(54) Title: ANIMAL TREADMILL AND WASTE DISPOSAL APPARATUS

(57) Abstract: An animal treadmill and waste disposal apparatus includes a platform having a hollow interior base; a pair of first rollers; a pair of second rollers including a drive roller; a conveyor belt; a pump; a water reservoir disposed within the platform below the conveyor belt, the water reservoir being fluidly connected to the pump; an electric motor assembly; a gear assembly in operational communication with the motor assembly and the drive roller; a collection plate disposed at an angle tilted down toward the waste receptacle region within the hollow interior base below the conveyor belt; a waste disposal region located to accept waste from the conveyor belt or from the collection plate; and a plurality of water jets fluidly connected to the pump and disposed to spray water into the waste receptacle region thereby flushing any waste through the reservoir to an outlet when the pump is activated.

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ANIMAL TREADMILL AND WASTE DISPOSAL APPARATUS

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation-in-part of and claims priority from co-pending US application number 15/422,234, filed February 1, 2017 and issued August 22, 2017 as US patent 9,737,046, to Pugh entitled "Animal Treadmill and Waste Disposal Apparatus," the disclosure of which is incorporated by reference.

FIELD OF THE INVENTION

The present invention relates to animal treadmills, and more particularly, to an animal treadmill and waste disposal apparatus that can not only eliminate fecal and urine waste but can be used as a stationary animal walking platform.

BACKGROUND OF THE INVENTION

Various types of animal treadmills are known in the prior art. However, what is missing from the prior art and what has been needed is an animal treadmill and waste disposal apparatus including a parallelepiped platform having a left side wall, a right side wall, a front wall, a rear wall, a rear left side corner, and a rear right side corner, and a hollow interior base; a pair of first rollers rotatably attached between the left side wall and the right side wall proximate the front wall; a pair of second rollers including a drive roller rotatably attach to the left side wall and the right side wall proximate the rear wall; a conveyor belt wrapped around the pair of first rollers and pair of second rollers; a pump; a water reservoir disposed within the parallelepiped platform below the conveyor belt, the water reservoir being fluidly connected to the pump; an electric motor assembly; a gear assembly in operational communication with the motor assembly and the drive roller; a collection plate disposed at an angle tilted down toward the waste receptacle region within the hollow interior base below the endless conveyor belt; a waste disposal region located to accept waste as dropped by the conveyor belt or as flows from the collection plate; and a plurality of water jets fluidly connected to the pump and disposed to spray water into the waste receptacle region.
thereby flushing any waste through the reservoir to an outlet when the pump is activated.

SUMMARY OF THE INVENTION

This summary is provided to introduce, in a simplified form, a selection of concepts that are further described below in the Detailed Description. This summary is not intended to identify key features of the claimed subject matter, nor is it intended to be used as an aid in determining the scope of the claimed subject matter.

An animal treadmill and waste disposal apparatus is disclosed including a parallelepiped platform having a left side wall, a right side wall, a front wall, a rear wall, a rear left side corner, and a rear right side corner, and a hollow interior base; a pair of first rollers rotatably attached between the left side wall and the right side wall proximate the front wall; a pair of second rollers including a drive roller rotatably attached to the left side wall and the right side wall proximate the rear wall; a conveyor belt wrapped around the pair of first rollers and pair of second rollers; a pump; a water reservoir disposed within the parallelepiped platform below the conveyor belt, the water reservoir being fluidly connected to the pump; an electric motor assembly; a gear assembly in operational communication with the motor assembly and the drive roller; a collection plate disposed at an angle tilted down toward the waste receptacle region within the hollow interior base below the endless conveyor belt; a waste disposal region located to accept waste as dropped by the conveyor belt or as flows from the collection plate; and a plurality of water jets fluidly connected to the pump and disposed to spray water into the waste receptacle region thereby flushing any waste through the reservoir to an outlet when the pump is activated.

The general purpose of the animal treadmill and waste disposal apparatus, described subsequently in greater detail, is to provide an animal treadmill and waste disposal apparatus that has many novel features that result in an animal treadmill and waste disposal apparatus that is not anticipated, rendered obvious, suggested, or even implied by prior art, either alone or in combination thereof.
BRIEF DESCRIPTION OF THE DRAWINGS

While the novel features of the invention are set forth with particularity in the appended claims, the invention, both as to organization and content, will be better understood and appreciated, along with other objects and features thereof, from the following detailed description taken in conjunction with the drawings, in which:

FIG. 1 is a front isometric view.

FIG. 2 is a cutaway side view showing certain components in a hollow base of the apparatus.

FIG. 3 is a top view.

FIG. 4 is a cutaway front view showing certain components in the hollow base of the parallelepiped platform of the apparatus.

FIG. 5 is a fragmentary side sectional view showing an endless conveyor belt and a gear drive assembly of the apparatus.

FIG. 6 is a cutaway rear view showing certain components in the hollow base of the apparatus.

FIG. 7 is a cutaway top view showing certain components in the hollow base of the parallelepiped platform of the apparatus.

FIG. 8 schematically shows an example of an animal exercising treadmill and waste disposal apparatus wherein an optional animal crate is affixed to the apparatus configured to contain an animal.

DETAILED DESCRIPTION OF THE DRAWINGS

The following disclosure describes an example of an animal exercising treadmill and waste disposal apparatus. Several features of methods and systems in accordance with example embodiments are set forth and described in the figures. It will be appreciated that methods and systems in accordance with other example embodiments can include additional procedures or features different than those shown in the figures. Example embodiments are described herein with respect to an example of the animal exercising treadmill and waste disposal apparatus connected to a fluid disposal system. However, it will be understood that these examples are for the purpose of illustrating the principles, and that the invention is not so limited.
With reference now to the drawings, and in particular FIGS. 1 through 8 thereof, an example of the animal exercising treadmill and waste disposal apparatus employing the principles and concepts of the present animal exercising treadmill and waste disposal apparatus and generally designated by the reference number 10 will be described.

Referring now to FIG. 1, one example of animal treadmill and waste disposal apparatus 10 is illustrated in a front isometric view. The animal treadmill and waste disposal apparatus 10 includes a parallelepiped platform 20 with a left side wall 22, a right side wall 24, a front wall 26, a rear wall 28, a rear left side corner 30, and a rear right side corner 32. A control panel 52 is disposed on the right side wall 24 and has a control switch 54 for the motor 44 (as shown in FIG. 6) and a timer 56 for controlling the motor assembly 44. A conveyor belt 42 partially spans the length and width of the platform 20.

As will be appreciated by those skilled in the art, the control panel 52 may be configured in several ways and is not limited to being attached to the parallelepiped platform 20. For example, the control panel may be wall mounted and electronically coupled to the platform components by wires, wireless transmission, an Internet application or the like. The control panel may include programmable controls operated by a plurality of activation switches 54, 56, etc., such as dials or push buttons. In one example, one of the control dials or buttons may be programmed to operate the conveyor belt 42 in a continuous treadmill mode for exercising a pet, as opposed to being used for pet relief. In one useful example, the conveyor belt 42 may comprise an endless removable conveyor belt.

Referring now to FIG. 2, a cutaway side view showing certain components in a hollow base of one example of the apparatus is schematically shown. A hollow interior base 34 is mounted within the platform 20. A pair of first rollers 36 is rotatably attach to the left side wall 22 and the right side wall 24 proximate the front wall 26, a drive roller 38 and a tension roller 40 (as best shown in FIG. 5) are rotatably attach to the left side wall 22 and the right side wall 24 proximate the rear wall 28.

Referring now jointly to FIG. 5 and FIG. 6, FIG. 5 shows a fragmentary side sectional view showing an endless conveyor belt and a gear drive assembly of the apparatus and FIG. 6 shows a rear view showing certain components in the hollow
base of one example of the apparatus. A water reservoir 64 is disposed within the parallelepiped platform 20 below the conveyor belt 42 proximate the front wall 26. The water reservoir 64 is fluidly connected to the pump 68. The water reservoir 64 further includes a water inlet 77 coupled to receive water from an outside source. Powerline 75 may be connected to an electrical outlet or the like to supply power to the pump, motor and controls.

In one example, the water reservoir 64 may comprise dual chambers 64A and 64B separated by a partition 67. In this dual chamber configuration, cleaning solution may be introduced through inlet 74, for example a hollow pipe, into chamber 64A and water introduced through the water inlet 77 into chamber 64B. Ports may be provided in the partition 67 in order to allow mixing of the water and cleaning solution. A removable plastic cap 76 or the like may be used to close inlet 74 when not in use to prevent foreign objects from entering therein. The water reservoir 64 may also advantageously comprise a unitary tank wherein partition 67 is not included. In that case cleaning solution will mix directly with the water in the tank when it was introduced. A top end of the inlet 74, in one example, may be disposed proximate each of the top rear right corner 32 or top rear left corner 30 of the parallelepiped platform 20.

An electric motor 44 is disposed within the interior base 36 of the parallelepiped platform 20 below the drive roller 38 proximate the rear wall 28 of the interior base 34. A gear assembly 49, includes a power gear 46 and a transmission gear 47 in operational communication with the motor 44 and engaged to rotate the drive roller 38. As shown above with reference to FIG. 2, conveyor belt 42 is located in the hollow interior base 34 of the parallelepiped platform 20 between, over and in direct contact with the first pair of rollers 36, the drive roller 38, and a tension roller 40. The rollers are rotatable by the motor 44, and the conveyor belt 42 is moveable around the pair of first rollers 36 and the drive roller 38. In one alternative example of the apparatus, the water reservoir 64 may include a heating element 69 of known design. At least one hollow pipe 94 (as best shown in FIG. 2) is fluidly connected to the water reservoir 64.

Referring now to FIG. 3, a top view of the treadmill and waste disposal apparatus is shown. The conveyor belt surface 42 may double as a treadmill surface that may advantageously comprise any suitable filtering surface that will allow liquids
to pass through while retaining solid matter on the surface. In one example, the conveyor belt may comprise a surface having a mesh rubber bottom bonded to semipermeable artificial turf, a sheet of filtering material, or an equivalent combination of materials.

Referring now jointly to FIG. 2 and FIG. 7, cutaway side and top views showing certain components in the hollow base of the parallelepiped platform of one example of the apparatus are schematically shown. A rectangular collection plate 78 is disposed within the hollow interior base 34 of the parallelepiped platform 20 below the conveyor belt 48. The collection plate 78 is disposed at an angle tilted down toward the waste receptacle region within the hollow interior base below the conveyor belt. The collection plate 78 may include a middle section 80, a left side 82, a left end 84, a right side 86, and a right end 88. The left side 82 of the collection plate 78 may be angled toward the pair of first rollers 36, and the right side 86 of the collection plate 78 may be angled toward the drive roller 38. A plurality of spray nozzles 92 are disposed at one end of the collection plate 78, and each of the spray nozzles 92 is linked by a pipe 94 to the water reservoir 64. Each of the plurality of spray nozzles 92 is configured to rinse the conveyor belt 48. In one example, the spray nozzles 92 may be activated to clean the conveyor belt 48 as it is rotated by the motor and gear assembly moving relative to the spray nozzles 92. In an alternative embodiment, the spray nozzles 92 may be movable so as to move relatively to the conveyor belt whether it is rotating or not.

Referring now particularly to FIG. 4, a cutaway front view showing certain components in the hollow base of one example of the parallelepiped platform of the apparatus is schematically shown. A waste disposal region 45 is located to accept waste as dropped by the conveyor belt 42 or as flows from the collection plate 78. When an animal has finished on the conveyor belt, an operator may activate a flushing operation through the region 45 using the control panel. Water jets 401, being fluidly connected to the pump 68 spray water into the waste receptacle region 45 thereby flushing any waste through the region to an outlet 47 which may be advantageously coupled to a conduit leading to a sewer. At the same time, the conveyor belt is rotated and cleaned by the spray jets 92. Flushing stops when the timer times out, thereby stopping the cycle of flushing and rotating the belt.
To further promote understanding of the invention, it is considered useful to describe the operation of the components fully described hereinabove. In operation, a pet may be led to stand upon the surface of the conveyor 42. While on the surface the pet may be allowed to eliminate waste from its system in the form of liquid or solid waste. When the pet has finished the process, an operator may activate the motor and pump from the control panel. In one example, activation may induce a cycle whereby the conveyor is rotated, thereby depositing any waste into the waste receptacle region, followed by pumping water through the water jets 401 to clean out the waste receptacle region while also activating the spray nozzles 92 to clean the surface of the conveyor 42. Upon completing predetermined timing cycle, the conveyor is rotated to present a clean surface and the flushing ended.

Referring now to FIG. 8, an example of an animal exercising treadmill and waste disposal apparatus wherein an optional animal crate is affixed to the apparatus configured to contain an animal is schematically shown. A cage 80 may advantageously be placed over the treadmill and waste disposal apparatus 10 if containment of an animal is desired.

The invention has been described herein in considerable detail in order to comply with the Patent Statutes and to provide those skilled in the art with the information needed to apply the novel principles of the present invention, and to construct and use such exemplary and specialized components as are required. However, it is to be understood that the invention may be carried out by different equipment, and devices, and that various modifications, both as to the equipment details and operating procedures, may be accomplished without departing from the true spirit and scope of the present invention.
What is claimed is:

1. An animal exercising treadmill and waste disposal apparatus comprising:

   a parallelepiped platform having a left side wall, a right side wall, a front wall, a rear wall, a rear left side corner, and a rear right side corner, and a hollow interior base;

   a pair of first rollers rotatably attached between the left side wall and the right side wall proximate the front wall;

   a pair of second rollers including a drive roller rotatably attach to the left side wall and the right side wall proximate the rear wall;

   a conveyor belt wrapped around the pair of first rollers and pair of second rollers;

   a pump;

   a water reservoir disposed within the parallelepiped platform below the conveyor belt, the water reservoir being fluidly connected to the pump;

   an electric motor;

   a gear assembly in operational communication with the electric motor and the drive roller;

   a collection plate disposed at an angle tilted down toward a waste receptacle region within the hollow interior base below the endless conveyor belt;

   a waste disposal region located to accept waste as dropped by the conveyor belt or as flows from the collection plate; and

   a plurality of water jets fluidly connected to the pump and disposed to spray water into the waste receptacle region thereby flushing any waste through the reservoir to an outlet when the pump is activated.

2. The apparatus of claim 1 wherein the conveyor belt comprises an endless removeable conveyor belt is located in the hollow interior base between, over and in direct contact with the first pair of rollers, the drive roller, and a tension roller.
3. The apparatus of claim 2 wherein the electric motor and gear assembly include a power gear and a transmission gear operationally coupled between the electric motor and the drive roller.

4. The apparatus of claim 1 wherein the conveyor belt comprises a filtering surface adapted to allow liquids to pass through while retaining solid matter on the surface.

5. The apparatus of claim 1 wherein the water reservoir is also connected to a heating element.

6. The apparatus of claim 1 further comprising a plurality of spray nozzles disposed at one end of the collection plate, and each of the spray nozzles is fluidly coupled to the water reservoir and positioned to rinse the conveyor belt when water flows therethrough.

7. The apparatus of claim 1 wherein the conveyor belt comprises a surface having a mesh rubber bottom bonded to semipermeable artificial turf.

8. The apparatus of claim 1 wherein an optional animal crate is affixed to the apparatus configured to contain the animal.

9. The apparatus of claim 6 wherein the conveyor belt moves relatively to the plurality of spray nozzles during a cleaning cycle.

10. The apparatus of claim 1 further comprising a control panel electronically coupled to the pump and the electric motor.

11. The apparatus of claim 10 wherein the control panel comprises programmable activation switches.

12. An animal exercising treadmill and waste disposal apparatus comprising:

   a parallelepiped platform having a left side wall, a right side wall, a front wall, a rear wall, a rear left side corner, and a rear right side corner, and a hollow interior base;

   a pair of first rollers rotatably attached between the left side wall and the right side wall proximate the front wall;

   a pair of second rollers including a drive roller rotatably attach to the left side wall and the right side wall proximate the rear wall;
an endless conveyor belt wrapped around the pair of first rollers and pair of second rollers, wherein the endless conveyor belt comprises a filtering surface adapted to allow liquids to pass through while retaining solid matter on the surface;

a pump;

a water reservoir disposed within the parallelepiped platform below the conveyor belt, the water reservoir being fluidly connected to the pump and a water inlet;

a cleaning fluid inlet in fluid communication with the water reservoir;

an electric motor, wherein the electric motor is operationally coupled to a gear assembly including a power gear and a transmission gear operationally coupled between a motor and the drive roller;

a collection plate disposed at an angle tilted down toward the waste receptacle region within the hollow interior base below the endless conveyor belt;

a waste disposal region located to accept waste as dropped by the endless conveyor belt or as flows from the collection plate; and

a plurality of water jets fluidly connected to the pump and disposed to spray water into the waste receptacle region thereby flushing any waste through the reservoir to an outlet when the pump is activated using a control panel.

13. The apparatus of claim 12 wherein the endless removeable conveyor belt is located in the hollow interior base between, over and in direct contact with the first pair of rollers, the drive roller, and a tension roller.

14. The apparatus of claim 12 wherein the water reservoir comprises at least 2 chambers separated by a partition, wherein a first chamber is coupled to a solution filling conduit and the second chamber is coupled to the water inlet.

15. The apparatus of claim 12 further comprising a plurality of spray nozzles disposed at one end of the collection plate, and each of the spray nozzles is fluidly coupled to the water reservoir and positioned to rinse the conveyor belt when water flows therethrough.
16. The apparatus of claim 12 wherein the endless conveyor belt comprises a surface having a mesh rubber bottom bonded to semipermeable artificial turf.

17. The apparatus of claim 12 wherein an optional animal crate is affixed to the apparatus configured to contain an animal.

18. The apparatus of claim 15 wherein the endless conveyor belt moves relative to the plurality of spray nozzles during a cleaning cycle.

19. The apparatus of claim 12 further comprising a control panel electronically coupled to the pump and motor.

20. The apparatus of claim 12 wherein the control panel comprises programmable activation switches.

21. The apparatus of claim 1 further comprising a cleaning fluid inlet in fluid communication with the water reservoir.
**INTERNATIONAL SEARCH REPORT**

**A.  CLASSIFICATION OF SUBJECT MATTER**

**IPC -** A01 K 1/00, 1/01, 15/02; E01 C 13/08 (2018.01)

**CPC -** A01 K 1/00, 1/01, 1/01 07, 1/01 17, 1/01 35, 15/02, 15/021, 15/027; E01 C 13/08

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)

See Search History document

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

See Search History document

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

See Search History document

**C.  DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tbody>
<tr>
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</table>

Further documents are listed in the continuation of Box C. 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
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  *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

**Date of the actual completion of the international search**

27 March 2018 (27.03.2018)

**Date of mailing of the international search report**

13 APR 2018

**Name and mailing address of the ISA/**

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