

# Granted Patents



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PATENT NO. 129774 / 2018

## MUNICIPAL WASTE COLLECTION PLANT



The invention refers to a household waste collection plant in public spaces and in the vicinity of housing. The installation consists of a support frame structure for several containers that can be ordered underground. In the above-ground shifts with openings or flap, access to containers is provided. The structure of the support frame is balanced by two lateral counterweights with the role of easing the lifting and lowering of the structure with containers, making it a central mechanical screw-nut system from a gear motor Portable alternating current have been continuously available at the operator. Each container is stapler to refer the filling state to gravimetric and transmit signals to a GSM communicator in connection with the computer server in the sanitation company's premises to rationalise the download site of containers with Waste. The plant for the collection of municipal waste according to the invention, presents the following advantages:

- presents a simple and inexpensive construction that can be ordered in an underground cavity;
- minimise possible pollution due to the collected residues and aesthetic pollution in the vicinity of public spaces;
- It is easy to handle for emptying and repositioning either by electro-mechanical actuation due to the weight balancing of the container's underlying structure;
- Allows the identification of the filling state of containers allowing rationalisation of operations related to use;

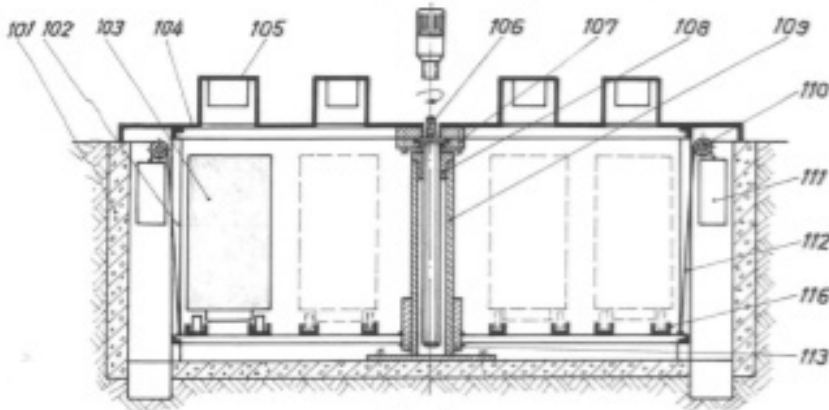
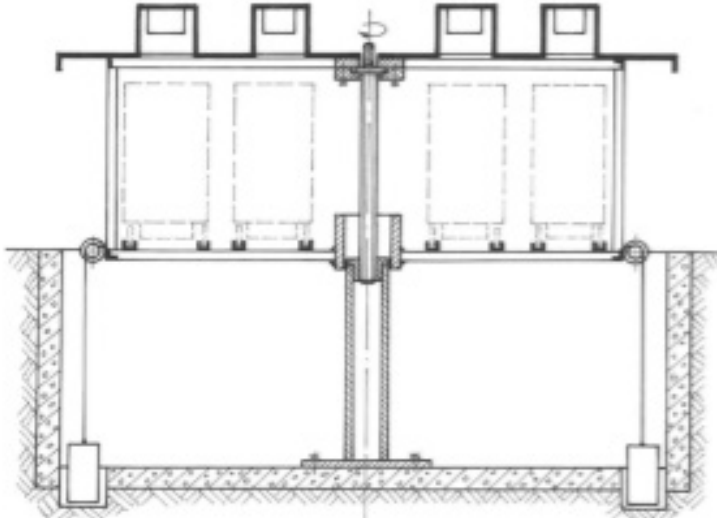


Fig. 1

A-A (deschis)



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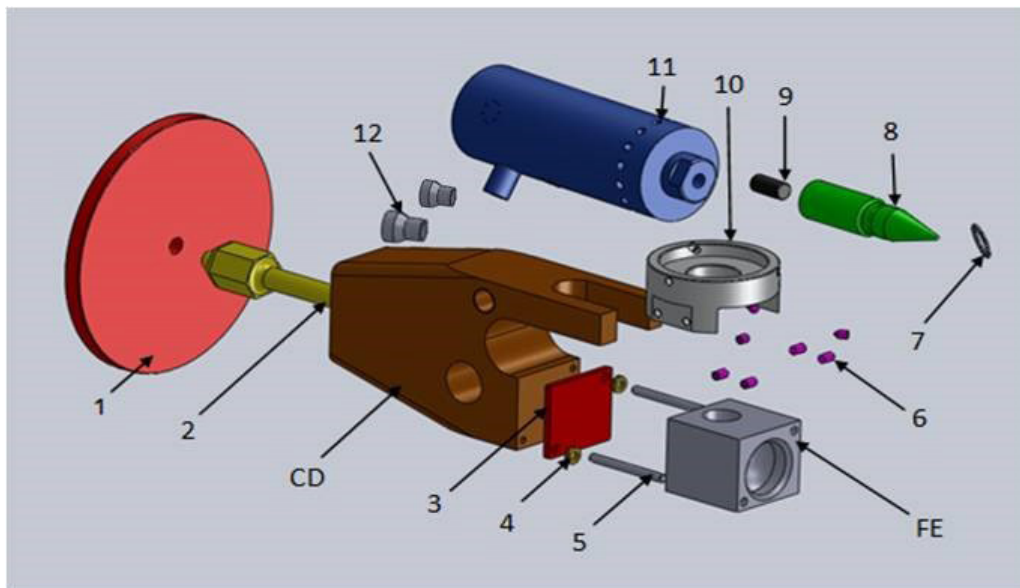
PATENT NO. 130336 / 2018

## ULTRASONIC DEVICE FOR EVALUATION OF THE MELT FLOW OF POLYMERIC AND COMPOSITES MATERIALS



The invention relates to an ultrasonic device used for the evaluation of the melt flow of polymeric and composite materials, which can be used in academic, research and development areas, as well as in the chemical industry, in the manufacturing industry of polymeric materials and composites, in order to evaluate the flowing process due to the beneficial effects of the micro-vibrations with ultrasonic frequency, respectively the increase of the flow rate and reduction of the processing flaws. The ultrasonic device is built in a compact manner and can be easily positioned and fitted on classical processing equipment for polymeric materials by injection or extrusion.





According to the invention, the ultrasonic device for the evaluation of the melt flow rating of polymeric and composite materials is composed of an ultrasonic assembly (AU), which includes a piezoceramic transducer (11), a cone-headed cylindrical sonotrode (8), in steps, the fitting (9) and the heat-resistant silicone rubber ring (7) which seals and centres the ultrasonic assembly (AU) relative to the extrusion dies (FE). Positioning, fixing and adjusting of the ultrasonic assembly (AU) in the device's body (CD) and in relation to the extrusion dies (FE), which provides also the technological parameter "flow gap - i", is realized either by positioning the holder (10) in relation to the device's body (CD), using a set of feeler gauge of different thickness or by using the screw-nut mechanism, fine-pitched, located in the assembly area of the support (10) and the piezoceramic transducer (11).

In both cases, the mounting of the adjusted position is realized with threaded bolts (6). The positioning and fixing of the ultrasonic device

between the plates (fixed and mobile) of the injection or extrusion classic equipment of the polymeric materials or polymer composite melt is realized through the screw-nut mechanism (1 and 2) and the reducing or even eliminating the heat transfer between the device body (R) and the extrusion dies (FE) is carried out by using a thermal insulation textolit (3) and two distance plates (4), which are positioned by means of threaded head guides (5), which are fixed on the device's body (CD) in threaded borings.

Also, the ultrasonic device is equipped with an air cooling system (E) on the piezoceramic transducer (11) and on the device's body (CD); the fixation of the cooling system on the device's body (CD) is realized through rapid coupling (12). It is mentioned that there is a possibility of the extrusion dies (FE) to be changed according to the technological requirements (size and shape) of the process. So interchangeability can be done easily, achieving a new product involving minimal costs.