



# PatentabilityCheck

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## Preliminary Patentability Assessment

Report date: July 12, 2026

Reference number: PC-000004

## 1. Overview of the Invention as Understood

The invention is a modular self-watering outdoor planter system designed to operate entirely without pumps, drippers, timers, or electronics. Each module is formed as a double-wall shell, and the space between the walls serves as an internal rainwater reservoir. A gutter-like channel running along the outer rim of the module captures rainfall and directs it through a mesh debris filter into the between-wall reservoir, so that each planter harvests and stores its own irrigation water. Water reaches the plant roots passively through removable braided capillary wicks made of recycled polyester. Each wick passes through a sealed grommet from the bottom of the reservoir into the soil, and the overall watering rate is tuned simply by installing more or fewer wicks, providing a mechanical, user-adjustable substitute for drippers or metering hardware. When a module's reservoir fills to capacity, a float valve opens an overflow port that feeds the next planter in the row. A connected chain of modules therefore fills sequentially, and excess water is passed downstream rather than spilled. The modules are joined by a twist-lock collar that performs two functions at once: it aligns the overflow port of one module with the inlet of the next, and it mechanically stiffens the assembled row. Serviceability features include a transparent sight tube for at-a-glance reservoir level indication, a base drain plug for winterization, and wicks that can be pulled out through their grommets for cleaning or replacement. Taken together, the invention combines rainwater harvesting, tunable passive capillary irrigation, and a float-valve-gated cascade interconnection into a single modular planter architecture.

## 2. Patent Classifications

| Type            | Code        | Title                                                                                                 |
|-----------------|-------------|-------------------------------------------------------------------------------------------------------|
| CPC (primary)   | A01G 27/04  | Self-acting watering devices, e.g. for flower-pots, using wicks or the like                           |
| CPC (secondary) | A01G 27/003 | Controlling the watering with regard to the level of the water in the reservoir, e.g. by float valves |
| CPC (secondary) | A01G 27/006 | Reservoirs, separate from plant-pots, dispensing directly into rooting medium                         |
| CPC (secondary) | A01G 9/02   | Receptacles, e.g. flower-pots or boxes; Glasses for cultivating flowers                               |

|                    |               |                                                                                                  |
|--------------------|---------------|--------------------------------------------------------------------------------------------------|
| CPC<br>(secondary) | E03B 3/02     | Methods or installations for obtaining or collecting drinking water or tap water from rain-water |
| CPC<br>(secondary) | A01G<br>9/023 | Multi-tiered planters / receptacles arranged side by side or connected together                  |
| IPC equivalent     | A01G<br>27/04 |                                                                                                  |
| IPC equivalent     | A01G<br>27/00 |                                                                                                  |
| IPC equivalent     | A01G 9/02     |                                                                                                  |
| IPC equivalent     | E03B 3/02     |                                                                                                  |

### 3. Exemplary Search Keywords and Keyphrases

The following concept blocks were combined during the search (terms within a block are alternatives; blocks are combined with each other):

**Self-watering planter with capillary wick irrigation:** self-watering planter; self-watering pot; sub-irrigation container; capillary wick; wicking irrigation; capillary irrigation; passive irrigation; wick watering; capillary mat; braided wick; polyester wick; double-wall reservoir planter; hollow wall reservoir; integrated water reservoir pot

**Rainwater harvesting and filtration integrated into planter:** rainwater harvesting; rainwater collection; rain collector rim; gutter channel; rim channel; catchment channel; rainwater funnel; debris filter; mesh filter; leaf screen; rainwater inlet strainer; rain-fed reservoir

**Modular sequential-fill overflow between connected modules:** sequential fill; cascade fill; overflow port; overflow outlet; daisy-chain reservoirs; interconnected planters; series-connected containers; float valve; float-actuated valve; level-controlled valve; downstream module; fluid interconnection between modules; overflow to adjacent container

**Twist-lock mechanical interconnection with port alignment:** twist-lock collar; bayonet coupling; quarter-turn lock; interlocking modules; modular coupling; port alignment; aligned inlet and outlet; mechanical interconnection; stiffening connector; planter connector; snap-lock joint; module-to-module coupling

**Adjustable watering rate by wick count and serviceability:** adjustable watering rate; tunable water delivery; variable number of wicks; removable wick; replaceable wick; sealed grommet; wick grommet; flow rate adjustment without pump; no electronics irrigation; sight tube; water level indicator; level gauge; drain plug; winterization drain

## 4. Search Results

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The following references were identified, reviewed, and verified against the source patent databases. Each publication number links to its Google Patents page.

**1. WO2025177296A1, SELF-WATERING SMARTPOT MADE OF RECYCLED WASTE, PATEL ASIM [IN], 2025-08-28**

Discloses a self-watering smartpot made of recycled waste with a plastic container having water overflow holes, a bottom water reservoir, an inner porous felt bag, a plurality of wicks attached to the bag bottom that dip into the reservoir, and a funnel positioned between the plastic container and the porous felt bag.

Pertinence: It teaches passive wick-based watering from an internal reservoir using multiple wicks and recycled materials, closely paralleling the invention's multi-wick capillary delivery from a reservoir.

**2. CN211228700U, Vertical greening composite device for rainwater collection and utilization, UNIV NANJING FORESTRY, 2020-08-11**

Discloses a vertical greening device with an annular barrel storing roof rainwater in a central area, a filter screen at the upper part to keep out debris, an overflow port to drain water above a design level, a bottom drainage port for maintenance, and cotton threads that connect the storage area to the planting area by capillary action.

Pertinence: It combines rainwater harvesting with a debris filter, an overflow port, a maintenance drain, and capillary-thread irrigation, matching several of the invention's core features.

**3. CN210445181U, Tray, TIBET JUNFU ENV RECOVERY CO LTD, 2020-05-05**

Discloses a planting tray with an arc-shaped cover acting as a water diversion surface directing rainwater into a water collection container, with capillary water outlet strips that slowly release water and whose distance to plant roots can be adjusted.

Pertinence: It shows integrated rainwater collection feeding passive capillary-strip irrigation in a planter, pertinent to the rain-fed reservoir and wick delivery concepts.

**4. DE202025001664U1, Modulares kapillares Bewässerungssystem für Pflanzentöpfe mit integrierter Verteilerplatte und anschließbaren Wasserreservoir, 2AIM GMBH [DE], 2025-11-19**

Discloses a modular capillary irrigation system for plant pots comprising connectable water reservoirs, connecting hoses, and a base plate with standardized connections enabling tool-free joining of multiple plate modules and insertion and exchange of capillary tubes.

Pertinence: It is pertinent to the invention's modular interconnection of reservoir units and the use of replaceable capillary elements for passive watering.

**5. WO2026089609A1, MODULAR GREEN WALL SYSTEM, BLUE INNOVATIONS B V [NL], 2026-04-30**

Discloses a modular green wall system in which each module has a water reservoir, a plant holding compartment, and a capillary watering system using a wick or rope of hollow fibres extending from the bottom of the reservoir into the plant compartment.

Pertinence: It teaches modular planter units each with an internal reservoir irrigated passively by capillary wicks, closely related to the invention's per-module reservoir-and-wick architecture.

**6. US12532821B1, Adjustable dual capillary wick plant irrigation system with water level management, BETANCOURT OMAR PERFECTO [US], 2026-01-27**

Discloses a plant irrigation system with a water reservoir and a dual capillary wick arrangement in which the vertical position of a delivery conduit outlet is adjustable to let the user control the water delivery rate, plus a second wick for excess-water removal and aeration.

Pertinence: It is pertinent as prior art on user-tunable passive wick irrigation rate from a reservoir, although the adjustment is by hydrostatic head rather than by varying the number of wicks.

**7. US20230063223A1, Carbon neutral groundwater and rainwater dual irrigation system, WANG BILL BAOXUN [US], 2023-03-02**

Discloses a dual irrigation system including a rainwater collection subsystem with trays, a storage tank, hollow fiber membrane filtration, and capillary irrigation, alongside a groundwater capillary extraction subsystem, with solar-powered moisture-based control.

Pertinence: It is pertinent to the combination of rainwater collection, filtration, storage, and capillary irrigation, though it uses powered and sensor-based components the invention avoids.

**8. CN110886341A, Integrated rainwater flower box, KUNSHAN CITY CONSTRUCTION INVEST & DEVELOPMENT GROUP CO LTD, 2020-03-17**

Discloses an integrated rainwater flower box with a rainwater treatment/collection box communicating with a rain downpipe, layered filter media, a water retention layer connected by a water level communication pipe to a capillary planting bed box containing capillary perforated drainage pipes.

Pertinence: It shows a planter box that harvests and filters rainwater into a retention reservoir feeding a capillary irrigation bed, pertinent to the invention's rain-fed reservoir with filtered inlet and passive delivery.

**9. CN109315184A, Watering-free automatic water storage flower box, SICHUAN OUPENGYING CITY FURNITURE CO LTD, 2019-02-12**

Discloses a watering-free flower box whose interior is divided by a partition into an upper soil area and lower water storage area, with water collecting tanks at the side corners that store rain and feed an inner water container via diversion pipes, and multiple capillary pipes extending from the container into the soil.

Pertinence: It is pertinent because it combines rainwater capture at the planter's periphery, an internal storage reservoir, and multiple passive capillary conduits into the soil, similar to the invention's rim-channel harvesting and multi-wick delivery.

**10. US20260068829A1, MODULAR SELF-WATERING PLANTER SYSTEM, LAMBDIN BRANDON NATHAN TYLER [US], 2026-03-12**

Discloses a vertically stacked flood-and-drain growing system in which chambers are arranged in sequence and water from an upper reservoir flows chamber-to-chamber via siphons having a larger upflow opening and smaller outflow opening to regulate water movement, with a removable plug at each siphon apex for cleaning and maintenance.

Pertinence: It is pertinent to the invention's sequential-fill cascade between connected planter modules, though it uses siphons in a vertical stack rather than float-valve overflows in a row.

**11. WO2025056958A1, A PLANTER OR POT IRRIGATION SYSTEM AND USE THEREOF, SPIRO DANIEL S [US], 2025-03-20**

Discloses a planter irrigation system with a fluid tank embedded in plant bedding, irrigation stakes and spikes mounted to the tank walls, and a continuous wick originating inside the tank and extending through the stake to a fluid outlet to convey water to the root base by capillary action.

Pertinence: It is pertinent to passive capillary-wick delivery of water from an in-planter reservoir through defined penetrations to the root zone.

**12. CN120814472A, Flower box water bag, flower box and construction method, JINAN DAMINGHU GARDEN ENG CO LTD, 2025-10-21**

Discloses a flower box water bag with a bottom water outlet connected via a pipe to a perforated soaking pipe containing a water-absorbing rope, so that water absorbed by the rope seeps through the soaking holes into the soil.

Pertinence: It is pertinent as an in-planter reservoir delivering water passively to soil through an absorbent rope, analogous to the invention's wick delivery from a reservoir.

**13. US12433210B1, Self-watering system, EBNER SUHAIL [GB], 2025-10-07**

Discloses a self-watering planter divided by a partition wall into an upper growing medium container and a lower liquid reservoir, with a liquid movement device (a hollow body with rock wool/bryophyte and permeable material) passing through an aperture to move liquid by hydrostatic pressure and capillary action, plus aeration apertures.

Pertinence: It is pertinent to a two-chamber planter with a bottom reservoir and a passive capillary element passing through a defined aperture into the growing medium.

**14. CN213427531U, Rainwater collection capillary penetration irrigation system, SUZHOU NEW DISTRICT ARCHITECTURAL DESIGN & RES INSTITUTE CO LTD, 2021-06-15**

Discloses a rainwater collection capillary permeation irrigation system with a rainwater collection device, collection pool, and a porous water guide pipe filled with absorbent fibers and having distributed water outlet holes, operating as a passive irrigation system without electric power.

Pertinence: It is pertinent to passive, pump-free irrigation of plants from harvested rainwater via fibrous capillary conduits, matching the invention's rain-fed passive watering approach.

**15. US20160066522A1, Demand Driven Self-Watering Planter, WALKER II JAMES FELIX [US], 2016-03-10**

Discloses a self-watering planter insert whose partitioning element divides a container into a soil portion and a liquid reservoir, with an overflow outlet through the container sidewall and a fill pipe extending from the rim down to the reservoir.

Pertinence: It is pertinent to sub-irrigated planter reservoirs with a sidewall overflow outlet, related to the invention's overflow port concept, though without a float valve or downstream module.

**16. CN121336684A, Garden rainwater collection drip irrigation device, LANGFANG GARDEN GREENING AFFAIRS CENTER, 2026-01-16**

Discloses a garden rainwater collection drip irrigation device with a storage tank having a filter-screened water collection port, and a drip irrigation assembly with branch pipes whose drip holes are threaded with capillary ropes, controlled by an electromagnetic valve and a pumping mechanism.

Pertinence: It is pertinent to rainwater capture through a mesh filter into a reservoir combined with capillary-rope water delivery, although it employs pumps and valves the invention avoids.

**17. CN116711625A, Desert area water collection irrigation device, GANSU DESERT CONTROL RES INST, 2023-09-08**

Discloses a desert water-collection irrigation device with a buried planting box above a water tank, a water-absorbing cloth and rope drawing water from the tank, and a rainwater collecting plate with an inverted-cone groove and permeable holes feeding the system.

Pertinence: It is pertinent to shaped rain-collecting surfaces feeding a below-plant reservoir that irrigates passively via an absorbent rope.

**18. CN215302051U, Roof automatic backwater irrigation device, SUZHOU GOLD MANTIS GREEN LANDSCAPE LTD CO, 2021-12-28**

Discloses a roof irrigation device with capillary pipelines and a rainwater drainage mechanism comprising a rainwater collecting box and a water level floating ball connected by a rod that blocks a drainage opening, releasing water depending on level.

Pertinence: It is pertinent to using a float element to open or block a water outlet based on reservoir level, related to the invention's float-valve-controlled overflow port.

**19. US20250194476A1, SELF-WATERING SYSTEM AND METHOD FOR GROWING PLANTS, TANGUAY ATLAS [US], 2025-06-19**

Discloses a modular self-watering system for potted plants with a water reservoir sealed by upper and lower lids creating a vacuum, a base unit, and a water transfer member in fluid communication with the reservoir that delivers water into the soil.

Pertinence: It is pertinent as a modular passive self-watering reservoir system delivering water to soil via a transfer member, though its vacuum-based regulation differs from the invention's wick-count tuning.



**20. CN121816979A, Vertical greening device for building space, WUXI URBAN DESIGN INST CO LTD, 2026-04-10**

Discloses a vertical greening device whose planting groove is divided by a water stop plate into a planting cavity and a drainage cavity, with a drainage float block coupled to a lifting slider containing a drain hole, so that drainage is controlled by the float's position in the drainage cavity.

Pertinence: It is pertinent to float-actuated, water-level-dependent drainage from a planter compartment, analogous in function to the invention's float valve gating the overflow port.

**21. CN222295239U, Municipal road rainwater collecting device, PENGSEN CONSTRUCTION GROUP CO LTD, 2025-01-03**

Discloses a municipal road rainwater collection device in which a drainage ditch feeds a water collection tank through a filter-screened communicating pipe, with a capillary water conveying column in the tank whose upper end extends into the soil above.

Pertinence: It is pertinent to filtered rainwater collection into a reservoir that passively irrigates overlying soil via a capillary element.

**22. CN209995066U, Drip irrigation system, ZHANG JUNSHAN, 2020-01-31**

Discloses a drip irrigation system with a main water tank and sub-water tank connected by a water guide pipe, tank walls having inlet, exhaust, outlet, and overflow guide pipe connectors on different horizontal planes, achieving capillary drip irrigation and networked drip nodes for intermittent water supply.

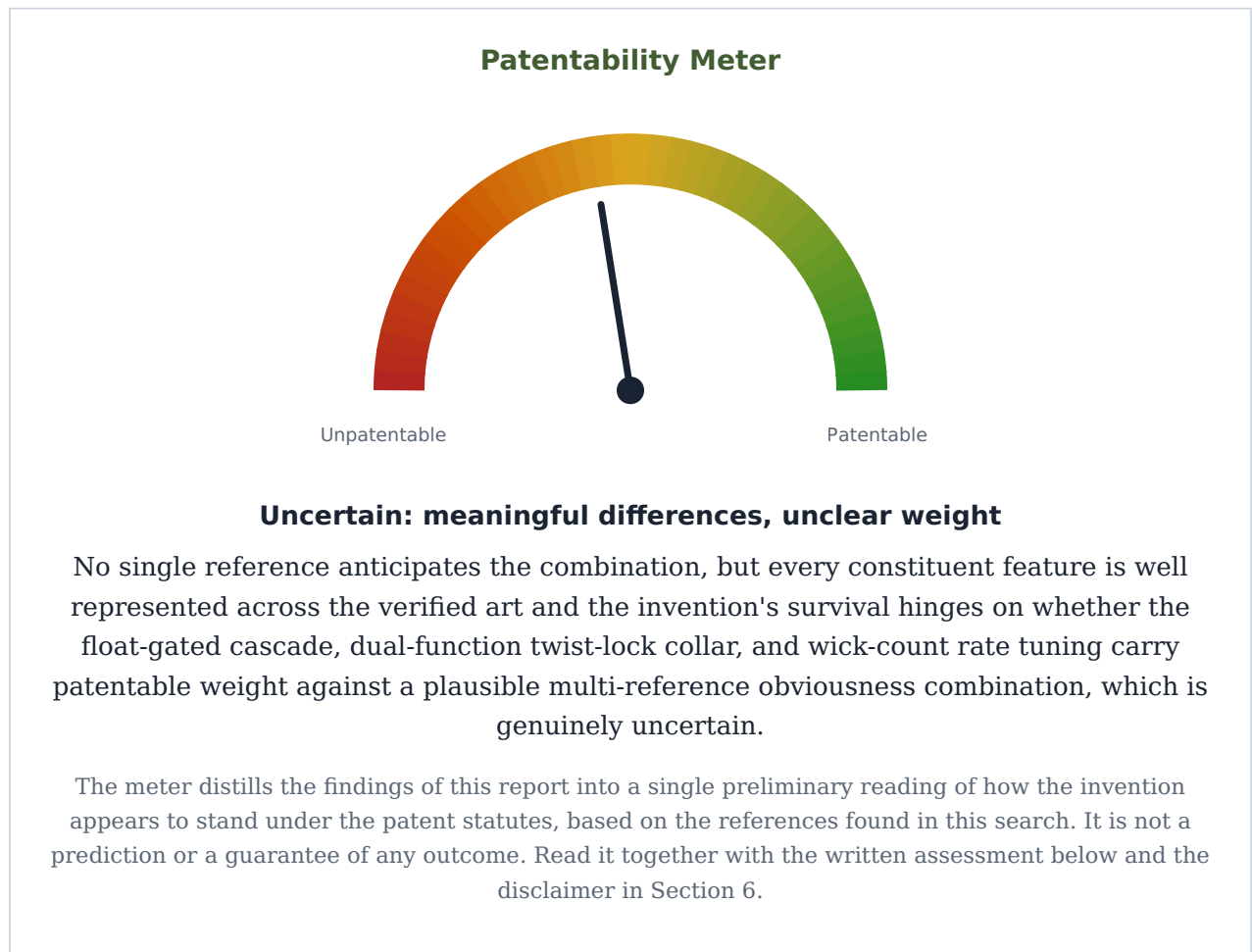
Pertinence: It is pertinent to chaining multiple water tanks with overflow connections at set levels combined with capillary drip delivery, related to the invention's sequential-fill connected reservoirs.

**23. CN101213930A, Vertical plane soilless culture device and plant wall preparation method, RUNYI ZHU [CN], 2008-07-09**

Discloses a vertical-surface soilless culture device whose fixed box has an upper fluid-storage box with a water inlet, a capillary-effect water supply port, and an overflow pipe whose top opening is lower than the supply port, plus a water-discharging hole at the bottom of the body.

Pertinence: It is pertinent to a planting module with an integrated reservoir featuring capillary water supply, an overflow pipe, and a bottom drain, overlapping the invention's reservoir, overflow, and drain features.

## 5. Preliminary Patentability Assessment



### 5.1 Novelty (35 U.S.C. § 102)

Under 35 U.S.C. 102, no single verified reference appears to disclose the complete combination as summarized. Several references disclose substantial portions of the concept. Reference 2, CN211228700U, is among the closest for the harvesting and delivery features: it discloses rainwater storage in a planting device, a filter screen keeping out debris, an overflow port draining water above a design level, a bottom drainage port for maintenance, and cotton threads irrigating by capillary action. However, based on the verified description, Reference 2 does not disclose a modular row of planters, a float valve gating the overflow, a twist-lock interconnection, or tuning the watering rate by varying wick count. Reference 1, WO2025177296A1, discloses a self-watering pot with a bottom reservoir, multiple wicks, recycled materials, and overflow holes, but it is a single pot without rainwater rim harvesting, float-valve cascading, or modular interconnection. Reference 5, WO2026089609A1, discloses

modular units each with a reservoir and capillary wick irrigation, but the verified description does not indicate sequential-fill overflow between modules or a dual-function twist-lock collar. On the cascade feature specifically, Reference 10, US20260068829A1, discloses sequential chamber-to-chamber water flow, but via siphons in a vertical stack rather than float-valve overflows in a horizontal row, and Reference 22, CN209995066U, discloses chained tanks with overflow connections at set levels, but the description does not indicate a float valve or planter-module twist-lock alignment. Reference 18, CN215302051U, and Reference 20, CN121816979A, each disclose float-actuated, level-dependent release of water from a collection or drainage compartment, but neither is described as gating an overflow that feeds a downstream planter module in a connected row. Accordingly, the features that appear to distinguish the invention from each individual reference include, at minimum: the float-valve-gated sequential-fill overflow between horizontally connected planter modules, the twist-lock collar that simultaneously aligns the overflow port with the downstream inlet and stiffens the row, and the tuning of passive irrigation rate by varying the number of removable braided wicks passing through sealed grommets. Reference 6, US12532821B1, teaches user-tunable passive wick delivery, but by adjusting the hydrostatic head of a delivery outlet rather than by wick count, which is a meaningful difference at the level of the verified descriptions. It must be emphasized that this preliminary assessment is based on the verified reference descriptions rather than a full reading of each document's claims and specification, and a definitive novelty analysis requires professional claim-level review of the actual claim language against the complete disclosures of these references.

## **5.2 Obviousness (35 U.S.C. § 103)**

The more significant challenge to this invention is likely to arise under 35 U.S.C. 103, because the constituent features are individually well represented in the verified art and an examiner may attempt to combine them. Passive multi-wick delivery from an internal reservoir is taught by Reference 1, WO2025177296A1, and by Reference 5, WO2026089609A1, with related wick-through-aperture arrangements in Reference 11, WO2025056958A1, Reference 12, CN120814472A, and Reference 13, US12433210B1. Rainwater harvesting into a planter reservoir through a filter, combined with capillary delivery, is taught by Reference 2, CN211228700U, Reference 8, CN110886341A, Reference 9, CN109315184A, and Reference 14, CN213427531U, with Reference 9 notably capturing rain at the planter's periphery via side-corner collecting tanks, which is functionally close to the rim gutter channel. Serviceability features such as an overflow port, a maintenance drain, and a bottom drain also appear in Reference 2 and in Reference 23, CN101213930A. An examiner could plausibly argue that combining a rain-harvesting wick-irrigated planter of the Reference 2 or Reference 9 type with the

modular reservoir interconnection of Reference 4, DE202025001664U1, or Reference 5, WO2026089609A1, and the level-chained overflow of Reference 22, CN209995066U, or the float-actuated release of Reference 18, CN215302051U, or Reference 20, CN121816979A, would yield the claimed system. That said, several features may support nonobviousness arguments because they do not appear in the combinations suggested by the verified descriptions. First, none of the references is described as teaching a float valve that specifically gates an overflow port to a downstream planter module so that a row fills sequentially without spillage; Reference 10, US20260068829A1, achieves sequential flow but by siphons in a vertical flood-and-drain stack, a structurally and functionally different mechanism, and Reference 22 uses fixed-level overflow connectors without float gating. Second, no reference is described as teaching a twist-lock collar that performs the dual function of hydraulically aligning the overflow port with the next module's inlet while mechanically stiffening the assembled row; Reference 4 teaches tool-free standardized connections between modules but via hoses and base plates. Third, tuning the passive delivery rate by the number of installed wicks, each removable through a sealed grommet, is a specific regulation mechanism not described in the art; Reference 6, US12532821B1, teaches rate adjustment by hydrostatic head, and Reference 1 teaches multiple wicks without describing wick count as an adjustable rate parameter. The strength of any obviousness position will depend on whether the claims are drafted to require the interaction of these features, particularly the float-gated cascade combined with the dual-function collar, and on whether a persuasive motivation to combine can be articulated from the cited disclosures. A definitive obviousness analysis requires professional claim-level review against the complete texts of these references and any additional art an examiner may cite.

### **5.3 Subject-Matter Eligibility (35 U.S.C. § 101)**

Subject-matter eligibility under 35 U.S.C. 101 does not appear to present a material risk for this invention. The invention is a physical apparatus: a modular planter with a double-wall shell, a rim gutter channel, a mesh filter, braided wicks, sealed grommets, a float valve, an overflow port, a twist-lock collar, a sight tube, and a drain plug. Claims directed to such a mechanical assembly fall squarely within the statutory category of a machine or manufacture and do not implicate the judicial exceptions for abstract ideas, laws of nature, or natural phenomena in any meaningful way. Applying the Alice/Mayo framework as a formality, Step 1 is satisfied because the claims would be directed to a manufacture or machine. At Step 2A, the claims are not directed to a judicial exception: while capillary action and gravity-driven overflow are natural phenomena in the broad sense, the claims would recite specific structural arrangements that harness those

phenomena (wicks through sealed grommets, a float valve gating an inter-module overflow port, a twist-lock alignment collar), which is the ordinary and eligible use of natural principles in a mechanical device rather than a claim to the principles themselves. No Step 2B inventive-concept analysis should be necessary. The absence of software, data processing, or business-method elements in the invention, and indeed the deliberate absence of any electronics, further reduces eligibility exposure. Care should simply be taken in drafting to claim the structural features and their cooperative arrangement rather than a bare method of moving water by capillarity, and to avoid purely functional claiming untethered from structure. On that basis, eligibility is expected to be a low-risk issue in prosecution before the USPTO and in most foreign jurisdictions.

#### **5.4 Industrial Applicability and Utility**

The invention readily satisfies the utility requirement of 35 U.S.C. 101 and the industrial applicability standard applied in most foreign jurisdictions. The planter system has a specific, substantial, and credible utility: it waters plants passively from harvested rainwater, distributes excess water along a row of connected modules without spillage, and can be maintained and winterized through defined service features. Nothing in the concept relies on speculative science; capillary wicking, float valves, gravity overflow, and mechanical twist-lock connections are all well-established, workable technologies, as confirmed by their presence throughout the verified references. The invention is manufacturable by conventional means, for example rotational molding, injection molding, or blow molding of the double-wall shell, standard textile production of braided recycled polyester wicks, and commodity components for the float valve, grommets, sight tube, and drain plug. It addresses identifiable markets including municipal streetscape and plaza planters, commercial landscaping, green infrastructure and stormwater management programs, and consumer garden products. The use of recycled polyester wicks and the elimination of pumps, timers, and electronics align with sustainability procurement criteria that are increasingly relevant to municipal and commercial buyers. The sequential-fill cascade also has practical value in reducing installation cost for rows of planters, since no plumbing to a central water supply or power source is required. Accordingly, industrial applicability and utility are expected to be uncontroversial in examination, and no special evidentiary showing on this ground should be necessary.

## 6. Disclaimer

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