A station for inflating an inflatable toy tire is described. The station includes a base with an air pump attached to the base. An air nozzle attachment is attached to the base for attaching with an air nozzle on an inflatable toy tire. An air line is included that connects the air pump with the air nozzle attachment. An inflatable toy tire is described that is formed to be attached with the air nozzle. Using the station, a user may attach the inflatable toy tire with the air nozzle attachment and pump the air pump to inflate the inflatable toy tire. Additionally, the inflatable toy tire is formed to be used with devices other than the station, such as a launcher.
STATION FOR INFLATING AN INFLATABLE TOY TIRE

PRIORITY CLAIM

[0001] This application is a non-provisional application, claiming the benefit of priority to provisional application No. 60/604,283, filed in the United States on Aug. 25, 2004, titled, “Wheel Spinning Launcher and Wheel Toy.”

BACKGROUND OF THE INVENTION

[0002] (1) Field of Invention

[0003] The present invention relates to an inflatable toy tire and, more particularly, to a toy pumping station for inflating an inflatable toy tire and a launcher for launching the inflatable toy tire once inflated.

[0004] (2) Description of Related Art

[0005] Toy cars have long been known in the art. Toy cars typically include four solid wheels. However, in some cases it may be desirable to use an inflatable toy tire.

[0006] Additionally, the Applicant previously filed provisional application No. 60/604,283, entitled, “Wheel Spinning Launcher and Wheel Toy” (hereinafter referred to as the ’283 application). The ’283 application disclosed a wheel launcher for launching a toy wheel. As is the case with toy cars, in some circumstances it may be desirable to use an inflatable wheel with the wheel launcher.

[0007] A pump is needed (required) when using an inflatable wheel for a toy car or the toy launcher. Thus, a continuing need exists for a toy tire pumping station and an inflatable toy tire, with the inflatable toy tire being inter-changeably usable with a wheel launcher.

SUMMARY OF INVENTION

[0008] The present invention relates to a station for inflating an inflatable toy tire. The station comprises a base with an air pump attached with the base. An air nozzle attachment is also attached with the base. The air nozzle attachment is configured to be attached with an air nozzle on an inflatable toy tire. An air line is included to connect the air pump with the air nozzle attachment. A user may attach an inflatable toy tire with the air nozzle attachment and pump the air pump to inflate the inflatable toy tire.

[0009] The present invention further comprises an inflatable toy tire for connecting with the air nozzle attachment. The inflatable toy tire includes a wheel, an air nozzle, and an inflatable tire, whereby when air is inserted through the air nozzle, the inflatable tire is inflated.

[0010] The present invention further comprises an air gauge attached with the air line, such that as the inflatable tire is inflated, air pressure in the inflatable toy tire and thereby the air line causes the air gauge to reflect the air pressure in the inflatable toy tire.

[0011] The present invention further comprises a tire measurement apparatus attached with the base. The tire measurement apparatus is configured to measure varying widths of the inflatable toy tire.

[0012] In another aspect, the present invention further comprises an air release key for releasing air from the inflatable toy tire. The air release key is formed to engage with the air nozzle such that when engaged, air is released from the inflatable toy tire.

[0013] In yet another aspect, the inflatable toy tire further includes a central rotor element.

[0014] In another aspect, the present invention further comprises a tire mount attached with the base. The tire mount includes a hub formed to connect with the central rotor element for mounting the inflatable toy tire. The hub is positioned such that when the inflatable toy tire is mounted, the air nozzle on the inflatable tire is alignable with the air nozzle attachment, thereby allowing a user to position the inflatable toy tire onto the tire mount and connecting the air nozzle with the air nozzle attachment.

[0015] In another aspect, the inflatable toy tire is formed to be used with a device other than the station.

[0016] In yet another aspect, the device other than the station is a launcher for launching the inflatable toy tire.

[0017] Finally, as can be appreciated by one skilled in the art, the present invention also comprises a method for forming the station described herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The objects, features and advantages of the present invention will be apparent from the following detailed descriptions of the various aspects of the invention in conjunction with reference to the following drawings, where:

[0019] FIG. 1 is a perspective-view illustration of a station for inflating an inflatable toy tire according to the present invention;

[0020] FIG. 2 is a perspective-view illustration of an inflatable toy tire according to the present invention;

[0021] FIG. 3 is a perspective-view illustration of a station for inflating an inflatable toy tire according to the present invention, illustrating an inflatable toy tire being attached with the station;

[0022] FIG. 4 is a perspective-view illustration of a station for inflating an inflatable toy tire according to the present invention, illustrating the inflatable toy tire attached with the station;

[0023] FIG. 5 is a front-view illustration of a station for inflating an inflatable toy tire according to the present invention;

[0024] FIG. 6 is a rear-view illustration of a station for inflating an inflatable toy tire according to the present invention;

[0025] FIG. 7 is a top-view illustration of a station for inflating an inflatable toy tire according to the present invention;

[0026] FIG. 8 is a bottom-view illustration of a station for inflating an inflatable toy tire according to the present invention;

[0027] FIG. 9 is a left, side-view illustration of a station for inflating an inflatable toy tire according to the present invention;
FIG. 10 is a right, side-view illustration of a station for inflating an inflatable toy tire according to the present invention;

FIG. 11 is a perspective-view illustration of an inflatable toy tire, a launcher, and a strip for use with the launcher, according to the present invention;

FIG. 12 is a perspective-view illustration, illustrating how the inflatable toy tire is launched and showing a launched inflatable toy tire (in dashed lines);

FIG. 13A is a top-view illustration of a gear system inside the launcher housing, according to the present invention;

FIG. 13B is a bottom-view illustration of a gear system inside the launcher housing, according to the present invention;

FIG. 14A is an illustration showing the gear system in operation, where a strip is being inserted into the launcher housing;

FIG. 14B is an illustration showing the gear system in operation, where the strip is fully inserted into the launcher housing;

FIG. 14C is an illustration showing the gear system in operation, where the strip is being removed from the launcher housing and causing the inflatable toy tire to begin spinning; and

FIG. 14D is an illustration showing the gear system in operation, where the strip is pulled through the launcher housing and the inflatable toy tire is spinning and fully launched (in dashed lines).

DETAILED DESCRIPTION

The present invention relates to an inflatable toy tire and, more particularly, to a toy pumping station for inflating an inflatable toy tire and a launcher for launching the inflatable toy tire once inflated. The following description is presented to enable one of ordinary skill in the art to make and use the invention and to incorporate it in the context of particular applications. Various modifications, as well as a variety of uses in different applications will be readily apparent to those skilled in the art, and the general principles defined herein may be applied to a wide range of embodiments. Thus, the present invention is not intended to be limited to the embodiments presented, but is to be accorded the widest scope consistent with the principles and novel features disclosed herein.

In the following detailed description, numerous specific details are set forth in order to provide a more thorough understanding of the present invention. However, it will be apparent to one skilled in the art that the present invention may be practiced without necessarily being limited to these specific details. In other instances, well-known structures and devices are shown in block diagram form, rather than in detail, in order to avoid obscuring the present invention.

The reader's attention is directed to all papers and documents which are filed concurrently with this specification and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference. All the features disclosed in this specification, (including any accompanying claims, abstract, and drawings) may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

Furthermore, any element in a claim that does not explicitly state “means for” performing a specified function, or “step for” performing a specific function, is not to be interpreted as a “means” or “step” clause as specified in 35 U.S.C. Section 112, Paragraph 6. In particular, the use of “step of” or “act of” in the claims herein is not intended to invoke the provisions of 35 U.S.C. 112, Paragraph 6.

Please note, the labels left, right, front, back, top, bottom, forward, reverse, clockwise and counter clockwise have been used for convenience purposes only and are not intended to imply any particular fixed direction. Instead, they are used to reflect relative locations and/or directions between various portions of an object. As such, as the present invention is turned around and/or over, the above labels may change their relative configurations.

Before describing the invention in detail, an introduction is provided to provide the reader with a general understanding of the present invention. Next, a description of various aspects of the present invention is provided to give an understanding of the specific details.

1) Introduction

The present invention relates to a station for inflating an inflatable toy tire and a launcher, both configured to operate with an inflatable toy tire. The station is formed to allow a user to inflate an inflatable toy tire. The inflatable toy tire can also be utilized with other devices such as a launcher. The launcher allows a user to attach the wheel with the launcher and thereby launch the inflatable toy tire. For clarity purposes, the present invention will be described in two sections, the first describing various aspects of the station with the second describing the launcher.

2.1 Detailed Description of the Station for Inflating an Inflatable Toy Tire

The present invention relates to a station for inflating an inflatable toy tire. As shown in FIG. 1, the station 100 includes a base 102, with an air pump 104 attached to the base 102. The air pump 104 is any suitable air pumping device or mechanism that allows a user to create an air flow and pump air. For example, the air pump 104 may include a handle, a canister with an inlet and outlet, a diaphragm, and a spring, such that when a user depresses the handle, air in the canister is forced through the diaphragm and out of the outlet, with the diaphragm preventing air from returning to the canister through the outlet. The spring is included to return the handle to its starting position and allow air to refill the canister through the inlet.

An air nozzle attachment 106 is attached with the base 102 to allow for inflation of an inflatable toy tire. As can be appreciated by one skilled in the art, the air nozzle attachment 106 is formed to be attached with a corresponding air nozzle of the inflatable toy tire. An air line 108 connects the air pump 104 with the air nozzle attachment 106, such that when an inflatable toy tire is connected with the air nozzle attachment 106, a user may pump the air pump...
104 to generate an air flow that flows into and inflates the inflatable toy tire. The air line 108 is any suitable mechanism or device for directing an air flow, a non-limiting example of which includes a hose.

[0048] To measure the amount of air being pumped into the inflatable toy tire, an air gauge 110 is attached with the air line 108. The air gauge 110 is attached such that as the inflatable toy tire is inflated, air pressure in the inflatable toy tire and thereby the air line causes the air gauge to reflect the air pressure in the inflatable toy tire.

[0049] A tire measurement apparatus 112 is attached with the base 102 to allow a user to measure varying widths of the inflatable toy tire. For example, as the inflatable toy tire becomes inflated, its width is apt to change. As such, a user may utilize the tire measurement apparatus 112 to measure the changing width. The tire measurement apparatus 112 is any suitable mechanism or device for measuring varying widths of toy tires, a non-limiting example of which includes two, sliding, wedge-shaped blocks 114. The wedge-shaped blocks 114 are affixed with the base 102 through a slider rail 116. The slider rail 116 allows the wedge-shaped blocks 114 to slide outward 118 to accommodate inflatable toy tires of varying widths.

[0050] An air release key 120 is included for releasing air from the inflatable toy tire. The base 102 includes a key holder 122 for holding the air release key 120 when not in use. The air release key 120 is any suitable mechanism or device for releasing air from the inflatable toy tire, a non-limiting example of which includes a push rod for depressing a central pin in an air nozzle.

[0051] As shown in FIG. 2, the present invention also comprises an inflatable toy tire 200 for connecting with the air nozzle attachment. The inflatable toy tire 200 includes a wheel 202, an air nozzle 204, and an inflatable tire 206. As can be appreciated by one skilled in the art, the air nozzle 204 is any suitable mechanism or device to selectively pass air therethrough, a non-limiting example of which includes a standard air nozzle cylinder 207 with central pin 209. The air nozzle 204 provides a channel to an interior of the inflatable tire 206, such that as air is inserted through the air nozzle 204, the inflatable tire 206 becomes inflated. The inflatable toy tire 200 also includes a central rotor element 208.

[0052] The central rotor element 208 serves a dual purpose, allowing the inflatable toy tire 200 to be mounted onto the station, and to engage with a launcher. As described in further detail below, a wheel engagement apparatus 210 is formed on the central rotor element 208 to engage with a corresponding section of the launcher.

[0053] As shown in FIG. 3, the inflatable toy tire 200 is formed to be mounted onto the station 100. A tire mount 300 is attached with the base 102 to allow for attachment of the inflatable toy tire 200. The tire mount 300 is any suitable mechanism or device for holding the inflatable toy tire 200 in place, a non-limiting example of which includes a hollow hub, formed to allow the central rotor element 208 to be positioned therein. Once the central rotor element 208 is slid into the hollow hub, the inflatable toy tire 200 is securely affixed with the station 100. The tire mount 300 is positioned such that when the inflatable toy tire 200 is mounted, the air nozzle 204 on the inflatable toy tire 200 is alignable with the air nozzle attachment 106. By positioning the inflatable toy tire 200 onto the tire mount 300, a user may then connect the air nozzle 204 with the air nozzle attachment 106 by aligning the two and then pushing the inflatable toy tire 200 further onto the tire mount 300.

[0054] FIG. 4 illustrates an inflatable toy tire 200 attached with the station 100. Once attached, a user may inflate the inflatable toy tire 200 by pumping the pump 104 and thereby forcing air into the inflatable toy tire 200. After being inflated, a user may deflate the inflatable toy tire 200 using the air release key 120. The air release key 120 can be removed from the key holder 122 and then used to depress the central pin of the air nozzle, thereby opening the air nozzle and releasing air trapped within the inflatable toy tire 200.

[0055] For further illustration, FIGS. 5 through 10 illustrate various viewpoints of the station 100 with an attached inflatable toy tire 200. FIG. 5 is a front-view illustration; FIG. 6 is a rear-view illustration; FIG. 7 is a top-view illustration; FIG. 8 is a bottom-view illustration; FIG. 9 is a left, side-view illustration; and FIG. 10 is a right, side-view illustration.

[0056] As shown in FIG. 8, the wedge-shaped blocks 114 are affixed with the base 102 using a slider rail 116. As discussed above, the slider rail 116 allows a user to slide the wedge-shaped blocks 114 to accommodate inflatable toy tires of varying widths.

[0057] As can be appreciated by one skilled in the art, the present invention also comprises a method for forming the station described herein. The method includes acts of forming a base 102; attaching an air pump 104 with the base 102; attaching an air nozzle attachment 106 with the base 102; and connecting an air line 108 between the air pump 104 and the air nozzle attachment 106.

[0058] (2.2) Detailed Description of the Launcher

[0059] As noted above, the inflatable toy tire 200 is configured to be connected with other devices, such as a launcher. Accordingly, the present invention also includes a launcher to launch the inflatable toy tire 200. As shown in FIG. 11, the present invention comprises a launcher 1100 and a strip 1102 for launching the inflatable toy tire 200.

[0060] The launcher 1100 has a housing 1106 with an opening 1108 passing through the housing 1106. The housing 1106 also includes a top surface 1110 from which a rotating end 1112 protrudes. A handle 1114 is included to allow a user to securely grasp the launcher 1100.

[0061] The strip 1102 (i.e., ripcord) has teeth 1116 on one side of its longitudinally extending strip like surface. The strip 1102 is formed to be passed through the opening 1108 in the housing 1106 and engage with gears therein.

[0062] The inflatable toy tire 200 includes a central rotor element 208 that is formed in a suitable manner to be attached with the rotating end 1112. As a non-limiting example, the central rotor element 208 includes a hollow space 1118 for placement of the rotating end 1112 therein. Additionally, a wheel engagement apparatus 210 is formed to engage with a corresponding rotating-end engagement apparatus 1122, such that as the rotating end 1112 rotates, the rotating-end engagement apparatus 1122 engages with the wheel engagement apparatus 210 to cause the inflatable toy tire 200 to spin.
FIG. 12 illustrates the inflatable toy tire 200 being launched from the launcher 1100. The teeth 1116 of the strip 1102 engage with teeth on the gears (inside the housing) when the strip 1102 is inserted through the opening 1108 and into the launcher 1100 housing 1106. When the strip 1102 is pulled out 1200 of the housing 1106 it causes the gears (inside the housing) to rotate the rotating end, with the rotating end engaging with and rotating the central rotor element of the inflatable toy tire 200 so that the wheel 200 spins 1202 and is launched from the launcher 1100 housing 1106. After being launched from the launcher 1100, the inflatable toy tire 200 spins away 1204 from the launcher 1100.

FIGS. 13A and 13B illustrate top and bottom views respectively of a gear system 1300 inside the launcher housing 1106. As shown in FIGS. 13A and 13B, the inside of the housing 1106 includes a plurality of gears. In operation, the strip 1102 is inserted through the opening 1108 of the housing 1106 and into the gear system 1300. The teeth 1116 of the strip 1102 engage with the teeth on the gear A1. Working on the same axle 1302, the strip 1102 drives the combination of gears A1 and A2. The rotating end 1112 and gear B work together on the same axle 1304, such that the rotating end 1112 rotates in the same direction as gear B when gear B is rotated.

Both the rotating end 1112 and gear B’s rotation is slow when the strip 1102 is slowly inserted into the housing 1106. When the strip 1102 is pulled from the housing 1106, all the gears in the gear system 1200 work. When the strip 1102 is pulled from the housing 1106, gears A1 and A2 rotate. Gear A2 drives gear B, which causes the rotating end 1112 to rotate. The gears will continue to rotate as the strip 1102 is pulled out of the housing 1106 and away from the gear system 1300. As the gears rotate, the rotating-end engagement apparatus 1122 causes the inflatable toy tire to spin off of the rotating end 1112 and away from the housing 1106.

Additionally, a wheel engagement apparatus 210 is formed to engage with a corresponding rotating-end engagement apparatus 1122, such that as the rotating end 1112 rotates, the rotating-end engagement apparatus 1122 engages with the wheel engagement apparatus 210 to cause the inflatable toy tire 200 to spin.

FIG. 13A illustrates the correct position to operate the launcher 1100. A user holds the launcher 1100 in the user’s left hand and pulls the strip with the user’s right hand. In such a configuration, the strip passes along a top side of the gear system 1300. When held in the position shown in FIG. 13A, a stopper 1306 falls back and away 1308 from an inserted strip, allowing the strip to slide freely through the housing 1106.

Alternatively and as shown in FIG. 13B, when the housing 1106 is flipped over, the stopper 1306 will fall down 1310 to engage with the strip 1102. Through use of the stopper 1306, the strip 1102 can only be inserted into the housing 1106 from one direction, thereby only allowing a user to launch the wheel away from the user.

For further clarification, FIGS. 14A through 14D illustrate the launcher gear system in operation. FIG. 14A illustrates the strip 1102 with teeth 1116 being introduced to the gear system 1300. Through its plurality of gears, the gear system 1300 is attached with the inflatable toy tire 200. As shown in FIG. 14B, as the strip 1102 is inserted 1400 into the gear system 1300, gears A1 and A2 turn in a first direction 1402, while gear B turns in a second direction 1404. FIG. 14C illustrates the strip 1102 being removed 1406 from the launcher, thereby causing the gear system 1300 to rotate the inflatable toy tire 200 in the first direction 1402. Finally, FIG. 14D illustrates the strip 1102 being pulled through the gear system 1300 to cause the inflatable toy tire 200 to launch and spin away from the launcher.

It should be noted that the gear system described herein references a specific gear configuration for illustrative purposes only, and that it is not intended to be limited thereto. As can be appreciated by one in the art, there are many gear system configurations that can be utilized to cause the inflatable toy tire to spin away from the launcher.

Finally, present invention also includes a kit for using the inflatable toy tire 200 and a method for forming the station 100. The kit comprises the pumping station 100 and launcher 1100. The method comprises acts of forming and connecting the respective parts of the station 100 described herein.

What is claimed is:
1. A station for inflating an inflatable toy tire, comprising:
   a base;
   an air pump attached with the base;
   an air nozzle attachment attached with the base, the air nozzle attachment configured to be attached with an air nozzle on an inflatable toy tire; and
   an air line connecting the air pump with the air nozzle attachment, whereby a user may attach an inflatable toy tire with the air nozzle attachment and pump the air pump to inflate the inflatable toy tire.
2. A station as set forth in claim 1, further comprising an inflatable toy tire for connecting with the air nozzle attachment, the inflatable toy tire having a wheel, an air nozzle, and an inflatable tire, whereby when air is inserted through the air nozzle, the inflatable tire is inflated.
3. A station as set forth in claim 2, further comprising an air gauge attached with the air line, such that as the inflatable tire is inflated, air pressure in the inflatable toy tire and thereby the air line causes the air gauge to reflect the air pressure in the inflatable toy tire.
4. A station as set forth in claim 3, further comprising a tire measurement apparatus attached with the base, the tire measurement apparatus being configured to measure varying widths of the inflatable toy tire.
5. A station as set forth in claim 4, further comprising an air release key for releasing air from the inflatable toy tire, where the air release key is formed to engage with the air nozzle such that when engaged, air is released from the inflatable toy tire.
6. A station as set forth in claim 5, wherein the inflatable toy tire further includes a central rotor element.
7. A station as set forth in claim 6, further comprising a tire mount attached with the base, the tire mount including a hub formed to connect with the central rotor element for mounting the inflatable toy tire, the hub being positioned such that when the inflatable toy tire is mounted, the air nozzle on the inflatable tire is alignable with the air nozzle attachment, thereby allowing a user to position the inflatable
toy tire onto the tire mount and connecting the air nozzle with the air nozzle attachment.

8. A station as set forth in claim 7, wherein the inflatable toy tire is formed to be used with a device other than the station.

9. A station as set forth in claim 8, wherein the device other than the station is a launcher for launching the inflatable toy tire.

10. A station as set forth in claim 1, further comprising an air gauge attached with the air line, such that as the inflatable tire is inflated, air pressure in the inflatable toy tire and thereby the air line causes the air gauge to reflect the air pressure in the inflatable toy tire.

11. A station as set forth in claim 1, further comprising a tire measurement apparatus attached with the base, the tire measurement apparatus being configured to measure varying widths of the inflatable toy tire.

12. A station as set forth in claim 1, further comprising an air release key for releasing air from the inflatable toy tire, where the air release key is formed to engage with the air nozzle such that when engaged, air is released from the inflatable toy tire.

13. A station as set forth in claim 2, wherein the inflatable toy tire further includes a central rotor element.

14. A station as set forth in claim 13, further comprising a tire mount attached with the base, the tire mount including a hub formed to connect with the central rotor element for mounting the inflatable toy tire, the hub being positioned such that when the inflatable toy tire is mounted, the air nozzle on the inflatable tire is alignable with the air nozzle attachment, thereby allowing a user to position the inflatable toy tire onto the tire mount and connecting the air nozzle with the air nozzle attachment.

15. A station as set forth in claim 2, wherein the inflatable toy tire is formed to be used with a device other than the station.

16. A station as set forth in claim 15, wherein the device other than the station is a launcher for launching the inflatable toy tire.

17. A method for forming a station for inflating an inflatable toy tire, the method comprising acts of:

   forming a base;

   attaching an air pump with the base;

   attaching an air nozzle attachment with the base, the air nozzle attachment configured to be attached with an air nozzle on an inflatable toy tire; and

   connecting an air line between the air pump and the air nozzle attachment, whereby a user may attach an inflatable toy tire with the air nozzle attachment and pump the air pump to inflate the inflatable toy tire.

   * * * * *