

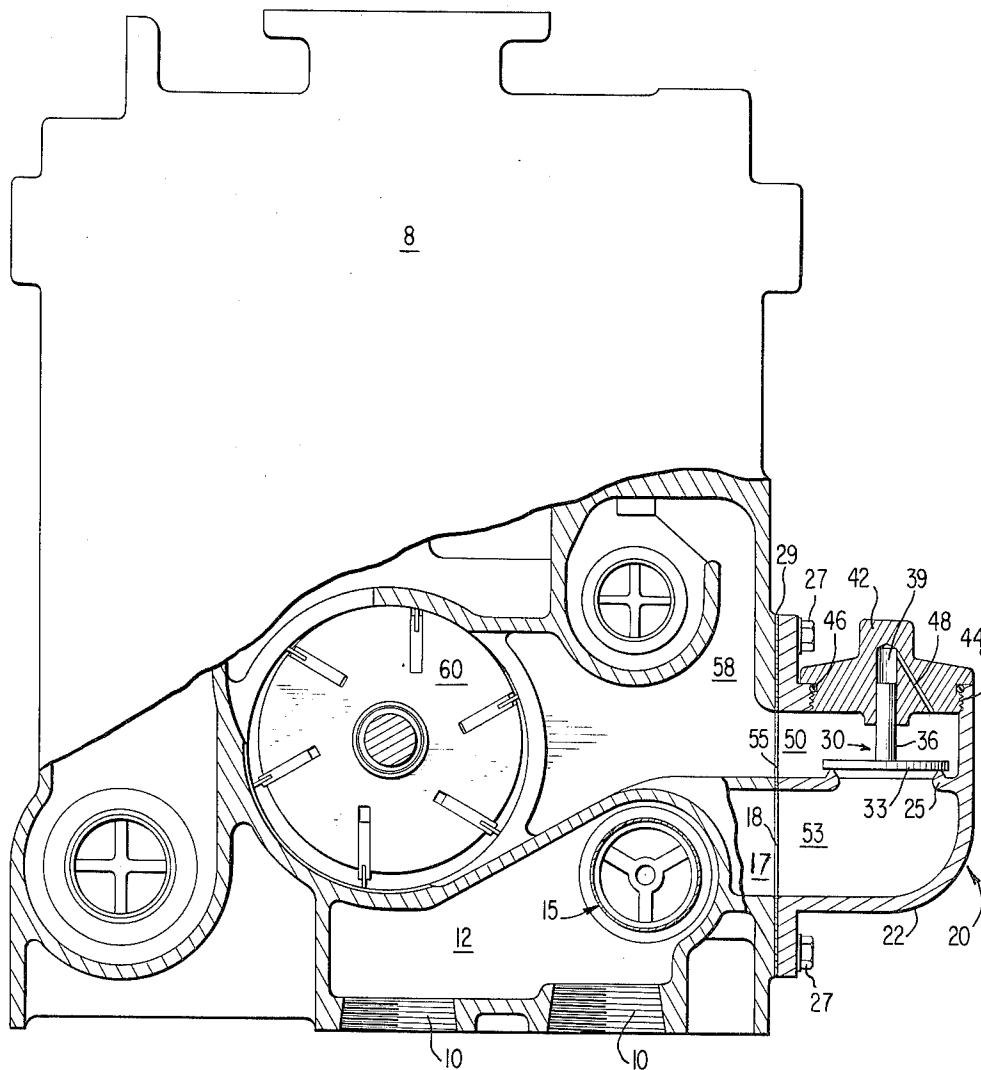
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3,224,646

LIQUID DISPENSER WITH OUTER HOUSING

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4 Claims. (Cl. 222—189)

The valve employed in this invention consists of a generally circular disk disposed in an approximately horizontal plane. The disk is attached to the bottom of a vertical stem, giving somewhat the appearance of an inverted mushroom. The housing for the valve includes an upper yoke assembly which provides a passageway in which the stem is free to slide up and down. The hous-

As can be seen, the valve and valve seat divide the passageway between the suction chamber and the pump chamber into an upper portion 50 and a lower portion 53. The upper portion 50 leads to a second opening 55 in the wall of the gasoline dispenser 8 and provides access to the pump chamber 58 which contains the pump 60. As shown, this pump is of the impeller type conventionally employed in gasoline dispensers, but other types may also be employed. The pump leads to metering, by-passing, fluid separating devices, etc., within the gasoline dispenser which are not shown in the drawings.

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but which are well known to those skilled in the art; see, for example, U.S. Patent 2,680,538.

The valve 30 is accessible for inspection and renewal by the removal of cover 42 and seal 46; the entire housing 20 may be removed by unscrewing the bolts 27. As shown, passage 39 holds stem 36, and thus the entire valve 30, in vertical alignment over the seat 25. The stem 36 is held loosely, that is, disc 33 is free to travel into upper chamber 50 in response to suction in the chambers 50 and 58. In the closed position the smooth face of disc 33 comes into intimate and sealing contact with the raised seat 25 of housing 20.

When gasoline is not being dispensed, disc 33 is held tightly against seating surface 25 by its own weight and, more importantly, by the action of gravity on the volume of gasoline in chambers 50 and 58 which, in the absence of the valve, would drain back through chamber 12 to the source of gasoline.

When gasoline is dispensed the pump 60 rotates causing gasoline to pass from pump chamber 58 and be replaced by gasoline from chamber 50. Thus gasoline travels through inlets 10, suction chamber 12, screen 15, hole 18, and lower valve chamber 53, the upflow causing lifting of the disc 33 from seat 25. As soon as gasoline dispensing is stopped, the upward flow against disc 33 stops and the disc drops and seats against 25.

It can easily be seen that this invention provides a service station gasoline pump having a valve on the suction side of the pump to prevent gasoline from draining from the pump chamber when the pump is not in operation and eliminating the need for a separate field installation and maintenance of a suction line foot valve. The valve in this invention is operable by gravity and is placed downstream of a strainer to avoid debris which might lodge on the valve or seat, preventing proper seating. Also, a preferred arrangement allows for ready accessibility to the valve for repair or replacement.

It is claimed:

1. A liquid dispenser having a first housing including a pump having an inlet means opening exteriorly of said housing chamber and a suction chamber adapted to be interconnected with a source of liquid outside of said housing and having an outlet means opening exteriorly of said housing, a pump in said pump chamber, a strainer in said suction chamber adapted to strain liquid passing therethrough, and a valve assembly comprising a valve housing detachably secured to said first housing on the outside thereof and having a passage therein the ends of which are in alignment with said inlet means and said outlet means for interconnecting said suction chamber and said pump chamber and a valve in said passage between said suction chamber and said pump chamber, said valve comprising an essentially horizontally disposed disc at the lower portion of an essentially vertical stem, means for seating the face of said valve opposite said stem to prevent flow through said passage from said pump chamber to said suction chamber, and passageway means in said valve housing and adapted to receive said vertical stem for keeping said valve vertically aligned with said valve seat while allowing upward and downward movement of said valve.

2. A liquid dispenser having a first housing including a pump chamber having an inlet means opening exteriorly of said housing and a suction chamber adapted to be interconnected with a source of liquid outside of said housing and having an outlet means opening exteriorly

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of said housing, a pump in said pump chamber, a strainer in said suction chamber adapted to strain liquid passing therethrough, and a valve assembly comprising a valve housing detachably secured to said first housing on the outside thereof and having a passage therein the ends of which are in alignment with said inlet means and said outlet means for interconnecting said suction chamber and said pump chamber and a valve in said passage between said suction chamber and said pump chamber, said valve comprising an essentially horizontally disposed disc at the lower end of an essentially vertical stem, means for seating the face of said valve opposite said stem to prevent flow through said passage from said pump chamber to said suction chamber, passageway means in said valve housing and adapted to receive said vertical stem for keeping said valve vertically aligned with said valve seat while allowing upward and downward movement of said valve, and relief means in said valve housing between said passageway means and the interconnection between said suction chamber and said pump chamber for relieving pressure in said passageway.

3. A liquid dispenser having a first housing including a pump chamber having an inlet means opening exteriorly of said housing and a suction chamber adapted to be interconnected with a source of liquid outside of said housing and having an outlet means opening exteriorly of said housing, a pump in said pump chamber, a strainer in said suction chamber adapted to strain liquid passing therethrough, and a valve assembly comprising a valve housing secured to said first housing on the outside thereof and having a passage therein the ends of which are in alignment with said inlet means and said outlet means for interconnecting said suction chamber and said pump chamber, a housing cover removably secured to the top of said valve housing, and a valve in said passage between said suction chamber and said pump chamber, said valve comprising an essentially horizontally disposed disc at the lower end of an essentially vertical stem, means for seating the face of said valve opposite said stem to prevent flow through said passage from said pump chamber to said suction chamber, passageway means in said housing cover and adapted to receive said vertical stem for keeping said valve vertically aligned with said valve seat while allowing upward and downward movement of said valve, and relief means in said housing cover between said passageway means and the interconnection between said suction chamber and said pump chamber for relieving pressure in said passageway.

4. The dispenser of claim 3 wherein said means for seating the valve comprises a valve seat in said passage having an essentially horizontal raised edge, the face of said disc opposite said stem seating upon said raised edge when said valve is in the closed position thereof.

#### References Cited by the Examiner

##### UNITED STATES PATENTS

|           |        |          |              |
|-----------|--------|----------|--------------|
| 1,960,970 | 5/1934 | Fina     | 137—533.31 X |
| 2,291,856 | 8/1942 | Willson  | 103—135      |
| 2,395,973 | 3/1946 | McIntosh | 137—533.31 X |
| 2,827,922 | 3/1958 | Guinard  | 137—533.31 X |

##### FOREIGN PATENTS

|         |        |         |
|---------|--------|---------|
| 787,204 | 7/1935 | France. |
|---------|--------|---------|

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