C L A I M S

1. Device for detecting water leaks in pipelines, fitted with means for the emission/receipt of sounds by mechanical signals, for the analysis of these within a pipeline through which a fluid that may leak flows, such as one or more hydrophones associated with a circuit for analysing these sound signals. This device is made of a casing with an essentially spherical configuration, of neutral buoyancy, within which there is at least one hydrophone (2) as receiver of the mechanical signals generated, that is connected to a signal processor (9), which stores the information on a memory card (10) and which is powered by at least one battery (11), counting this signal processor (9) with a clock module (12), through which the sailing time elapsed for each audio signal received by the hydrophone (2) is associated in the memory (10), having predicted that the device is complemented with specific means for its insertion and extraction in the pipeline to be analysed.

2. Device for detecting water leaks in pipelines in accordance with claim 1. It includes a communication module (13), so that the device can communicate on a real-time basis with a series of synchronisation systems, fitted externally every certain distance all along the piping, from which the start/end of delimited and known stretches are defined, in which there is no positioning error, resetting the positional parameters of the device. The synchronisation systems that consist of a communication module, a clock module and a power-supply module.

3. Device for detecting water leaks in pipelines in accordance with claims 1 and 2, which includes a communication module that can be one-way or bi-directional.

4. Device for detecting water leaks in pipelines in accordance with claims 1 to 3, where the communication modules are based on the usage of beaters, tone generators and/or Bluetooth or, in the case of bi-directional communication, on communications using radio or ultrasound.

5. Device for detecting water leaks in pipelines in accordance with claim 1, where the casing of the device has an essentially spherical configuration, obtained by using two semi-spheres (1-1') that can be coupled and sealed between each other, which are fitted with holes (3) and windows (4) through which connections are made (7-8) with the hydrophone, determinants of receptor media of the sound occurring in the water.

6. Device for detecting water leaks in pipelines in accordance with claim 1, which includes a start up system through which the device starts to monitor the time it has been travelling along the inside of the pipeline.

7. Device for detecting water leaks in pipelines in accordance with claim 1, where the casing includes numerous peripheral grooves into which the related joints are inserted (33). They determine the adhesive elements that facilitate rolling in the event of a possible jam.

8. Device for detecting water leaks in pipelines in accordance with claim 1, which includes an accessory for the insertion of the device into the pipeline that is comprised of a rod (16) of a suited size to be inserted through the access valve (17) to the pipeline (15) to be monitored, associated with a lower plate (21) that has an O-ring and a flexible metal sleeve (21) on which the device is fitted. It may optionally include a flow meter.

9. Device for detecting water leaks in pipelines in accordance with claim 1, which includes an accessory for the removal of the device from the pipeline, which is comprised of a rod (16'), of a suited size to be inserted through the access valve (17) to the pipeline (15), associated to a net (18) intended to receive the device, an O-ring, a metal sleeve and a couple of flexible plates (22) to which the net is attached (18), fitted with electronic equipment (23) including a camera, an arrival detector of the device and a flow meter.

10. Procedure for detecting water leaks in pipelines, which consists of the emission/receipt of acoustic signals by mechanical or electromechanical means within the pipeline, all along its length. These signals are recorded together with the time stamp of the exact time at which they occurred. These signals are analysed and interpreted to detect possible anomalies relating to potential water leaks, so that, based on the time elapsed and the water flow circulating through the inside of the pipeline and that is known, one obtains the exact distance of each of the detected anomalies.