

through said means communicating with the fluid flow until a predetermined volume of sample remains between said aperture and said lower chamber limit, and to thereafter actuate said sample control valve to an open position for transferring said sample.

22. A fluid flow measuring system as in claim 21 together with means for reinitiating said first output signal sequence if said fill sensor output signal is not produced before the end of said first output signal sequence.

23. A fluid flow measuring system as in claim 21 together with a third timer producing a third output signal sequence connected to said pressure control valve, said third output signal sequence causing actuation of said pressure control valve to direct positive pressure to said sample chamber for a predetermined time whereby said chamber is purged and said first timer is reset.

24. A fluid flow measuring system as in claim 21 together with clock means for providing the input signal, whereby the system is time proportional.

25. A fluid flow measuring system as in claim 21 together with a manual switch for providing the input signal.

26. A fluid flow measuring system as in claim 21 together with a fluid flow meter for providing the input signal at predetermined total flow intervals whereby the system is flow proportional.

27. A fluid flow measuring system as in claim 21 together with a switch for providing an actuation signal serving as the sampler input signal, said switch providing said actuation signal when the surface of a fluid flow is above a predetermined level, whereby the system cyclically samples the fluid flow when the fluid flow surface is above said predetermined level.

28. A fluid flow measuring system as in claim 26 wherein said fluid flow meter comprises means for detecting a fluid head in a flow conduit, means for providing an output signal related to said fluid head, a servo control for receiving said signal related to fluid head, a servo motor driven by said servo control, a mechanical head to flow converter driven by said servo motor for converting head to flow in a flow conduit having a given general cross section shape, means for adjusting the gain in said servo control so that said head to flow converter may measure flow in flow conduits having a cross section similar to said given general cross section shape, and means driven by said head to flow converter for providing indication of total flow through the conduit.

29. A fluid flow measuring system as in claim 28 together with a plurality of additional mechanical head to flow converters, and means for selecting a predetermined one of said additional head to flow converters for measuring flow in a flow conduit having a corresponding known cross section shape, whereby flow may be measured in a plurality of known flow conduit cross section shapes.

30. A fluid flow measuring system as in claim 28 together with a sample interval selector whereby the input to the sampling system is passed thereto only after a predetermined flow quantity has been sensed by said fluid flow meter.

31. A fluid flow measuring system as in claim 28 together with a visual level indicator driven by said means for sensing a fluid head, and a time record of flow driven by said mechanical head to flow converter.

32. A fluid flow measuring system as in claim 28 together with a percent flow indicator driven by said mechanical head to flow converter.

33. A fluid flow measuring system comprising a flow sampler responsive to an input signal comprising a framework, compressor means for providing positive and negative pressures at separate pressure ports thereon, a sample chamber mounted on said framework and having upper and lower limits for defining a total volume to be contained therein, means communicating between said sample chamber and the fluid flow, said means communicating including means having a lower portion fixed in position relative to said sample chamber lower limit for depositing the sample influx as close to said lower limit as possible while allowing the suspended solids in said sample to pass, said means fixed in position having an aperture above said lower portion, a pressure control valve in communication with said pressure ports for directing positive and negative pressures alternately to said sample chamber, a plurality of storage containers, means for transferring samples from said sample chamber to said plurality of storage containers, a sample control valve disposed in said means for transferring for controlling transfer of fluid samples, rotatable filling means in communication with said sample control valve having an outlet overlying the mouth of one of said plurality of storage containers at a time, means for driving said rotatable fill means through advancing steps for sequentially depositing samples in said plurality of storage containers, and timing means for selectively operating said pressure control valve for filling and purging said sample chamber through said lower portion and said aperture respectively, said sample control valve for transferring said sample, said means for driving said rotatable filling means including a multiple sample multiplex selector for selecting a predetermined number of samples to be deposited cumulatively in each one of said plurality of storage containers.

34. A fluid flow measuring system comprising a flow sampler responsive to an input signal comprising a framework, compressor means for providing positive and negative pressures at separate pressure ports thereon, a sample chamber mounted on said framework and having upper and lower limits for defining a total volume to be contained therein, means communicating between said sample chamber and the fluid flow, said means communicating including means having a lower portion fixed in position relative to said sample chamber lower limit for depositing the sample influx as close to said lower limit as possible while allowing the suspended solids in said sample to pass, said means fixed in position having an aperture above said lower portion, a pressure control valve in communication with said pressure ports for directing positive and negative pressures alternately to said sample chamber, a plurality of storage containers, means for transferring samples from said sample chamber to said plurality of storage containers, a sample control valve disposed in said means for transferring for controlling transfer of fluid samples, rotatable fill communication with said sample control valve having an outlet overlying the mouth of one of said plurality of storage containers at a time, and means for driving said rotatable fill means through advancing steps for sequentially filling said plurality of storage containers, and timing means for selectively operating said lower portion and said aperture respectively, and said sample control valve for