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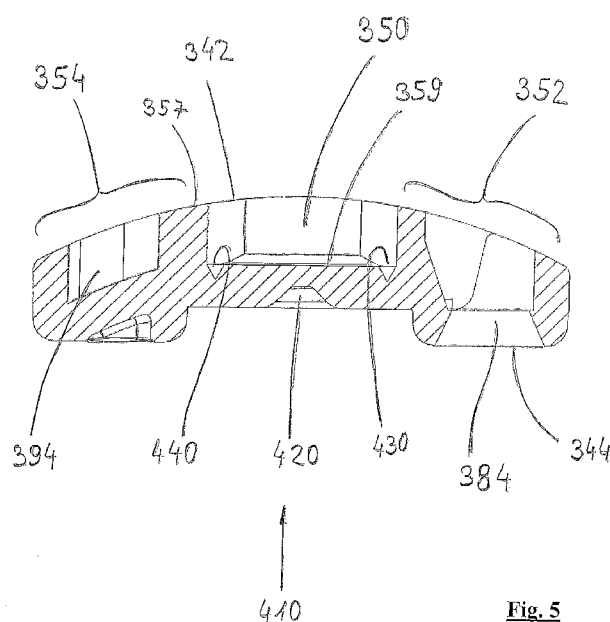
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(54) Title: INTEGRAL DRIP IRRIGATION EMITTER WITH AN EASY SPREADABLE EXIT POOL

**Fig. 5****(57) Abstract:** An integral, discrete, drip irrigation emitter that comprises means for facilitating spreading of its water exit "pool" U configured, in cross section, "legs", so that after affixing the drip emitter onto the inner wall surface of the hose, and following water pressure increase within the hose, an elastic movement of a sector of the hose's wall that is framed and delineated as a consequence of affixing the circumferential rim of the exit pool onto the inner wall of the hose, will take place onto opening a water outlet opening, and from the time the water pressure in the hose decreases, closing of the water outlet opening would occur, and a drip irrigation hose embedding at least one such emitter in it, and a general method for opening and closing water outlet openings in such hose, wherein the opening and closing is performed in accordance with and in correlation to the water pressure prevailing in the hose.

AMENDED CLAIMS
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1. A discrete drip irrigation emitter that is suited to be integrally installed within a hose, that comprises -

a body component wherein on its one side that is suited for affixing onto an inner wall of a hose, is formed with a water exit pool, in a manner that it instills on that drip emitter cross section, a characteristic appearance resembling the letter U, wherein its legs are formed in their ends with an edge that constitutes a part of a circumferential rim of said water exit pool that is suited to be affixed onto an inner wall of said hose, and said legs are connected through a bottom of said water exit pool, and wherein said drip emitter is characterized by that—

it comprises in addition, means for facilitating spreading of said configured U's legs of said exit pool, so that after affixing said drip emitter onto the inner wall surface of said hose, and following water pressure increase within said hose, an elastic movement of the sector of the hose's wall that is framed and delineated – as a consequence of affixing said circumferential rim of the exit pool onto the inner wall of said hose, will take place onto opening a water outlet opening, and from the time the water pressure in the hose decreases, closing of said water outlet opening would occur; and

wherein said water outlet opening is formed as a slit that extends along said sector of the hose's wall; and

wherein -

said means for facilitating spreading the configured U's legs of said exit pool, constitutes at least one cavity whose forming in said body component of the drip emitter causes a decrease of area inertia moment (known as second moment of area, second moment of inertia, area moment of inertia) at said U shaped cross section, in a manner that after affixing said drip emitter onto an inner wall of a hose, and upon increase of water pressure in that hose and loading said drip emitter with forces, the development of stresses within said U resembling cross section, would lead onto an elastic movement as said, of the configured U's legs, and thus to pulling said hose's

wall sector that was framed and delineated by said circumferential rim of the water exit pool, at its width dimension, on its two sides, in a manner that would cause said slit opening for water passage outwards.

2. (Cancelled)

3. (Cancelled)

4. A drip irrigation emitter in accordance with claim 1, wherein -

said means for facilitating spreading the legs of said U configuration of said exit pool, is an array of cavities that comprises -

a slit that is formed on said drip emitter side that from an instant of affixing it onto said hose, is turned toward said hose's inside, and wherein said slit extends along at least a substantial part of said body component, and amongst it at least under the location of said exit pool's bottom; and

a pair of slits that are formed at the bottom of said exit pool, wherein they extend on its two sides, close to and in parallel in their direction to said exit pool walls that constitute said legs of the configured U and along at least a substantial part of said exit pool.

5. A drip irrigation emitter in accordance with claim 4, wherein -

this drip emitter is a mono-component drip emitter that does not provide for pressure regulation and its body component, on its one side that is suited to being affixed onto an inner wall of a hose, is formed with filtering means and with means for reducing the water pressure; and

with a water flow passage that connects to a water passage of filtered water from said filtering means to one end of said water pressure reducing means, and

with a water exit opening that connects to a water passage of filtered water whose pressure was reduced, form a second end of said water pressure reducing means to said water exit pool; and

wherein said exit pool is formed extended in its dimensions while it extends along substantially the entire length of said body component, and wherein on its one side along its entire length and parallel to it, extends said filtering means and constitutes a part of one leg of said U configuration, and on its other side extends said water pressure reducing means and constitutes a part of a second leg of said U configuration; and

said flow passage is formed wherein it extends on a one end of said body component and across its width, and said water exit opening is formed on a second end of said body component.

6. A drip irrigation emitter in accordance with claim 5, wherein said forming of said exit pool is extended in its dimensions and substantially extends along an entire length of said body component, defines a lengthwise axis wherein said filtering means and said water pressure reducing means are formed symmetrically in relation to it.

7. A drip irrigation emitter in accordance with claim 6, wherein -

said slit that is formed on a side of said drip emitter that from an instant of its being affixed onto a hose, is turned towards said hose's inside, extends along said lengthwise axis; and

wherein said pair of slits that are formed at said exit pool's bottom, are formed symmetrically in relation to said lengthwise axis.

8. (Cancelled)

9. A drip irrigation emitter in accordance with claim 1, wherein -

said means for facilitating spreading the configured U's legs of said exit pool comprises in addition, also manufacturing of the drip emitter from a relatively soft raw material.

10. A drip irrigation emitter in accordance with claim 1, wherein -

said means for facilitating spreading the configured U's legs of said exit pool comprises in addition, also the manufacturing of the drip emitter from a relatively soft raw material.

11. A drip irrigation emitter in accordance with claim 1 wherein said body component is of an essentially rectangular "boat" like configuration.
12. A drip irrigation emitter in accordance with claim 1 wherein the emitter is a pressure compensating type of emitter comprising in addition, a cover member and an elastomeric member adapted to being assembled between said body component and said cover member.
13. A drip irrigation emitter in accordance with claim 12 wherein -
said means for facilitating spreading the configured U's legs of said exit pool comprises in addition, also manufacturing of at least said body component from a relatively soft raw material.
14. An integral drip irrigation hose wherein there is embedded in it at least one discrete drip emitter in accordance with claim 1.
15. An integral drip irrigation hose in accordance with claim 14, wherein the water outlet opening that is formed at a wall of the hose opposite said exit pool and within its boundaries, is in a configuration of at least one thin and elongated slit that extends in its direction parallel to the walls of said exit pool that constitute said U configuration's legs and is located between them.
16. A method for opening and closing water outlet openings of an integral drip irrigation hose in which at least one discrete drip emitter there is integrated and wherein said opening and closing is performed in accordance with and correlation to the water pressure prevailing in the hose, and the method comprises the steps of -
providing an integral drip irrigation hose in which there is integrated at least one drip emitter that comprises –

- a. a body component wherein on its one side that is suited to be affixed onto the inner wall of the hose, an exit "pool" is formed in a manner that instills on the cross section of the drip emitter a characteristic appearance resembling the letter U, wherein its legs are formed at their ends with an edge that constitutes part of a circumferential rim of the exit "pool" that is suited to be affixed onto the inner wall of the hose, and these legs are connected through the bottom of said exit "pool"; and
- b. a water outlet opening that is formed as a slit that extends along said sector of the hose's wall in a sector of the hose's wall that is framed and delineated by the circumferential rim of the water exit "pool", and is amenable to be opened upon pulling of the sector by its width dimension, on its two sides, and to be closed from the instant the pulling is stopped; and
- c. means for facilitating spreading the configured U's legs of said exit pool, that constitutes at least one cavity whose forming in said body component of the drip emitter causes a decrease of area inertia moment (known as second moment of area, second moment of inertia, area moment of inertia) at said U shaped cross section, in a manner that after affixing said drip emitter onto an inner wall of a hose, and upon increase of water pressure in that hose and loading said drip emitter with forces, the development of stresses within said U resembling cross section, would lead onto an elastic movement as said, of the configured U's legs, and thus to pulling said hose's wall sector that was framed and delineated by said circumferential rim of the water exit pool, at its width dimension, on its two sides, in a manner that would cause said slit opening for water passage outwards; and
- spreading the legs of the U configured profile of the exit "pool", as the water pressure in the hose increases and loads the drip emitter with forces, while developing stresses in the U shaped cross section in a manner that leads to elastic movements, as said, of the legs of the U configuration and thus to pulling the sector of the hose's wall that was framed and delineated by the circumferential rim of the water exit "pool", in its width dimension, on its two sides.