CLAIMS

1. A dental cleaning appliance comprising:

a fluid delivery system comprising a fluid inlet, a pump for drawing a working fluid through the fluid inlet, a hydraulic accumulator for receiving working fluid from the pump, a nozzle having a fluid outlet, and a valve located between the accumulator and the nozzle, the valve having an open position for enabling the accumulator to deliver a burst of working fluid to the nozzle and a closed position for enabling the accumulator to be replenished under the action of the pump; and

a control circuit for actuating the pump and for controlling the position of the valve.

2. An appliance according to claim 1, wherein the valve is a solenoid valve.

3. An appliance according to claim 1 or claim 2, wherein the fluid delivery system comprises a one-way valve located between the fluid inlet and the pump.

4. An appliance according to any preceding claim, wherein the fluid delivery system comprises a one-way valve located between the pump and the accumulator.

5. An appliance according to any preceding claim, wherein the accumulator has a capacity in the range from 0.1 to 1 ml.

6. An appliance according to any preceding claim, wherein the accumulator is one of a spring-type accumulator and a gas-charged accumulator.

7. An appliance according to any preceding claim, comprising a fluid reservoir for storing working fluid, and wherein the pump is arranged to draw working fluid from the fluid reservoir.

8. An appliance according to any preceding claim, wherein the accumulator has a capacity that is smaller than the capacity of the fluid reservoir.

9. An appliance according to any preceding claim, wherein the fluid reservoir has a capacity in the range from 5 to 50 ml.

10. An appliance according to any preceding claim, comprising a handle and a cleaning tool connected to the handle.

11. An appliance according to claim 7 and claim 10, wherein the cleaning tool comprises the fluid reservoir and the nozzle.

12. An appliance according to claim 10 or claim 11, wherein the handle houses the fluid inlet, the pump, the accumulator and the control circuit.

13. An appliance according to any preceding claim, comprising a sensor, and wherein the control circuit is arranged to control at least one of the position of the valve and the actuation of the pump depending on an output from the sensor.

14. An appliance according to claim 13, wherein the sensor is arranged to provide an output to the control circuit which is indicative of the volume of working fluid within the accumulator.

15. An appliance according to claim 14, wherein the sensor is arranged to output a signal indicative of the pressure of working fluid within the accumulator.

16. An appliance according to claim 14, wherein the sensor is arranged to output a signal upon contact with a moveable part of the accumulator.

17. An appliance according to any preceding claim, wherein the control circuit is arranged to hold the valve in an open position for a time period in the range from 1 to 30 ms to deliver a single burst of working fluid to the nozzle.

18. An appliance according to any preceding claim, wherein the control circuit is arranged to replenish the accumulator following the delivery of a single burst of working fluid to the nozzle.

19. An appliance according to any one of claims 1 to 17, wherein the control circuit is arranged to replenish the accumulator following the delivery of a plurality of bursts of working fluid to the nozzle.

20. A handle for a dental cleaning appliance comprising a cleaning tool to which the handle is detachably connectable, the cleaning tool comprising a nozzle through which a burst of working fluid is delivered to the teeth of a user, the handle comprising:

a fluid inlet;

a pump for drawing working fluid through the fluid inlet;

a hydraulic accumulator for receiving working fluid from the pump;

a fluid outlet port which is in fluid communication with the nozzle when the cleaning tool is connected to the handle;

a valve located between the accumulator and the fluid outlet port, the valve having an open position for enabling the accumulator to deliver a burst of working fluid to the fluid outlet port and a closed position for enabling the accumulator to be replenished under the action of the pump; and

a control circuit for actuating the pump and for controlling the position of the valve.