thereby stopping the flow of water into the sample collection funnel **44** and allowing the sample to drain out of the funnel **44** through drain port **62**, then through the open valve in switch **45**, into drain pipe **47**, and from there to the distributor **48**.

Sample collection funnel **44** may designed to have very steep sides, so that sample fluids will drain completely, thereby preventing cross contamination of samples.

FIGS. **4** through **7** show the design of the distributor **48**. The distributor body **48** is shown in FIGS. **6** and **7**, and the distributor rotor **68** is shown in FIGS. **4** and **5**. As shown in FIG. **4**, drain pipe **47** extends down into a distributor inlet fitting **63**. Fitting **63** is secured to the distributor rotor **68** at **65**. Water passes through the fitting **63** into channel **66**, and channel **66** directs the water out to a discharge hole **67** at the perimeter of the bottom **69** of the rotor **68**. FIG. **5** shows the bottom **69** of the rotor **68** and the location of the discharge hole **67**. As shown in FIGS. **6** and **7**, rotor **68** rides in the recess **78** of the distributor body **48**. The bottom **69** of the rotor **68** rests on a ledge **79** in recess **78**. FIG. **6** shows that sixteen drain holes **80** are arranged around the perimeter of ledge **79**. The holes **80** allow sample water to drain out of the distributor **48** through fittings **85** and into sample collection tubes **54**. Holes **87** in the outside of the distributor body **48** are for securing the distributor to some stable platform, as shown in FIG. **9**. A funnel drain **84** in distributor **48** allows any water that has leaked between the rotor **68** and the ledge **79** to drain down through drain hole **83**, thereby preventing collection of leaking water and cross contamination of samples,

Referring back to FIG. **4**, a gear **49** is secured to the top of rotor **68** by screws **64**. The rotor gear **49** meshes with a set of reduction gears **59**. A conventional DC stepper motor **50** drives a gear **51**, and through the set of reduction gears **59**. Upon receiving current, the DC stepper motor **50** will make a single rotation, then stop. The reduction gears **59** are sized to translate the single rotation of the stepper motor **50** into an incremental movement of distributor rotor **68**. This incremental rotation, shown by the angle at **86** in FIG. **6**, will place the discharge hole **67** of the rotor **68** directly over one of the sixteen drain holes **80** in the distributor **48**.

When the controller **43** cuts off current to the solenoid switches **41** and **45**, water drains out of collection funnel **44** to distributor **48**, which distributes the sample to a particular sample bottle **55**. A clock **96** in controller **43** allows a pre-programmed amount of time to pass to allow the sample to drain completely from the funnel **44** and through the distributor **48**. After that set time has passed, the controller sends a signal to the stepper motor **50**, which causes the motor **50** to complete a single rotation and move the rotor **68** to the next distributor sample hole **80**.

FIG. **8** shows a design for a collection and distribution unit, indicated generally by **40**. Such a unit facilitates transport of the sampler, especially to remote locations. All the components of the sampler, other than the turbine and pump unit **10**, can be arranged in collection unit **40** so that on-site set-up only requires the attachment of a few hoses and wires. Upper and lower doors (not shown) in the housing **95**, open for access to the components and sample bottles **55**. In the arrangement shown in FIG. **8**, a cylindrical PVC housing **95** is used to hold the collection and distribution components. The sample funnel **44** is secured at the top. Sample inlet pipe **27** enters through the open top of the housing **95** and mates with solenoid switch **41**. The controller computer **43** is mounted in a sealed box **93** in front of the funnel **44** (wiring is not shown in this figure). The data computer **58** is mounted in its own box **94** below the controller **43**. Drain pipe **47** directs sample water to the distributor rotor **68**, and the motor **50** reduction gear set **59** are mounted below the data computer **58**. The battery **53** or batteries are not shown in this figure, but they may be secured around the distributer rotor **68** on the platform **97**. The distributor **48** is screwed to the platform **97**. The collection bottles **55** are stored in the bottom compartment of the unit **40**.

FIGS. 9A and 9B show the schematic for the invention. Referring to FIG. 9A, switch **101** allows the user to select one sample volume, which is shown as 100 milliliters, and switch **102** allows the selection of a different volume, shown here, as an example, as 10 milliliters. It will be appreciated that any number of switches may be used to choose a wide variety of settings. Two six volt batteries **53** provide power to the unit. A relay **103** provides switching for the solenoid switches **41** and **45**. A connector **104** plugs into the data computer **58**. Any conventional single board computer, such as a CMD118A8 board produced by Axiom Manufacturing, may be used as the data computer **58**. The data computer counts the pulses from the reed switch **26** on the pump **19** push rod **18**. The pulses can be stored in memory and a program can be developed to take samples after a certain number of pulses have been counted. The data computer also has an internal clock **98**, which can be used to order samples based upon time intervals. Moreover, the data computer **58** can calculate, store in its memory, and chart data concerning the test site's flow speed. To do this, empirical information relating the speed of the propeller **14** to the speed of water driving the propeller **14** is gathered. That empirical data is compared to the pulse signals from the reed switch **26**, and the clock **98** is used to provide the test flow's velocity.

Referring to FIG. 9B, relay **108** is another switch controlling the stepper motor **50**. Relay **109** is another switch controlling the solenoid switches **41** and **45**. Relay **110** turns the controller **43** on when a signal is received from the data computer **58**. Relay **111** selects which float, **71** or **81**, the controller will use to control the amount of sample taken. Re-set switch **112** can re-boot the system if it locks-up. Relay driver **113** amplifies the voltage and current. Diode **114** prevents back-feeding of signals to the data computer. Internal buses are shown at **115**. Connector **116** plugs into the controller computer **43**. A conventional microprocessor, such as a Paralax Industrial Basic Stamp II, may be used. The controller **43** receives the signal from the data computer **58** to take a sample, and controls the sample taking process by sending current to solenoid switches **41** and **42**, waiting a pre-set time for the sample to drain from the funnel **44** and through the distributor **48**, then sending a signal to the stepper motor **50**, which shifts the distributor rotor **68**.

It will be appreciated by those skilled in the art, that the turbine and pump unit **10** is ideally suited to many applications. The description provided above is but one embodiment set in the context of taking water samples from a stream or river. But, the invention may also be used to take samples from any moving fluid, including canals, irrigation ditches, storm drains, and sewer systems. The fluid need not be limited to water. Moreover, the present invention may also be adapted to taking samples from pipes. As shown in FIG. **10**, the pump unit **19** may be attached to the turbine housing **11** and sealed to prevent fluids from escaping. The inlet pipe **22** can be directed through the turbine housing **11** to take samples from within the housing **11**. In this way, the housing **11** may be inserted between sections of pipe **120** and used to pump samples.

The drawings and description set forth here represent only some embodiments of the invention. After considering these,