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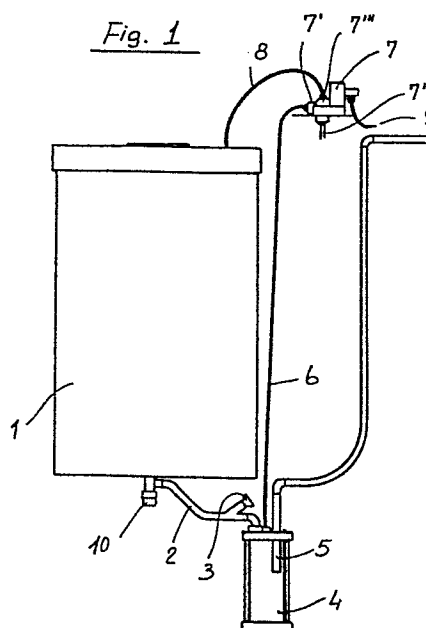
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54 An intermittent metering device for liquid detergents and/or additives to be introduced into program card industrial washing machines of the centrifugal types.

57 The metering device comprises a liquid reservoir (1) communicating with an underlying siphon trap (4) through a conduit (2) including a check valve (3), into the siphon trap (4) then opening a compressed air supply pipe controlled by a timed solenoid valve (7) and a pipe supplying the liquid to the washing machine.



This invention relates to an intermittent metering device for liquid detergents and/or additives to be introduced into program card industrial washing machines of the centrifugal types.

As is known, the current trend is toward the highest degree of automation of machinery in general, and for washing machines of the industrial types provisions are made for automatically metering out detergents and supplementing additives for carrying out the washing process.

Also known is that, owing to the complex design of liquid metering devices currently available commercially, which are of a substantially electronic type, industrial washing machines still use powder detergents.

It is an object of this invention to remove such prior limitation by providing an intermittent metering device for liquids, which is simple construction-wise, and accordingly, of limited cost.

Another object of this invention is to provide an intermittent metering device for liquids which can be easily assembled and is simple to maintain.

It is a further object of the invention to provide an intermittent metering device for liquids, which is fully reliable and can do substantially without parts liable to undergo mechanical wear.

These and other practical objects, such as will be apparent hereinafter, are achieved by an inter-

mittent metering device for liquid detergents and/or additives, according to the invention, characterized in that it comprises a liquid storage reservoir communicating with an underlying siphon trap through a conduit including a check valve, into said siphon trap there opening a compressed air supply pipe controlled by a timed solenoid valve and a pipe supplying said liquid to the washing machine.

Further features and advantages of the metering device forming the subject matter of this invention will be more clearly understood by making reference to the following description of a preferred embodiment of the device illustrated, by way of example only, in the accompanying drawings, where:

Figure 1 shows schematically this device; and

Figure 2 shows a set of metering devices according to the invention which may be jointly incorporated to a number of washing machines of the industrial type.

In connection with the reference numerals used in the various views of the accompanying drawings, this intermittent metering device for liquid detergents and/or additives comprises a reservoir 1 wherein a given washing liquid is stored.

Said reservoir is communicated, from the bottom thereof and through a pipe 2 including a check valve 3, with an underlying siphon trap 4.

Provided within said siphon trap is a movable

and fixable pipe 5 adapted to provide the desired metering action and being communicated to a washing machine (not shown) the operation whereof is controlled by a specially provided program card.

A small pipe 6 opens into the top of said siphon trap which is connected to one outlet 7' of a three-way timed solenoid valve 7, one 7" of the other outlets whereof is connected to a system supplying compressed air at 2-3 atmospheres.

The third outlet 7''' of said solenoid valve serves as a venting outlet and is connected, via a conduit 8, to the top of the reservoir 1.

In practice, the liquid will flow downwards from the reservoir 1 to the siphon trap 4 by gravity.

As the washing machine, under control by the program card, emits an electric pulse, the latter, on reaching the solenoid valve over a cable 9, causes the way 7" to open, which results in compressed air being introduced into the siphon trap through the way 7'.

Said compressed air will drive the liquid contained in the siphon trap through the dip pipe 5 to the washing machine.

It should be stressed here that the check valve 3 is closed upon air entering the siphon trap 4, thus preventing the liquid from backflowing into the reservoir 1.

Of course, each individual reservoir, the bottoms whereof are provided with a drain cock 10, may simultaneously supply a number of washing machines

with several products, by arranging a corresponding number of siphon traps and as many three-way valves.

From the foregoing description and the observation of the various views in the accompanying drawings, the highly functional and practical features may be appreciated which characterize the intermittent metering device for liquid detergents and/or additives according to this invention.

CLAIMS

1. An intermittent metering device for liquid detergents and/or additives, characterized in that it comprises a liquid storage reservoir (1) communicating with an underlying siphon trap (4) through a conduit (2) including a check valve (3), into said siphon trap (4) there opening a compressed air supply pipe controlled by a timed solenoid valve (7) and a pipe supplying said liquid to the washing machine.

2. A metering device according to Claim 1, characterized in that said solenoid valve (7) is of the three-way type, one (7'') of said ways being connected to a compressed air supply system, one (7') being in communication with said pipe (6) opening into said siphon trap (4), and one (7''') being connected to a venting pipe, said solenoid valve (7) being controlled by electric pulses from the washing machine.

3. A metering device according to the preceding claims, characterized in that a number of said siphon trap and solenoid valve are linked to said reservoir (1) and interconnected in the same way as specified in the preceding claims.

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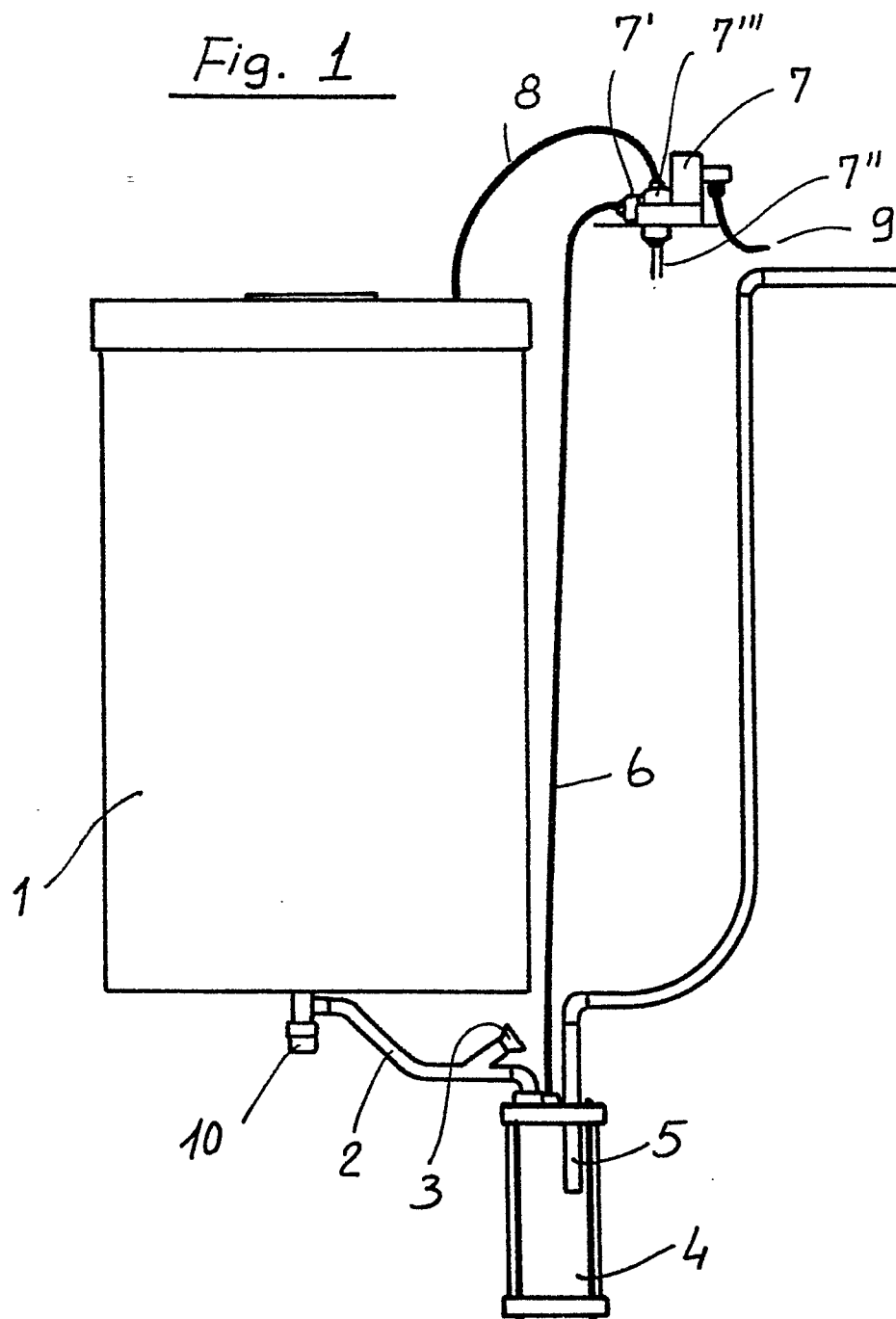
Fig. 1

Fig. 2