

To temporarily support the empty bags on a flat surface for printing of indicia, the horizontal flat support platform 296 is positioned in the path of a movable print mechanism 160 and under the bag support system 294. The bag support system ends at a container into which filled bags are deposited.

In this embodiment, the discharge tube assembly 290 engages the septums one by one, such as the septums 274A-274G, and moves the septums along the support means 294 so that the corresponding one of the bags 24A-24G lies flat on the support surface 296. The print-head 160 is then moved over the bag and the support mechanism 296 to print the required indicia. After the printing, the discharge assembly 290 moves each the bag further to a position where it drops free of the support surface 296, at which time it is filled and the discharge mechanism 290 moves it free from the support system 294.

The discharge assembly 290 includes an outer tubular sheath 276, an inner needle 273 and a downwardly, vertically-moving control assembly 277 that operates in the same manner as the embodiment of FIGS. 12 and 13. The discharge needle 273 communicates with an inner telescoping tube 300 which is moved by a motorized rack and pinion system 302 to reciprocate along the bag holding assembly 294 to move the bags one by one into position. The positioning mechanism is encoded on a code wheel on the motor 302 which moves the rack to position the discharge needle 273 under the control of the microprocessor 14. Instead of moving the bags from position to position on the bag holding assembly 294, the bags may remain in place and the telescoping tube 300 may move the discharge needle 273 over each bag and fill them in place without moving them.

For this purpose, the microprocessor 14 receives signals indicating the first position for engaging the septum while the bag is on the support 296, a second position for printing, a third position for filling the bag after it has fallen from the support 296 and a fourth position at the end of its travel path, at which time the bags, already filled, are pushed free of the support 294 to drop into a container located nearby.

In FIG. 15, there is shown a plan view of the support system 294 having first and second parallel rails 310 and 312 upon which the bags 24A-24C are mounted through eyelets in the ends of the bags so that the bags depend downwardly from the rails. With this arrangement, the bags 24A-24C are stretched between the rails 310 and 312 so they are relatively flat with their septums 274A-274C extending upwardly between the rails.

As shown in FIG. 14, the septum of each bag may be grasped by the discharge assembly 290 one by one and the bags moved over the support surface 296. While there, the printing mechanism 160 is moved on parallel shafts 314 and 316 so that it is cantilevered over the bag and the support 296. The printhead is driven by a nut and screw drive, with the shaft 314 rotably positioning it. The motor drive for the shaft 314 includes a coded wheel which positions the printhead and controls the timing of its position with the indicia under the control of the microprocessor.

In FIG. 16, there is shown a block diagram of the sampler 10 interconnected with a flow meter 320 and/or a liquid level detector 322 positioned in a liquid flow path 324. These instruments detect either the flow rate or the liquid level and provide a signal to the microprocessor 14 which controls the printing of the sample information on the bag and the collection of the sample

by the sampler 10, indicating the condition that results in the taking of a sample. For example, the liquid height or a sudden increase in the flow rate may indicate the proper time for taking a sample or for taking a larger sample. In that event, the time and the reason for sampling are printed on the bag.

From the above description, it can be understood that the wastewater sampler of this invention has several advantages such as: (1) it can form a large number of packages; (2) data is conveniently printed right on the package as it is formed; (3) the size of the package can be automatically tailored to the size of the sample to avoid air that may contaminate the liquid therein; (4) the sample is immediately sealed in the package and thus reduces contamination; and (5) overflow can easily be avoided.

Although a specific embodiment has been described with some particularity, many modifications and variations may be made in this specific embodiment without deviating from the invention. Therefore, it is to be understood that, within the scope of the appended claims, the invention may be practiced other than as specifically described.

What is claimed is:

1. A sampler comprising:

an inlet port adapted to communicate with a source of water and an outlet port positioned so that water flows from the inlet port to the outlet port; means for pumping fluid through the inlet port for collection;

means for initiating movement of a web of packaging material;

means for folding the web of packaging material and sealing it to form a pouch;

means for causing water from the inlet port to flow from the outlet port into the pouch;

means for sealing the pouch;

means for controlling the pumping means; and

means for drawing the web so that the pouch corresponds in internal volume to the volume of water pumped into the pouch prior to sealing the pouch.

2. A sampler comprising:

an inlet port adapted to communicate with a source of water and an outlet port positioned so that water flows from the inlet port to the outlet port;

means for pumping fluid through the inlet port for collection;

means for initiating movement of a web of packaging material formed into bags;

means for causing water from the inlet port to flow from the outlet port into the bags;

means for sealing the bags; and

programmable means for controlling the means for pumping and means for initiating movement of a web so that each of the bags corresponds in internal volume to the volume of water pumped into the bag prior to sealing the bag.

3. A sampler in accordance with claim 2 in which the means for forming the bag includes a means for folding the web against itself and heat-sealing the web together, whereby a bag is formed before the water is inserted, and sealing the web to form a water-tight container.

4. A water sampler in accordance with claim 3 further including means for printing information on the web.

5. A sampler in accordance with claim 1 in which the means for forming the pouch includes a means for folding the web against itself and heat-sealing the web to-