

Provisional Application for Patent Cover Sheet

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c)

Inventor(s)

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All Inventors Must Be Listed – Additional Inventor Information blocks may be generated within this form by selecting the **Add** button.**Add****Title of Invention**

Movable Bicycle Trainer Platform

Attorney Docket Number (if applicable)

376.648

Correspondence Address

Direct all correspondence to (select one):

☒ The address corresponding to Customer Number☐ Firm or Individual Name

Customer Number

23598

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.☐ Yes, the invention was made by an agency of the United States Government. The U.S. Government agency name is:☐ Yes, the invention was under a contract with an agency of the United States Government. The name of the U.S. Government agency and Government contract number are:

Entity Status**Applicant asserts small entity status under 37 CFR 1.27 or applicant certifies micro entity status under 37 CFR 1.29**

- ☒ Applicant asserts small entity status under 37 CFR 1.27
- ☐ Applicant certifies micro entity status under 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent.
- ☐ No

Warning

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

Signature

Please see 37 CFR 1.4(d) for the form of the signature.

Signature	/Andrew S. McConnell/			Date (YYYY-MM-DD)	2018-03-01
First Name	Andrew S.	Last Name	McConnell	Registration Number (If appropriate)	32272

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. This form can only be used when in conjunction with EFS-Web. If this form is mailed to the USPTO, it may cause delays in handling the provisional application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	376.648
		Application Number	
Title of Invention	Movable Bicycle Trainer Platform		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove					
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Benjamin	Raymond	Bass		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Madison	State/Province	WI	Country of Residence	US
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Inventor 2 Remove					
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Dustin	Lee	Kohl		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
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City	Verona	State/Province	WI		
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All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add					

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	376.648
		Application Number	
Title of Invention	Movable Bicycle Trainer Platform		

☐ An Address is being provided for the correspondence information of this application.

Customer Number	23598		
Email Address	docketing@boylefred.com	Add Email	Remove Email

Application Information:

Title of the Invention	Movable Bicycle Trainer Platform		
Attorney Docket Number	376.648	Small Entity Status Claimed	☒
Application Type	Provisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	6	Suggested Figure for Publication (if any)	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)**Request Not to Publish.** I hereby request that the attached application not be published under☐ 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.**Representative Information:**

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	23598		

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	376.648
		Application Number	
Title of Invention	Movable Bicycle Trainer Platform		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)¹ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ²	Filing Date (YYYY-MM-DD)	Remove	Access Code ³ (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.				

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	376.648
		Application Number	
Title of Invention	Movable Bicycle Trainer Platform		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	376.648
	Application Number	
Title of Invention	Movable Bicycle Trainer Platform	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

[Clear](#)

- ☒ Assignee ☐ Legal Representative under 35 U.S.C. 117 ☐ Joint Inventor
- ☐ Person to whom the inventor is obligated to assign. ☐ Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name Saris Cycling Group, Inc.

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Country US

Postal Code

53711

Phone Number

Fax Number

Email Address

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	376.648
		Application Number	
Title of Invention	Movable Bicycle Trainer Platform		

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		State/Province	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			

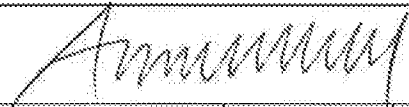
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature			Date (YYYY-MM-DD)	2018-03-01	
First Name	Andrew S.	Last Name	McConnell	Registration Number	32272

Additional Signature may be generated within this form by selecting the Add button.

MOVABLE BICYCLE TRAINER PLATFORM

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DETAILED DESCRIPTION OF THE INVENTION

The various features and advantageous details of the subject matter disclosed herein are explained more fully with reference to the non-limiting embodiments described in detail in the following description.

Referring to the following description in which like reference numerals represent like parts throughout the disclosure, a movable bicycle trainer system is indicated generally as 20 in the figures. The movable bicycle trainer system 20 is configured to allow an exercise device, such as a direct drive bicycle trainer, a wheel on bicycle trainer, a trainer driven by a bicycle cassette or drive train, an indoor cycle, or a platform with a trainer or cycle mounted thereon to rock or tilt about a longitudinal axis and/or move fore and aft to simulate the feel of real-world cycling. While different components will be described below, it should be noted that any of these components could be used in combination with any other components known to those of ordinary skill in the art to achieve a bicycle trainer system 20 that simulates real-world cycling.

Looking initially to FIGS. 1-7, the movable bicycle trainer system 20 includes a base 22, a frame 24, and at least one platform, as shown made up of a front platform section 26 and rear platform section 28. The base 22 is configured to rest directly onto a support surface. The frame 24 is movably mounted to the base 22, and the platform sections 26, 28 are securely mounted to the base 22. As shown in FIGS. 1 and 2, the system 20 could be used with a bicycle 14 and a wheel on bicycle trainer 16, with the bicycle 14 also resting in a wheel tray 18. Although not shown in the figures, as described above the system 20 could also be used with a direct drive bicycle trainer, an indoor bicycle, or a platform with a trainer mounted thereon. Each of these components will be further described below.

Turning next to FIGS. 8-11, the movable bicycle trainer system 20 is shown with the platform sections 26, 28 removed to better show the base 22 and the frame 24. The base 22 will now be described. As shown, the base 22 includes a plurality of horizontal

rail segments. More specifically, the base includes a first side horizontal rail segment 30 and a second side horizontal rail 32 segment that extend parallel to one another. The base 22 also includes a first end horizontal rail segment 34 and a second end horizontal rail segment 36 that also extend parallel to one another. The side horizontal rail segments 30, 32 and the end horizontal rail segments 34, 36 are connected to one another by curved corner rail segments 38, 40, 42, 44. The various rail segments may be permanently attached to one another or they could be adjustably connected relative to one another to facilitate movable bicycle trainer systems 20 of different sizes and dimensions. Although the illustrated base 22 is substantially rectangular in shape with rounded corners, it should be noted that the base may take the form of any other shape, as long as the base 22 provides ample contact with a support surface such that the movable bicycle trainer system 20 is secured to the support surface to prevent tipping of the base 22 or the movable bicycle trainer system 20.

The base 22 also includes brackets configured to support circular rollers. For instance, the base 22 may include brackets mounted to each of the end horizontal rail segments 34, 36, as best seen in FIG. 12. More specifically a front roller bracket 46 is mounted to the first end horizontal rail segment 34 and a rear roller bracket 48 is mounted to the second end horizontal rail segment 36. While the following description relates to the rollers being mounted to the base 22, it is also contemplated that a reverse arrangement may be employed in which rollers may be mounted to the frame 24.

While front roller bracket 46 will now be described, it should be noted that the rear roller bracket 48 has similar, not identical, components. As shown, the front roller bracket 46 has a top plate 50 and bottom plate 52. The distance between the top plate 50 and the bottom plate 52 should be slightly greater than the thickness of the first end horizontal rail segment 34, which allows the end horizontal rail segment 34 to be secured between the top plate 50 and the bottom plate 52. The top plate 50 and the bottom plate 52 include openings 54 through which fasteners (not shown) may be inserted to secure

the front roller bracket 46 to the first end horizontal rail segment 34. Additionally, an end plate 58 extends from the top plate 50 to the bottom plate 52. When the bracket 46 is installed, the end plate 58 may abut a side of the end horizontal rail segment 34.

Additionally, the bracket 46 may have a first side plate 60 and a second side plate 62 that extend from the end plate 58 in the opposite direction as the top plate 50 and the bottom plate 52. As shown, the first side plate 60 and the second side plate 62 may be the same shape, with each having a substantially rectangular bottom edge 64 and a semi-circular top edge 66. The substantially rectangular bottom edge 64 allows the bracket 46 to rest upon the support surface. Additionally, openings 68, 70 may be formed adjacent to the semi-circular top edge 66 in each side plate 60, 62. An axle 72 may extend from the opening 68 of the first side plate 60 to the opening 70 of the second side plate 62.

The brackets 46, 48 also may have rollers associated therewith, with the axle extending through the openings and a central axis of the roller. More specifically, a front roller 74 is rotatably connected to the front roller bracket 46 and a rear roller 76 is rotatably connected to the rear roller bracket 48. Both of the rollers 74, 76 rotate about the axle, which allow the frame 24, and by connection the platforms 26, 28, to travel in a forward or backward direction relative to the base 22, in a manner to later be explained. Also, as best seen in FIG. 16, each roller 74, 76 may have a u-shaped trough 78 formed therein in the middle of the roller 74, 76, which helps to facilitate rocking or tilting movement of the frame 24, and in turn the platforms 26, 28, relative to the base 22, as will also later be explained. Each roller 74, 76 may include a bearing (not shown) formed therein to facilitate smooth rotation of the rollers 74, 76 relative to the brackets 46, 48. Additionally, the rollers 74, 76 may be made of a variety of different materials, representatively plastic materials, that may be capable of minor compression to further facilitate rocking or tilting

movement. Other materials could similarly be used. Of course, the movable bicycle trainer system 20 may feature additional roller brackets and rollers as desired.

Next, the frame 24 will be described. The illustrated frame 24 includes a central support member 80, which may be in the form of a tube, extending along the length of the frame 24, and several support beams extending substantially perpendicularly from the central support member 80. The various support beams may be secured to the central support member 80 using gussets 82. As shown, the frame 24 includes two front spaced apart horizontal support beams 84, 86. Additionally, the frame 24 may include a reinforced rear frame portion 88. The reinforced rear frame portion 88 includes two additional spaced apart horizontal support beams 90, 92, with two side beams 94, 96 connecting the two additional spaced apart horizontal support beams 90, 92. Thus, the reinforced rear portion 88 is substantially rectangular in shape. The dimensions of the frame 24 can vary depending on the desired size and shape of the platform or platforms 26, 28.

In the illustrated embodiment, the central support member 80 extends longitudinally relative to the movable bicycle trainer system 20. The support member 80 is substantially circular in shape along most of the length. On the underside of the support member 80, a number of inverted U-shaped tracks may be formed. As shown, the support member 80 has a front inverted U-shaped track 98 and a rear inverted U-shaped track 100. These inverted U-shaped tracks 98, 100 are configured to be compatible with the rollers 74, 76 held by the roller brackets 46, 48 of the base 22 to allow the frame 24 to move freely forward and backward along the length of the tracks 98, 100. Additionally, because the tracks 98, 100 are in the shape of an inverted U, the frame 24 will eventually automatically return to a starting position where the rollers 74, 76 are located at the peak of the inverted U due to the force of gravity in addition to the weight of the frame 24, the platforms 26, 28, the bicycle 14 or other component located on top of the platforms 26, 28, and the weight of a user. Of course, the shape, slope, and length of these tracks 98, 100 could be modified as desired to increase or decrease the amount of fore and aft or rocking or tilting movement.

Each U-shaped track 98, 100 may include a first side section 102 and a second side section 104, with a roller bead 106 extending therebetween. When viewing a cross section of the tracks 98, 100, such as shown in FIG. 16, the roller bead 106 is substantially u-shaped and the first side section 102 and the second side section 104 are substantially linear. Still looking at FIG. 16, the shape of the roller bead 106 is compatible with the trough 78 formed in each roller 46, 48. Therefore the roller bead 106 can pivot within the trough 78, which in turn allows the frame 24 and the platforms 26, 28 to rock or tilt relative to the base 22.

As described, the rollers 46, 48 and the tracks 98, 100 of the illustrated embodiment allow the frame 24, as well as the platforms 26, 28 and anything mounted to the platforms 26, 28, to move forward and backward relative to the base 22 as well as rock or tilt relative to the base 22. In use, this movable bicycle trainer system 20 allows the bicycle 14 to move fore and aft and/or tilt or rock side-to-side during use, resulting in a trainer system 20 that simulates the feel of real-world cycling. It can be appreciated that, in an alternative embodiment as noted above in which rollers are mounted to the frame 24, U-shaped tracks similar to tracks 98, 100 may be provided in suitable structure associated with the base 22.

Next, the platform will briefly be described. Again, as shown the platform includes a front platform section 26 and a rear platform section 28. The platform sections 26, 28 may be secured to the frame 24 using various fasteners, weldments, and the like (not shown). The platform sections 26, 28 are configured to provide sufficient surface area in order to accommodate a flywheel-based direct drive or wheel-on trainer unit (not shown), which has a significant footprint and oftentimes weighs over twenty pounds. Examples of possible flywheel-based trainer units would be the Hammer Direct Drive Trainer or the Magnus wheel-on trainer manufactured and sold by CycleOps of Madison, WI. Additionally, a wheel tray 18 may be provided for the front tire. The flywheel-based trainer unit and wheel tray could be physically connected or attached to the

platforms 26, 28. For instance, as shown the platforms 26, 28 may include various engagement or alignment openings 108. These openings 108 may allow for visual alignment of the bicycle or trainer relative to the platforms 26, 28. Additionally, the bicycle or trainer may include engagement or alignment tabs (not shown) that extend downwardly therefrom. In this way, the tabs could be inserted into the openings 108 to ensure appropriate alignment. The tabs, in combination with the weight of the bicycle or trainer unit and the weight of the user when using the movable bicycle trainer system, would keep the trainer unit secured to the platforms 26, 28. Alternatively, the bicycle or trainer may remain secured about the platform due to the size and weight of these components. In addition, instead of a bicycle and trainer combination, an indoor cycle or spin bike may be supported on the platform 26, 28. Alternatively still, a trainer or stationary bicycle could similarly be permanently integrated with the platform 26, 28.

The system 20 may also include a step 110 located adjacent to the platforms 26, 28 having an elevation greater than the platform sections 26, 28. When a user mounts or dismounts the bicycle 14, he or she can step onto the step 110 before mounting the bicycle 14 or leaving the platform sections 26, 28.

The movable bicycle trainer system 20 may include additional features to help facilitate fore and aft movement of the frame 24 relative to the base 22, while also encouraging the frame 24 to return to its original base location. For instance, a support member restraint strap 112 may be mounted to both end horizontal rail segments 34, 36. Each support member restraint strap 112 has two vertical members 114, 116 that are connected by an inverted u-shaped member 118. Both vertical members 114, 116 are attached to the end horizontal rail segment on either side of the central support member 80, and the inverted u-shaped member 118 is spaced above the center support member 80. The support member restraint strap 112 serves as movement limiter that limits the distance the center support member 80 moves in a forward or rearward direction. More specifically, as the center support member 80 moves forward or backward, the rollers 74,

76 travels along the U-shaped tracks 98, 100 and the elevation of the center support member 80 rises. In the event that the center support member 80 moves to a maximum forward location, the top of the center support member 80 will come into contact with the restraint strap 112, which will prevent further movement in the forward direction. Thereafter, the center support member 80 will naturally move in a backward direction toward a neutral position where the rollers 74, 76 are located at the peak of the U-shaped tracks 98, 100. Similarly, in the event that the center support member 80 moves to a maximum rearward location, the top of the center support member 80 will come into contact with the restraint strap 112, which will prevent further movement in the rearward direction. Thereafter, the center support member 80 will naturally move in a forward direction toward the neutral position where the rollers 74, 76 are located at the peak of the U-shaped tracks 98, 100. Of course, the restraint straps 112 need not contact the center support member 80 at all where the movable bicycle trainer system 20 moves in a forward or backward direction less than the maximum allowable movement.

Additionally, the system 20 may include bearing brackets 120 to further facilitate forward and backward movement of the frame 24 and the platforms 26, 28 relative of the base 22. More specifically, bearing brackets 120 may be rotatably mounted to both of the side horizontal rail segment 30, 32. These bearing brackets 120 are also attached to the frame 24 for pivoting movement, and more specially to either side of the reinforced rear frame portion 88. As such, the bearing brackets 120 help to support the rear of the system 20, which is where a substantial portion of the weight will be distributed, while also ensuring smooth forward and backward movement of the platform sections 26, 28 and the frame 24 relative to the base 22.

The system 20 may also have springs, elastomers, elastic bands, or any combination of these (not shown), that encourage the system 20 to return to the neutral position after fore and aft or rocking or tilting movement. Similarly, the system 20 may include dampers, shock absorbers, or other cushions mounted about the base 22 or the

frame 24 to ensure that the various components move smoothly relative to one another while minimizing resonant frequencies.

Thus, the movable bicycle trainer system 20 allows a user to ride the bicycle 14 indoors, while also offering the real-world feeling of moving and leaning forward, backward, and rocking or tilting that occurs when riding a bicycle outside.

While the illustrated embodiment shows the rollers 74, 76 associated with the base 22 and the tracks 98, 100 associated with the frame 24, it should be noted that the tracks and the rollers could be inverted such that the track would be formed in the base 22 and the frame 24 would carry the rollers. Also, the described embodiment discloses a system 20 that both rocks or tilts side-to-side and moves fore and aft, but it should be understood that this system 20 could be configured to solely rock or tilt side-to-side or solely move fore and aft.

In some applications, the weight of the load positioned on the platform, e.g. the bicycle trainer and bicycle, may have a center of gravity that is off-center relative to the centerline of the platform. This may be caused, for example, by the bicycle trainer having a center of gravity that is not aligned with the center of the bicycle due to a flywheel or other relatively heavy component of the trainer being out of alignment with the longitudinal center of the bicycle and therefor offset relative to the longitudinal center of the platform. To account for this, the system 20 may be provided with a movable counterweight or adjustable independent spring to help balance an asymmetrical weight distribution. The addition of independent counterweights or independent springs allows the user to adjust the neutral position of the platform and its supported weight to be level.

The movable bicycle trainer system 20 described above offers several benefits over previous bicycle trainer systems. In order to reduce peak saddle pressure, which has a significant impact on user comfort, previous trainers would either 1) require a large flywheel-based trainer unit to smooth out the rider's pedal stroke or 2) incorporate realistic movement into the trainer, for instance, allowing for side-to-side tilting

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movements or fore and aft movements. To smooth out the rider's pedal stroke, a direct drive trainer unit as shown can rapidly change the resistance based on the position of the pedal stroke, with greater resistance being generated during the high torque part of the user's pedal stroke and less resistance during the dead spot of the user's pedal cycle.

Additionally, the amount of resistance can be adjusted based on sensor readings, for instance, using accelerometer-based cadence sensors, reed switch sensors, position sensors, and other sensors as would be known to one of ordinary skill in the art. Based on the sensor readings, resistance can be increased and decreased rapidly to allow for a full reversal within each pedal stroke. These changes in resistance can be calculated based on any number of factors, including for instance increase or decrease in torque, increase or decrease in speed, redundantly positive or negative acceleration, increase or decrease in instantaneous power, or derivatives of power. Similarly, the resistance could be calculated based on any combination of these factors. The adjustments in resistance can be achieved, for instance, using electromagnetic coils, although a motor controller including a drive and a brake could similarly be used. However, any number of other methods of generating resistance could similarly be employed. For instance, these could include systems that deposit generated power into resistors, systems that dissipate power through eddy current resistance, and friction-based systems.

Previously, the two options stated above were not compatible with one another primarily because the weight associated with a large flywheel-based trainer unit resulted in significant gyroscopic stability, which made it difficult to simulate realistic movement during use of the trainer system. However, by using the embodiments described above, the movable direct drive-type bicycle trainer system 20 generates both the smooth pedal stroke associated with use of a heavy flywheel-based trainer unit, while also allowing for realistic movement of the system 20 in the form of fore and aft and rocking or tilting movement.

The system 20 has been shown and described as being used in combination with an exercise device such as a bicycle/trainer combination or a stand-alone indoor cycle or spin bike. It should be understood, however, that the system 20 may be used in other applications that do not involve an exercise device. For example, and without limitation, it is contemplated that the system 20 may be employed in an application in which a user positions his or her body on the platform of system 20, in either a standing position or a non-standing position, and engages in movements such as, but not limited to, aerobic exercises, yoga, Pilates, stretching, boxing, jumping rope, etc., to assist in the development of core strength and/or balance.

It should be understood that the invention is not limited in its application to the details of construction and arrangements of the components set forth herein. The invention is capable of other embodiments and of being practiced or carried out in various ways. Variations and modifications of the foregoing are within the scope of the present invention. It is also understood that the invention disclosed and defined herein extends to all alternative combinations of two or more of the individual features mentioned or evident from the text and/or drawings. All of these different combinations constitute various alternative aspects of the present invention. The embodiments described herein explain the best modes known for practicing the invention and will enable others skilled in the art to utilize the invention.

CLAIMS

I claim:

1. A movable bicycle trainer system comprising:
at least one platform configured to allow realistic movement of a bicycle relative to the at least one platform during operation of the bicycle.
2. The movable bicycle trainer of claim 1, wherein the at least one platform allows for fore and aft movement of the bicycle.
3. The movable bicycle trainer of claim 1, wherein the at least one platform allows for tilting movement of the bicycle.
4. The moveable bicycle trainer of claim 1, wherein the bicycle returns to a neutral position relative to the at least one platform after the realistic movement of bicycle.
5. A movable bicycle trainer system comprising:
a base;
a frame pivotably mounted to the base;
a platform secured to the frame configured to support a bicycle;
wherein the frame and the platform are configured to allow fore-and-aft and tilting movement of the bicycle relative to the base.
6. The movable bicycle trainer system of claim 5, wherein the frame further comprises:
a support member rotatable about the base; and

a plurality of inverted U-shaped beads formed in an underside of the support member; and

wherein the base further comprises a plurality of rollers configured to correspond to the plurality of inverted U-shaped beads.

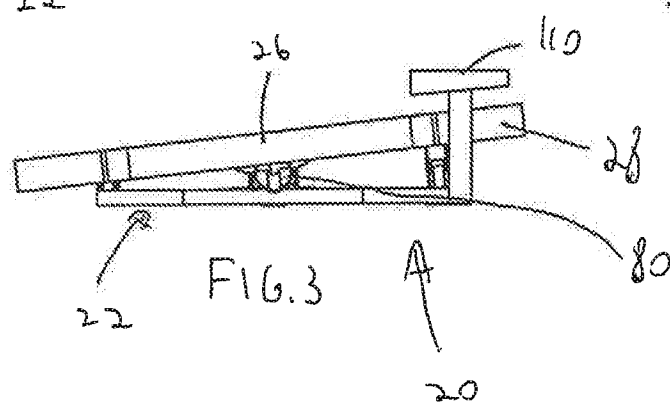
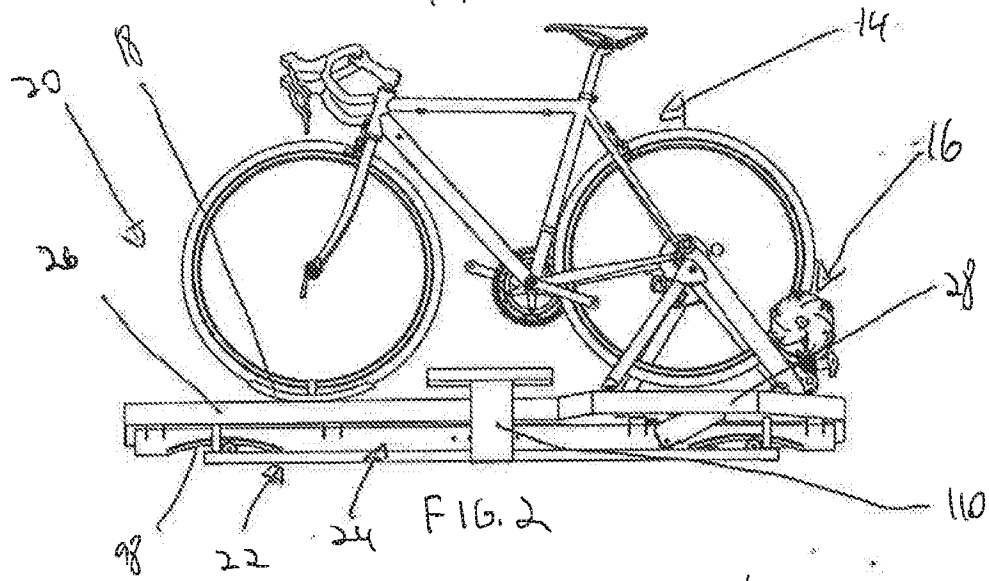
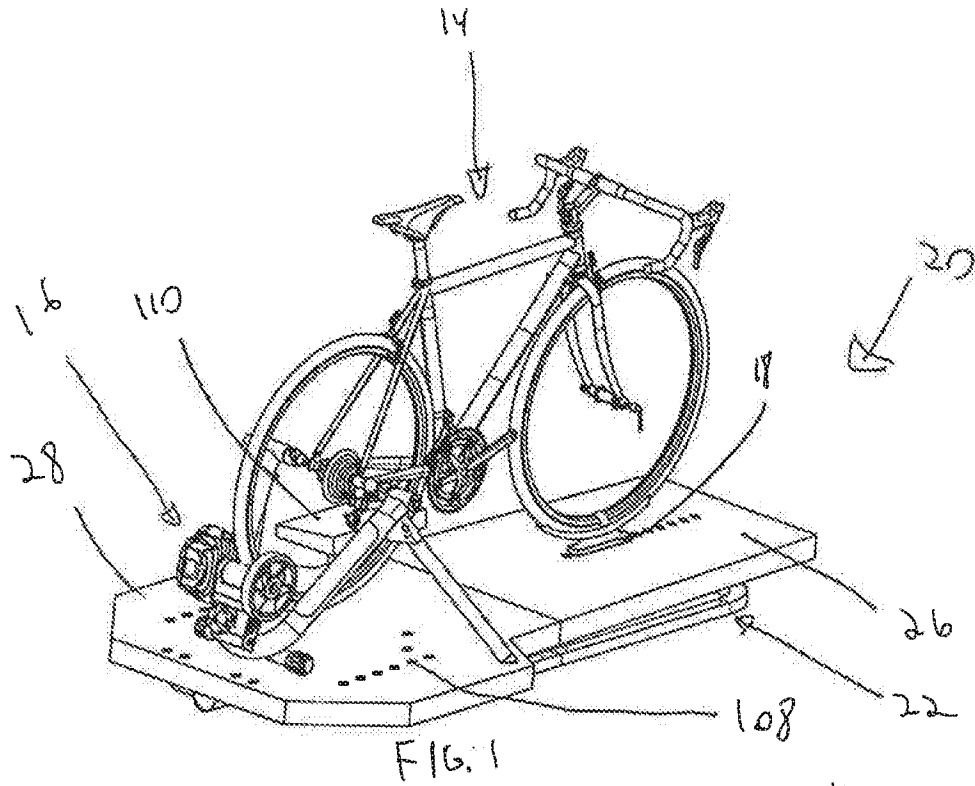
7. The movable bicycle trainer system of claim 6, wherein the support member is a center tube that extends longitudinally along the length of the frame;

wherein the plurality of U-shaped beads is configured to allow the plurality of rollers to pivot to facilitate rocking or tilting movement of the frame relative to the base; and

wherein the plurality of inverted U-shaped beads is configured to allow for fore and aft movement of the frame relative to the base.

8. The movable bicycle trainer system of claim 5, further comprising a resistance arrangement that simulates inertia of movement of the bicycle.

9. A movable exercise system comprising at least one platform configured to support a user and allow fore-and aft and tilting movement of the user during exercise.



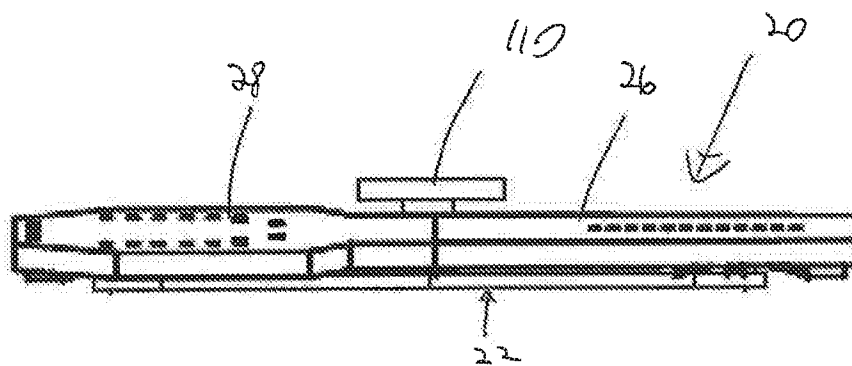


FIG. 4

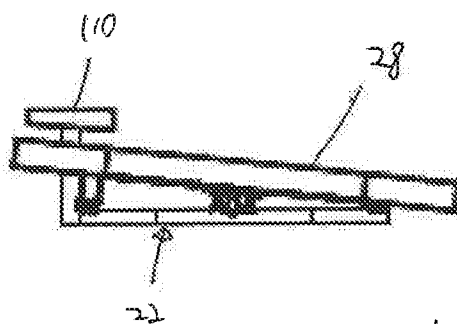


FIG. 5

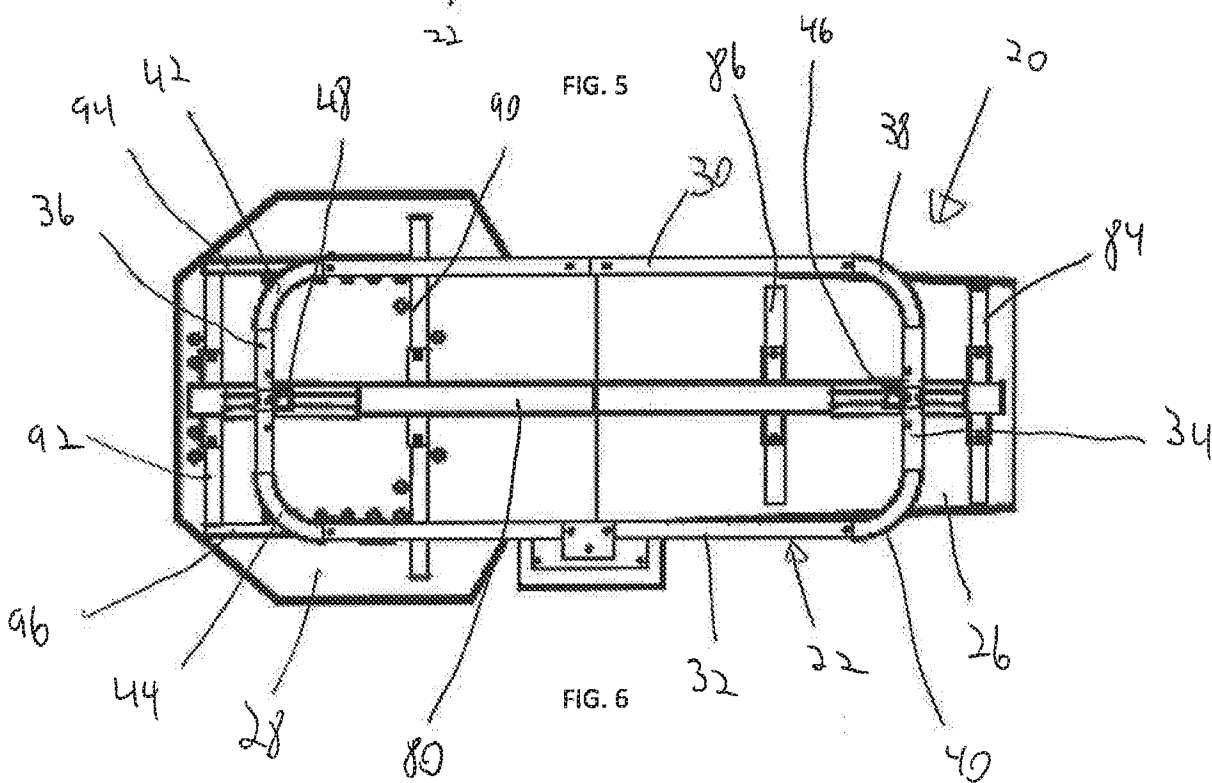
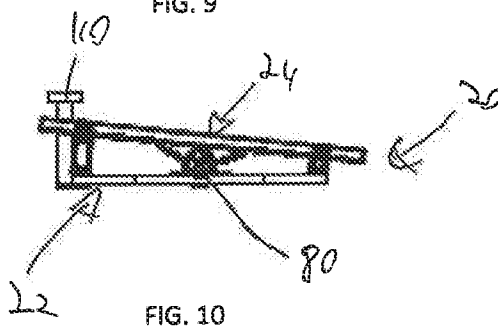
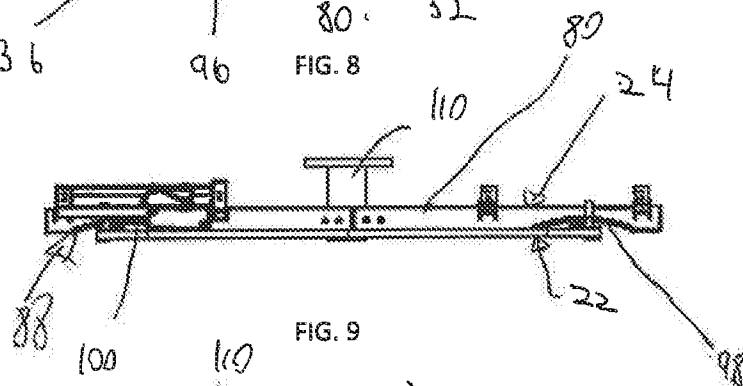
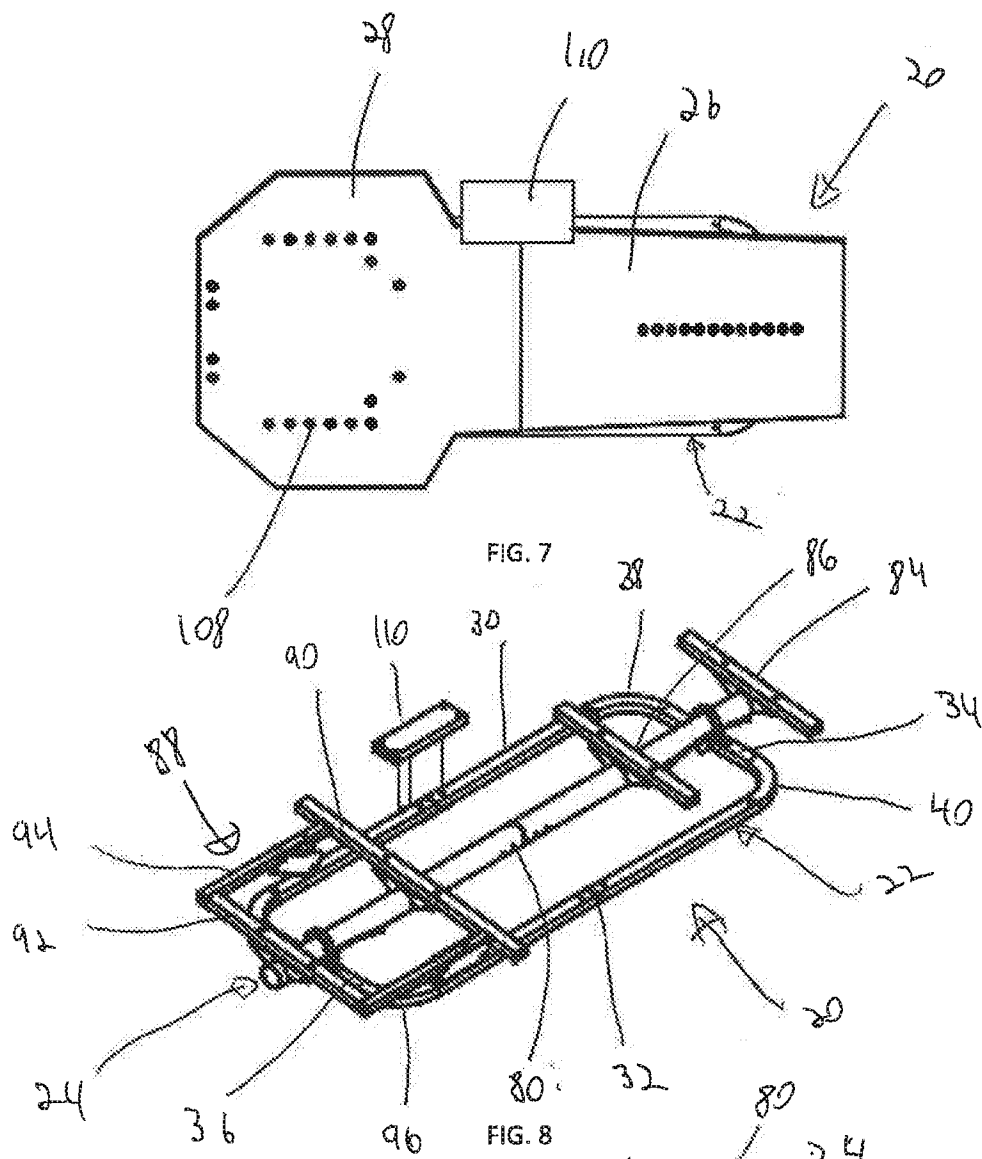
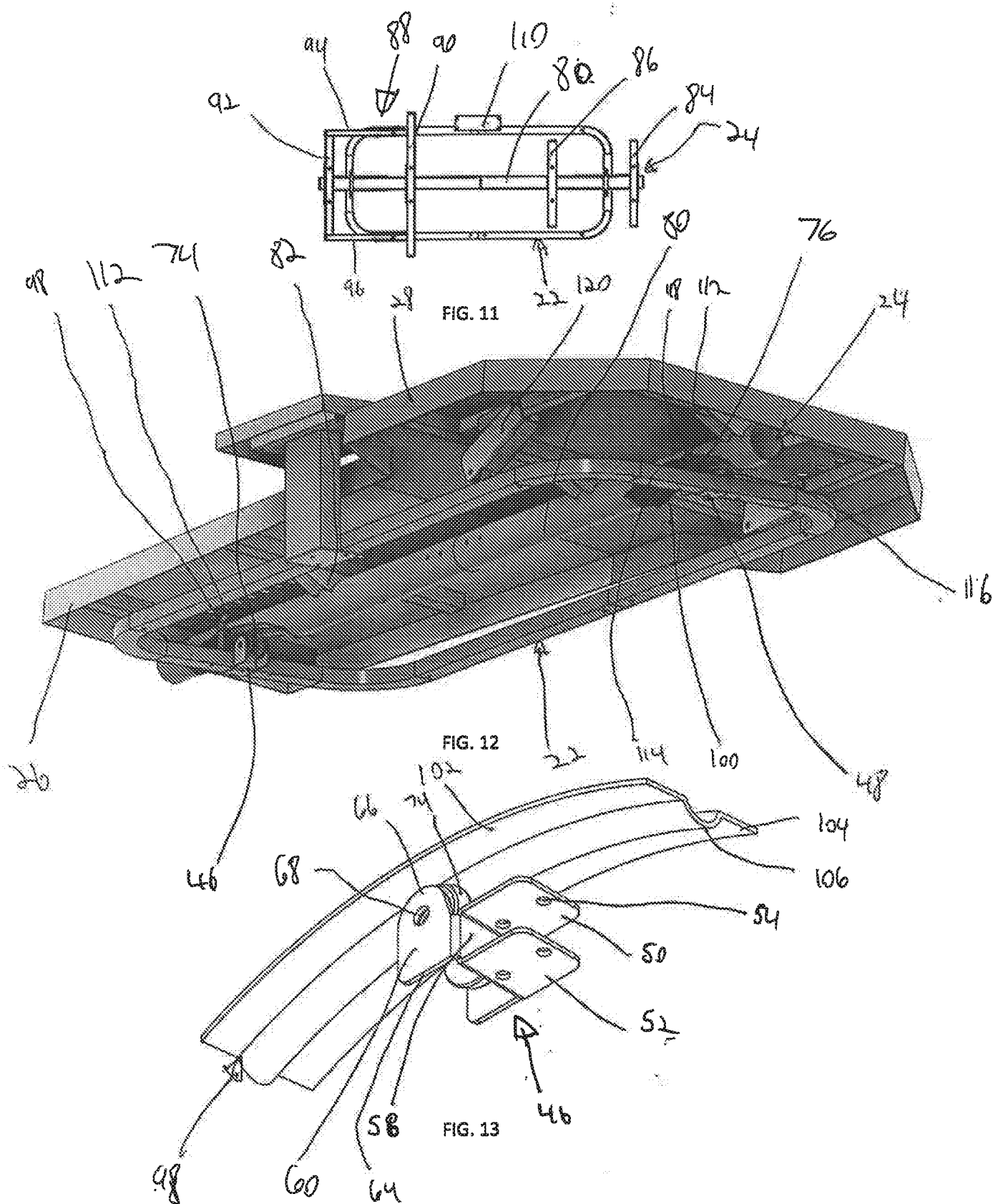
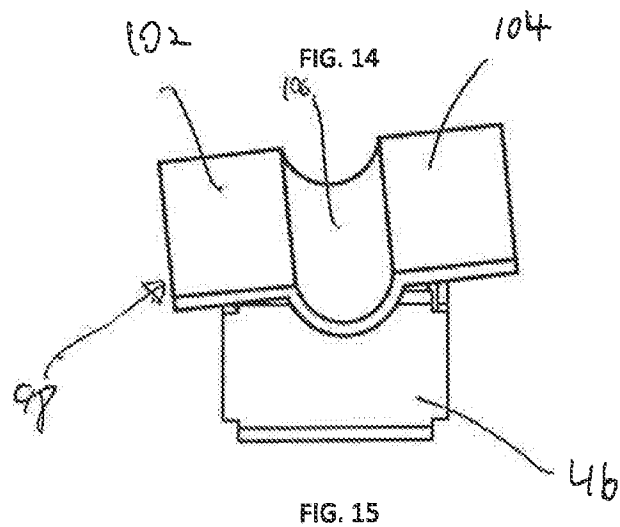
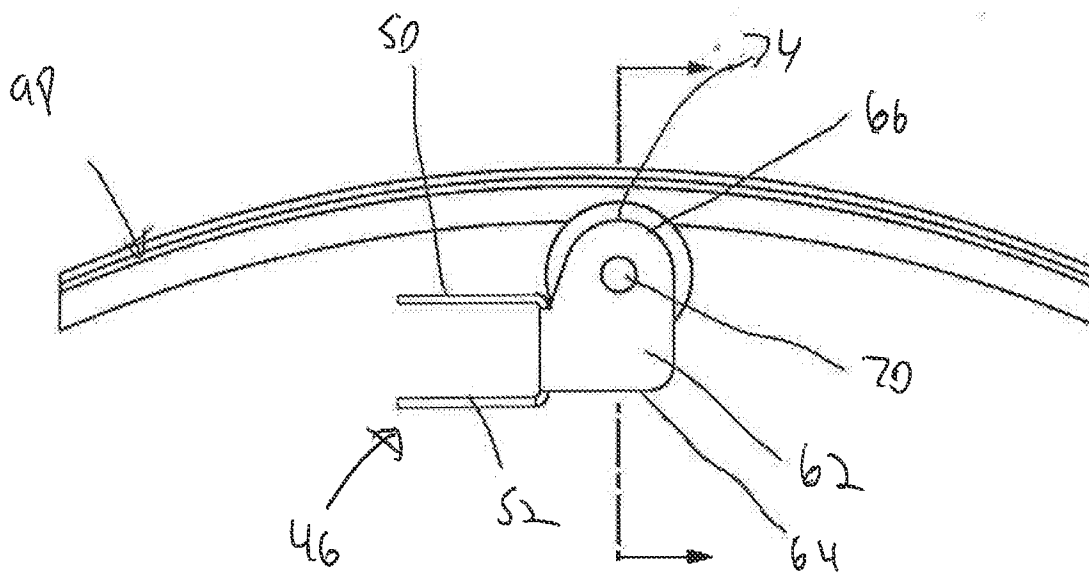
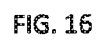


FIG. 6









Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		Movable Bicycle Trainer Platform		
First Named Inventor/Applicant Name:		Benjamin Raymond Bass		
Filer:		Andrew S. McConnell/Dawn Oleszak		
Attorney Docket Number:		376.648		
Filed as Small Entity				
Filing Fees for Provisional				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
PROVISIONAL APPLICATION FILING FEE	2005	1	140	140
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				140

Electronic Acknowledgement Receipt

EFS ID:	31932297
Application Number:	62637003
International Application Number:	
Confirmation Number:	9472
Title of Invention:	Movable Bicycle Trainer Platform
First Named Inventor/Applicant Name:	Benjamin Raymond Bass
Customer Number:	23598
Filer:	Andrew S. McConnell/Dawn Oleszak
Filer Authorized By:	Andrew S. McConnell
Attorney Docket Number:	376.648
Receipt Date:	01-MAR-2018
Filing Date:	
Time Stamp:	14:12:30
Application Type:	Provisional

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 140
RAM confirmation Number	030218INTEFSW00000493501170
Deposit Account	501170
Authorized User	Dawn Oleszak

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IPR 2024-01294

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		ProvisionalPatentApplication.pdf	1665273	yes	27
			4ac3e0dbeff8d36dc41ed7d8d1248aa6575f6b02		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Provisional Cover Sheet (SB16)		1	2	
	Application Data Sheet		3	8	
	Specification		9	19	
	Claims		20	21	
	Drawings-only black and white line drawings		22	27	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30054	no	2
			46749ef70a0d8273f3b1616f52df642d5601fe97		
Warnings:					
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Total Files Size (in bytes):			1695327		

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
62/637,003	03/01/2018		140	376.648		

23598
BOYLE FREDRICKSON S.C.
840 North Plankinton Avenue
MILWAUKEE, WI 53203

CONFIRMATION NO. 9472
FILING RECEIPT



Date Mailed: 03/07/2018

Receipt is acknowledged of this provisional patent application. It will not be examined for patentability and will become abandoned not later than twelve months after its filing date. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

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Applicant(s)

Saris Cycling Group, Inc., Madison, WI;

Power of Attorney:

Andrew McConnell--32272

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

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If Required, Foreign Filing License Granted: 03/06/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 62/637,003**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Movable Bicycle Trainer Platform

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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