(12) **EUROPEAN PATENT APPLICATION**

(54) **Car wash with automatic system for recovery of tokens from token acceptors**

(57) This invention relates to a car wash with an automatic system for recovering tokens from token acceptors.

This automatic system, to be used in car-wash installation with automatic system for recovery of tokens from the token acceptors, of the type comprising a token dispenser (1) and one or more token acceptors (2), in which tokens obtained from said token dispenser (1) are used, and a suction unit designed to create a pressure difference which creates, in one or more pipes, an airstream designed to convey said tokens, characterised in that each of said pipes (9) connects one of said token acceptors (2) to a collecting chamber (16) which is connected to a compartment (3) containing the tokens to be dispensed through said token dispenser (1).
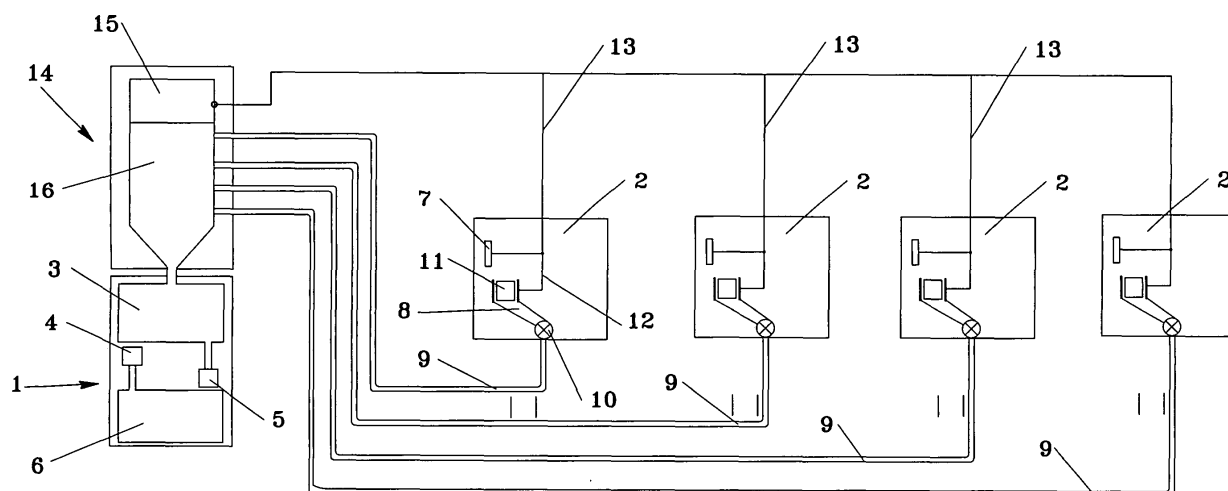
Fig. 1

EP 1 750 232 A2

Description

[0001] This invention relates to a car wash with an automatic system for recovering tokens from token acceptors.

[0002] In the case of automatic machines which are operated by introducing tokens, as in the case of self-service car washes, a problem arises with the replacement in the token dispensers of the tokens used to operate the equipment. This problem also arises if a number of food or drink dispensers or arcade gaming machines all operate with tokens supplied by a token dispenser.

[0003] In the case of car washes, the user introduces bank notes and/or coins into a token dispenser and then uses the tokens to operate the required equipment, namely the power washer, vacuum cleaner and any other machines which may be needed.

[0004] In practice, the user uses coins and/or banknotes to buy tokens; the coins fall into the cash compartment of the token dispenser, and the tokens are used to activate the machines. The result is that the token compartment connected to the token dispenser is gradually emptied of tokens, which fill the token acceptors connected to the machines.

[0005] To ensure continuous operation of the machine, the tokens which collect in the token acceptors connected to the machines must be periodically returned to the token dispenser.

[0006] The prior art does not offer any particular solutions for this operation, only for the collection and storage of the tokens used in coin acceptors.

[0007] The task of recovering tokens and reintroducing them into the token compartment of the token dispenser is performed by a person who manually empties the token acceptors connected to the machines and refills the token compartment of the token dispenser.

[0008] This procedure presents two drawbacks, bearing in mind that self-service car washes are normally open 24 hours a day.

[0009] Firstly, a person is needed to perform the operation, which involves a cost. Secondly, if this person should be unavailable due to illness for even one day, s/he will need to be replaced, because if the token dispenser remains empty, revenue from the car wash will plummet.

[0010] Finally, opening the token dispenser gives access to the compartment containing the money collected. The result is that the person who performs the operation must be fully trusted by the management, as s/he is in a position to remove large amounts of money with virtually no risk of discovery.

[0011] The result is that managers often recover the tokens themselves.

[0012] The drawbacks described above are overcome by a device in accordance with claim 1, which automatically refills the token dispenser by collecting tokens from the token acceptors connected to the machines.

[0013] The problem of periodically emptying the cash compartment of the dispenser obviously remains, but this does not usually present a problem, because the cash compartment of dispensers is usually large enough to contain the cash collected over several days, so the manager does not need to empty it every day.

[0014] The invention comprises a suction system which picks up tokens from the token acceptors and returns them to the dispenser, with no need for the involvement of an operator.

[0015] Suitable suction systems are already known, but applied in other sectors, for the recovery of coins, and not for the transfer of tokens from an acceptor to a dispenser.

[0016] The invention will now be described by way of example but not of limitation, according to a preferred form of embodiment.

[0017] Fig. 1 shows an automatic system according to the invention for the recovery of tokens from token acceptors.

[0018] Said system consists of a token dispenser (1) and a plurality of token acceptors (2), each of which is connected to a machine, which could be a power washer, water brush, rotating brushes or vacuum cleaner.

[0019] Dispenser (1) comprises a token compartment (3), a first opening (4) into which cash is introduced, a first device of known type (not illustrated), which detects the cash introduced and enables a second device of known type (not illustrated) to supply of a quantity of tokens corresponding to the cash introduced, which said tokens are supplied to the user through a second opening (5), from said token compartment (3). The cash received by dispenser (1) is then conveyed to a cash compartment below (6).

[0020] Token acceptors (2), one of which is fitted to each machine, comprise a slot (7) into which the tokens are inserted. After activating the corresponding machine, the tokens fall into a hopper (8) which conveys them to a pipe (9).

[0021] The opening of said pipe (9) is closed by a solenoid valve (10), while the passage of the tokens is detected by a sensor (11) of known type, which emits an electrical signal whenever it detects the passage of a token. Said signal is designed to control the opening of said solenoid valve (10) and activate a suction unit (14) positioned above token dispenser (1), and said sensor (11) is connected via wiring (12) to the corresponding solenoid valve (10), and via wiring (13) to suction unit (14).

[0022] Each of said token acceptors (2) is connected via a pipe (9) with suction unit (14).

[0023] Suction unit (14) comprises an electric aspirator (15) which, when it is in operation, creates negative pressure in a chamber (16) to which all pipes (9) leading from token acceptors (2) are connected. Said chamber (16) is connected to token compartment (3) below.

[0024] To activate the required machines, the user goes to dispenser (1), introduces cash in the form of bank notes or coins into the first opening (4), and automatically

receives the number of tokens corresponding to the cash introduced. The said tokens, delivered through the second opening (5), are conveyed from token compartment (3), whereas the cash introduced falls into cash compartment (6).

[0025] Having obtained the required tokens, the user goes to the desired machine and activates it by inserting the tokens into slot (7) of token acceptor (2).

[0026] When the machine has been activated, the tokens introduced into acceptor (2) fall into hopper (8), which conveys them to pipe (9) below.

[0027] The passage of the token into hopper (8) is detected by sensor (11), which activates suction unit (14), thus creating negative pressure in chamber (16). At the same time sensor (11) opens solenoid valve (10), thus opening the corresponding pipe (9). In this way the token is sucked into chamber (16) and then falls into token compartment (3) of dispenser (1).

[0028] Each pipe (9) is preferably closed by a solenoid valve (10), so that the entire power of electric aspirator (15) is concentrated on only one of said pipes (9) at a time, with the result that the power required for suction is greatly reduced.

[0029] According to a preferred form of embodiment, solenoid valve (10) is positioned at the opening of each pipe (9). The reason for this choice is to reduce the length of wiring (12).

[0030] The entire operation is therefore performed without human involvement; in other words, token compartment (3) of token dispenser (1) is filled without opening said dispenser (1), ie. without access to cash compartment (6) of said dispenser (1).

[0031] Depending on the size of the machine and the number of tokens used in the time unit, a timer could also be installed which activates suction at preset intervals, or a sensor which activates the system when the number of tokens in the dispenser falls.

[0032] The invention has been described by way of example but not of limitation, according to a preferred form of embodiment. One skilled in the art could devise numerous other embodiments, all of which fall into the ambit of protection of the following claims.

Claims

1. Car-wash installation with automatic system for recovery of tokens from the token acceptors, of the type comprising a token dispenser (1) and one or more token acceptors (2), in which tokens obtained from said token dispenser (1) are used, and a suction unit designed to create a pressure difference which creates, in one or more pipes, an airstream designed to convey said tokens, **characterised in that** each of said pipes (9) connects one of said token acceptors (2) to a collecting chamber (16) which is connected to a compartment (3) containing the tokens to be dispensed through said token dispenser (1).

2. Car wash with automatic system for the recovery of tokens from token acceptors as claimed in claim 1, **characterised in that** each of said token acceptors (2) contains a sensor (11) designed to emit a signal on passage of a token, which said signal is designed to open a solenoid valve (10) fitted to said pipe (9) and to activate a suction unit (14), in such a way that said token can enter said pipe (9) and be sucked by said suction unit (14), to which said pipe (9) is connected, into a chamber (16) connected to said token compartment (3) of said token dispenser (1), which said sensor (11) is connected via wiring (12) to said solenoid valve (10) and via wiring (13) to said suction unit (14).

3. Car wash with automatic system for the recovery of tokens from token acceptors as claimed in claim 2, **characterised in that** said solenoid valve (10) is inserted at the mouth of said pipe (9).

4. Car wash with automatic system for the recovery of tokens from token acceptors as claimed in the preceding claims, as described and illustrated and for the purposes specified.
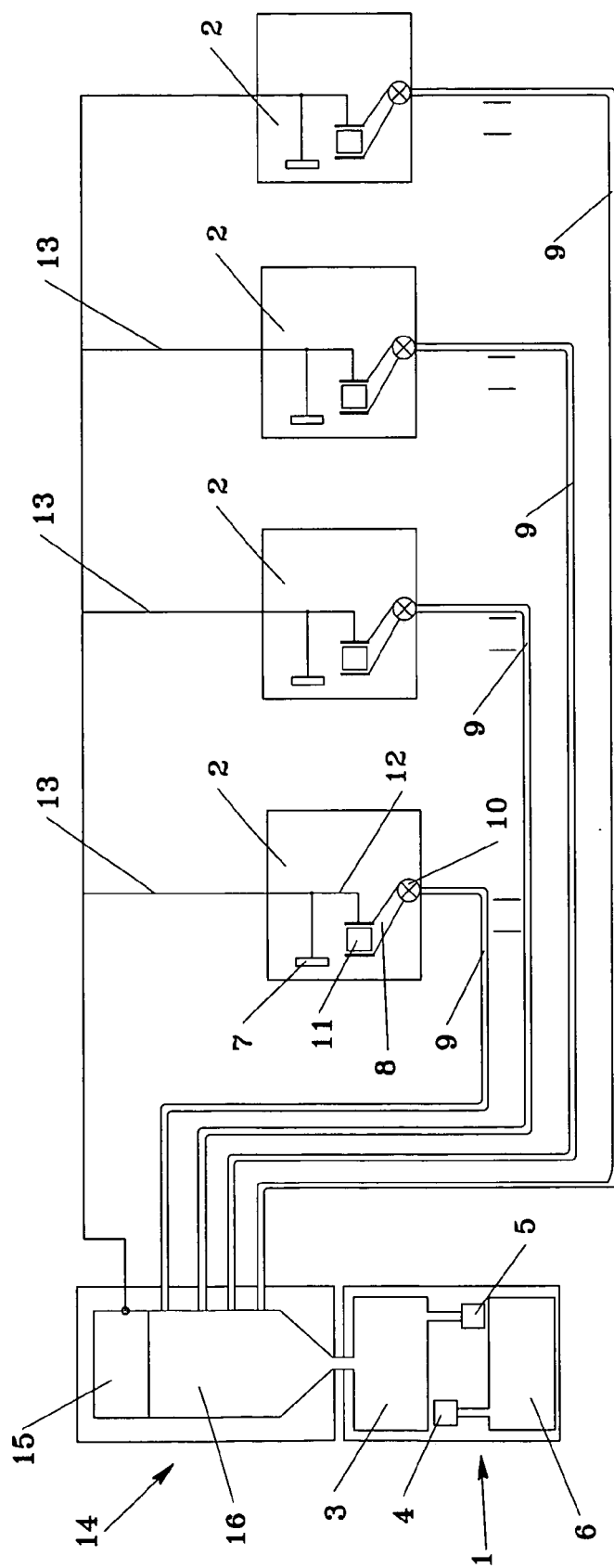
Fig. 1