 381 extending from the bottom plate 38. The stud 381 is aligned with the shaft 26. Thus, the supporting plate 30 has a slot through which the arm rotating means 40 extends to the sector plate 402, as seen from FIG. 2. It is understood that the transmission shaft 26 extends through the sleeved portion of the aforesaid bevel gear 401, so as to allow the means 40 to rotate relative to the shaft 26. Upon turning the knob or dial 201 (FIG. 1), a link rod 202 is rotated so as to turn a bevel gear 203 secured to the opposite end of the rod 202 to said dial 201. Consequently, the aforesaid sleeved bevel gear 401 meshing with the bevel gear 203 is turned about the transmission shaft 26. Since the arm rotating means 40 is integrally secured to the sleeved bevel gear 401,

the actuation of the knob 201 causes the arm rotating means 40 to turn about the transmission shaft 26.

Referring to FIG. 4, each sector plate 402 has an arcuate edge, which includes a plurality of recesses 402a corresponding to the notches 322a of the comb-like plate 322. More particularly, in the illustrated embodiment, 10 recesses 402a are formed on the sector plate 402, each corresponding to one of said notches 322a of the comb-like plate 322. A roll 42 carried by a suitable lever is biased by a spring 44 toward the arcuate edge of the sector plate 402, so as to operatively engage one of the recesses 402a for indexing the angular position of the sector plate 402, and accordingly the angular position of the arm rotating means 40.

FIG. 4 illustrates a link rod 46 which transmits the rocking motion of the rocker arm 362 to all the comb raisers 36 of the price register. As pointed out in the foregoing, the illustrated embodiment includes three transmission shafts 26, so that there are three gear holding arms 32 for rotatably carrying spur gears necessary for actuating the corresponding transmission shafts. Thus, there are three comb raisers 36 for selectively raising the corresponding comb-like plates 322 of the three arms 32.

The operation of the price register according to the present invention will now be described. When the fuel dispenser 10 is not used, the nozzle 162 is hung on a suitable hook (not shown) of the dispenser, the motor-driven pump 12 is not actuated, and the resetting lever is at its vertical position, as shown in FIG. 1. Accordingly, the vertical rod 363 is held at its lowered position, so as to push up the comb raiser 36 for removing the comb-like plate 322 of the gear carrying arm 32 away from the bracket FIG. 5, as shown in FIG. 5. Thus, the notches 322a of the plate 322 are all freed from the top edge of the bracket 301, so as to allow the plate 322 and accordingly the gear carrying arm 32 to turn about the axis of the transmission shaft 26. When three transmission shafts 26 are used for representing three digits of the unit volume price of the liquid fuel, e.g., digits of 10⁰, 10¹, and 10² places or digits of the orders of 1 cent, 10 cents, and 1 dollar, all the gear carrying arms 32 for the three shafts 26 are freed for indexing. It is understood that, for the three transmission shafts 26, three setting knobs or dials 201 are provided for independently setting each of the three digits of the unit volume price of the liquid fuel being dispensed.

Accordingly, to begin with the operation of the price register of the present invention, the three knobs or dials 201 are turned, for setting the gears 321 and the comb-like plates 322 carried by the arms 32 to the positions where the gears 321 are engageable with those gears of the gear cone 24, which represent the desired digits at the places of 10⁰, 10¹, and 10² or at the places of 1 cent, 10 cents, and 1 dollar. Such setting of the carrier arms 32 is effected by the corresponding link levers 202 (or equivalent chains or wires) and the arm rotating means 40. Since each of the sector plates 402 is indexed at the desired one of discrete angular positions by the engagement of the spring biased roll 42 and the corresponding one of the recesses 402a, the corresponding one of the notches 322a of the corresponding comb-like plate 322 is accurately indexed to a position engageable with the top end of the bracket 301.

When the nozzle 162 is removed from the hook and the resetting lever 22 is turned in a counter-clockwise direction, the indications of the two indicators 18 and

18' are reset and the motordriven pump 12 is actuated. At the same time, the vertical lever 363 is pulled up to swing the rocker arm 362 so as to pull down the comb raiser 36, so that the comb-like plate 322 descends by its own weight, until the previously indexed notch 322a engages the top end of the bracket 301. After the indexed notch 322a has engaged the bracket 301, the knob or dial 201 is automatically locked by such engagement and it cannot be turned any more. Thereafter, upon actuation of the trigger (not shown) of the nozzle 162, the liquid fuel is dispensed through the flow meter 16 and the nozzle 162. Thus, the rotation of the output shaft 161 of the flow meter 16 is directly transmitted to the volume indicator 18, so as to provide the indication of the volume of the liquid fuel being dispensed. The rotation of the output shaft 161 of the flow meter 16 is also transmitted to the three transmission shafts 26 through the gear cone 24 and the three gear trains each having two spur gears 321 and 264, so as to rotate the three shafts 26 at the speed predetermined or set by the knobs 201, relative to the revolving speed of the output shaft 161. The informations represented by the rotations of the three transmission shafts 26 are applied to the adder mechanism 34 through three gear trains, each consisting of two spur gears 262 and 341. The output from the adder mechanism 34 is applied to the price indicator 18', for indicating the price of the amount of liquid fuel being dispensed.

At the end of the fuel dispensing operation, the resetting lever 22 is turned in a clockwise direction and the nozzle 162 is returned to its hook (not shown). Thus, the motor-driven pump 12 comes to rest, and the vertical rod 363 descends to swing the rocker arm 362 in such a manner that the comb raiser 36 is pushed up to separate the comb-like plate 322 from the bracket 301. Thus, the gear carrying arms 32 and the spur gears 321 becomes ready for new setting or indexing by the knobs or dials 201, so as to represent a new unit volume price.

In the preferred embodiment of the present invention, as described in the foregoing by referring to the accompanying drawings, the comb-like plates 322 is vertically reciprocated by manually turning the resetting levers 22 for disengaging and re-engaging the notches 322a of the comb-like plates 322 relative to the brackets 301 and the particular spur gears of the gear cone 24 to be engaged with the spur gears 321 carried by the arms 32 is selected by turning the corresponding knobs 201. The manual operation of the resetting lever 22 of the embodiment is also used for controlling the motor-driven pump 12 and resetting the two indicators 18 and 18'. The present invention, however, is not restricted to such construction of the resetting lever. For instance, instead of providing a separately operable resetting lever 22, a spring-biased lever may be provided at a hook (not shown) for holding the nozzle 162 in such a manner that the spring biased lever may be automatically actuated in response to the removal of the nozzle 162 from the hook and returned to its non-actuated position in response to the return of the nozzle 162 to the hook. Such spring-biased lever can, of course, be in the form of spring-biased button. The spring-biased lever or button may be used for controlling all or a part of the vertical lever 363, the motor-driven pump 12, and the two indicators 18 and 18'.

The present invention has been described by referring to a fuel dispenser including a motor-driven pump for pumping up liquid fuel, e.g., gasoline and kerosene,

from underground storage tank. It is also possible to apply a price register of the present invention to a fuel dispenser using a pressurized fuel storage tank, which dispenser has a valve for regulating the fuel flow, instead of the motor-driven pump. In this case, the open and close operation of the valve may be interlinked with the operation of the vertical lever 363 associated with the rocker arm 362. Furthermore, the use of the price register of the present invention is not restricted to liquid fuel dispensers, but it can be applied to various kinds of fluid dispensers.

Although the present invention has been described with a certain degree of particularity, it is understood that the present disclosure has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the scope and spirit of the invention as hereinafter claimed.

I claim:

1. A price register for fluid dispensing apparatus having means for varying unit volume price setting for fluid, comprising

a price indicator;

a fluid amount indicator;

a gearing consisting of a gear cone having coaxially disposed spur gears of different diameters and secured to an output shaft of a flow meter measuring the flow rate of the fluid being dispensed;

at least one transmission shaft operatively connected to said price indicator, disposed in the proximity of said gear cone and extending in parallel to the axis of rotation of said gear cone;

carrier arm means connected to said transmission shaft in an axially and rotatable manner and carrying transmission spur gear means at one end, which is selectively engageable with one of said spur gears of said gear cone to transmit the rotation of the output shaft of the flow meter to said transmission shaft, said carrier arm means carrying a comb-like plate at the other end;

a first carrier arm operating means vertically reciprocating said carrier arm means along said transmission shaft for selectively disengaging and re-engaging said transmission spur gear means relative to one of said spur gears of said gear cone, said first carrier arm operating means being interlinked with means for resetting the indications of said price and fluid amount indicators; and

a second carrier arm operating means actuatable from the outside of the price register, so as to align said transmission spur gear means with a selected one of said spur gears of said gear cone, when the transmission spur gear means is disengaged from said gear cone, the gear ratio between the transmission spur gear means and the selected one of the spur gears of said gear cone representing the unit volume price of the fluid.

2. A price register according to claim 1, wherein said first carrier arm operating means is interlinked with a reset lever means.

3. A price register according to claim 1, wherein said first carrier arm operating means is interlinked with a holder of a fluid dispensing nozzle.

4. A price register according to claim 1, wherein said first carrier arm operating means is interlinked with a holder of a fluid dispensing nozzle through a reset lever means.

5. A price register according to claim 1, further comprising a first stabilizing means holding said first carrier arm operating means when the latter is at rest and a second stabilizing means for indexing the angular position of said carrier arm means, said second stabilizing means consisting of a sector plate interlinked with said carrier arm means and a spring biased roll selectively engageable with one of recesses formed on one edge of said sector plate.

10 6. A price register according to claim 5, wherein the comb-like plate of said carrier arm means has the same number of notches as the number of said recesses in said sector plate of said second stabilizing means, and said first and second stabilizing means are so related with each other than when said spring-biased roll engages one of said sector plate, that notch of said comb-like plate which corresponds to the recess thus engaged with the roll is acted by said first stabilizing means.

15 7. A price register for fluid dispensing apparatus having a means for varying unit volume price setting for fluid, comprising

a gearing consisting of a gear cone having coaxially disposed spur gears of different diameters and secured to an output shaft of a flow meter measuring the flow rate of the fluid being dispensed;

a price indicator:

at least one transmission shaft operatively connected to said price indicator and disposed in the proximity of said gear cone and extending in parallel to the axis of rotation of said gear cone;

carrier arm means connected to said transmission shaft in an axially slideable and rotatable manner and carrying a transmission spur gear means which is selectively engageable with one of said spur gears of the gear cone for transmitting the rotation of the output shaft of the flow meter to said transmission shaft;

first carrier arm operating means vertically reciprocating said carrier arm means along said transmission shaft for selectively disengaging and re-engaging said transmission spur gear means relative to one of said spur gears of said gear cone; and second carrier arm operating means actuatable from the outside of the register, so as to align said transmission spur gear means with a selected one of said spur gears of said gear cone, when the transmission spur gear means is disengaged from said gear cone; the gear ratio between the transmission spur gear means and the selected one of the spur gears of said gear cone representing the unit volume price of the fluid, said first carrier arm operating means being interlinked with a holder of a fluid dispensing nozzle.

55 8. A price register according to claim 7, wherein said second carrier arm operating means comprises a rotary knob or dial operable from the outside of the price register to control said rotation of said carrier arm about transmission shaft.

60 9. A price register according to claim 7 and further comprising an adder mechanism connected to a plurality of said transmission shafts, wherein each of said transmission shafts represents one of a plurality of digits in the unit volume price.

65 10. A price register according to claim 7 and further comprising a means for stabilizing the engagement between the transmission spur gear means and the selected one of said spur gears of said gear cone.

11. A price register according to claim 7 and further comprising a means interlinking said first carrier arm operating means to a means feeding said fluid to said flow meter.

12. A price register according to claim 7, wherein said carrier arm has said transmission spur gear means secured toward one end thereof and a comblike plate at the opposite end thereof.

13. A price register according to claim 10, wherein said stabilizing means holds said first carrier arm operating means when the latter is at rest.

14. A price register according to claim 13, and further comprising a second stabilizing means for indexing the angular position of said carrier arm.

15. A price register for fluid dispensing apparatus having a means for varying unit volume price setting for fluid, comprising

a gearing consisting of a gear cone having coaxially disposed spur gears of different diameters and secured to the output shaft of a flow meter measuring the flow rate of the fluid being dispensed;

a price indicator:

at least one transmission shaft operatively connected to said price indicator and disposed in the proximity of said gear cone and extending in parallel to the axis of rotation of said gear cone;

carrier arm means connected to said transmission shaft in an axially slideable and rotatable manner and carrying a transmission spur gear means which is selectively engageable with one of said spur gears of the gear cone for transmitting the rotation of the output shaft of the flow meter to said transmission shaft;

first carrier arm operating means vertically reciprocating said carrier arm means along said transmission shaft for selectively disengaging and re-engaging said transmission spur gear means relative to one of said spur gears of said gear cone;

second carrier arm operating means actuatable from the outside of the register, so as to align said transmission spur gear means with a selected one of said spur gears of said gear cone, when the transmission spur gear means is disengaged from said gear cone; the gear ratio between the transmission spur gear means and the selected one of the spur gears of said gear cone representing the unit volume price of the fluid, said carrier arm having said transmission spur gear means secured toward one end thereof and a comblike plate at the opposite end thereof; and vertically reciprocating means engageable with said comb-like plate of said carrier arm and a rotary knob or dial for controlling said rotation of said carrier arm about said transmission shaft.

16. A price register for fluid dispensing apparatus

having a means for varying unit volume price setting for fluid, comprising

a gearing consisting of a gear cone having coaxially disposed spur gears of different diameters and secured to the output shaft of a flow meter measuring the flow rate of the fluid being dispensed; a price indicator:

at least one transmission shaft operatively connected to said price indicator and disposed in the proximity of said gear cone and extending in parallel to the axis of rotation of said gear cone; carrier arm means connected to said transmission shaft in an axially slideable and rotatable manner and carrying a transmission spur gear means which is selectively engageable with one of said spur gears of the gear cone for transmitting the rotation of the output shaft of the flow meter to said transmission shaft;

first carrier arm operating means vertically reciprocating said carrier arm means along said transmission shaft for selectively disengaging and re-engaging said transmission spur gear means relative to one of said spur gears of said gear cone; second carrier arm operating means actuatable from the outside of the register, so as to align said transmission spur gear means with a selected one of said spur gears of said gear cone, when the transmission spur gear means is disengaged from said gear cone; the gear ratio between the transmission spur gear means and the selected one of the spur gears of said gear cone representing the unit volume price of the fluid; means for stabilizing the engagement between the transmission spur gear means and the selected one of said spur gears of said gear cone, said stabilizing means holding said first carrier arm operating means when the latter is at rest; and second stabilizing means for indexing the angular position of said carrier arm, said second stabilizing means consisting of a sector plate interlinked with said carrier arm and a spring biased roll selectively engageable with one of recesses formed on one edge of said sector plate.

17. A price register according to claim 16, wherein said comb-like plate of said carrier arm has the same number of notches as the number of said recesses in said sector plate of the said second stabilizing means, and said first and second stabilizing means are so related with each other that when said spring-biased roll engages one of said recesses of said sector plate, and that notch of said comb-like plate which corresponds to the recess thus engaged with the roll is acted by said first stabilizing means.

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