

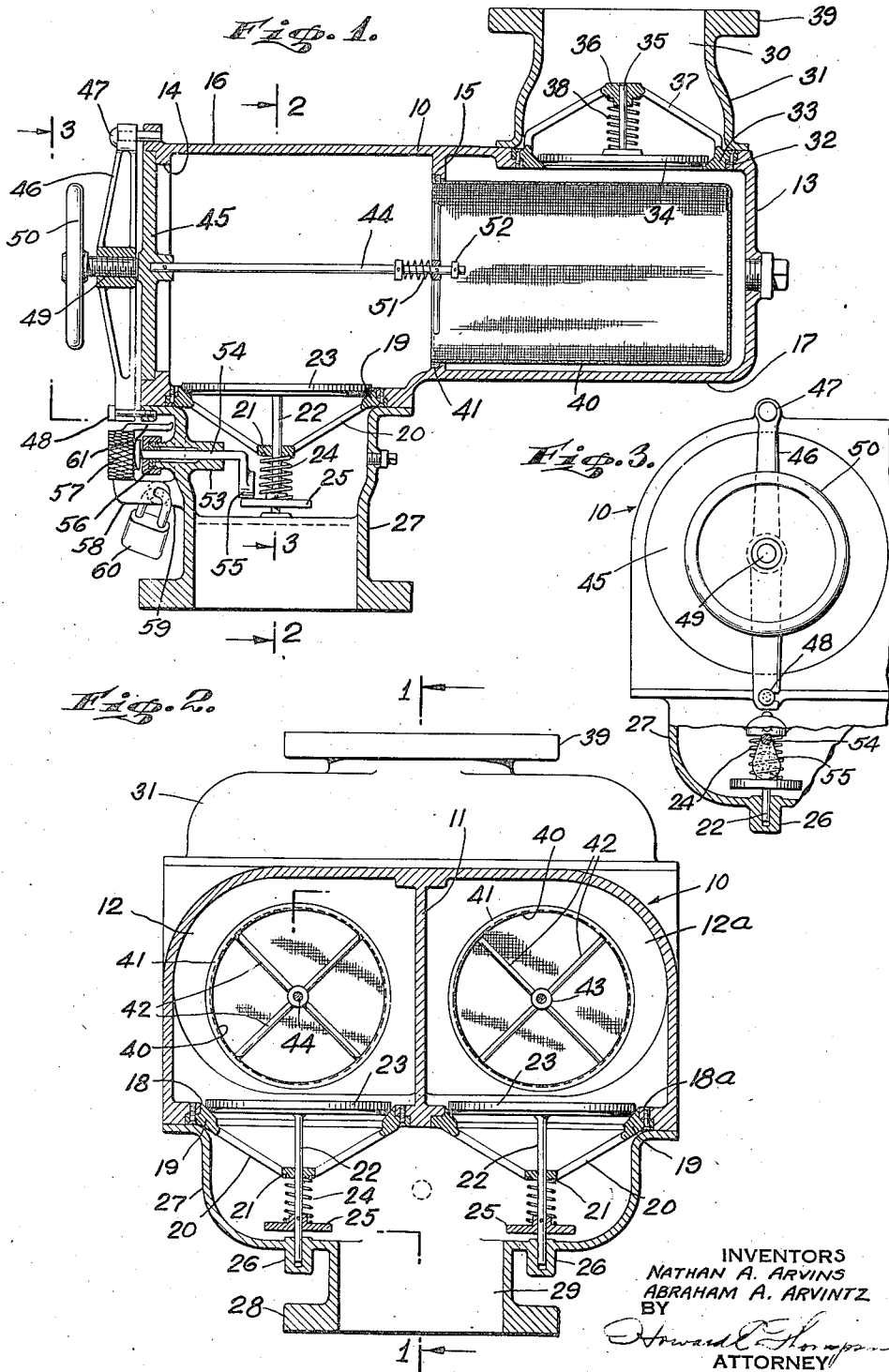
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FILLING AND STRAINER DEVICE

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FILLING AND STRAINER DEVICE

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This invention relates to what are commonly referred to as filling devices used in conjunction with tanks or containers of various types and kinds in the transmission of fluids from one tank or container to another, such, for example, in the transmission of fuel, fuel oil and other fluids of this type and kind, particularly where the straining of the fluid transmitted is desirable. More particularly the invention relates to filler and strainer devices employing single inlet and outlet passages, each having a dual valve, and said dual valves controlling independent passages through the device whereby a substantially constant transmission of fluid may be performed, while at the same time intermittently cleaning strainer devices in the separate passages of the device to maintain uninterrupted or retarded transmission of strained fluid. The novel features of the invention will be best understood from the following description when taken together with the accompanying drawing in which certain embodiments of the invention are disclosed and in which the separate parts are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a longitudinal sectional view through a device made according to my invention, the section being substantially on the broken line 1-1 of Fig. 2.

Fig. 2 is a transverse sectional view on the line 2-2 of Fig. 1, and

Fig. 3 is an end and sectional view substantially on the broken line 3-3 of Fig. 1.

In the use of what is commonly referred to as filling devices or caps, and particularly devices of this kind using strainer devices to strain fluid transmitted therethrough, it has been the common practice to shut off the transmission of fluid intermittently to clean the strainer employed or to substitute a new strainer, and this often times retards the time period for transmission of the fluid where large volumes of fluid are transmitted at one time or occasion. One illustration of such transmission of fluids is, for example, the pumping of gasoline, fuel oil, lubricating oil and the like from the tanks of a ship to suitable receiving tanks.

It is the purpose of the present invention to provide a device of the character described whereby in two transmission chambers or passages are employed, each supporting an independent strainer, one common end of each passage opening into a single intake controlled by two valves, and the other end opening into a common discharge end controlled by two valves. Means is also provided

whereby the valves controlling the separate passages may be retained in closed position so that either valve may be operated, and further in the provision of means for quickly removing the strainer from the other unused chamber thereby facilitating a constant transmission of fluid through the device from the receiving end of the discharge end thereof. It is also a feature of our invention to provide means securely retaining the valve, release in inoperative position and against unauthorized manipulation thereby effecting a positive seal and closure for the supply or storage tank controlled by said device.

In the accompanying drawing one adaptation of the invention is disclosed, and in the several figures, 10 represents the casing of the devices which is more or less oblong in form and is divided by a central longitudinal partition 11 into two transmission chambers or passages 12, 12a, which are also divided intermediate the closed end wall 13, and the wall having the large openings 14 therein, by a transverse partition wall 15. The partition 15 divides the casing into an admission end portion 16 and discharge end portion 17 opening into the separate chambers 12, 12a. At the admission end are intake ports 18, 18a, in which are supported valve seat rings 19, having webs or arms 20, supporting a bearing collar 21, for the stems 22 of valves 23. The valves 23 are normally held seated upon the rings 19 by springs 24 seating on the bearings 21 and on discs 25 secured to the stems 22. The stems 22 are also guided and supported in bosses 26 formed in an inlet housing 27, detachable with respect to the inlet end 16 of the casing. The housing 27 has a coupling flange 28 around the inlet port 29 of the housing for attaching the housing to any suitable support which might be a pipe, or in fact, this flange may be directly coupled to a tank. As both valve units are of the same construction, the brief description of one applies to the other and this will also apply to the dual valves controlling the exhaust port 30 formed in the exhaust housing 31 which is coupled with the exhaust end 17 of the casing.

The housing 31 is substantially the same as the housing 27 insofar as opening into the chambers or passages 12, 12a is concerned. The casing 10 has two similar exhaust ports 32 in which are arranged valve ring seats 33 upon which exhaust valves 34 are seated. The stems 35 of the valves operate in bearings 36 carried by arms or webs 37 integral with the rings 33. Springs 38 are arranged on the stem 35 to normally support the valves 34 in seated position. The housing 31 is

also flanged centrally as seen at 39 for attachment to any suitable support, or this flange may serve as means for coupling transmission tubes or pipes with the tank or container to be filled.

Arranged in the discharge end 17 of each chamber or passage 12, 12a is a long thimble shaped strainer 40, the opening end of which carries a ring 41, seating in the partition 15. A plurality of webs or spokes 42 extending radially from the ring 41 supports a central hub 43, with which is slidably coupled a rod 44. The outer end of the rod is secured to a cover 45 which is firmly secured in position and readily detached by a clamp arm 46 pivoted at one end to the casing as seen at 47, and detachably coupled with a pin 48 on its other end. The central portion of the arm 46 supports a screw 49, having a large operating handle 50, and the screw is adapted to apply pressure to the closure plate 45, as clearly seen in Fig. 1, in retaining the plate in position. As each closure plate and securing means is of identical construction, again the brief description of one applies to both and this is also true of the strainer and other parts.

In order to compensate for proper seating of both the strainer and the closure plate, the strainer is capable of sliding movement on the inner end of the rod and is held by the spring 51 in secure seated position. A collar 52 on the inner end of the rod serves as a means engaging the strainer to withdraw the same through the opening 14 when the closure plate or cap 45 is removed.

The housing 27 is provided at one side thereof and in alignment with the stems 22 of the valves 23 with bosses 53. In these bosses are rotatably supported lock rods 54 having offset crank-like lock arms 55 at their inner ends adapted to engage the discs 25 to normally retain the valves 23 in seated position and against accidental opening. The rods 54 pass outwardly through stuffing boxes 56 and have at their outer ends, heads 57, by means of which the rods may be rotated to move the lock arms 55 into operative and inoperative positions. The heads 57 carry offset latch arms 58 cooperating with latch lugs 59 on the housing 27 to jointly receive a pad lock or other key controlled device 60 to positively retain the lock arm 55 in operative position. At this time it would be well to say that the primary purpose of the lock 60 is to prevent tampering with any type of storage supply of fluid in the period of transportation or storage to prevent unauthorized removal of the fluid through the device. The head 57 of the rod 54 also has a finger 61 which may be used to limit inward sliding movement of the rod and further as a gauge means controlling opening movement of the valve 23 whenever it may be desirable to limit this opening movement of the valve.

In the use of the filling and strainer device the fluid to be transmitted therethrough from the inlet housing 27 to the outlet housing 31 is first passed through one of the chambers, for example, the chamber 12, and this is accomplished by releasing the lock 55 from the inlet valve 23 which opens into the chamber 12. Thus, as fluid is forced under pressure into the housing 27, the same will automatically open the valves 23 against the action of the spring 24 and admit the fluid into the chamber 12, from which it will pass through the strainer 40 into the exhaust end 17 of the chamber 12 and out through the valve 34, registering with said chamber, the valve 34 being unseated by the pressure of the fluid as will be apparent. At this time it is well to men-

tion that both the valves 34 and 23 are automatically seated against any back pressures. In the transmission of a large quantity of fluid it may be possible that during the period of transmission the strainer 40, in the chamber 12, becomes clogged. Then the lock 55 controlling the valve 23 opening into the chamber 12a will be moved into inoperative position, the fluid will then be diverted to the chamber 12a, and then the valve 23 opening into the chamber 12 will be again seated by the lock arm 55. When so seated, the strainer 40 in the chamber 12 may be removed, as previously described, and cleaned and then replaced. In due time, should the strainer 40 of the chamber 12a become clogged, then the above operation is repeated by closing the valve 23 leading to the chamber 12a after the first mentioned valve has been opened to the chamber 12. Where fluids transmitted require an excessive amount of straining, the above operations may be repeated a number of times in the transmission of one bulk or volume of fluid from a large tank or storage. It will be apparent that even though clogging of the strainers may take place, quite often the quick attachment and detachment of the strainers which is provided will satisfy any requirement to which the invention would be applicable.

In the operation of shifting the transmission of fluid from one passage to the other, no time factor is lost, in that the operation of the lock arm 55 controlling the valves may be conducted simultaneously in shifting one valve to an open position and the opposed valve to a closed position.

In the accompanying drawing the particular fastener means employed for securing the housings in position are omitted as in fact they form no particular part of the invention. It will be understood, however, that this housing will be secured to the casing 10 in the usual or any desired manner.

Having fully described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. A fluid transmitting device of the character described comprising an elongated casing, means extending longitudinally of the casing dividing the same into independent transmission passages, means transversely of one end and side of the casing forming a single fluid inlet opening into one end of each of said passages, means transversely of the other end and at the other side of the casing forming a single fluid outlet opening into the other end of each of said passages, independent valves controlling the inlet to each passage, other valves controlling the outlets of said passages, and means cooperating with the first named valves for independently retaining said valves in closed inoperative position.

2. A fluid transmitting device, comprising an elongated casing, means dividing the casing into parallel cylinders, one end of the casing having on one side thereof inlet ports opening into each cylinder at right angles thereto, the other end of the casing having outlet ports, arranged on the other side of the casing, communicating with said cylinders and extending at right angles thereto, an inlet housing detachable with and transversing the first end of the casing and communicating with both of said inlet ports, an outlet housing detachable with and transversing the other end of the casing and communicating with both of said outlet ports, spring seated valves controlling all of said ports, and means

mounted in the intake housing and operatively engaging the valves controlling the intake ports to positively and independently retain said valves in seated position in controlling transmission of fluid from the intake housing to the discharge housing through said independent cylinders.

3. A fluid transmitting device, comprising an elongated casing, means dividing the casing into parallel cylinders, one end of the casing having on one side thereof inlet ports opening into each cylinder at right angles thereto, the other end of the casing having outlet ports, arranged on the other side of the casing, communicating with said cylinders and extending at right angles thereto, an inlet housing detachable with and transversing the first end of the casing and communicating with both of said inlet ports, an outlet housing detachable with and transversing the other end of the casing and communicating with both of said outlet ports, spring seated valves controlling all of said ports, means mounted in the intake housing and operatively engaging the valves controlling the intake ports to positively and independently retain said valves in seated position in controlling transmission of fluid from the intake housing to the discharge housing through said independent cylinders, elongated strainer tubes in each cylinder adjacent the outlet ports, the inlet end of the casing having openings providing insertion and removal of the strainer tubes, means supporting the strainer tubes in spaced relation to the cylinder walls, and means including closure caps controlling said openings for detachably supporting the strainer tubes in said cylinders.

4. A fluid transmitting device, comprising an elongated casing, means dividing the casing into parallel cylinders, one end of the casing having on one side thereof inlet ports opening into each cylinder at right angles thereto, the other end of the casing having outlet ports, arranged on the other side of the casing, communicating with said cylinders and extending at right angles thereto, an inlet housing detachable with and transversing the first end of the casing and communicating with both of said inlet ports, an outlet housing detachable with and transversing the other end of the casing and communicating with both of said outlet ports, spring seated valves controlling all of said ports, means mounted in the intake housing and operatively engaging the valves controlling the intake ports to positively and independently retain said valves in seated position in controlling transmission of fluid from the intake housing to the discharge housing through said independent cylinders, elongated strainer tubes in each cylinder adjacent the outlet ports, the inlet end of the casing having openings providing insertion and removal of the strainer tubes, means supporting the strainer tubes in spaced relation to the cylinder walls, means including closure caps controlling said openings for detachably supporting the strainer tubes in said cylinders, and a quick clamp for retaining each of said caps in closed position.

5. A fluid transmitting device, comprising an elongated casing, means dividing the casing into parallel cylinders, one end of the casing having on one side thereof inlet ports opening into each cylinder at right angles thereto, the other end of the casing having outlet ports, arranged on

the other side of the casing, communicating with said cylinders and extending at right angles thereto, an inlet housing detachable with and transversing the first end of the casing and communicating with both of said inlet ports, an outlet housing detachable with and transversing the other end of the casing and communicating with both of said outlet ports, spring seated valve units including seats detachable with the casing and controlling all of said ports, and manually actuated lock arms mounted in the inlet housing and operatively engaging the inlet valves to normally support said valves in closed position against the pressure of fluid to be discharged through the ports controlled by said valves.

6. A fluid transmitting device, comprising an elongated casing, means dividing the casing into parallel cylinders, one end of the casing having on one side thereof inlet ports opening into each cylinder at right angles thereto, the other end of the casing having outlet ports, arranged on the other side of the casing, communicating with said cylinders and extending at right angles thereto, an inlet housing detachable with and transversing the first end of the casing and communicating with both of said inlet parts, an outlet housing detachable with and transversing the other end of the casing and communicating with both of said outlet ports, spring seated valve units including seats detachable with the casing and controlling all of said ports, manually actuated lock arms mounted in the inlet housing and operatively engaging the inlet valves to normally support said valves in closed position against the pressure of fluid to be discharged through the ports controlled by said valves, one end of each cylinder having a large opening, an elongated thimble shaped strainer insertable into each cylinder through said opening, means for spacing each strainer from the walls of the cylinder, and means including a closure cap for each cylinder opening for supporting the strainer in each cylinder.

7. In a fluid transmission device of the class described, a casing having an elongated passage through which fluid is adapted to pass, an elongated thimble shaped strainer, means for seating the strainer in said passage, one end of the passage being open to facilitate insertion and removal of said strainer, a cover plate for closing said opening of the passage, and means fixed to said plate and yieldably coupled with said strainer for uniting the plate and strainer to facilitate unitary coupling and uncoupling of said parts with respect to said casing.

8. In a fluid transmitting device comprising a casing having a fluid transmitting passage therein, a spring seated valve controlling admission to said passage, the valve automatically opening by pressure of fluid thereon, the valve having a stem, an enlarged portion on said stem, and a manually operated lock arm operatively engaging said enlarged portion of the stem to support the valve in seated position against the pressure of fluid to which said valve is exposed, whereby the operation of said arm will release the valve to automatically admit fluid into the passage of said casing.

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