

[54] **CAR WASH SYSTEM**

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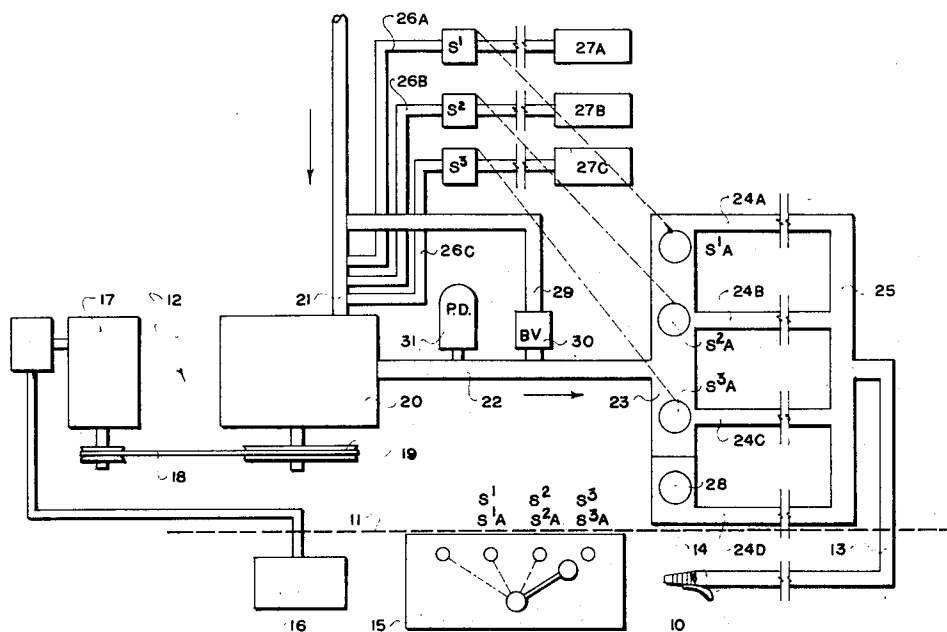
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[57] **ABSTRACT**

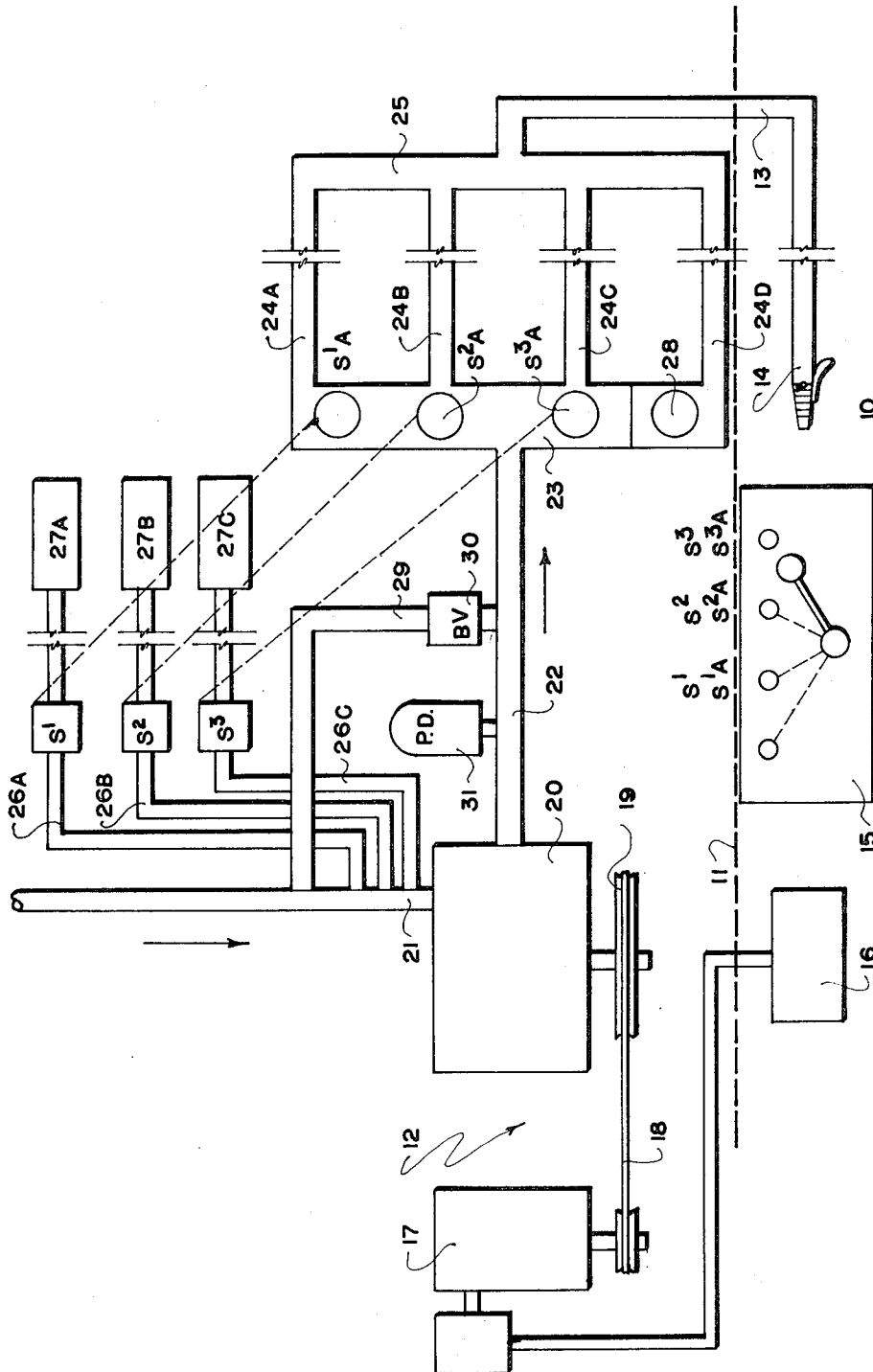
A separate pump is used for each car wash bay and a plurality of conduits extend from adjacent the pump to the nozzle boom in the bay. Each conduit carries a different solution such as wash water, rinse water and the like. Valves permit the operator to switch from one conduit to the other thus eliminating the necessity of emptying the conduits completely of one solution before the next solution is available.

1 Claim, 1 Drawing Figure



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CAR WASH SYSTEM

This invention relates to new and useful improvements in car washing systems, particularly so-called self-operated car wash systems.

Conventionally a master pump and source of power are situated in a machine room remote from the various bays and individual conduits extend from the pump to the nozzle and boom assemblies in the bays. Means are provided to feed various solutions into the water being pumped and these solutions may include wash solutions, waxing solutions and the like. A source of supply of these materials is normally situated also in the machine room remote from the bays.

It will therefore be apparent that when the operator switches from one solution to the other, the entire line between the machine room and the nozzle has to be purged before the new solution becomes available.

Inasmuch as the majority of self-serve car wash systems are coin operated on a timed basis, the customer or operator is often inconvenienced while waiting for the line to purge. It will of course be appreciated that the average customer switches from one solution to another at the time that it is required and that the delay of some several seconds is annoying to say the least of it. Furthermore it cuts down on the total time available to him for one solution or the other.

I have overcome these disadvantages by providing individual lines and individual pumps for each bay, there being an individual line for each solution available. It is therefore only necessary to purge the relatively short feed line between the pump and the manifold and the relatively short by-pass line extending between the feed line and the intake.

This means that the customer has instantaneously available to him, the solution required as it will be appreciated that the individual lines remain full of the particular solution at all times.

The pumps and solution containers and the like can all be situated remotely in the machine room and a various solenoid operated valve controlling the feed lines and like, can readily be operated from the individual bays by the customer or operator.

With the considerations and inventive objects herein set forth in view, and such other or further purposes, advantages or novel features as may become apparent from consideration of this disclosure and specification, the present invention consists of the inventive concept which is comprised, embodied, embraced, or included in the method, process, construction, composition, arrangement or combination of parts, or new use of any of the foregoing, herein exemplified in one or more specific embodiments of such concept, reference being had to the accompanying FIGURES in which:

The drawing FIGURE is a schematic view of the system.

Proceeding therefore to describe the invention in detail, reference to the drawings will show one system utilized for a single bay car wash, it being understood that the system is repeated as many times as desired depending upon the number of bays to be serviced.

The car washing bay is indicated by reference character 10 and is situated in the schematic drawing below the dotted line 11.

Reference character 12 illustrates generally the machine room in which the remainder of the apparatus is contained, conduits extending between the machine room and the bay 10 as will hereinafter be described.

Each bay is provided with a conventional overhead boom 13 and a trigger controlled nozzle 14 on the end thereof so that the customer can control the flow of water or solution passing through the nozzle for the car washing facility. A selector 15 is situated in the bay and is connected electrically to the various valves and solenoids as will hereinafter be described. However, as such connections are conventional, they have not been shown in the present drawing.

Finally there is a coin meter 16 within the bay operatively connected to a source of power in the form of a 24 volt motor 17 which in turn is connected by pulley and belts 18 to the pulley 19 connected to the drive shaft of a water pump 20.

Intake means 21 takes the form of a conduit connected to a source of water (not illustrated) and a feed conduit 22 extends from the discharge side of the pump, to a manifold 23 and it should be observed that this feed conduit 22 is maintained as short as possible for purposes hereinafter to be described.

Extending from the manifold 23 is a plurality of conduits 24A, 24B, 24C and 24D, although only four are shown in the present drawings, nevertheless it will be appreciated that more or less conduits can be provided if desired.

These conduits are connected by the other end thereof to a cross conduit 25 which in turn connects to the boom 13 within the bay 10.

Connected to the intake conduit 21 is a plurality of solution conduits 26A, 26B and 26C corresponding in number to the conduits 24A, 24B, and 24C, and these conduits 26A, B and C are each provided with a solenoid operated valve S1, S2, and S3 respectively as shown. Further conduits extend between these valves S1, S2 and S3 to solution containers 27A, 27B and 27C.

Further solenoid operated valves S1A, S2A, and S3A are situated within the manifold and control connections between the manifold and the conduits 24A, 24B and 24C respectively.

The solenoid operated valves S1, and S1A are operatively connected to operate together and in a similar manner, the solenoid valves S2 and S2A, S3 and S3A are also operatively connected together.

In other words when the selector 15 is moved to any one of the three positions, the corresponding solenoid valves S1, S1A, etc. operate and the other solenoid valves close.

The fourth position on the selector 15 is indicated as "water" (rinse) and when the selector is moved to this position, all of the solenoid valves are closed so that water flows from the source of supply, through the pump 20 to the conduit 24D and hence to the boom and nozzle. In this connection the single solenoid valve in the manifold identified by reference character 28, opens at this time to allow the water to pass to conduit 24D.

A by-pass conduit 29 is provided and extends between the feed conduit 22 and the inlet conduit 21 to be connected to the inlet conduit remote from the points of connection of the conduits 26A, B and C and by a by-pass valve 30 is situated within this by-pass conduit. The valve is set at a pressure lower than the pressure at the nozzle 14 so that whether the nozzle 14 is open or closed, a greater or lesser percentage of water flows from the feed conduit through the by-pass con-

duit 29 and back to the inlet conduit 21. Finally pulsation damper conduit component 31 which is conventional in construction, is situated within the feed line 22.

In operation, the motor 17 operates in response to a coin inserted within the coin meter 16 and the pump 20 circulates water from the inlet 21, through feed conduit 22 and back through the by-pass conduit 29 until the selector 15 is operated. Normally the customer would select the "wash" position by moving the selector to the position indicated S3, S3A. This would open valves S3 and S3A thus allowing a wash solution such as liquid soap or detergent to flow from container 27C, through conduit 26C and to be picked up by the water passing through the water inlet 21. This would then pass through the feed conduit 22 to the conduit 24C and thence to the nozzle 14.

When it is desired to switch to the rinse position, for example, the selector 15 is moved to this position thus closing off all of the solenoid valves with the exception of valve 28 so that straight water is fed by the pump to the nozzle 14. It will be observed that the wash solution in the conduit 24C remains in this conduit and that water is immediately available from conduit 24D as this is normally full of water. It is only necessary to purge the relatively short length of conduit between the cross conduit 25 and the nozzle before clear water is available. Depending upon the length of the conduits 24A, B and C and D, there will be a short spurt of wash solution at the nozzle 14 when the solution which was in feed conduit 22 and by-pass conduit 29 reaches the nozzle but as it is essential that these conduits 22 and 29 be kept as short as possible, this contamination is minimal.

By the same token if other solutions such as bug removal, shampoo, wax or the like are required, it is merely necessary to move the selector to the required position and such solution is immediately available

from conduits 24A, B, C, etc.

This prevents the long purging process normally required due to the fact that the machine room is usually some considerable distance from the individual bays.

Another reason for maintaining the by-pass valve at a lower pressure than the nozzle is to allow for wear which might occur at the nozzle. This by-pass enables the nozzle pressure to be maintained under these conditions.

Although it is desirable to provide a pump and motor for each bay, nevertheless it will be appreciated that common sources of the various solutions can easily be made available under pressure or by gravity to the individual water inlet line 21.

Various modifications can be made within the scope of the inventive concept which is herein disclosed and/or claimed.

What I claim as my invention is:

1. For use in a car wash, a fluid handling apparatus for selectively supplying a plurality of different liquids, one at a time, to a car washing nozzle, said apparatus comprising a pump having an inlet and an outlet, a plurality of different liquid supplies connected to the inlet of said pump, a plurality of solenoid valves provided in the respective liquid supply conduits, a manifold connected to the outlet of said pump, a plurality of liquid delivery conduits extending from said manifold, a car washing hose having said plurality of liquid delivery conduits connected thereto, a plurality of solenoid valves in said manifold for controlling flow through the respective delivery conduits, and means operatively connecting the solenoid valves in the liquid supply conduits to the respective solenoid valves in said manifold so that the respective valves are simultaneously opened or closed, whereby any one of said liquid supplies may selectively deliver liquid to said car washing hose in exclusion of all the others.

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