Mechatronic system for pipe maintenance

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Invention

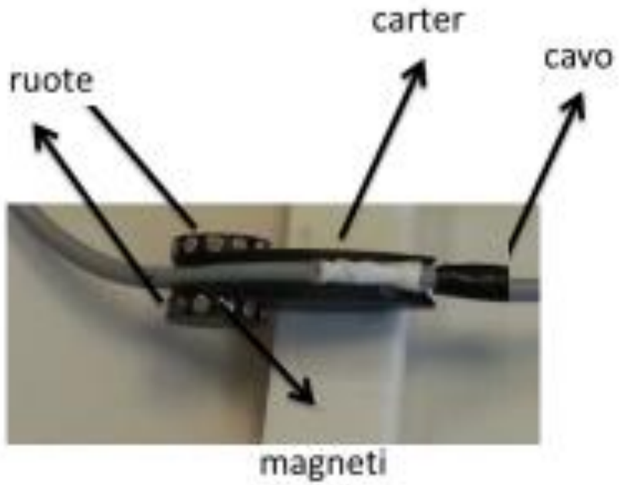
The inspection, maintenance and interruption of supply in pipes by flexible, adaptable and stress-resistant tools due to confined environments is a known problem for companies that deal with the provision of services such as gas and liquid supply . This solution is a device with magnetic grip locomotion and a unit for releasing the clog via remote control. The inspection and maintenance of pipes is difficult due to the inaccessibility of some portions of the supply line, especially when it is necessary to interrupt the line in case of direct inaccessibility to the pipes. Known technologies are able to inspect and monitor, but not to carry out maintenance of the pipeline and / or interruption of supply. The invention, on the other hand, proposes a mechatronic system suitable for remote, teleoperated or autonomous navigation within the pipes. The system is particularly reliable as it can respond even to sudden changes in direction, section, or in the presence of rough walls or with strong inclinations. The device is particularly suitable for ferromagnetic conduits as it has a magnetic head wheel moved by a suitable motor and subsequent modules in series, always with magnetic traction.

The main advantages are:

- Shooting system able to occlude the line remotely
- Reliability, flexibility, reduced size and weight
- Recovery of the device after use
- Costs compatible with the type of application.
- Energy efficiency
- High transport load (for occlusion)
- Video system

ITALGAS is a co-owner of the patent.

Drawings
& pictures



Industrial applications

The main applications are:

- Pipes for the distribution of methane gas
- Inspection and monitoring of pipes
- Maintenance and interruption of pipelines
- Inspection and monitoring of hostile or difficult to reach environments

Possible developments

The research group is interested in obtaining industrial collaborations aimed at increasing the technological maturity of the present invention or industrial partners interested in taking the license of the technology object of this patent.

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