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(54) **MULTIPLE ROLLER SKATEBOARD TRUCK**

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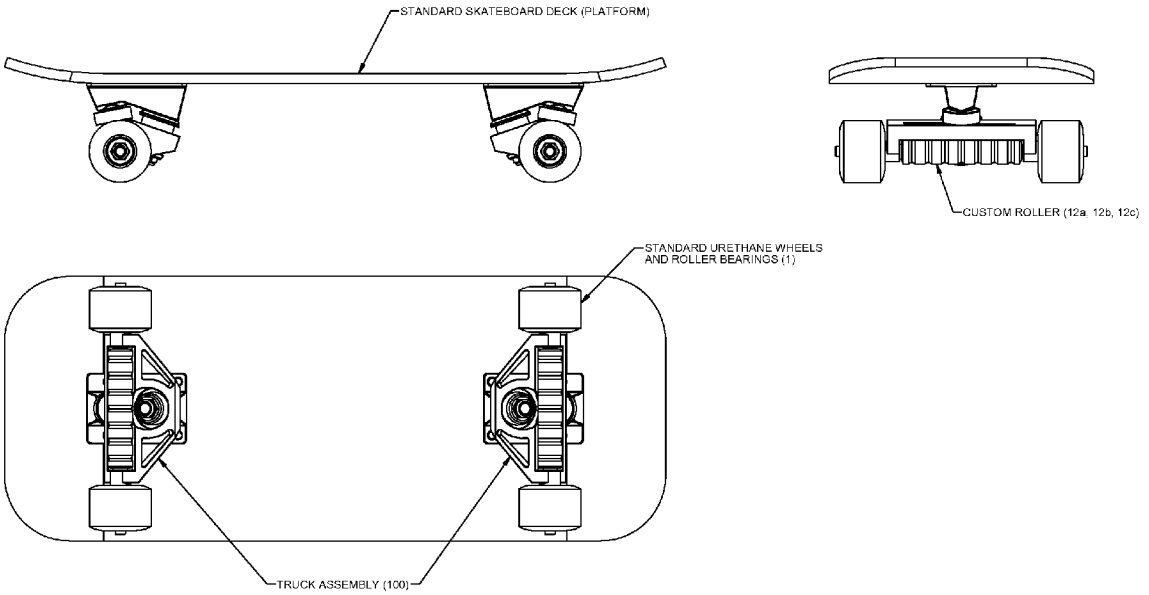
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(57) **ABSTRACT**

An innovative truck assembly for a skateboard including a combination of configurable coaxial roller designs coupled with transverse roller bearings which enable the user skilled in the art to negotiate uneven terrain while providing various degrees of motion and assisting in the prevention of damage to the equipment, the user, and to private and public property. It also eliminates the need for waxing various surfaces for the intended purposes of reducing friction against non-rotating members of the current truck designs. The combinations stated in the embodiment can be altered to suit the various skill levels of the user and each configuration can provide the necessary means to accomplish the various types of maneuvers with inanimate objects with greater ease and responsiveness for the rider.



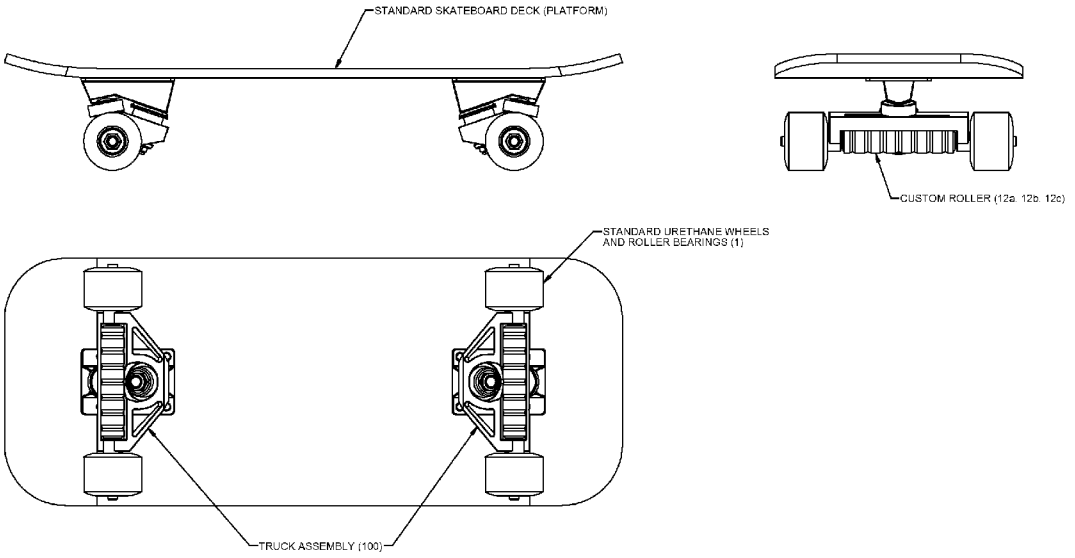

STANDARD SKATEBOARD DECK (PLATFORM)
CUSTOM ROLLER (12a, 12b, 12c)
STANDARD URETHANE WHEELS AND ROLLER BEARINGS (1)
TRUCK ASSEMBLY (100)

FIG 1

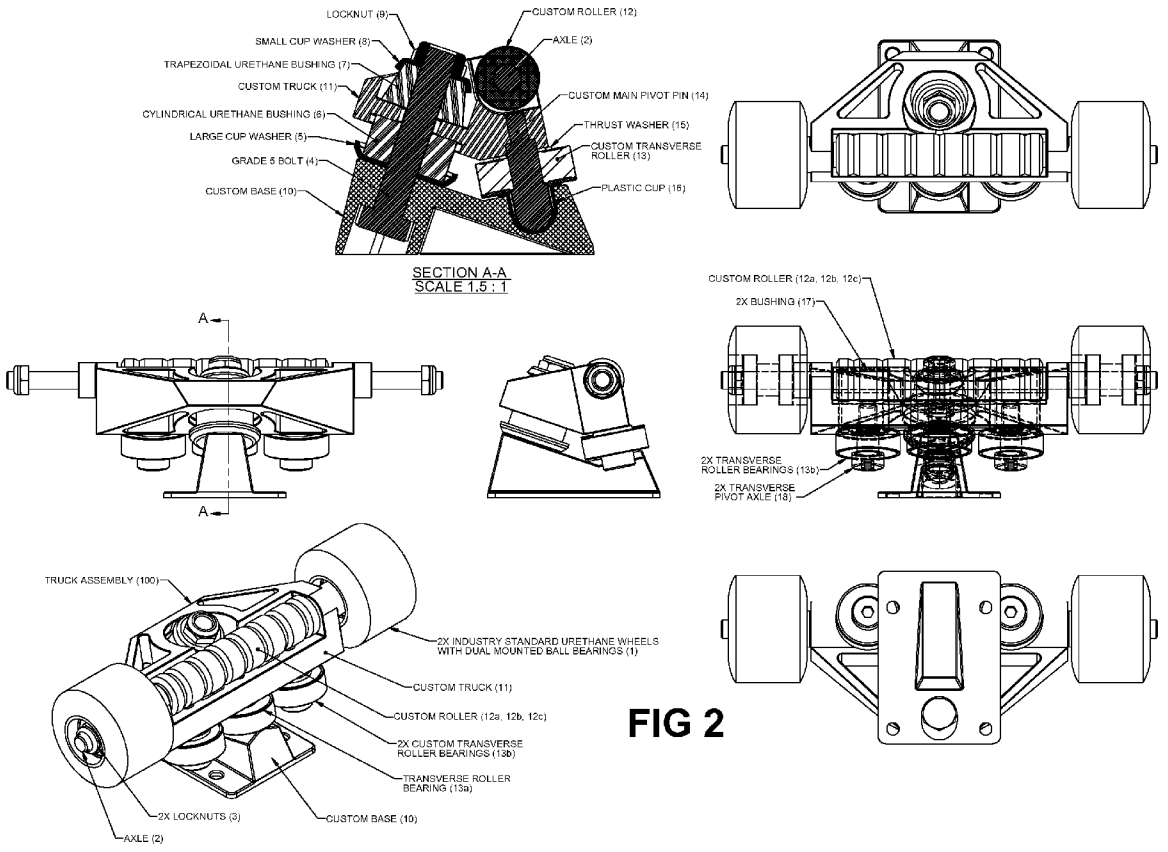

LOCKNUT (9)
SMALL CUP WASHER (8)
TRAPEZOIDAL URETHANE BUSHING (7)
CUSTOM TRUCK (11)
CYLINDRICAL URETHANE BUSHING (6)
LARGE CUP WASHER (5)
GRADE 5 BOLT (4)
CUSTOM BASE (10)
CUSTOM ROLLER (12)
AXLE (2)
CUSTOM MAIN PIVOT PIN (14)
THRUST WASHER (15)
CUSTOM TRANSVERSE ROLLER (13)
PLASTIC CUP (16)
SECTION A-A
SCALE 1.5 : 1
A
A
CUSTOM ROLLER (12a, 12b, 12c)
2X BUSHING (17)
2X TRANSVERSE ROLLER BEARINGS (13b)
2X TRANSVERSE PIVOT AXLE (18)
TRUCK ASSEMBLY (100)
2X INDUSTRY STANDARD URETHANE WHEELS WITH DUAL MOUNTED BALL BEARINGS (1)
CUSTOM TRUCK (11)
CUSTOM ROLLER (12a, 12b, 12c)
2X CUSTOM TRANSVERSE ROLLER BEARINGS (13b)
TRANSVERSE ROLLER BEARING (13a)
2X LOCKNUTS (3)
CUSTOM BASE (10)
AXLE (2)

FIG 2

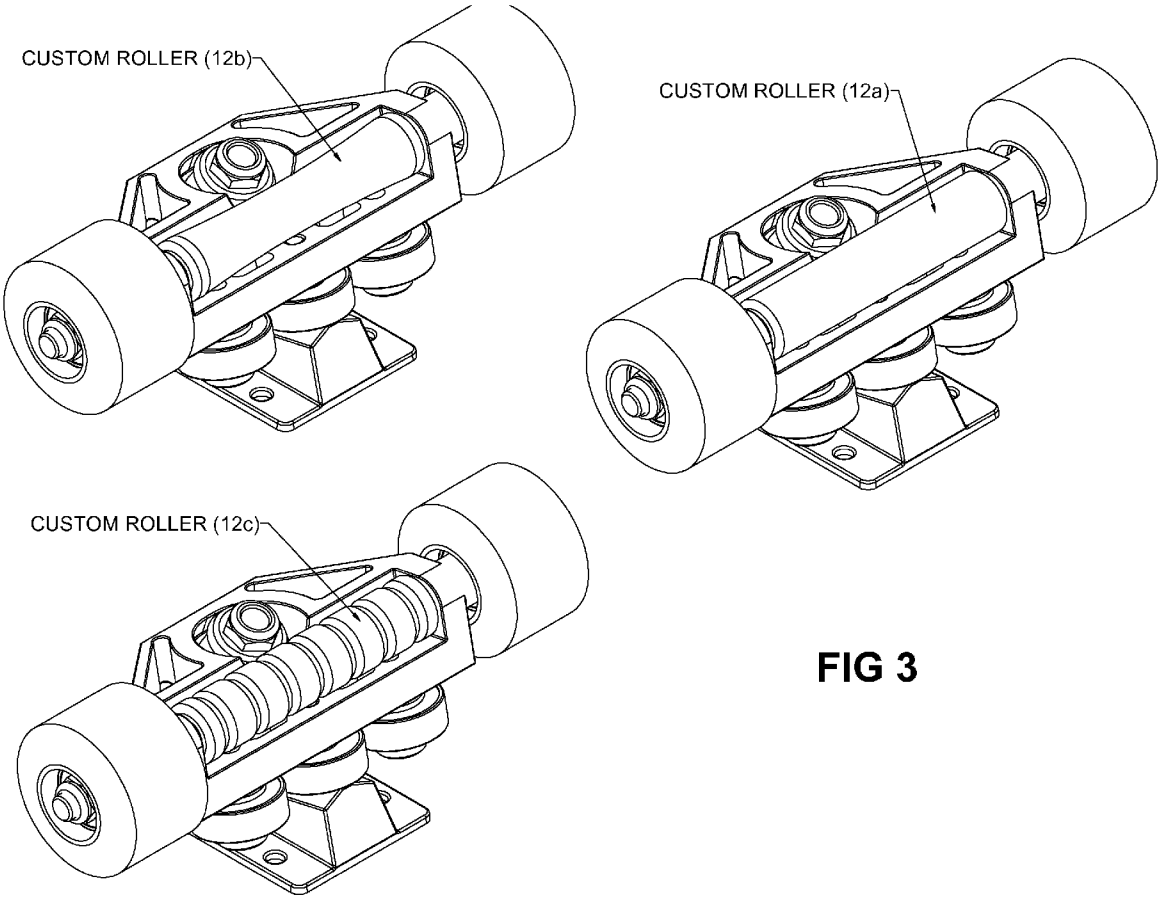


FIG 3

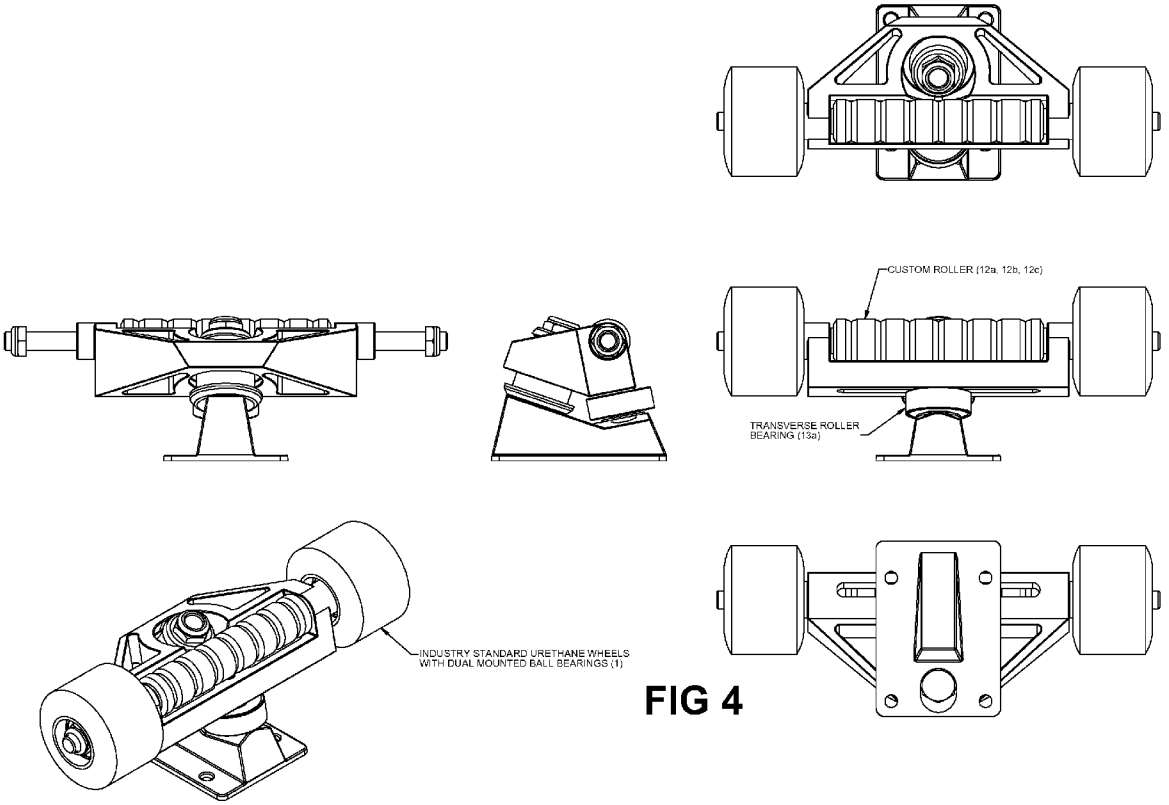

CUSTOM ROLLER (12a, 12b, 12c)
TRANSVERSE ROLLER BEARING (13a)
INDUSTRY STANDARD URETHANE WHEELS WITH DUAL MOUNTED BALL BEARINGS (1)

FIG 4

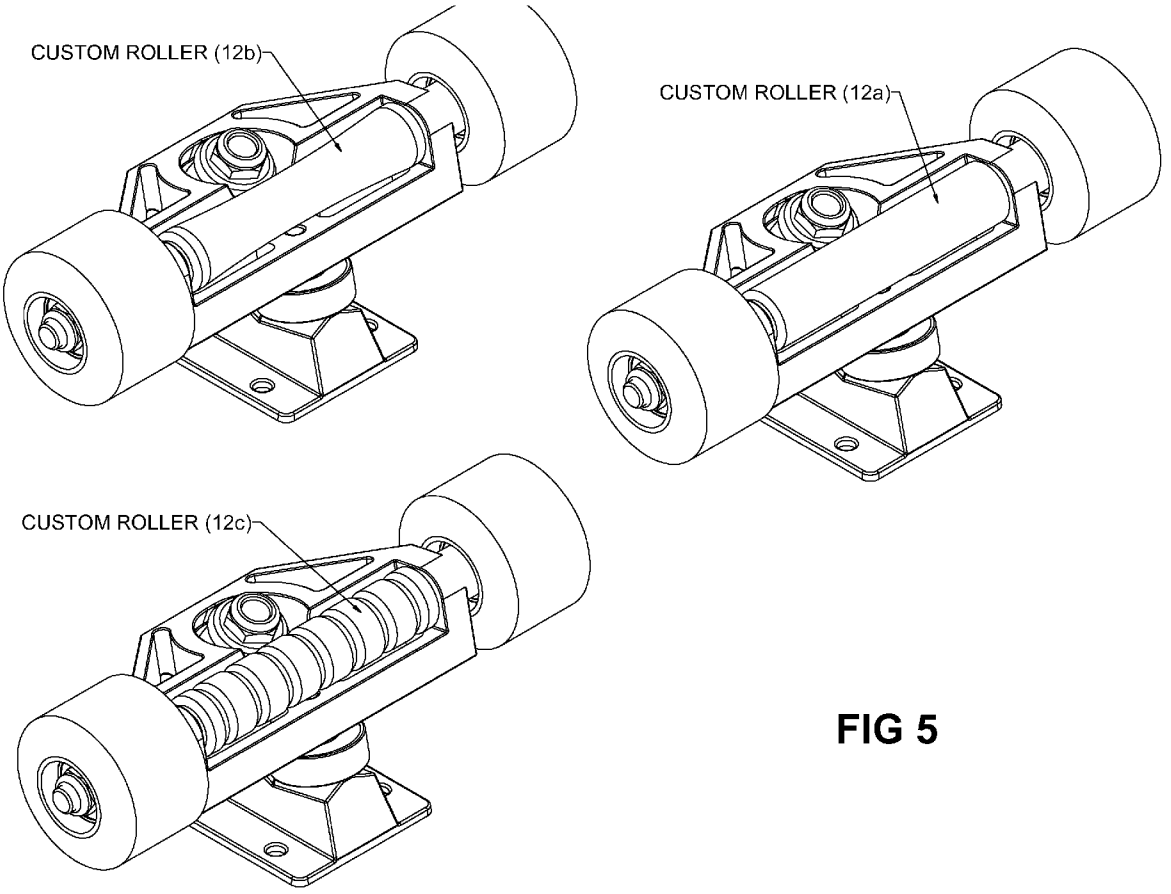


FIG 5

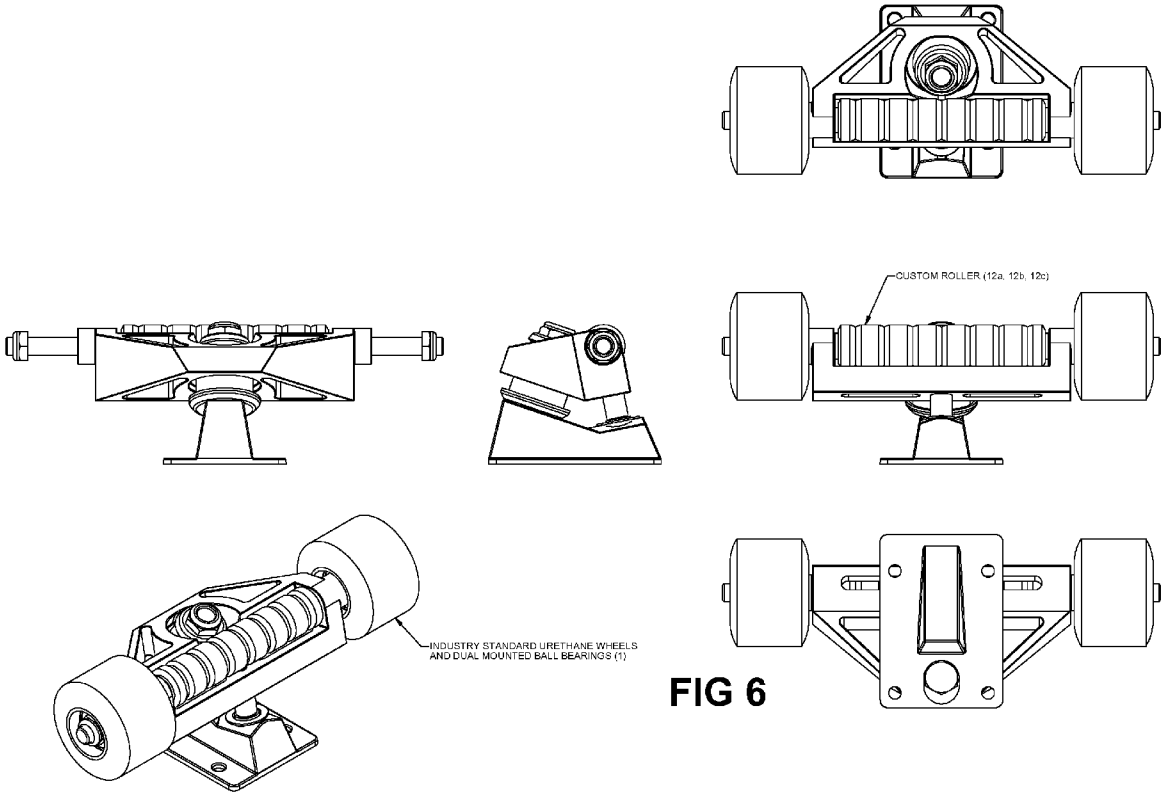

CUSTOM ROLLER (12a, 12b, 12c)
INDUSTRY STANDARD URETHANE WHEELS AND DUAL MOUNTED BALL BEARINGS (1)

FIG 6

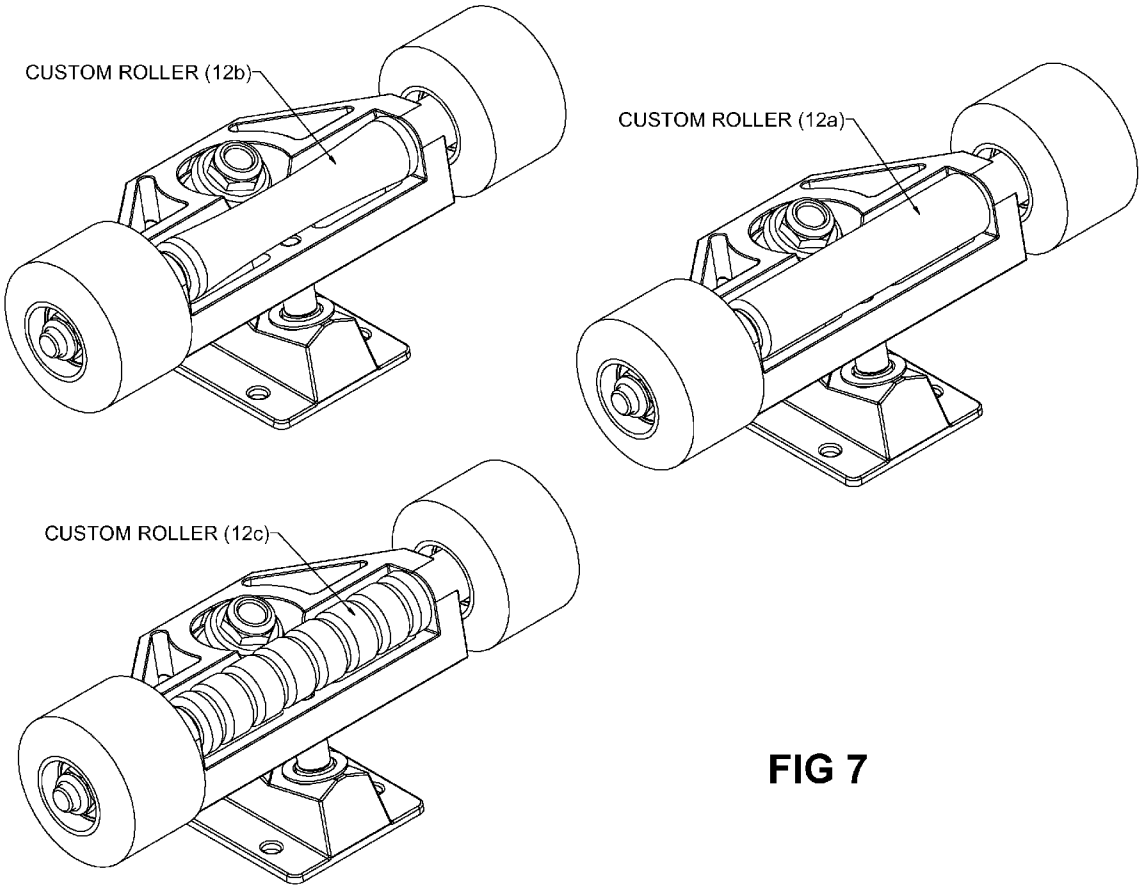


FIG 7

MULTIPLE ROLLER SKATEBOARD TRUCK

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] U.S. Patent Documents

6,761,369 B1	July 2004	Anderson	280/87.042
4,515,379 A	May 1985	Pasques	280/11.27
6,019,382 A	February 2000	Bouden	280/87.042
6,343,803 B1	February 2002	Johnston	280/87.042
6,536,788 B1	March 2003	Kuncz	280/87.041
6,267,394 B1	July 2001	Bouden	280/87.042
5,803,473 —	September 1998	Bouden	280/87.042

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT

[0003] Not Applicable

INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC

[0004] Not Applicable

BACKGROUND OF THE INVENTION

[0005] 1. Field of the Invention

[0006] The present invention relates to the trucks for a skateboard. Specifically, this present invention relates to various truck configurations involving unique roller designs and thus providing additional degrees of pivoting motion.

[0007] 2. Description of the Prior Art

[0008] Several skateboard innovations for truck assemblies and designs have been provided in prior art and some of them will be described. Although these prior innovations are suitable for their intended purposes, they differ in the design intent of the present invention.

[0009] A FIRST EXAMPLE, U.S. Pat. No. 6,761,369 to Anderson teaches a skateboard truck design that incorporates a cylindrical roller of singular outside diameter pivoting on a common axle component which is attached via six ball bearings, multiple thrust washers, an internal tubular spacer, dual end caps, and dual snap-rings, to a yoke-shaped truck. The primary axle also mounts dual industry standard wheels, bearings, and locknuts.

[0010] A SECOND EXAMPLE, U.S. Pat. No. 4,515,379 to Pasques teaches a skateboard truck design that incorporates a cylindrical roller of singular outside diameter pivoting on a common axle component. The cylindrical roller is primarily a metal hollow bar with a polymer coating over its entire outside diameter and length. No bearings are present within the roller assembly. There are dual roller bearings mounted in the yoke-shaped truck body which provide the pivoting motion for the roller assembly. The primary axle also mounts dual industry standard wheels, bearings, and locknuts.

[0011] A THIRD EXAMPLE, U.S. Pat. No. 6,019,382 to Bouden teaches a skateboard truck design that incorporates an innovative coaxial three-wheeled assembly with convex outside diameter configurations pivoting on a common axle and with dual roller bearings mounted within each of the wheels and housed in a yoke-shaped truck. The primary emphasis is on enhanced turning of the skateboard during its intended use. No industry standard wheels and ball bearings are used in the invention.

[0012] A FOURTH EXAMPLE, U.S. Pat. No. 6,343,803 to Johnston teaches a skateboard truck design that incorporates a singular convex shaped roller mounted coaxially to the primary axle and pivoted by dual ball bearing separated by an inner tubular spacer housed within a yoke-shaped truck with dual bushings. The primary axle is secured by dual locknuts. No industry standard wheels and ball bearings are used in the invention.

BRIEF SUMMARY OF THE INVENTION

[0013] According to the present invention, the concept is comprised of a custom designed base, custom designed trucks, custom designed rollers, custom designed pivot pin, custom axle, and the use of industry standard urethane bushings, grade 5 bolt, locknut, cup washers, and various assembly techniques utilizing roller bearings, thrust washers, bushings, and fasteners, which can be mounted via industry standard bolt hole patterns. The combination of the various components enables several assemblies to be created thus enabling the user to have several capabilities with each of the design configurations. The various combinations can also be marketed and priced accordingly from the basic configuration to the complex configuration. The innovative truck assemblies will enable those users skilled in the art to negotiate uneven terrain and provide rolling motion verses scraping motion on the skateboard surfaces thus reducing damage to the rider, the equipment, and to private and public property.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0014] The figures of the drawings are briefly described as follows:

[0015] FIG. **1** is an overall top assembly of a completed skateboard shown in three views,

[0016] FIG. **2** is an overall depiction of the baseline truck assembly only comprised of the coaxial roller and accompanying transverse rollers,

[0017] FIG. **3** depicts the various coaxial roller designs for the full compliment truck assembly,

[0018] FIG. **4** is an overall depiction of the baseline truck assembly only comprised of the coaxial roller and a single transverse roller,

[0019] FIG. **5** depicts the various coaxial roller designs of the partial compliment truck assembly,

[0020] FIG. **6** is an overall depiction of the baseline truck assembly only comprised of just the coaxial roller and no transverse rollers,

[0021] FIG. **7** depicts the various coaxial roller designs only without transverse rollers.

DETAILED DESCRIPTION OF THE INVENTION

[0022] The basic overall design intent of the present invention can best be understood from FIG. **2** and FIG. **3** which depicts the full compliment of roller configurations and transverse roller compliment. The truck assembly **100** utilizes both custom design components per the present invention and industry standard components common to the skilled art.

[0023] A custom base **10**, cast or machined from a zinc-aluminum alloy, is assembled to the custom truck **11**, cast or machined from a zinc-aluminum alloy, by means of a custom main pivot pin **14**, steel alloy, and fastened by the following industry standard components: a single grade five steel bolt **4**, one large aluminum cup washer **5**, one cylindrical urethane bushing **6**, one trapezoidal urethane bushing **7**, one small aluminum cup washer **8**, and one locknut **9**.

[0024] Coaxially mounted to the custom main pivot pin **14** is a roller **13***a*, all steel sealed roller bearing, with a thrust washer **15**, steel alloy, and seated in a polymer cup **16**. Flanking this roller provides a full compliment configuration with dual rollers **13***b*, all steel sealed roller bearings, mounted via dual shoulder bolts **18**, steel alloy.

[0025] A custom roller **12** (*a, b,* or *c*), cast or machined from a zinc-aluminum alloy, comprised of one of three configurations (cylindrical **12***a*, concave **12***b*, or grooved **12***c*) assembled with press-fit bushings **17** (polyamide, polymer, or oil-impregnated metallic composition) at each end is mounted coaxially via a steel axle **2** and bound by a variety of industry standard urethane wheel and steel roller bearing assemblies **1** and secured in place by steel locknuts **3**.

[0026] Two innovative truck assemblies **100** are required per skateboard in order for this present invention to function as intended. The truck assemblies **100** can be mounted to a variety of industry standard skateboard decks utilizing the pre-established bolt-hole patterns common to the industry using standard steel alloy fastener hardware. It is also compatible with the industry standard polymer risers (shock absorption plates).

[0027] By varying the assembly of the aforementioned components of the present invention, alternate configurations are possible and have been shown in the subsequent drawings listed in this embodiment. Specifically, one can have three versions of the zinc-aluminum alloy coaxial roller **12***a*, **12***b*, or **12***c* only, or add the steel transverse roller bearings **13***a* and/or **13***b* to make various combinations stated in this present invention. Each series can be identified for marketing reasons as "TR-TRUX Series", "QX-TRUX Series", and the "MX-TRUX Series".

[0028] The "TR-TRUX Series" configuration will only be comprised of one of the three coaxial roller designs (plain, concave, or grooved). The next higher level of configuration is the "QX-TRUX Series" which is comprised of one the three coaxial roller designs (plain, concave, or grooved) and a single transverse roller bearing. The highest level of configuration is the "MX-TRUX Series" which is comprised of one of three coaxial roller designs (plain, concave, or grooved) and three transverse roller bearings.

[0029] Each series mentioned above will enable the user skilled in the art to perform various skateboarding tricks with greater ease and reduced damage to their equipment. It will also help to reduce the damage done to public property such as curb edges, handrails, park benches and tables, and many other items. It can eliminate the use of waxes which the users apply to the above mentioned public property due to its design of strategically placed bearings and rollers. (Wax is applied as a friction reducing agent). Each configuration is custom designed for the skill level of the user and is upgradeable to higher assembly configurations as the user's skill level increases. It is also the intention to provide the skateboarding marketplace with a new and innovative truck design that will enable easier and safer tricks and help to reduce the damage caused to public and private property.

The invention claimed is:

1. A wheeled truck and roller assembly that when attached in a pair to a skateboard deck (or platform) will enable a user skilled in the art to negotiate uneven terrain while providing an additional coaxial roller configuration comprising:

a. Truck body;
b. Mounting base body;
c. Roller body;
d. An axle;
e. Pair of urethane wheels;

Wherein the said roller body is embedded into the yoke-shaped truck body and rotates independently about said axle and terminates with said pair of urethane wheels and mounted to a skateboard platform with said base body.

2. A wheeled truck and transverse roller bearing assembly that when attached in a pair to a skateboard deck (or platform) will enable a user skilled in the art to negotiate uneven terrain while providing a perpendicular set of additional roller bearings comprising:

a. Truck body;
b. Mounting base body;
c. Transverse roller bearing body(ies);
d. Transverse pivot member(s);
e. An axle;
f. Pair of urethane wheels;

Wherein the said transverse roller bearing body(ies) is (are) mounted to said yoke-shaped truck body and rotates independently about said transverse pivot member(s) and an axle that terminates with said pair of urethane wheels and mounted to a skateboard platform with said base body.

3. A wheeled truck, roller assembly and transverse roller bearing assembly that when attached in a pair to a skateboard deck (or platform) will enable a user skilled in the art to negotiate uneven terrain while providing a perpendicular set of additional roller bearings comprising:

a. Truck body;
b. Mounting base body;
c. Roller body;
d. Transverse roller bearing body(ies);
e. Transverse pivot member(s);
f. An axle;
g. Pair of urethane wheels;

Wherein the said roller body is embedded into the yoke-shaped truck body and rotates independently about said axle and terminates with said pair of urethane wheels and said transverse roller bearing body(ies) is (are) also mounted to said yoke-shaped truck body and rotates independently about said transverse pivot member(s) and mounted to a skateboard platform with said base body.

* * * * *