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GASOLINE PUMP

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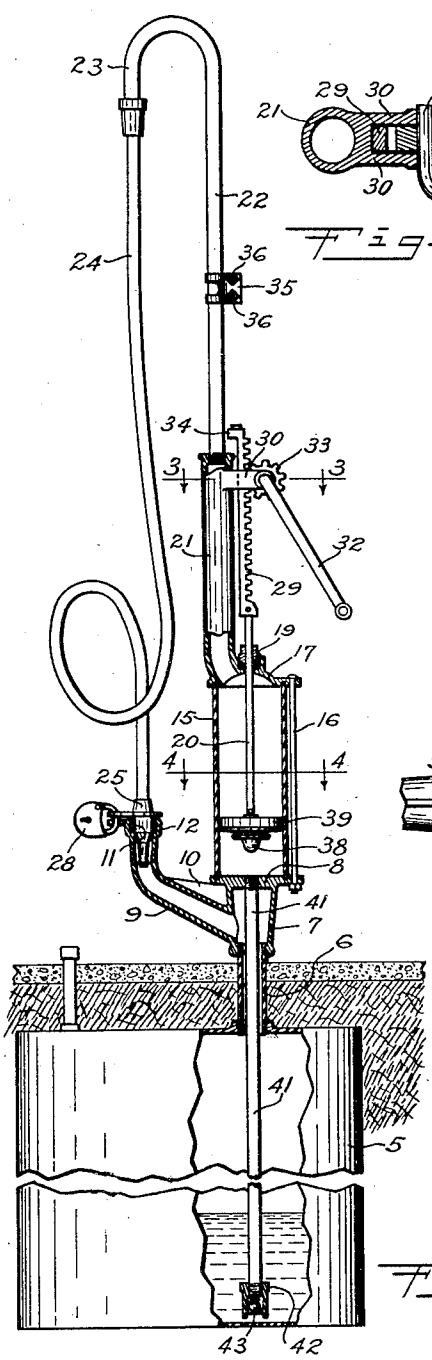


Fig. 1.

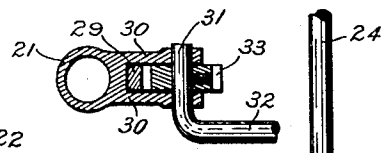


Fig. 3.

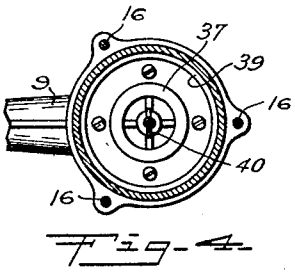


Fig. 4.

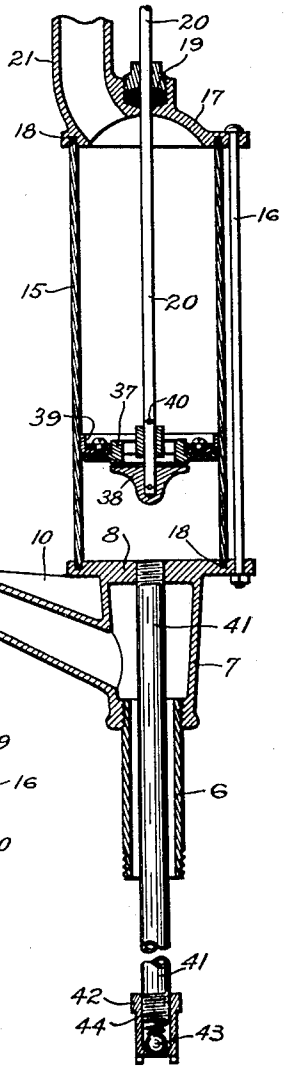


Fig. 2.

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UNITED STATES PATENT OFFICE.

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GASOLINE PUMP.

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Our invention relates to pumps adapted for use with gasoline or other motor-fuels, for delivering the liquid from a buried container to the fuel-tanks of motor vehicles. It is the object of our invention to provide a simple, durable and inexpensive pump of this class, especially adapted for use by farmers and other consumers of moderate quantities of motor-fuel, among whom it is desirable that gasoline be bought in barrel-lots, then stored in such a manner as to avoid fire-hazards, and dispensed from the storage container to the vehicle-tanks as needed. A particular object of our invention is to provide means by which the dispensing of the motor-fuel under the conditions above noted may be effected with a minimum of waste by leakage, spilling or evaporation, and by which the drawing of the fuel from the storage container may be prevented except by an authorized person. A further object is to provide simple and effective means for regulating the quantity of liquid to be delivered at each stroke of the pump.

In the accompanying drawings Fig. 1 is a vertical section of a pump embodying our invention, Fig. 2 is a detail axial section of the pump-cylinder, Fig. 3 is a detail transverse section on the line 3—3 of Fig. 1, and Fig. 4 is a transverse section of the cylinder on the line 4—4 of Fig. 1.

Our pump is intended principally to be used in connection with the metal drums or barrels in which gasoline is commonly sold, and which constitute substantially the minimum wholesale quantity in which the fuel may be bought. The quantity of inflammable material contained in such a barrel is too large to permit storage thereof in a building without causing an excessive fire-hazard, and it is our intention, therefore, to utilize one of the metal barrels as a permanent container or storage tank, by placing the same underground, connecting the pump therewith so that the contents may be withdrawn as required, and refilling the barrel from time to time through the return, overflow or drainage conduit of the pump. In Fig. 1 the barrel 5 is represented as disposed underground, and the pump-body is connected therewith by means of the return-pipe 6, of which the lower end is screwed into the head of the barrel, and the upper end is screwed into the base 7 of the pump. The lower head 8 of the pump-cylinder is formed integrally with the upper portion of said base 7, and the latter is hollow or chambered to provide a continuation of the passage through the pipe 6. At one side of and integral with the chambered base 7 is a tubular arm 9 of which the lower portion extends diagonally upward and is connected with the base by an integral web or flange 10, and the upper portion extends vertically, there being an enlarged head 12 at the upper end of the vertical portion, and the opening through said head having therein an annular recess for receiving a packing or gasket-ring 11. At one side of the head 12 is an integral laterally extending lug 13 having a vertical opening 14 therein.

The head 8 is annularly grooved to receive the lower end of the pump-cylinder 15, which is formed by a section of smooth-finished pipe or drawn tubing, the head having a plurality of laterally extending lugs for receiving the tie-bolts 16, and said bolts passing through similar lugs on the upper head 17. Said head 17 is annularly recessed to receive the upper end of the cylinder 15, which is clamped between the heads by the tie-bolts 16, suitable gaskets 18 being provided, whereby to form fluid-tight joints at both ends of the cylinder. At the center of the head 17 is a packing-gland 19 through which the piston-rod 20 passes. At one side of the head 17, formed integrally therewith and extending upwardly therefrom, is the tubular standard 21, into which at its upper end is screwed the delivery pipe 22. Said pipe 22 is extended up to a suitable height, and the upper portion is formed into a return-bend 23, to which is connected the hose or flexible conduit 24. At the end of the hose is a nozzle 25 having a slightly tapered portion which is adapted to fit within the gasket-ring 11 to form a tight joint with the head 12 of the return-tube 9, when the nozzle is inserted therein as shown in Fig. 1. The nozzle also has a laterally extending flange 26 with an opening 27 therein adapted to register with the opening 14 of the lug 13 on the head 12, whereby a padlock 28 or similar fastening means may be applied to prevent removal of the nozzle from the socket or mouth of the return-tube.

To the upper end of the piston-rod 20 is secured the rack-bar 29 which extends up be-

tween the guide-lugs 30 formed integrally with and extending laterally from the tubular standard 21. In the outer portions of said lugs is journaled a shaft 31, the same being formed integrally with a crank 32, and upon said shaft between the lugs is secured the pinion 33 which meshes operatively with the teeth of the rack-bar 29. At the upper end of the rack-bar is a lug 34 which extends laterally above the upper end of the standard 21, whereby to engage the same as a stop to limit the downward movement of the rack-bar and piston-rod. A stop for similarly limiting the upward movement of the rack-bar is secured adjustably upon the pipe 22, said stop comprising a pair of mating members 35 having portions which fit about the pipe and are clamped thereon by means of bolts 36 extended transversely through them.

The lower portion of the piston-rod 20 passes slidably through the piston 37, and upon the lower end of the rod is fixedly secured the valve 38. The piston has the usual cup 39 of pliable material arranged to form a fluid-tight packing against the walls of the cylinder. Downward movement of the piston-rod relative to the piston is limited by a transverse pin 40 extending through the rod above the piston, and upward movement of the rod relative to the piston is limited by the engagement of the valve 38 with its seat, which is formed on the lower side of the piston. The valve 38 is thus positively actuated by the piston-rod, being closed at the beginning of each upward movement of the rod, and being opened at the beginning of each downward movement, the piston being actuated only after the valve has been closed or opened, as the case may be.

The supply or suction-pipe 41 is screwed into a central opening in the lower cylinder-head 8, said pipe 41 extending down through the return-pipe 6 into the barrel or tank 5, and terminating near the bottom thereof. At the lower end of the suction-pipe a check-valve is secured thereon, said valve comprising a body-portion 42 having at the lower portion thereof a seat for the valve-ball 43, the body 42 being screwed on the end of the pipe, and a spring 44 being arranged between the end of the pipe and the ball, to press the latter toward its seat.

The operation of the pump will be obvious. Owing to the positive operation of the piston-valve, priming of the pump is unnecessary, as any air in the suction-pipe, or in the cylinder below the piston, will be discharged by one or two strokes of the piston, which is actuated reciprocatingly by turning the crank 32 in alternating directions. When the fuel from the storage container is to be withdrawn, the hose-nozzle 25 is removed from the socket at the mouth of the return-tube, and after the pump has been operated to withdraw the desired amount of fuel the nozzle is replaced in the socket, so that loss by leakage from the hose, or evaporation through the return-pipe, is entirely prevented. When the hose-nozzle is in place in the socket, operation of the pump would merely circulate a portion of the liquid from the barrel 5 through the pump, hose and return-pipe. Refilling of the storage container is readily effected through the return-pipe, after removal of the hose-nozzle from the socket at the mouth thereof. If it is desired to measure the fuel delivered by the pump, the stop for limiting upward movement of the rack-bar may be so adjusted that each full stroke of the piston will deliver a determined quantity of the liquid, and, consequently, a count of the number of strokes made will accurately indicate the volume of liquid discharged.

It will be particularly noted that by the described construction we are enabled to provide an efficient and durable pump of this class at a very moderate cost, the simplicity of structure being attained partly by combining as an integral unit the lower cylinder-head, the base, and the return-tube; and also by combining the upper cylinder-head with the tubular standard to form a support for the delivery pipe and for the rack-bar guides.

Now, having described our invention, what we claim and desire to secure by Letters Patent is:

In a structure of the class described, a storage container, a pump, a suction-pipe connected with the pump and extending into the container, a flexible discharge conduit connected with the pump, a nozzle arranged at the end of said discharge conduit, a return-tube connected with the container, means forming a socket at the mouth of said return-tube for receiving the nozzle and forming a detachable fluid-tight connection therewith, and registering means on the socket and nozzle adapted to receive a lock for retaining said parts in fluid-tight connection.

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