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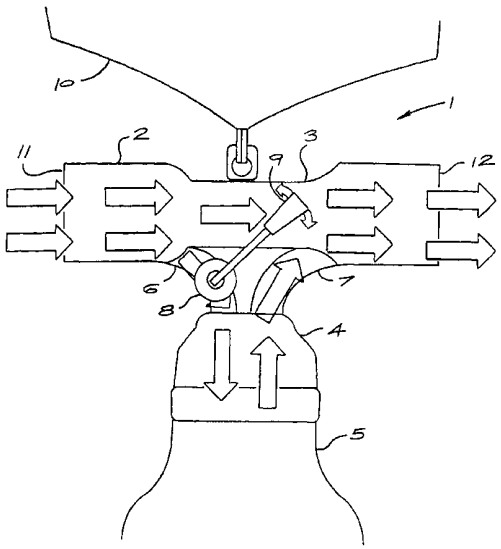
(54) Title: CHEMICAL DISPENSER




(57) Abstract: A chemical dispenser for dispensing a desired chemical into a stream of fluid comprises: an open-ended tube defining a flow passage, the tube having a portion of reduced cross-section along its length, a receiving formation co-operable with a chemical receptacle for storing the desired chemical therein, and an inlet and an outlet passage providing flow communication between the tube and the chemical receptacle when operatively secured to the receiving formation, the outlet passage being in flow communication with the tube at the area of reduced cross-section thereof.

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# CHEMICAL DISPENSER

## FIELD OF THE INVENTION

This invention relates to a chemical dispenser and, more particularly, to a chemical dispenser for dispensing chemicals into a flow of fluid, preferably water, to treat said flow of fluid.

## BACKGROUND TO THE INVENTION

In closed circuit circulating fluid systems, such as swimming pools, cooling systems for mines, cutting oils for machine tools, and the like, contamination of the circulating fluid presents a problem. This contamination can take the form of a build-up of algae in the case of swimming pool water, or the build-up of bacteria in machine tool cutting oils. In the case of the former, the swimming pool is rendered unsightly and often unusable. In the case of the latter, an unpleasant odour is produced and the oil can be degraded, reducing its effectiveness.

In order to prevent or overcome the build-up of contaminants, algicides or biocides are added to the fluid. In addition, other chemicals can be added to remove undesirable chemical elements such as carbonates and the like. These chemical additives should be added to the fluid regularly to contain a build-up of contaminants, for it is usually less expensive and less time consuming than treating a fluid which has become badly contaminated.

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One disadvantage of having to regularly dose or add chemicals to a fluid in order to contain the build-up of contaminants is that a person responsible for so doing often forgets to do so. In an attempt to overcome this disadvantage, particularly in swimming pools, a range of automatic chemical dispensers have been developed.

One form of such dispenser makes use of solid chlorine tablets, which are placed in a floating receptacle. An early example of such a receptacle is in the form of a plastics material basket, which is left to float in the swimming pool. The chlorine tablets gradually dissolve, releasing chlorine into the water.

A more modern variation of this encloses the tablets in a buoyant receptacle. A number of small holes are opened in the sides of the receptacle depending on the size of the swimming pool and on the season.

Both of the above chlorine dispensers have a disadvantage in that chlorine is released continuously. When the receptacle abuts the side of the swimming pool, the relatively concentrated chlorine solution released can discolour the wall of the swimming pool.

## OBJECT OF THE INVENTION

It is an object of this invention to provide a chemical dispenser, which will, at least partially, alleviate the above, mentioned the difficulties and disadvantages.

## SUMMARY OF THE INVENTION

In accordance with this invention there is provided a chemical dispenser for dispensing a desired chemical into a stream of fluid, comprising:

an open-ended tube defining a flow passage therethrough, the tube having a portion of reduced cross-section along its length;

a receiving formation co-operable with a chemical receptacle for storing the desired chemical therein; and

an inlet and an outlet passage providing flow communication between the tube and the chemical receptacle operatively secured to the receiving formation, the outlet passage being in flow communication with the tube at the area of reduced to cross-section thereof.

Further features of the invention provide for the inlet passage to have a regulating valve therein, for the regulating valve to be a butterfly, alternatively a ball valve, for the tube to be of circular cross-section, and for the chemical receptacle to be a plastics receptacle.

Still further features of the invention provide for the chemical dispenser to have a flotation means securable to the tube at a position remote from the receiving formation, and for the flotation means to be securable to the tube at the position of reduced cross-section thereof.

Yet further features of the invention provide for the chemical dispenser to be locatable in the stream of fluid adjacent an inflow or other region where the flow rate of said fluid is highest.

There is also provided for the fluid to be water, for the stream of fluid to be provided by a pump, and for the chemical dispenser to be positionable, in use, adjacent an outflow from the pump, alternatively for the chemical dispenser to be connectable to an outflow of the pump.

A further aspect of this invention provides for the chemical dispenser to be adapted to dispense swimming pool chemicals.

A further feature according to this aspect of the invention provides for one of the swimming pool chemicals to be chlorine, and still further for one of the swimming pool chemicals to be chlorine in a solid form, preferably in a granular powder or tablet form.

## BRIEF DESCRIPTION OF THE DRAWINGS

One embodiment of the invention is described below, by way of example only, and with reference to the accompanying drawings, in which:

FIG.1 is a sectional side view of a chemical dispenser according to the invention.

## DETAILED DESCRIPTION OF THE INVENTION

Referring to Figure 1, a chemical dispenser is indicated generally by reference numeral (1).

The chemical dispenser (1) comprises an open-ended tube (2) having a portion (3) along its length of reduced cross-section, an inlet (11) and an outlet (12). The chemical dispenser (1) includes a receiving formation (4) in the form of a screw-threaded cap. One end of the screw-threaded cap (4) is sized to receive a complementarily threaded chemical receptacle (5) suitable for storing a supply of a desired chemical, in this embodiment swimming pool chemicals in granular or tablet form.

The receiving formation (4) is in flow communication with the open-ended tube (2) by means of two flow passages, namely an inlet flow passage (6) and an outlet flow passage (7). Referring to Figure 1, the inlet flow passage (6) is connected to the open-ended tube (2) at an area of maximum cross-section, while the outlet flow passage (7) is connected to the open-ended tube at the area of reduced cross-section (3).

The inlet flow passage (6) has a regulating valve (8) located partway along its length for controlling a flow of fluid through the flow passage. The regulating valve (8) is a butterfly valve or, alternatively, a ball valve. The regulating valve (8) has an elongate lever (9) connected thereto to facilitate convenient adjustment of the valve position by a user of the chemical dispenser (1).

A float (10) is connected to the open-ended tube (2) at a position remote from the receiving formation (4) and at the position (3) of a minimum cross-section.

In use, the chemical dispenser (1) is located in a body of fluid such as a swimming pool (not shown). The inlet (11) of the open-ended tube (2) is connected to an outlet of the swimming pool by means of a flexible hose (not shown) and the chemical dispenser (1) is allowed to float freely in the body of water in which it is suspended by the float (10). It will be appreciated by those skilled in the art that water entering the inlet of the open-ended tube (2) will cause pressure drop at the portion (3) of the tube having reduced cross-section, thereby causing a pressure differential to be created between the inlet of the open-ended tube and the throat thereof. The pressure differential which is created causes water to flow through the inlet flow passage (6) past the regulating valve (8) and into the chemical receptacle (5) operatively secured to the receiving formation (4). Water entering the chemical receptacle (5) causes the chlorine in the receptacle to be dissolved and carried through the outlet flow passage (7) back into the open-ended tube at the area of a minimum a cross-section and through the outlet (12) of the open-ended tube into the body of fluid.

It will be appreciated that variations can be made to the above embodiment without departing from the scope of the invention. In particular, the chemical dispenser (1) may have a differently shaped open-ended tube (2) or fluid inlet flow passage (6). Further, the chemical dispenser (1) may be secured to the opening of a pipe through which the fluid is pumped, by means of an elastomeric member (not shown) such as a rubber band.

Still further, the regulating valve (8) may be dispensed with altogether in applications where are control of the rate of release of the desired chemical into the body of fluid is not required.

Yet further, the supply of the desired chemical in the chemical receptacle may be4 in liquid form, as opposed to granular or tablet form.

The invention therefore provides a chemical dispenser for conveniently dispensing dosages of a desired chemical into a fluid stream.

## CLAIMS

1. A chemical dispenser for dispensing a desired chemical into a stream of fluid, comprising:
an open-ended tube defining a flow passage therethrough, the tube having a portion of reduced cross-section along its length;
a receiving formation co-operable with a chemical receptacle for storing the desired chemical therein; and
an inlet and an outlet passage providing flow communication between the tube and the chemical receptacle operatively secured to the receiving formation, the outlet passage being in flow communication with the tube at the area of reduced to cross-section thereof.

2. A chemical dispenser as claimed in claim 1 in which the inlet passage has a regulating valve therein.

3. A chemical dispenser as claimed in claim 2 in which the regulating valve is a butterfly.

4. A chemical dispenser as claimed in claim 2 in which the regulating valve is a ball valve.

5. A chemical dispenser as claimed in any one of the preceding claims in which the tube is of circular cross-section.

6. A chemical dispenser as claimed in any one of the preceding claims in which the chemical receptacle is a plastics receptacle.

7. A chemical dispenser as claimed in any one of the preceding claims in which the chemical dispenser has a flotation means securable to the tube at a position remote from the receiving formation.

8. A chemical dispenser as claimed in claim 7 in which the flotation means is securable to the tube at the position of reduced cross-section thereof.

9. A chemical dispenser as claimed in any one of the preceding claims in which the chemical dispenser is locatable in the stream of fluid adjacent an inflow or other region where the flow rate of said fluid is highest.

10. A chemical dispenser as claimed in any one of the preceding claims in which the fluid is water.

11. A chemical dispenser as claimed in any one of the preceding claims in which the stream of fluid is provided by a pump.

12. A chemical dispenser as claimed in claim 11 in which the chemical dispenser is positionable, in use, adjacent an outflow from the pump.

13. A chemical dispenser as claimed in claim 11 in which the chemical dispenser is connectable to an outflow of the pump.

14. A chemical dispenser as claimed in any one of the preceding claims which is adapted to dispense swimming pool chemicals.

15. A chemical dispenser as claimed in claim 14 is which one of the swimming pool chemicals is chlorine.

16. A chemical dispenser as claimed in claim 15 is which one of the swimming pool chemicals is chlorine in a solid form.

17. A chemical dispenser as claimed in claim 16 in which the chlorine is in a granular powder or tablet form.

18. A chemical dispenser as claimed in claim 15 in which one of the swimming pool chemicals is in a liquid form.

19. A chemical dispenser, substantially as herein described with reference to and as illustrated I the accompanying drawings.

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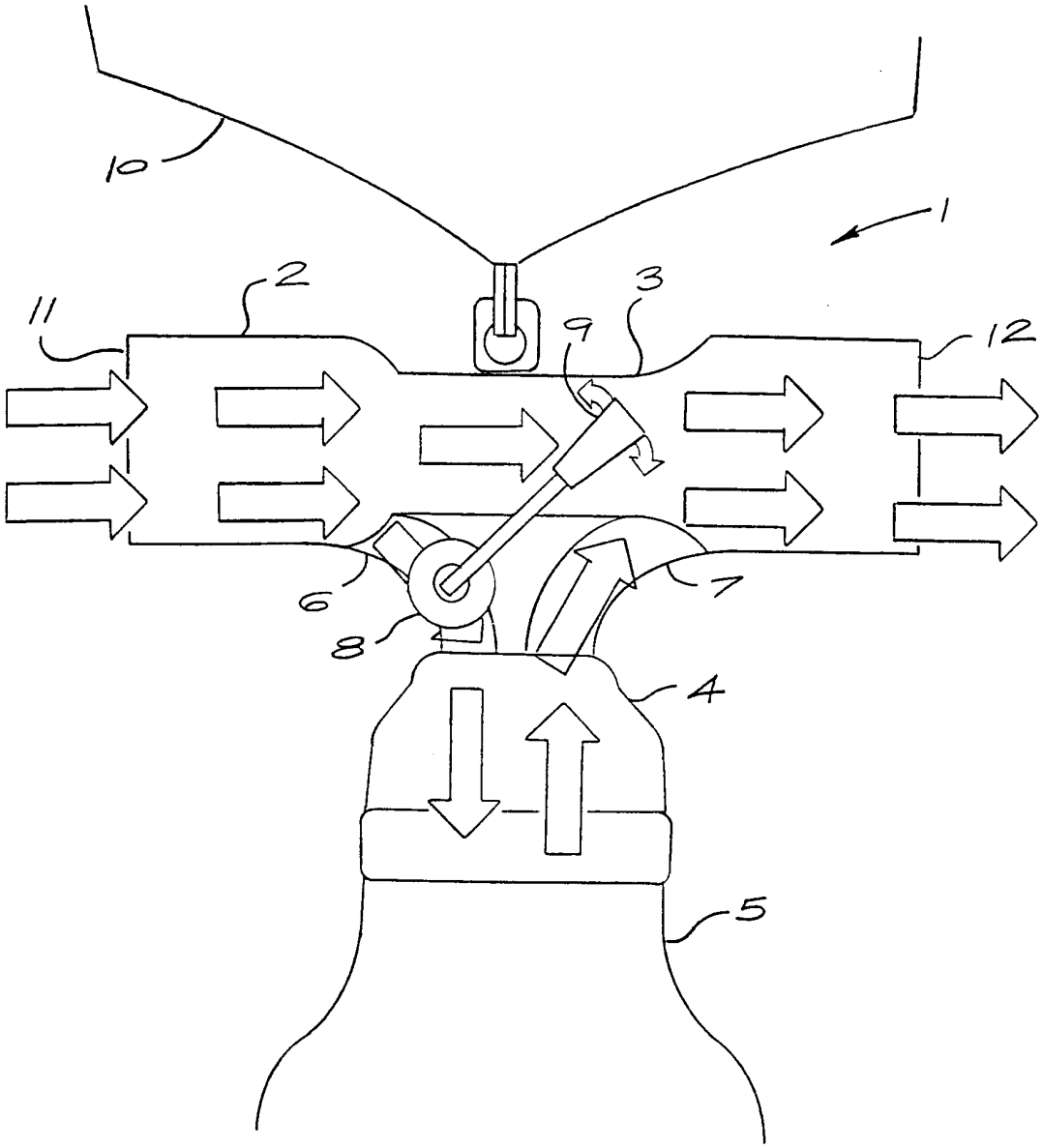


FIG 1