

[54] **FLUID DISPENSING SYSTEM HAVING
TOKEN DISPENSER**

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[52] U.S. Cl. **194/13**

[51] Int. Cl.² **G07F 13/10**

[58] Field of Search 194/13, 5; 222/2, 30

[56] **References Cited**

UNITED STATES PATENTS

2,573,112	10/1951	Schneckenburger	194/13 X
3,668,375	6/1972	Smilgys et al.	222/30

Primary Examiner—Stanley H. Tollberg
Attorney, Agent, or Firm—Prutzman, Hayes, Kalb &
Chilton

[57] **ABSTRACT**

A fuel delivery system for automotive self-service stations includes a token dispensing mechanism in each fuel pump for automatically dispensing a pump identifying token. The mechanism includes a tubular token storage compartment for housing a stack of tokens and a token metering slide reciprocally movable for sequentially dispensing tokens from the stack within the storage compartment. The slide is automatically driven toward a token dispensing station upon operation of a control lever and is biased into a return position for receiving the next token from the stack. A chute positioned below the dispensing station conveys the tokens to the exterior of the pump where they can be easily retrieved by the customer for presentation to the station attendant.

11 Claims, 3 Drawing Figures

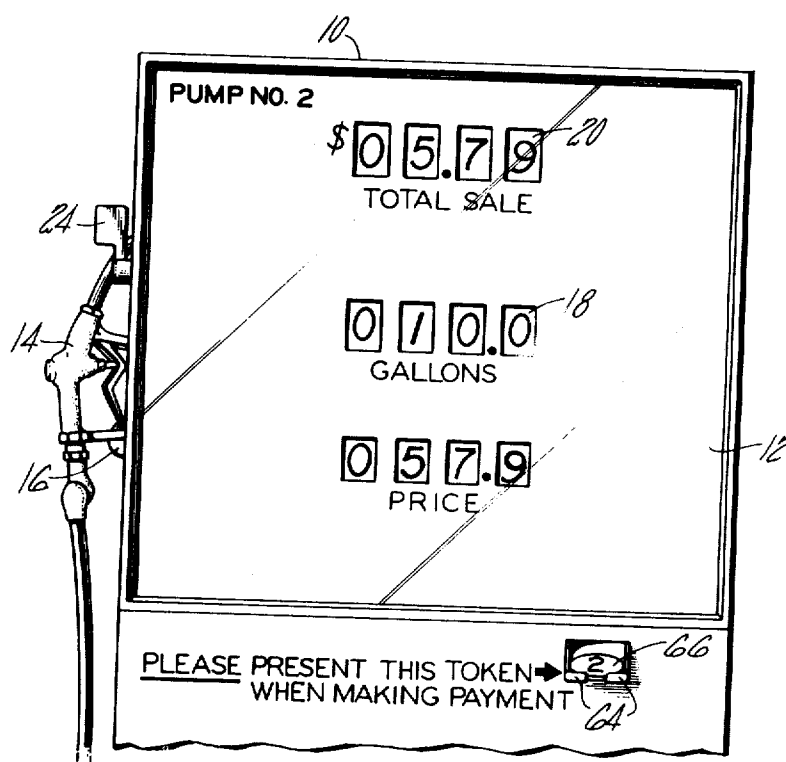


FIG. 1

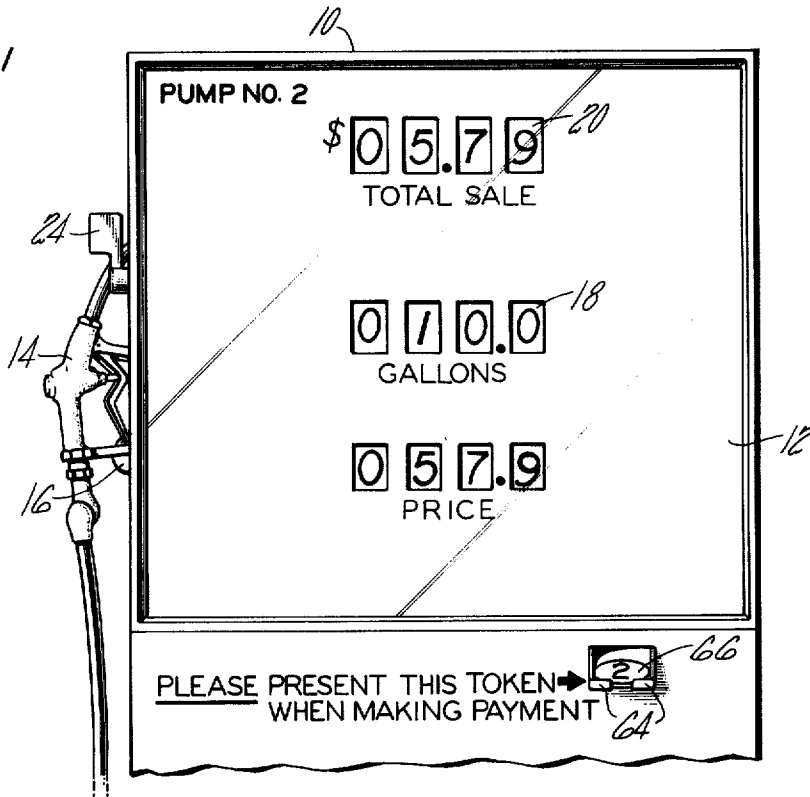


FIG. 3

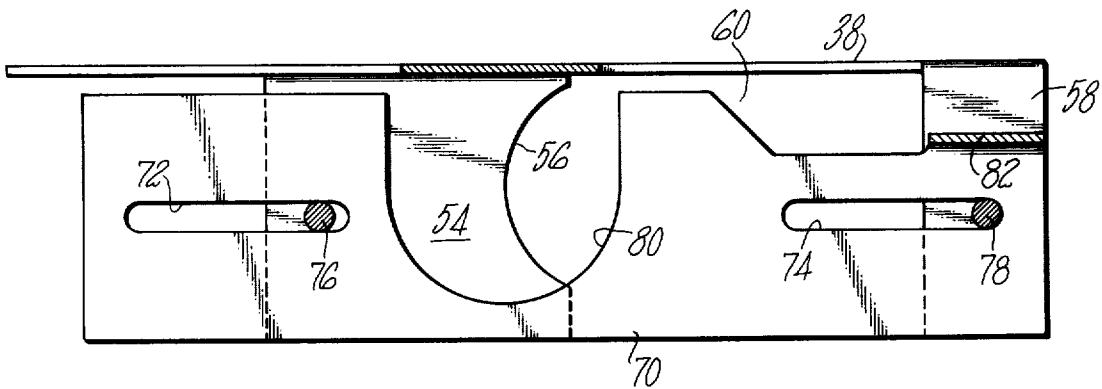
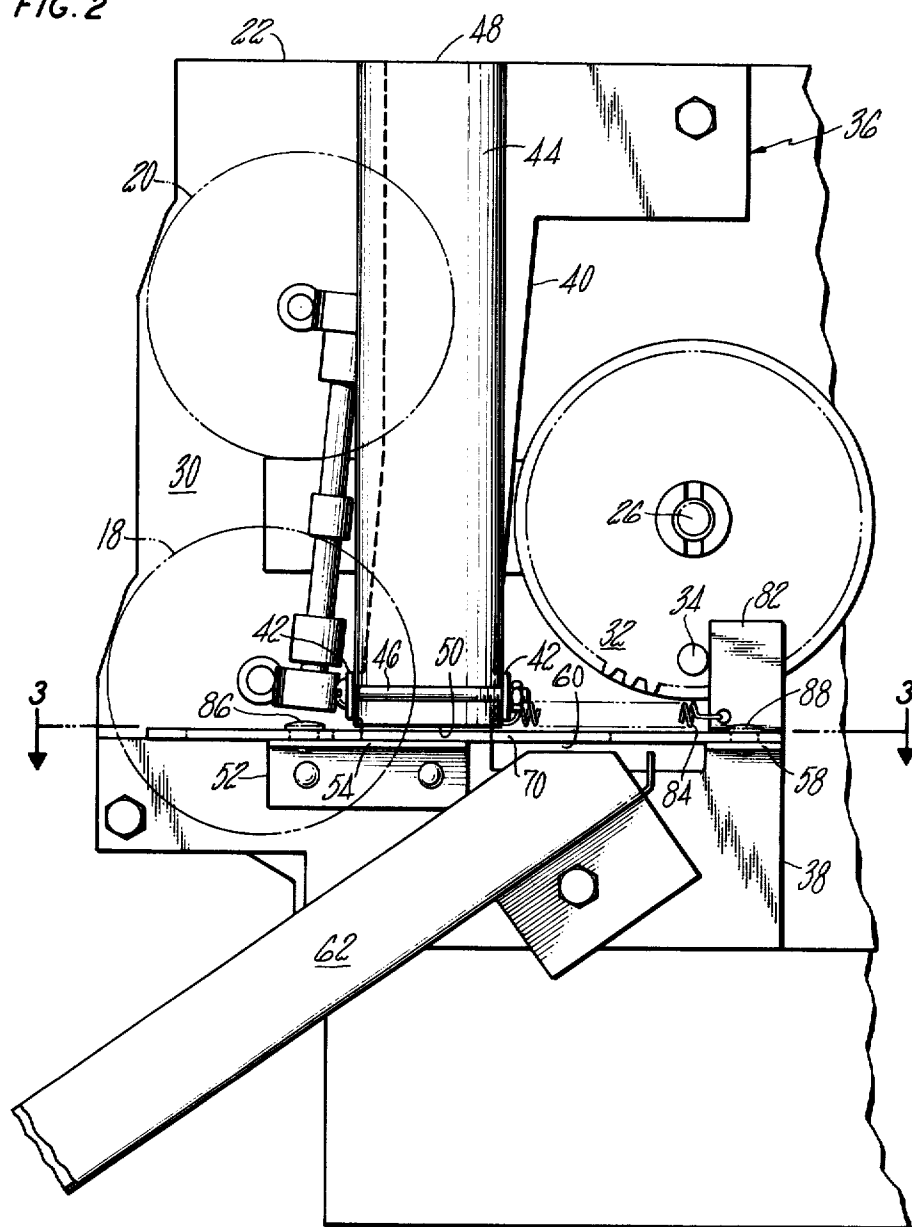


FIG. 2



FLUID DISPENSING SYSTEM HAVING TOKEN DISPENSER

BACKGROUND AND SUMMARY OF THE INVENTION

The present invention relates generally to fluid dispensing systems such as those found at automotive fuel service stations and is particularly concerned with fluid dispensing systems adapted for use in connection with self-service fuel dispensing stations wherein a centrally located station attendant controls the dispensing of fuel by customers from a plurality of remotely located fuel dispensing pumps.

In many instances, self-service stations of the type described are provided with three, four or more pump islands with at least two or more pumps located on each island so that the station attendant is required to concurrently manage a large number of fuel dispensing pumps. This requires not only that the attendant be able to control the operation of each pump so that it can be turned to its "on" condition for use by the customer but also that the attendant be able to properly identify the customer using a specific pump when the customer seeks to pay for the fuel upon completion of the fuel delivery and be assured that the pump is in its "off" condition.

Accordingly, it is an object of the present invention to provide a new and improved fuel dispensing system wherein the customer is provided with means for identifying the particular pump used and the identification is such that it can be presented to the station attendant upon completion of a fuel delivery. Included in this object is the provision for a pump identifying token which is automatically dispensed by the fuel pump and permits immediate identification by the attendant of the particular pump used, thus relieving the attendant of the responsibility of determining which customer utilized a particular fuel pump for the fuel delivery.

Another object of the present invention is to provide a new and improved self-service fuel dispensing system that automatically provides the customer with an identifying token capable of informing the service station attendant of the location of the pump used and the completion of a fuel delivery. Included in this object is the provision for a token dispensing mechanism of compact size and relatively simple operation that will readily fit within the pump housing and can be easily and automatically operated by the customer in the normal course of attending to a fuel delivery.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

These and related objects are accomplished in accordance with the present invention by providing a new and improved fluid dispensing system of the type described that has an operating cycle with delivery and nondelivery phases. The system includes a nozzle movable into and out of a storage position, a register for registering the amount of fuel delivered by the nozzle during the delivery phase, the register being resettable to a zero setting between successive fluid deliveries, and a control means operable upon movement of the nozzle into and out of the storage position and adapted for controlling the resetting of the register. The system further includes a token dispensing mechanism for dispensing a token during each operating cycle comprising a token storage compartment having a token outlet port and a token metering member movable between

a token receiving station at the outlet port and a token dispensing station. The token metering member is adapted to receive a token from the outlet port of the storage compartment when positioned within the token receiving station and is operative for movement toward the token dispensing station in response to operation of the control means.

A better understanding of the objects, advantages, features, properties and relationships of this invention will be obtained from the following detailed description and the accompanying drawings which set forth illustrative embodiments and are indicative of the ways in which the principles of this invention are employed.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is an elevational view of a portion of one fuel pump of the fluid delivery system incorporating an embodiment of the present invention;

FIG. 2 is a fragmentary side view of the register portion of the fuel pump of FIG. 1 with the housing removed; and

FIG. 3 is a sectional view taken along the line 3—3 of FIG. 2 with the token metering member illustrated in the token receiving station.

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring now to the drawing in greater detail wherein like reference numerals indicate like parts throughout the several figures, a gasoline delivery pump incorporating an embodiment of the present invention is shown in FIG. 1 as including a pump housing 10 having faces 12 on opposite sides thereof for displaying the fuel unit price as well as the volume and cost amounts of the fuel delivered. The pump is provided with a nozzle 14 for delivering fuel and with a single nozzle storage receptacle 16 on one side of the housing 10 for storing the nozzle 14 between fuel deliveries. The fuel dispensing apparatus conventionally also incorporates a fuel pump driven by a motor for supplying fuel through a meter and a shutoff valve (all not shown) to the fuel dispensing nozzle 14. A variator (not shown) is provided for selectively establishing and posting the unit volume price of the fuel to be delivered. The variator is connected for being mechanically driven by a conventional gasoline meter and is connected for driving the volume and cost counters 18, 20 of a register 22 for registering the volume amount of the fuel delivery and the cost amount of fuel delivery in accordance with volume amount delivered and the established unit volume price.

The register 22 employed in the pump preferably is of the resettable type and may be as shown and described in U.S. Pat. No. 2,814,444 of Harvey N. Bliss dated Nov. 26, 1957 and entitled "Register." Such a register is operable by a control handle positioned adjacent the nozzle storage receptacle, such as the handle 24 that is rotated to its vertical or "off" position shown in FIG. 1 to permit the nozzle 14 to be placed in the storage receptacle 16 upon the completion of a fuel delivery. Conversely, the nozzle 14 must be removed from its storage receptacle 16 to permit the handle 24 to be rotated to its horizontal or "on" position. Rotation of the handle 24 to its vertical or "off" position conditions the register for being reset while rotation of the handle to the horizontal or "on" position provides for sequentially resetting the volume and cost counters

18, 20 to a zero setting through the central main reset shaft 26 and then reconditioning the register for registering the cost and volume of the fuel delivered. The register 22 is also connected in the known manner to provide for de-energizing a pump motor (not shown) when the control handle 24 is turned to its "off" position and for re-energizing the motor after the volume and cost counters of the register have been reset and the register is conditioned for recording the subsequent delivery.

As will be appreciated, the mechanical hand operated control lever 24 may be replaced by an automatic control of the type shown in Dilger et al. U.S. Pat. No. 3,478,854 entitled "Fuel Dispensing Apparatus Control System" that senses both the removal of the fuel nozzle from the storage receptacle and the replacement thereof within the receptacle. However, for clarity of illustration and ease of understanding, the invention will be described in connection with the use of the manual control lever 24. The lever 24 is connected through a conventional linkage (not shown) to the central main reset shaft 26 that traverses the register 22 and projects outwardly from the side plate 30 thereof. As the lever 24 is moved to its "on" position, it drivably rotates shaft 26 counterclockwise, as viewed in FIG. 2, through one revolution for resetting the volume and cost counters 18, 20. A disc 32 conventionally secured to one end of the center shaft 26 is rotated therewith and, in accordance with the present invention, mounts a transversely projecting drive pin 34 adjacent its periphery for actuating a token dispensing mechanism mounted on the side of the register.

The token dispensing mechanism is securely mounted to side plate 30 of the fuel pump register 22 and is operatively associated with the control handle 24 through shaft 26 so as to dispense a token upon movement of the handle between its "on" and "off" positions. As will be appreciated, the token dispensing operation can be effected either as the control handle is moved to its "on" position during the nondelivery phase of the pumps operating cycle or, alternatively, as the handle is moved to its "off" position upon completion of the delivery phase. It is advantageous to dispense the token as the control handle is moved towards its "off" position since this will assure the station attendant that the fuel pump has been turned off and that further delivery by the customer is fully controlled by the attendant. However, token discharge at the beginning of the delivery cycle will obviate the need for the customer to wait for the token to be dispensed. In the embodiment illustrated, the token is dispensed as the control handle 24 is moved toward its horizontal or "on" position and as the register is being reset. This is accomplished by cooperative interengagement between the token dispensing mechanism and the drive pin 34 rotatably mounted on the main reset shaft 26.

In the specific embodiment shown, the token dispensing mechanism includes a flat mounting bracket 36 fixedly secured to the side plate 30 of the register in a plurality of space locations. The mounting bracket 36 includes a flat, generally rectangular base portion 38 mounted on the side plate 30 below disc 32 and an integral stabilizing leg portion 40 extending from the base portion toward the top of the register. The leg portion 40 is provided with a pair of sidewardly projecting flanges 42 located adjacent the base portion 38 between which is received a generally cylindrical and tu-

bular token storage chamber or compartment 44. A suitable fastener 46 connects the free ends of the flanges 42 and causes the flanges to compressively engage the token storage chamber 44 while the uppermost end of the horizontally disposed chamber is fixedly secured to both the mounting bracket leg portion 40 and the side plate 30 of the register 22. The chamber 44 is open at both its top end 48 to receive tokens for storage therein and at its bottom outlet end 50 so as to readily dispense the tokens stored therein. The tubular compartment is configured so that a substantial number of flat, disc-like tokens can be alignably stored therein in the form of a stack.

Adjacent the bottom or outlet end 50 of the chamber 44 but spaced therefrom by a distance slightly greater than the thickness of a token is a primary slide support member 52 of generally L-shaped configuration secured to the base portion 38 of the mounting bracket and having a token receiving plate portion 54 extending outwardly therefrom at substantially a right angle thereto. The plate portion 54 is of sufficient length and breadth to supportably receive and retain the lowermost token from the stack of tokens located within the token storage chamber 44. As shown in FIG. 3, one end edge 56 of plate portion 54 is arcuately contoured to facilitate subsequent discharge of the token as it is moved away from the outlet end 50 of the storage chamber.

A secondary slide support 58 integral with the base portion 38 of the bracket and disposed at a right angle thereto is spaced from the primary slide support 52 by a distance substantially greater than the diameter of a token. The support 58 is positioned within the same plane as the token receiving plate 54 of the primary support 52 and directly below disc 32 so that the intermediate space 60 provides a substantially enlarged token dispensing station through which the token is permitted to fall upon movement away from the outlet port 50 of the storage chamber 44.

A generally U-shaped token dispensing track or chute 62 is mounted beneath the token dispensing station 60 to receive the token dispensed therethrough. The inclined track 62 extends through housing 10 to the exterior of the fuel pump and is provided with suitable stops 64 on the exposed free end thereof so that the customer may readily retrieve the token from the track and present it to the station attendant. As will be appreciated, the specific location of the outlet end of the token dispensing track can vary and may be on one face of the pump, as illustrated in FIG. 1, or may be located adjacent the nozzle receptacle 16 for easy access upon completion of a fuel delivery. The token may take any suitable form such as a check, ticket or the like and may be color coded or otherwise marked to designate the particular pump used by the customer during the fuel delivery, such as the disc-shaped token 66 shown in FIG. 1. In this way the attendant is quickly advised of the pump used by the customer and can note the total sale for the specific fuel delivery and determine that the pump is in its "off" condition.

A token metering slide 70 of rectangular shape is mounted on the slide supports 54, 58 and is provided with a pair of elongated, longitudinally extending slots 72, 74. Aligning and motion limiting lugs 76, 78 secured to the slide supports 54 and 58, respectively, extend through the slots 72 and 74, respectively, to positively retain the slide on the supports while permitting

limited linear sliding movement thereof. The slide is further provided with an enlarged side notch 80 of a suitable size so as to fully receive a token from the token storage chamber 44, the side notch 80 being located at about the longitudinal midpoint between the aligning slots 72, 74. As illustrated in FIGS. 2 and 3, the pins 76, 78 may be positioned relative to the cooperating slots so that pin 78 limits linear travel to the left, as viewed in FIG. 3, and pin 76 limits linear travel to the right. In any event, the slide 70 is preferably positioned directly beneath the outlet opening 50 of the storage chamber 44 after full movement to left as viewed in FIGS. 2 and 3.

The slide 70 is further provided with an upstanding arm 82 at the end thereof overlying the secondary support 58. A return spring 84 is secured to the arm 82 and to the storage chamber mounting flange 42 for constantly urging the slide 70 toward the left as viewed in FIGS. 2 and 3. In this way, the side notch 80 is normally positioned directly beneath the outlet opening 50 of the storage chamber for receiving a token therefrom. As will be appreciated, the guide lugs 76, 78 extending through the elongated slots 72, 74 are provided with button-like crown portions 86, 88, respectively, to hold the slide in close sliding relationship with the supports. The upstanding arm 82 on the slide is cooperatively engaged by the drive pin 34 mounted for rotation with the central reset shaft 26 so that as the shaft 26 moves in a counterclockwise direction as viewed in FIG. 2, the pin 34 will bear against the upstanding arm 82 to drive the slide 70 to the right as viewed in FIG. 2. In this way, a token positioned within the slot 80 will be conveyed from the outlet end 50 of the storage chamber 44 toward the enlarged dispensing station or gap 60 located between the primary slide support 52 and the secondary slide support 58. The token is then free to simply drop through gap 60 into the token dispensing track 62 that is inclined to permit its easy sliding movement toward the exterior of the fuel pump.

As will be appreciated from the foregoing, the customer is not required to perform any additional operations other than those conventionally associated with a normal fuel delivery. Also the token can be dispensed at either the beginning or the end of a fuel delivery and both the customer and the station attendant are able to positively identify the pump used for the delivery.

As will be apparent to persons skilled in the art, various modifications, adaptations and variations of the foregoing specific disclosure can be made without departing from the teachings of the present invention.

I claim:

1. A fluid delivery system having an operating cycle with delivery and nondelivery phases; a nozzle movable into and out of a storage position; a register for registering the amount of fluid delivered by the nozzle during the delivery phase, said register being resettable to a zero setting between successive fluid deliveries; control means operable upon movement of the nozzle into and out of its storage position and including a lever movable during the nondelivery phase to permit delivery and a reset shaft movable in response to movement of said lever for controlling the resetting of the register; a token dispensing mechanism for dispensing a token during each operating cycle comprising a token storage compartment having a token port, and a token metering member movable between a token receiving station at said outlet port and a token dispensing station and

adapted to receive a token from the outlet port of the storage compartment when positioned in the token receiving station, and reset shaft mounting a drive member directly engageable with said token metering member for driving the metering member toward the token dispensing station.

2. The fluid delivery system of claim 1 wherein said token metering member is a slide reciprocably movable into and out of the token receiving station, said mechanism including biasing means for urging the slide into the token receiving station.

3. The fluid delivery system of claim 1 including a housing for the register and the token dispensing mechanism, said housing having an opening therein for dispensing a token, and an inclined token dispensing chute having one end positioned at the token dispensing station for receiving a token therefrom and an opposite end positioned adjacent the housing opening facilitating customer retrieval of a dispensed token.

4. The fluid delivery system of claim 1 wherein said token storage compartment is a tubular member of a size suitable for receiving a stack of tokens and sequentially presenting individual tokens to the outlet port, said token metering member comprising a slide adapted for limited reciprocal movement between said token receiving and dispensing stations and having a drive arm upstanding therefrom for engagement by said drive member for driving the slide toward the token dispensing station.

5. The fluid delivery system of claim 1 wherein said lever is a manual control lever movable in a first rotary direction during the non-delivery phase into a position interfering with the return of the nozzle to its storage position and in a second rotary direction upon completion of a delivery phase away from said interfering position, said control lever being operative to reset the register upon movement in said first rotary direction and being operative for driving said shaft and said token metering member toward the token dispensing station upon movement in one of said first and second rotary directions for delivering a token to the dispensing station.

6. The fluid delivery system of claim 1 wherein the token dispensing mechanism includes a support for the token metering member secured to the register, said support cooperating with said metering member to permit limited movement between said token receiving and dispensing stations.

7. The fluid delivery system of claim 6 wherein said token metering member and said support are provided with cooperative guide means for assuring linear movement of the metering member.

8. The fluid delivery system of claim 7 wherein the metering member is a generally rectangular member having a central token receiving portion, said guide means including an elongated slot in one of said metering member and support and a pin on the other of said member and support positioned within said slot.

9. The fluid delivery system of claim 1 wherein said control lever is movable in a first rotary direction during the nondelivery phase and in a second rotary direction upon completion of a delivery, said token storage compartment being a tubular member of a size suitable for receiving a stack of tokens and for sequentially presenting individual tokens to the outlet port, said token metering member having a token receiving notch and guide slots for controlling movement of the meter-

ing member between said receiving and dispensing stations, said dispensing mechanism including biasing means urging the metering member toward the token receiving station, said shaft is rotatable in response to movement of the control lever in one of said first and second rotary directions, said drive member is a drive pin engageable with said metering member for driving said metering member toward the token dispensing station against the bias of the biasing means for delivering a token within the notch to the dispensing station.

10. The fluid delivery system of claim 9 wherein said token metering member is a generally rectangular plate-like slide having a pair of spaced longitudinally extending guide slots and the token dispensing mechanism includes a slide support having guide pins positioned within said slots for assuring linear movement of said slide and limiting reciprocal movement thereof and an inclined track having one end at said token dispensing station for receiving tokens delivered thereto by the slide.

11. A fuel delivery system particularly adapted for self-service stations comprising a fuel pump having an

operating cycle with delivery and nondelivery phases; a nozzle movable into and out of a storage position on the pump; a register for registering the amount of fuel delivered by the nozzle during the delivery phase, said register being resettable to a zero setting between successive fuel deliveries; control means operable upon movement of the nozzle into and out of its storage position and including a reset control lever adapted for controlling the resetting of the register and a control shaft movable in response to movement of said lever; a token dispensing mechanism for dispensing a token during each operating cycle comprising a token storage compartment for storing a supply of tokens and adapted to automatically and sequentially present an individual token for delivery, and a token metering member movable between a token receiving station and a token dispensing station, said control shaft mounting a drive member directly engageable with said token metering member for driving the metering member toward the token dispensing station.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 3,904,009
DATED : September 9, 1975
INVENTOR(S) : Coates F. Bateman

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 3, line 13, after "control" the word --lever-- should be inserted.

Column 5, line 65, before "port" the word --outlet-- should be inserted.

Column 6, line 3, the word "and" should be --said--.

Signed and Sealed this

sixteenth Day of December 1975

[SEAL]

Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents and Trademarks