

Device for forming a high-pressure quasi-continuous liquid jet from a low-energy gravity flow comprises: an external source (R1) of a continuous liquid flow with a structurally fixed gravity feed height in the range from 0.65 to 1.5 m; an inclined supply pipeline (1), the first end of which is connected to the said external source (R1) through an angle elbow (19), and the second end through an angle elbow (18) is connected to the inlet of the interrupter valve (2); at least one spring-loaded pulse damper of the shock wave pressure amplitude (17), installed on the supply pipeline (1) and designed to damp pressure fluctuations; a full-flow stopcock (K) for quick flow stoppage, installed on the supply pipeline (1); a check interrupter valve (2), the outlet of which is connected to the horizontal working pipeline (3); a horizontal working pipeline (3) connected to the inlet of the shock check valve (4); a shock check valve (4), the outlet of which is connected to the drain pipeline (5); a drain pipeline (5) connected through an elbow (14) to a hydraulic seal (6) with a constant liquid level, designed to prevent back suction of air; at least one spring-loaded hydraulic pulse damper of the pressure amplitude of a small module (15) and a Laval throttle nozzle (16), designed to completely dissipate the energy of the small pulse module, are sequentially installed on the drain pipeline (5) between the aforementioned elbow (14) and the hydraulic seal (6); a discharge check valve (7), the inlet of which is connected through one or two connecting elbows (8, 13) to the working pipeline (3), and the outlet is connected to the horizontal pressure pipeline (9); horizontal pressure pipeline (9), connected to the inlet of the transit membrane accumulator-stabilizer (10); transit membrane accumulator-stabilizer (10), made in the form of a membrane accumulator with separate gas and liquid chambers, equal in volume with a deviation tolerance of no more than 2%, while the membrane ensures the passage of liquid without accumulation, the liquid chamber is equipped with two separate ports - inlet and outlet, which provides a transit mode of operation, and the gas chamber is made with the possibility of pre-charging with a pressure lower than the calculated pressure of the main pulse module by an amount from 2 to 17 atm; transition pipeline (11), connected to the outlet port of the accumulator-stabilizer (10) and the inlet of the nozzle element (12); nozzle element (12) with a smooth conical transition to the design outlet, equipped with a movable shut-off needle, made with the ability to move under the pressure of the fluid module and return by a spring to adjust the passage gap of the outlet. Moreover, the mentioned elements are made with the ability to multi-stage conversion of the energy of the input flow by initiating water hammers, forming the main discrete module in an increased enthalpy state and further converting the accumulated pressure work and the velocity component of the flow, which together determine the flow mechanical enthalpy of the formed pulse module, into the kinetic energy of the directed jet at the outlet of the nozzle element (12).