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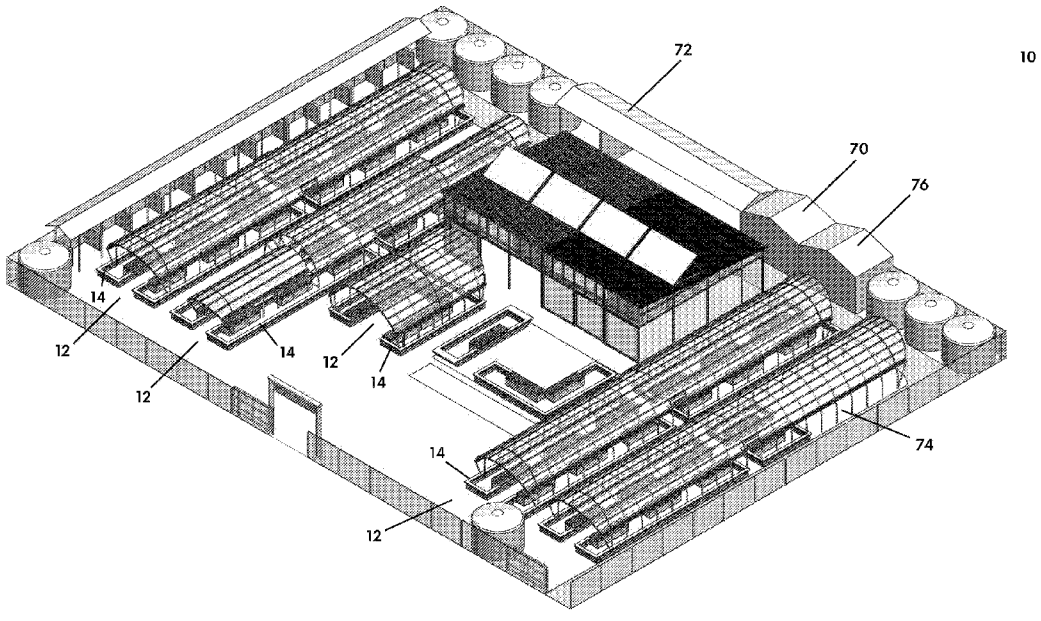

Fig. 1

(57) Abstract: An integrated organic waste composting and edible plant growing facility; the facility including a plurality of garden beds; each garden bed defined by a perimeter structure and at least one composting digesting structure; the composting digesting structure at least partially embedded in soil of the garden bed; the garden bed including an irrigation system delivering harvested rainwater and/or worm juice to soil of the garden bed; a swale system extending substantially the length of the garden bed; wherein a trough of the swale system providing a reservoir moisturising soil of the garden bed.

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INTEGRATED COMPOSTING AND EDIBLE PLANT GROWING FACILITY

TECHNICAL FIELD

[0001] The present invention relates to waste management and reuse and, more particularly although not exclusively, to medium scale community garden and integrated composting facilities.

BACKGROUND

[0002] The management of waste, including organic waste, has become and will continue to be a defining problem for modern society. We have been made more and more aware of the enormous amounts of organic waste which continues to find its way into landfill. Many households which have the space and commitment, have taken up disposing of food and some garden waste in small stand-alone waste composting units, such as that proposed by the current applicant in PCT/AU2018/050785 for example.

[0003] But for many households, in particular those which live in medium density housing and for many other reasons, such a composting arrangement is impossible. Moreover, in the main these small systems are frequently inefficiently managed with little of the compost produced effectively contributing to the production of new food generation.

[0004] It is an object of the present invention to address or at least ameliorate some of the above disadvantages.

Notes

[0005] The term "comprising" (and grammatical variations thereof) is used in this specification in the inclusive sense of "having" or "including", and not in the exclusive sense of "consisting only of".

[0006] The above discussion of the prior art in the Background of the invention, is not an admission that any information discussed therein is citable prior art or part of the common general knowledge of persons skilled in the art in any country.

SUMMARY OF INVENTION

[0007] Accordingly, in a first broad form of the invention, there is provided an integrated organic waste composting and edible plant growing facility; the facility including a plurality of garden beds; each garden bed defined by a perimeter structure and at least one composting digesting structure; the composting digesting structure at least partially embedded in soil of the garden bed; the garden bed including an irrigation system delivering harvested rainwater and/or worm juice to

soil of the garden bed; a swale system extending substantially the length of the garden bed; wherein a trough of the swale system providing a reservoir moisturising soil of the garden bed.

[0008] Preferably, the one or more compost digesting structures are partially buried in soil of the garden bed; a vented section of the compost digesting structure projecting above the soil.

[0009] Preferably, the compost digesting structures are provided with a population of organic waste digesting worms.

[00010] Preferably, partial embedding of the compost digesting structures provides insulation against extremes of both hot and cold temperatures.

[00011] Preferably, holes in sides of the compost digesting structures provide for migration of worms and microbes between the compost digesting structures and soil of the garden bed.

[00012] Preferably, the holes further provide for leaching of nutrients from composting action in the compost digesting structures into the soil of the garden bed.

[00013] Preferably, bases of the compost digesting structures slope to allow worm juice to flow through worm juice outlets to worm juice conduits.

[00014] Preferably, worm juice is led via the conduits to an underground well to be pumped into worm juice tanks.

[00015] Preferably, at least a portion of between 70 and 80% of the area of a garden bed is dedicated to the growing of edible plants.

[00016] Preferably, each garden bed is provided with a below ground irrigation system.

[00017] Preferably, the below ground irrigation system includes a water and/or water and worm juice collection swale system located at the bottom of the garden bed and extending substantially the length of the garden bed.

[00018] Preferably, the swale system comprises a central trough bounded by embankments extending along sides of the trough and around outer ends of the trough.

[00019] Preferably, the trough and embankments are formed of compacted earth or other compactable material.

[00020] Preferably, the swale system is covered with an impervious membrane; the membrane extending down outer slopes towards a toe of each embankment but stops short of the toe of the embankment allowing an overflow of water and/or water and worm juice to dissipate into surrounding soil of the garden bed.

[00021] Preferably, the irrigation system further includes an agricultural pipe extending the length of the garden bed and swale system; the agricultural pipe embedded below the level of the soil of the garden bed and centrally above the trough of the swale system.

[00022] Preferably, water and/or water and worm juice is fed from the worm juice tanks into the agricultural pipe through entry points at ends of the garden beds.

[00023] Preferably, the trough of the swale system acts as a reservoir retaining moisture of soil in the trough; the moisture drawn up by soil above the trough by a wicking process.

[00024] Preferably, a solar powered pumps distribute water to water tanks and/or worm juice to worm juice storage tanks.

[00025] Preferably, sensors measure and monitor conditions of moisture, temperature, soil pH and gasses; data monitored by the sensors fed to a central database of the facility.

[00026] Preferably, the garden beds are arranged along opposite sides of a walkway between the garden beds; the walkway and garden beds covered by a canopy.

[00027] Preferably, covering of the canopy provides ultraviolet (UV) protection to plants in the garden beds.

[00028] Preferably, the canopy acts as a water catchment surface for harvesting rainwater.

[00029] Preferably, rain water collected by the canopy is fed to water tanks of the facility.

[00030] Preferably, at least a portion of the surface of the canopy is provided with photovoltaic panelling feeding a battery bank providing power to systems of the facility.

[00031] Preferably, the facility includes a potting shed and seedling nursery.

[00032] The facility of any previous claim wherein the facility further includes receiving bins for collection of various types of carbon, garden waste, and other forms of compostable materials.

[00033] Preferably, the facility further includes a mulching and biochar processing unit; the unit equipped with mulching machine and biochar kiln.

[00034] In another broad form of the invention, there is provided a method of providing an integrated facility for the composting of organic waste and the growing of edible plants; the method including:

- forming garden beds within enclosing structures,
- at least partially burying one or more compost digesting structures in each garden bed,
- providing each garden bed with an irrigation system,

wherein the irrigation system includes a swale system comprising a central trough bounded by embankments at a bottom of the garden bed; a water and/or worm juice distributing agricultural pipe embedded in soil of the garden bed centrally above the trough of the swale.

[00035] Preferably, the trough and embankments of the swale system are at least partially covered by a impervious membrane.

[00036] Preferably, water and/or worm juice collecting in the trough of the swale system is drawn up by soil above the swale by a wicking process.

[00037] Preferably, each of the compost digesting structures is provided with a population of organic waste digesting worms.

[00038] Preferably, worm juice is collected from the compost digesting structures for use in the irrigation system.

[00039] In still another broad form of the invention, there is provided a garden bed of an integrated facility for composting of organic waste and growing edible plants; the garden bed including an embedded compost digesting structure and an area for growing the edible plants; the garden bed further including an irrigation system in which water and/or worm juice is directed to a swale system at the bottom of the garden bed; an embedded agricultural pipe delivering the water and/or worm juice to a trough of the swale system.

[00040] Preferably, the swale system is formed of compacted earth; the trough of the swale system bounded by embankments along opposite sides and around ends of the trough.

[00041] Preferably, the trough and embankments of the swale system are covered in an impervious layer.

[00042] Preferably, the worm juice is provided by a population of organic waste digesting worms; the organic waste digesting worms and nutrients from compost formed in the waste digesting structure migrating through soil of the garden bed.

BRIEF DESCRIPTION OF DRAWINGS

[00043] Embodiments of the present invention will now be described with reference to the accompanying drawings wherein:

[00044] Figure 1 is a perspective view of a preferred integrated composting and edible plant growing facility according to the invention;

[00045] Figure 2 is a plan view of the facility of figure 1;

[00046] Figure 3 shows perspective views of assemblies of garden beds with compost digesting structures of the facility of figures 1 and 2;

[00047] Figure 4 is a cross section end view of the assemblies of figure 3;

[00048] Figure 5 is a cross section end view of a garden bed of the assemblies of figures 3 and 4;

[00049] Figures 6 and 7 are side section and plan views respectively of a garden bed of figure 5;

[00050] Figure 8 shows a further embodiment of the system of the present invention.

DESCRIPTION OF EMBODIMENTS

[00051] With reference to **figures 1 to 3**, an integrated composting and edible plant growing facility **10** comprises a number of structures and features which, in combination, are adapted to

serve multiple users, receiving and processing organic food waste, as well as providing to those users and others in a community, a source of fresh produce.

[00052] Thus **figures 1 to 3** show a number of composting and plant growing assemblies **12**, with garden beds **14** preferably arranged on opposite sides of walkways **16** and covered by a shade providing, UV protecting, canopy **18**. As best seen in **figure 3**, each garden bed **14**, according to a preferred embodiment of the invention, comprises an enclosing structure **20** to form an elongate, rectangular garden bed. The enclosing structure **20** may be constructed of any suitable material, such as hardwood sleepers or other environmentally friendly products. The bottom and sides of the garden bed are moisture proofed by an internal liner **22** (as shown in **figure 5)** of fine mesh geofabric to retain organic matter.

[00053] Each enclosing structure **20** of a garden bed **14** contains one or more compost digesting structures **24** for composting food waste, preferably divided in sections to form compost receiving bins **28**. Preferably, some 20 to 30% of the area of the garden bed **14** is taken up with the compost digesting structures **24**, leaving the remaining area free for the growing of edible plants.

[00054] Each compost digesting structure **24** is at least partially buried in the soil (as seen in **figure 5**) retained in the garden bed **14**, leaving only a vented section **30** above the surface of the soil, screened against vermin entry. Each structure **24** moreover is provided with a dense population of organic waste digesting worms.

[00055] Still with reference to **figure 5**, the effect of having the structures **24** buried in the soil of garden bed **14**, except for the projecting ventilation section **30**, is that it provides insulation against extremes of both hot and cold temperatures. As well, this partial embedding allows for the migration of worms and microbes between the structures **24** and the soil of the garden bed, as well as providing for nutrients from the composting action to leach into the remaining soil of the garden bed, through numerous holes **32** provided in the sides of the structures **24** below the surface of the soil in the garden bed.

[00056] Preferably the lids **34** of the structures **24** are formed to provide seating for visitors to the facility as well as work benches for workers tending the plants and infrastructure of the facility.

[00057] A feature of the structures **24** is a system in which liquid worm juice produced by the worms is drawn off through worm juice outlets **36** proximate the base of the structures as seen in **figure 5**. The base **38** of the compost receiving bins **28** slopes towards the outer side of the bins, draining the worm juice to outlets **36**. The juice drawn off is led via conduits **40**, firstly under gravity to a underground sump wells **42** (see **figure 4**) and is then pumped to worm juice reservoirs **44** by solar powered pumps. Collected worm juice is made available for return to the garden beds

through the irrigation system described below, or may be drawn from the tanks for manual application to the garden beds or for sale.

[00058] When the worm juice, preferably diluted with rain water collected within the facility **10**, is harvested, the mixture may be applied as top feed to the soil, by spraying onto the plants or feeding into the irritation system. Conditions in the garden bed **16** and in the compost digesting structures **28** is monitored for moisture, temperature, soil pH and gasses by sensors, with the data collected fed to a central database of the facility **10**.

[00059] Referring now to **figures 4 to 7**, each garden bed **16** is provided with a complex irrigation system **50**. Referring firstly to **figure 6 and 7**, extending substantially the length of each garden bed **14** is an irrigation water/worm juice collection system comprising a swale system **52** located at the bottom of the garden bed. Swale system **52** may be formed of metal or plastic but is preferably of compacted earth, forming a central trough **54** bounded by embankments **56** extending along the sides of the trough and around its outer ends, and covered by an impervious membrane **58**. The impervious membrane **58** extends down the outer slopes of the swale embankments **56** but stops short of the toe to allow any excess fluid overflowing from the trough **54** to dissipate into the surrounding soil of the garden bed.

[00060] The trough **54** of the swale system **52** acts as a reservoir which accepts water and/or worm juice from a sock flexi agricultural pipe **60**, preferably 50mm in diameter, extending the length of the garden bed and the swale system **52**, embedded below the level of the soil and located centrally above the trough **54** of the swale. The water/ worm juice is fed, either automatically from the worm juice reservoirs **44**, or manually through entry points **62** at leading ends of the garden beds **14**. The pipe **60** may alternatively be connected to a water tap **64** provided at the end of each garden bed. The mini reservoir of the swale system **52** keeps the soil in the swale moist, allowing the soil above to draw up moisture from the swale by a wicking process.

[00061] As shown in **figures 1 to 5**, and as noted above, the garden beds **14** and the walkway **16** between them are covered by a canopy **18**. Preferably, shade material of the canopy blocks some 20% of the UV radiation incident on the garden beds **14**. The canopy is further formed as a rainwater catchment area with rain water collecting gutters **66** arranged along each side. The rainwater collected is fed to a series of rainwater tanks **80** located at various points within the facility **10**. At least some of the surface area of the canopy (as well as surfaces of other structures in the facility) is covered with photovoltaic panelling feeding a battery bank and providing for power for various systems of the facility, including pumping rainwater to the rainwater tanks and/or worm juice into worm juice storage tanks 44 for gravity feed to the irrigation system **32** described above, lighting and other accessories.

[00062] Referring again to **figures 1and 2** the facility **10** preferably includes ancillary elements including a potting shed **70** and a seedling nursery **72**. Also provided is an area **74** for receiving bins for garden waste including leaves, branches and various forms of carbon including coffee grounds, newsprint and other paper for example. Again, the facility **10** may include a mulching and biochar unit **76** for processing and mulching the garden waste into biochar suitable for composting.

[00063] Preferably, a facility **10** such as the example shown in **figures 1 and 2**, may act as a community centre where residents of an area in which the facility is located can meet socially as well as making use of the composting system and picking vegetables for their own use. As such it provides for volunteers who may benefit from shared activity and the experience of planting and growing vegetables.

[00064] Another benefit of the facility of the invention is as an aid to education for children as well as adults, in the characteristics and care of a wide variety of edible plants, and ecology generally. To facilitate these ancillary activities and benefits, the facility **10** includes a structure **78** or shelter which in addition may function as a retail outlet, market or café. Yet a further benefit of the facility **10** is that, with its monitoring of the composting process, soil composition, and food nutrients and production, it forms the infrastructure of a laboratory in which composting methods may be studied and optimised, in order to further optimise soil value and food production, and their nutrient density.

[00065] Preferably, all of the elements of the facility **10** are modular and transportable. Thus, a facility may be rapidly deployed to new urban developments, community gardens, country towns and even roof tops in cities. Facilities according to the invention may also be advantageously deployed to indigenous communities, mining camps, prisons and displacement camps, for example.

Further Embodiment

[00066] Any of the above described embodiments may have an identification and feedback system applied to them as illustrated with reference to figure 8.

[00067] In figure 8, QR codes 210, 211, 212 are applied to individual components such as 14, 20, 22, 24 therby individually identifying these components when scanned by a reader 220. The reader 220 matches the QR codes by reference to a table 221 in a database 222 accessable over the internet 223.

[00068] In preferred forms the reader 220 comprises a mobile digital device such as a smartphone incorporating a processor 226 and a memory 224. The memory 224 stores a program called ‘Application’ which when executed by processor 226 allows a user to obtain information on

a screen 225 on the reader 220 relevant to each component of the system identified by QR codes 210, 211, 212.

INDUSTRIAL APPLICABILITY

[00069] Embodiments of the present invention may be industrially applied in many contexts. For example arrangements such as that are shown in figure 3 may be applied in a school environment to assist in education.

[00070] Similar systems may be applied to benefit communities - for example the system of figure 3 may service a housing cluster.

CLAIMS

1. An integrated organic waste composting and edible plant growing facility; the facility including a plurality of garden beds; each garden bed defined by a perimeter structure and at least one composting digesting structure; the composting digesting structure at least partially embedded in soil of the garden bed; the garden bed including an irrigation system delivering harvested rainwater and/or worm juice to soil of the garden bed; a swale system extending substantially the length of the garden bed; wherein a trough of the swale system providing a reservoir moisturising soil of the garden bed.
2. The facility of claim 1 wherein the one or more compost digesting structures are partially buried in soil of the garden bed; a vented section of the compost digesting structure projecting above the soil.
3. The facility of any one of claims 1 or 2 wherein the compost digesting structures are provided with a population of organic waste digesting worms.
4. The facility of claim 3 wherein partial embedding of the compost digesting structures provides insulation against extremes of both hot and cold temperatures.
5. The facility of claim 4 wherein holes in sides of the compost digesting structures provide for migration of worms and microbes between the compost digesting structures and soil of the garden bed.
6. The facility of claim 4 or 5 wherein the holes further provide for leaching of nutrients from composting action in the compost digesting structures into the soil of the garden bed.
7. The facility of any one of claim 3 to 6 wherein bases of the compost digesting structures slope to allow worm juice to flow through worm juice outlets to worm juice conduits.
8. The facility of claim 7 wherein worm juice is led via the conduits to an underground well to be pumped into worm juice tanks.
9. The facility of claim 5 or 6 wherein at least a portion of between 70 and 80% of the area of a garden bed is dedicated to the growing of edible plants.
10. The facility of any one of claim 1 to 9 wherein each garden bed is provided with a below ground irrigation system.
11. The facility of claim 10 wherein the below ground irrigation system includes a water and/or water and worm juice collection swale system located at the bottom of the garden bed and extending substantially the length of the garden bed.
12. The facility of claim 11 wherein the swale system comprises a central trough bounded by embankments extending along sides of the trough and around outer ends of the trough.

13. The facility of claim 12 wherein the trough and embankments are formed of compacted earth or other compactable material.
14. The facility of any one of claims 11 to 13 wherein the swale system is covered with an impervious membrane; the membrane extending down outer slopes towards a toe of each embankment but stops short of the toe of the embankment allowing an overflow of water and/or water and worm juice to dissipate into surrounding soil of the garden bed.
15. The facility of any one of claim 11 to 14 wherein the irrigation system further includes an agricultural pipe extending the length of the garden bed and swale system; the agricultural pipe embedded below the level of the soil of the garden bed and centrally above the trough of the swale system.
16. The facility of any one of claims 11 to 15 wherein water and/or water and worm juice is fed from the worm juice tanks into the agricultural pipe through entry points at ends of the garden beds.
17. The facility of any one of claims 11 to 16 wherein the trough of the swale system acts as a reservoir retaining moisture of soil in the trough; the moisture drawn up by soil above the trough by a wicking process.
18. The facility of any one of claims 11 to 17 wherein a solar powered pumps distribute water to water tanks and/or worm juice to worm juice storage tanks.
19. The facility of any previous claim wherein sensors measure and monitor conditions of moisture, temperature, soil pH and gasses; data monitored by the sensors fed to a central database of the facility.
20. The facility of any previous claim wherein the garden beds are arranged along opposite sides of a walkway between the garden beds; the walkway and garden beds covered by a canopy.
21. The facility of claim 20 wherein covering of the canopy provides ultraviolet (UV) protection to plants in the garden beds.
22. The facility of claim 15 wherein the canopy acts as a water catchment surface for harvesting rainwater.
23. The facility of claim 16 wherein rain water collected by the canopy is fed to water tanks of the facility.
24. The facility of any one of claims 15 to 17 wherein at least a portion of the surface of the canopy is provided with photovoltaic panelling feeding a battery bank providing power to systems of the facility.
25. The facility of any previous claim wherein the facility includes a potting shed and seedling nursery.

26. The facility of any previous claim wherein the facility further includes receiving bins for collection of various types of carbon, garden waste, and other forms of compostable materials.
27. The facility of claim 26 wherein the facility further includes a mulching and biochar processing unit; the unit equipped with mulching machine and biochar kiln.
28. A method of providing an integrated facility for the composting of organic waste and the growing of edible plants; the method including:
    - Forming garden beds within enclosing structures,
    - At least partially burying one or more compost digesting structures in each garden bed,
    - Providing each garden bed with an irrigation system,

    wherein the irrigation system includes a swale system comprising a central trough bounded by embankments at a bottom of the garden bed; a water and/or worm juice distributing agricultural pipe embedded in soil of the garden bed centrally above the trough of the swale.

29. The method of claim 28 wherein the trough and embankments of the swale system are at least partially covered by a impervious membrane.
30. The method of claim 28 or 29 wherein water and/or worm juice collecting in the trough of the swale system is drawn up by soil above the swale by a wicking process.
31. The method of claim 28 wherein each of the compost digesting structures is provided with a population of organic waste digesting worms.
32. The method of claim 29 wherein worm juice is collected from the compost digesting structures for use in the irrigation system.
33. A garden bed of an integrated facility for composting of organic waste and growing edible plants; the garden bed including an embedded compost digesting structure and an area for growing the edible plants; the garden bed further including an irrigation system in which water and/or worm juice is directed to a swale system at the bottom of the garden bed; an embedded agricultural pipe delivering the water and/or worm juice to a trough of the swale system.
34. The garden bed of claim 33 wherein the swale system is formed of compacted earth; the trough of the swale system bounded by embankments along opposite sides and around ends of the trough.
35. The garden bed of claim 33 or 44 wherein the trough and embankments of the swale system are covered in an impervious layer.

36. The garden bed of any previous claim wherein the worm juice is provided by a population of organic waste digesting worms; the organic waste digesting worms and nutrients from compost formed in the waste digesting structure migrating through soil of the garden bed.

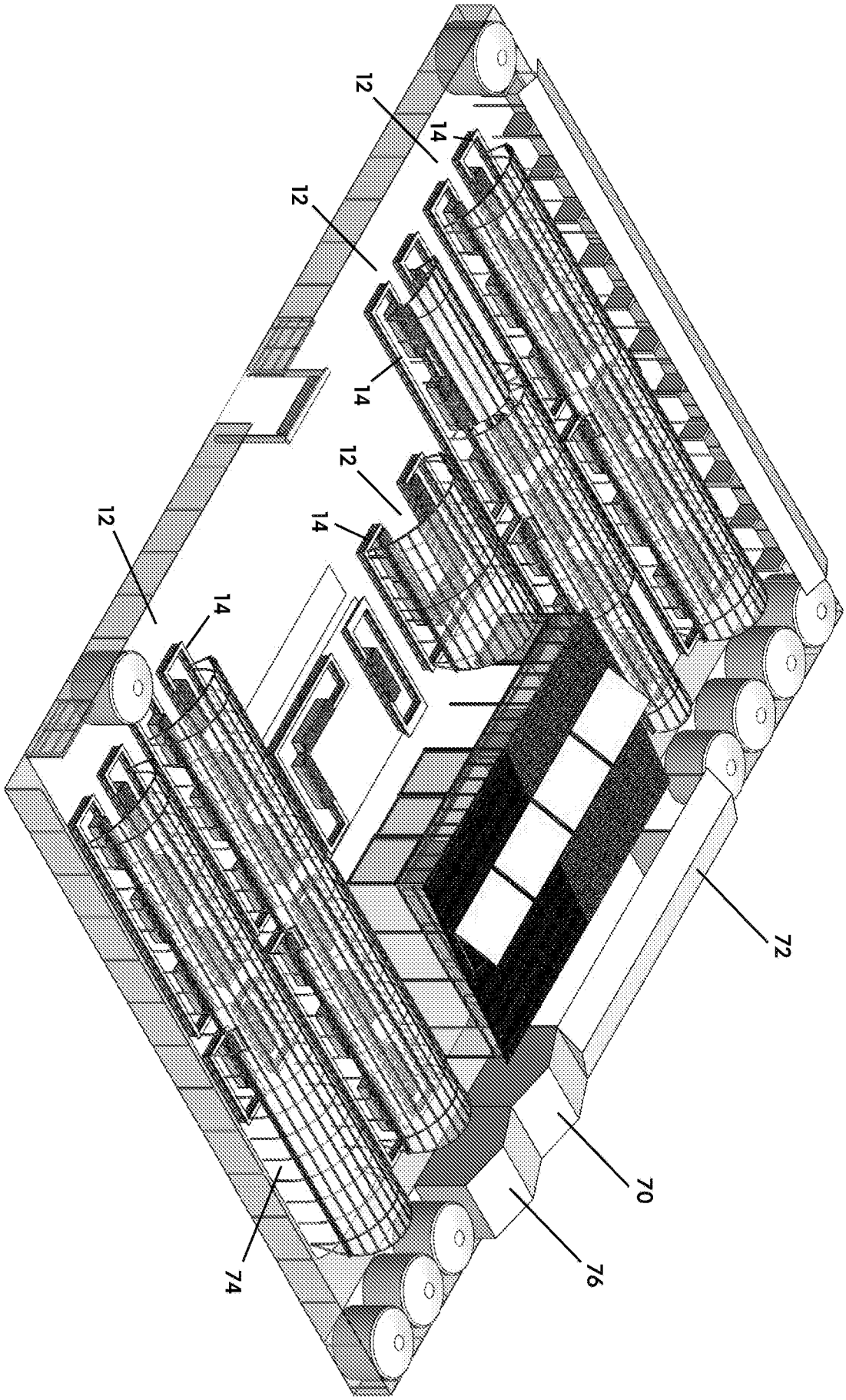
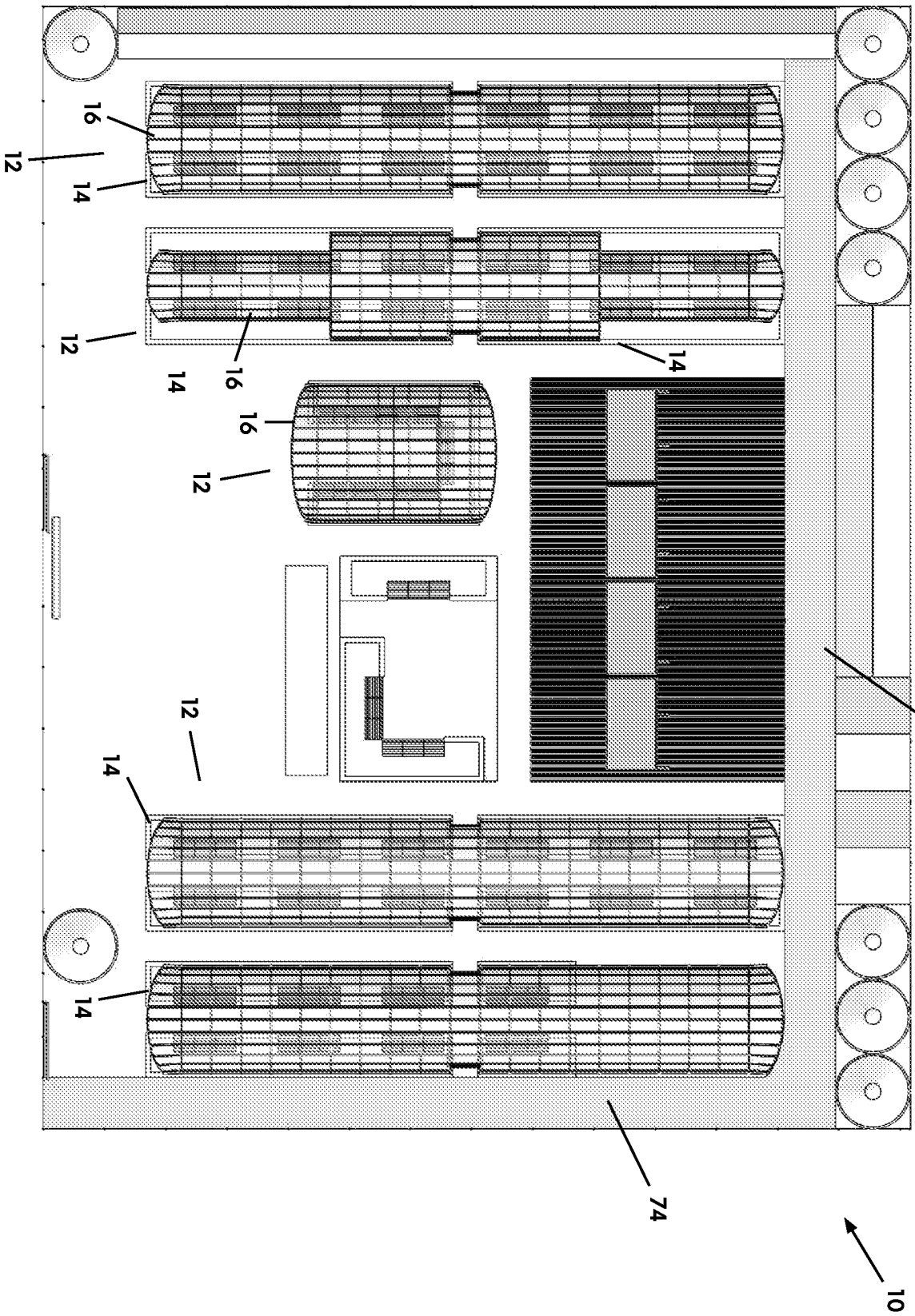


Fig. 1



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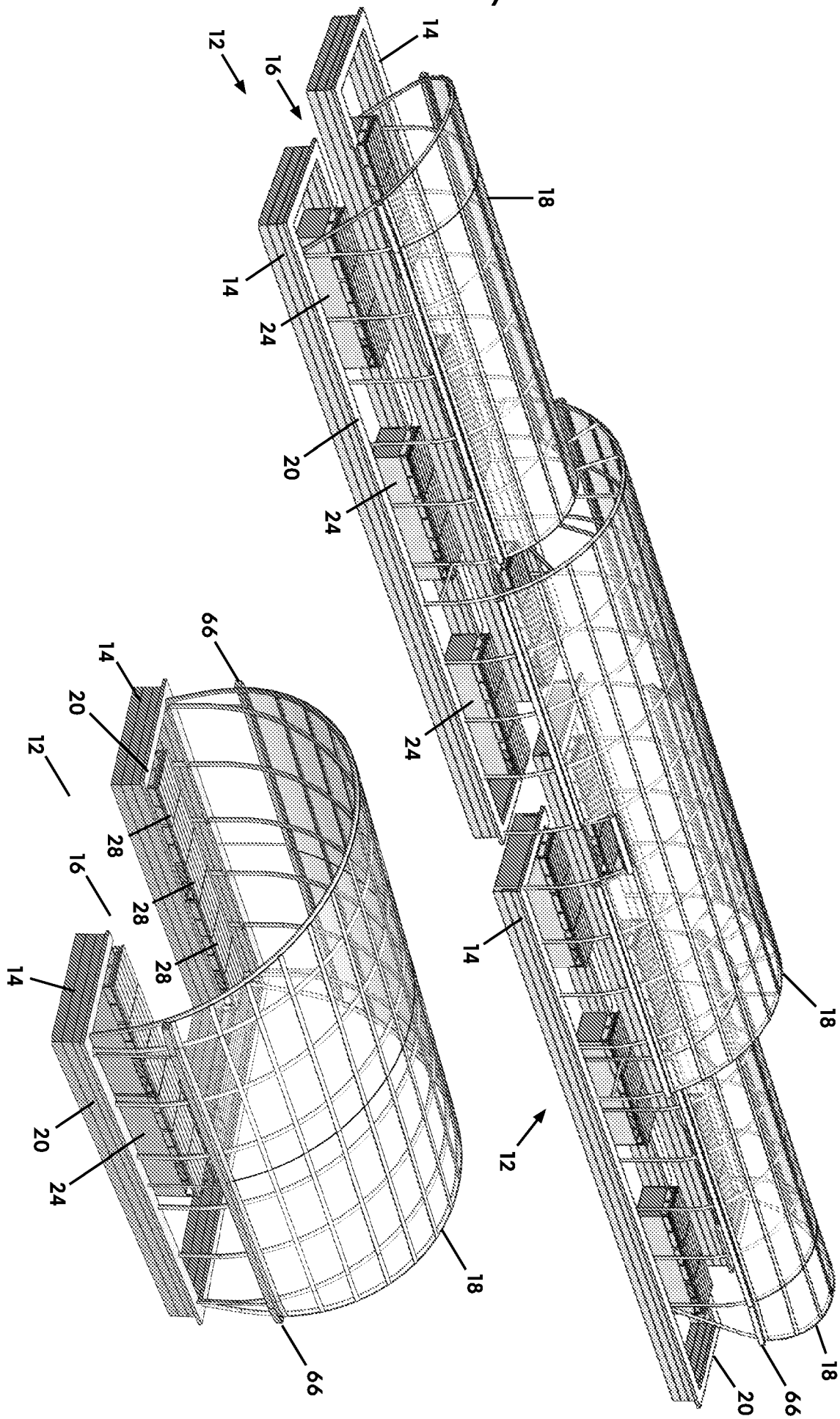
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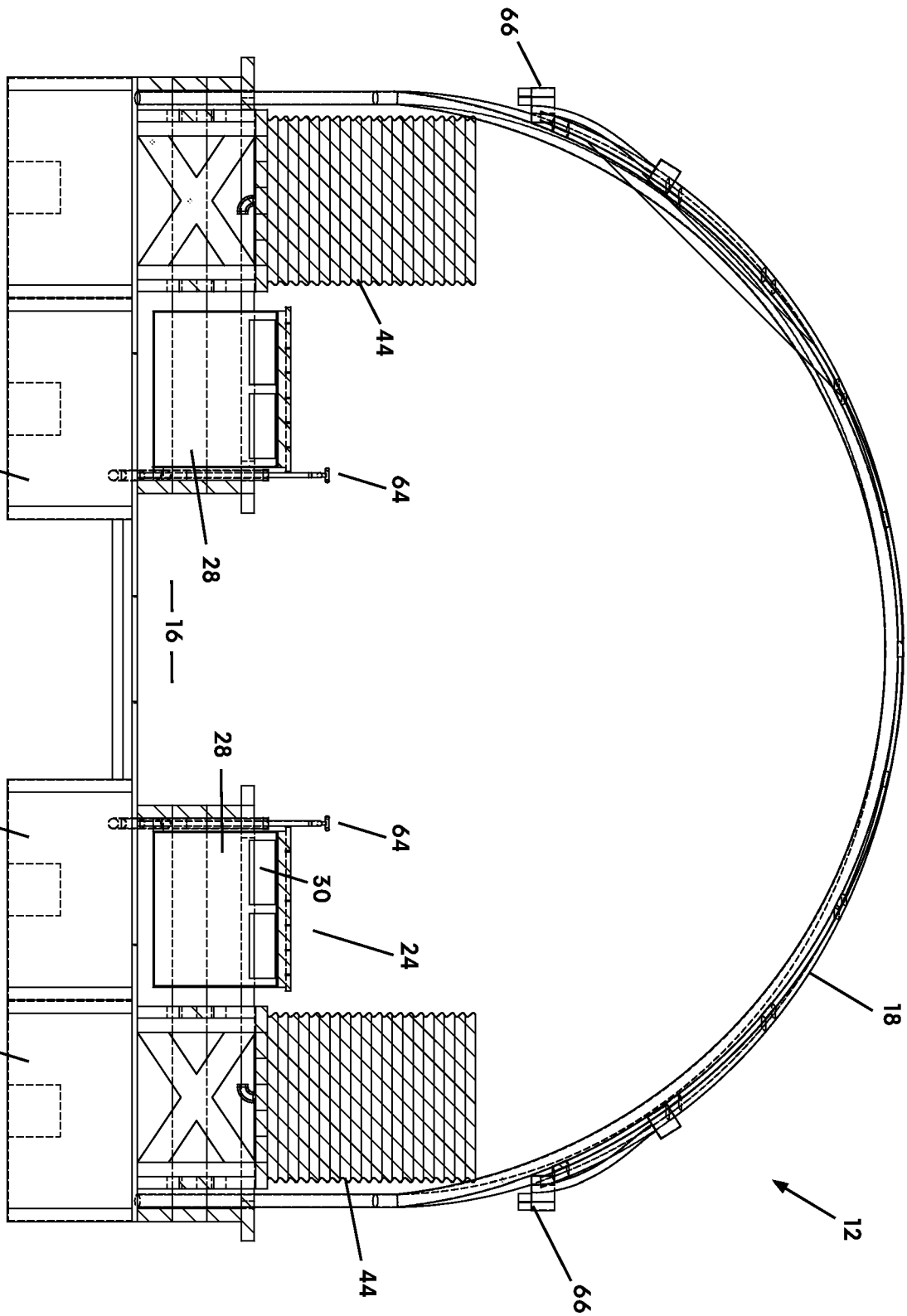
Fig. 3



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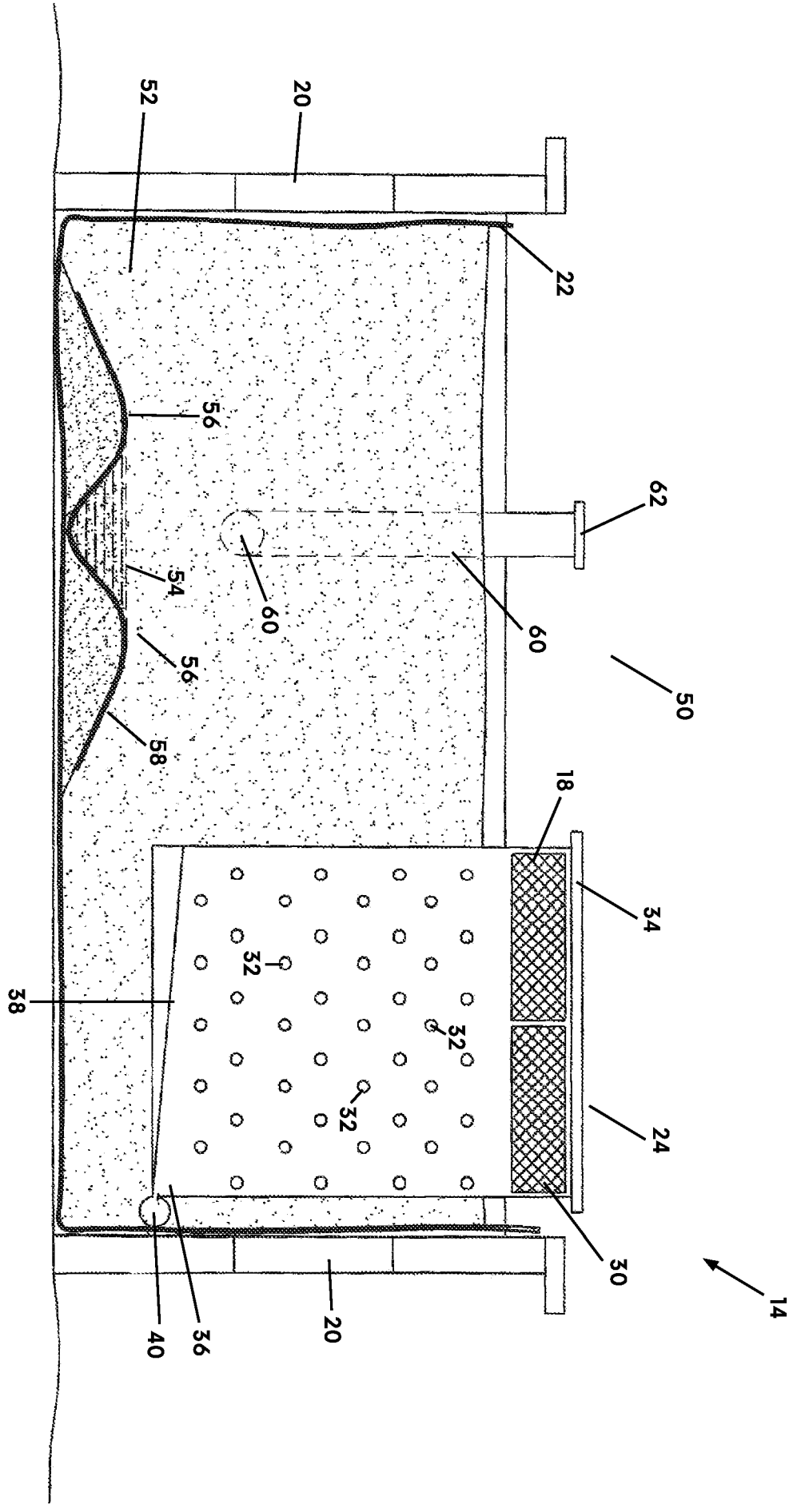

Fig. 5

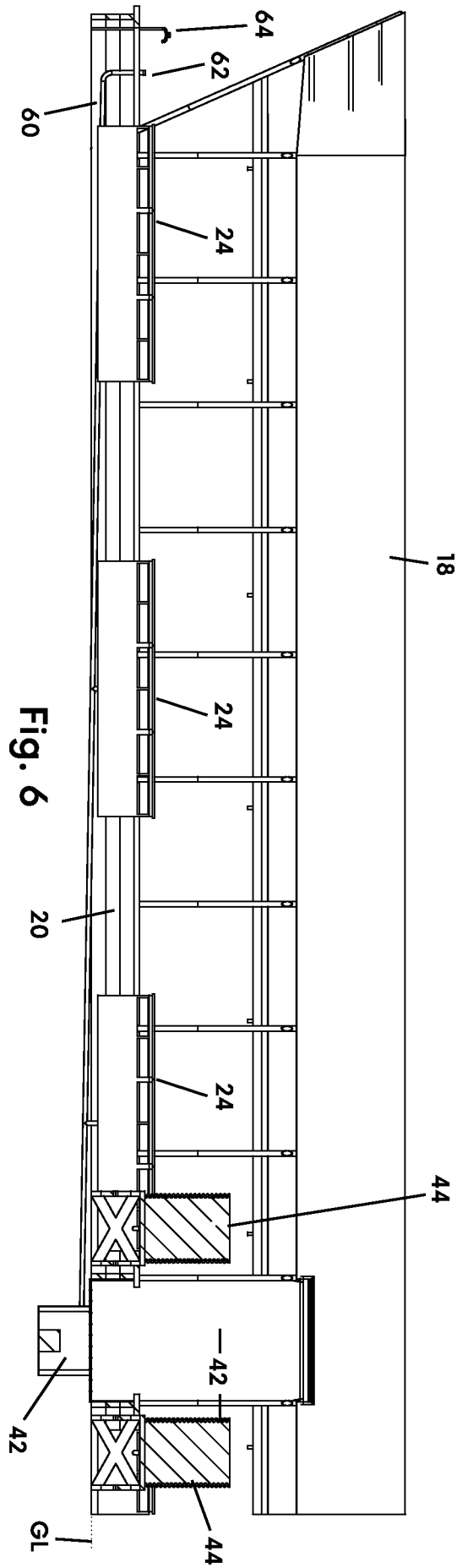
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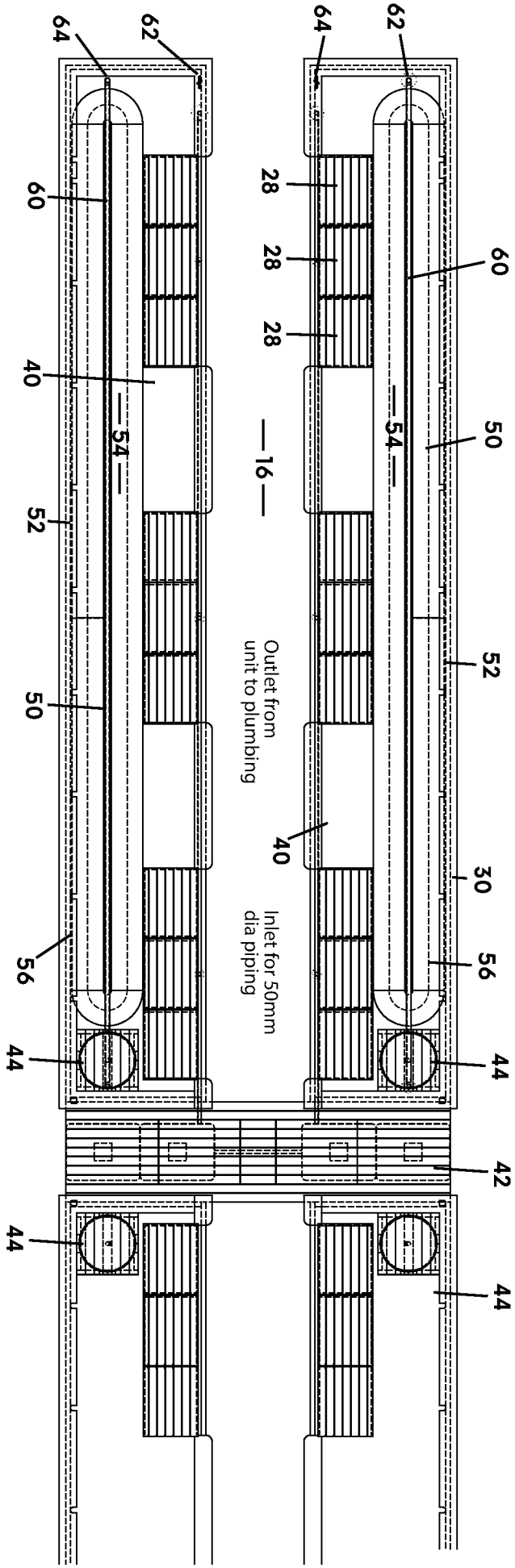
Fig. 6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Inlet for 50mm dia piping
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56
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Fig. 7

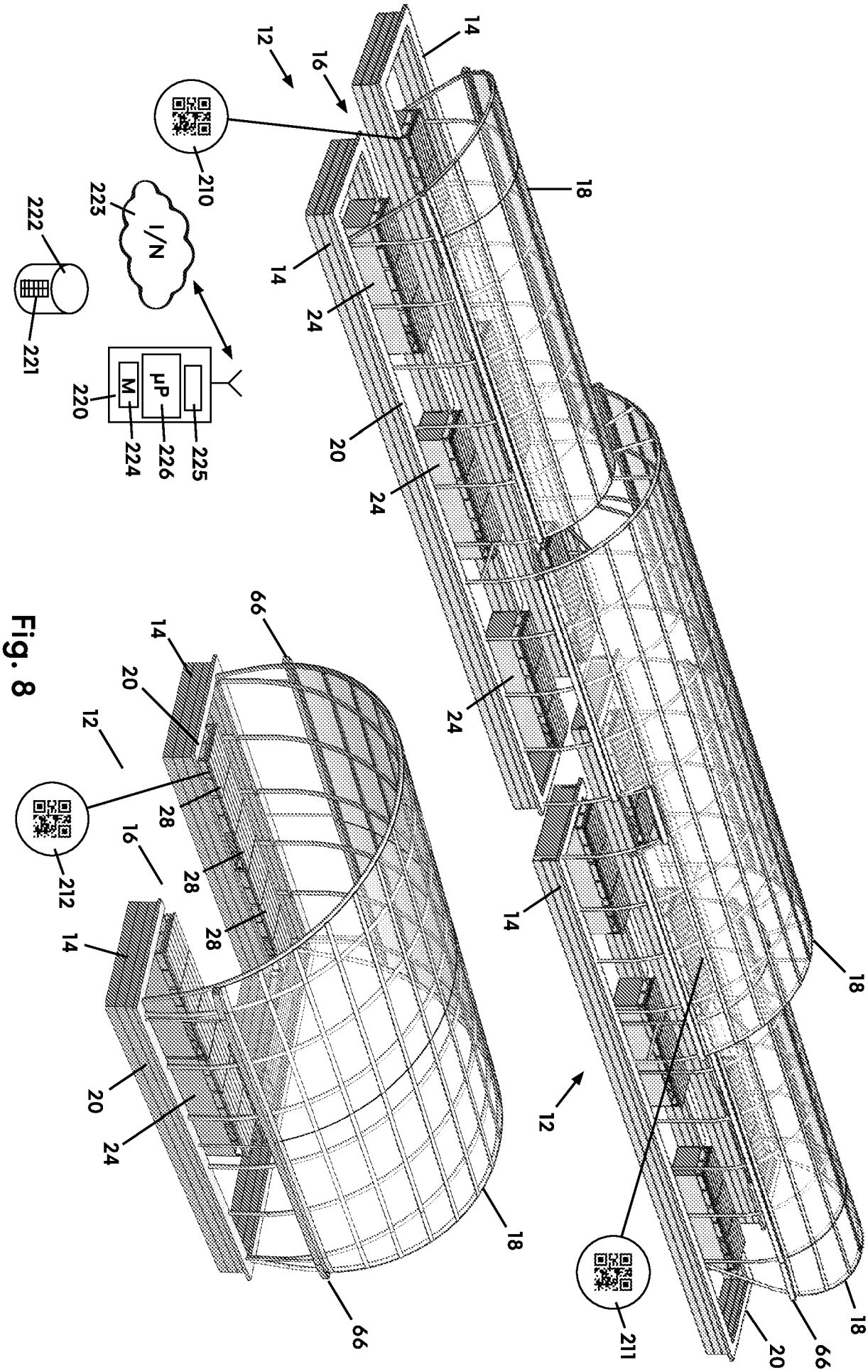
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Fig. 8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2022/050018

A. CLASSIFICATION OF SUBJECT MATTER

A01G 9/28 (2018.01) ***A01G 25/06 (2006.01)*** ***A01G 27/04 (2006.01)*** ***C05F 17/907 (2020.01)*** ***C05F 9/02 (2006.01)*** ***C05F 17/05 (2020.01)***

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Databases: PATENW, DOCDB, DWPI, Google Patents/Espacenet, Google/Google Images, Google Scholar

Symbols: A01G9/28, A01G9/14, A01G9/247, A01G25/06, A01G27/04, C05F17/907, C05F17/05, C05F9/02, A01G2025/003, E03F1/002, A01G13/0206, Y02A20/108, A01G9/00, C05F17/00, C05F9/00, A01G25/00, A01G27/00

Keywords: compost, in-ground, below ground, underground, subterranean, sub-ground, buried, swale, wick, irrigation, reservoir, trough, bottom, worms, garden bed, raised bed, garden planter, raised planter, grow, cultivate, produce, farm, plants, edible, fruit, vegetables, herbs, flowers, flora, seedlings

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"D" document cited by the applicant in the international application

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
31 March 2022	31 March 2022

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INTERNATIONAL SEARCH REPORT C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		International application No. **PCT/AU2022/050018**
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Subpod - Habitat Byron Bay [retrieved from internet on 18 March 2022] URL: https://subpod.com.au/blogs/projects/habitat-byron-bay-composting-system Published on 25 October 2020 Whole document	1-36
A	Good Life Permaculture - Swale Pathways [retrieved from internet on 18 March 2022] URL: https://goodlifepermaculture.com.au/swale-pathways/#:~:text=A%20swale%20is%20a%20ditch,and%20sinks%20into%20the%20soil Published on 12 February 2014 Whole document	1-36
A	How to Build a Permaculture Swale Planting Bed [retrieved from internet on 18 March 2022] URL: https://www.growforagecookferment.com/how-to-build-a-permaculture-swale-planting-bed/ Published on 16 June 2015 (last updated on 29 June 2020) Whole document	1-36
A	How is the Subpod plumped to collect worm tea/juice? How do we get the worm tea from the Subpod? [retrieved from internet on 18 March 2022] URL: https://growhub.subpod.com/posts/how-is-the-subpod-plumbed-to-collect-worm-teajuice-how-do-we-get-the-worm-tea-from-the-subpod Published on 25 May 2020 Whole document	7, 8, 32, 36
A	Waste Plant - Talalla Retreat [retrieved from internet on 18 March 2022] URL: https://subpod.com.au/blogs/projects/talalla-retreat-sri-lanka-composting-system Published on 1 July 2020 Whole document	
A	WO 2019/018902 A1 (HAYIM DE VRIES) 31 January 2019	
A	PT 108239 A (PEDRO PINHEIRO DE MORAES) 22 August 2016	
A	FR 2694554 A1 (SOCOFRA) 11 February 1994	
A	AU 2014227511 A1 (HALES) 09 April 2015	

INTERNATIONAL SEARCH REPORT		International application No.
C (Continuation).	DOCUMENTS CONSIDERED TO BE RELEVANT	**PCT/AU2022/050018**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Meet Subpod - The Ultimate Subsurface Composting System [viewed on internet on 18 March 2022] URL: https://www.youtube.com/watch?v=s8Lk3iFR2Vo Published on 13 March 2018 Whole document	2-6
A	BANE, P., 'The Permaculture Handbook', New Society Publishers, Gabriola, 2012, ISBN 978-1-55092-485-5	

INTERNATIONAL SEARCH REPORT Information on patent family members	International application No. **PCT/AU2022/050018**

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	**Publication Date**	**Publication Number**	**Publication Date**
WO 2019/018902 A1	31 January 2019	WO 2019018902 A1	31 Jan 2019
		AU 2018305776 A1	19 Mar 2020
		CN 111108080 A	05 May 2020
		US 2020207677 A1	02 Jul 2020
PT 108239 A	22 August 2016	PT 108239 A	22 Aug 2016
FR 2694554 A1	11 February 1994	FR 2694554 A1	11 Feb 1994
		FR 2694554 B1	17 Feb 1995
AU 2014227511 A1	09 April 2015	AU 2014227511 A1	09 Apr 2015
		AU 2014227511 B2	23 Mar 2017

End of Annex

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.