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(12) **United States Design Patent**
Hoffmann et al.

(10) **Patent No.:** **US D739,307 S**

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(54) **ONE-WHEELED VEHICLE**

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(US)

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(**) Term: **14 Years**

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(52) **U.S. Cl.**
USPC **D12/107**

(58) **Field of Classification Search**
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280/240, 381.1, 284, 256, 286, 265, 268,
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280/287, 278; 180/21, 65.51, 220, 68.5;
701/22; D21/432, 419, 663, 435, 662;
74/594.3, 527; 16/44; 156/294; 29/428;
224/419

CPC B60W 20/00; B60W 10/08; B60W 10/06;
Y02T 10/6286; Y02T 10/7005

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

660,835 A 10/1900 Boes
734,109 A 7/1903 Tolche
1,585,258 A 5/1926 Moore
2,802,300 A 8/1957 Rogers
2,971,773 A 2/1961 McKissick
3,083,036 A 3/1963 Cornell, III et al.

3,260,324 A 7/1966 Suarez
3,399,742 A 9/1968 Malick
4,062,558 A 12/1977 Wasserman
4,109,741 A 8/1978 Gabriel
4,241,931 A 12/1980 Healy

(Continued)

FOREIGN PATENT DOCUMENTS

CN 2302942 Y 1/1999
CN 201890317 U 7/2011

(Continued)

OTHER PUBLICATIONS

Aleksander Polutnik, "eniCycle Electric Unicycle", brochure, circa before Aug. 31, 2009.

(Continued)

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(57) **CLAIM**

We claim the ornamental design for a one-wheeled vehicle, as shown and described.

DESCRIPTION

FIG. 1 is an top, front, and right side perspective view of a one-wheeled vehicle according to the invention.

FIG. 2 is a right side view thereof.

FIG. 3 is a left side view thereof.

FIG. 4 is a top view thereof.

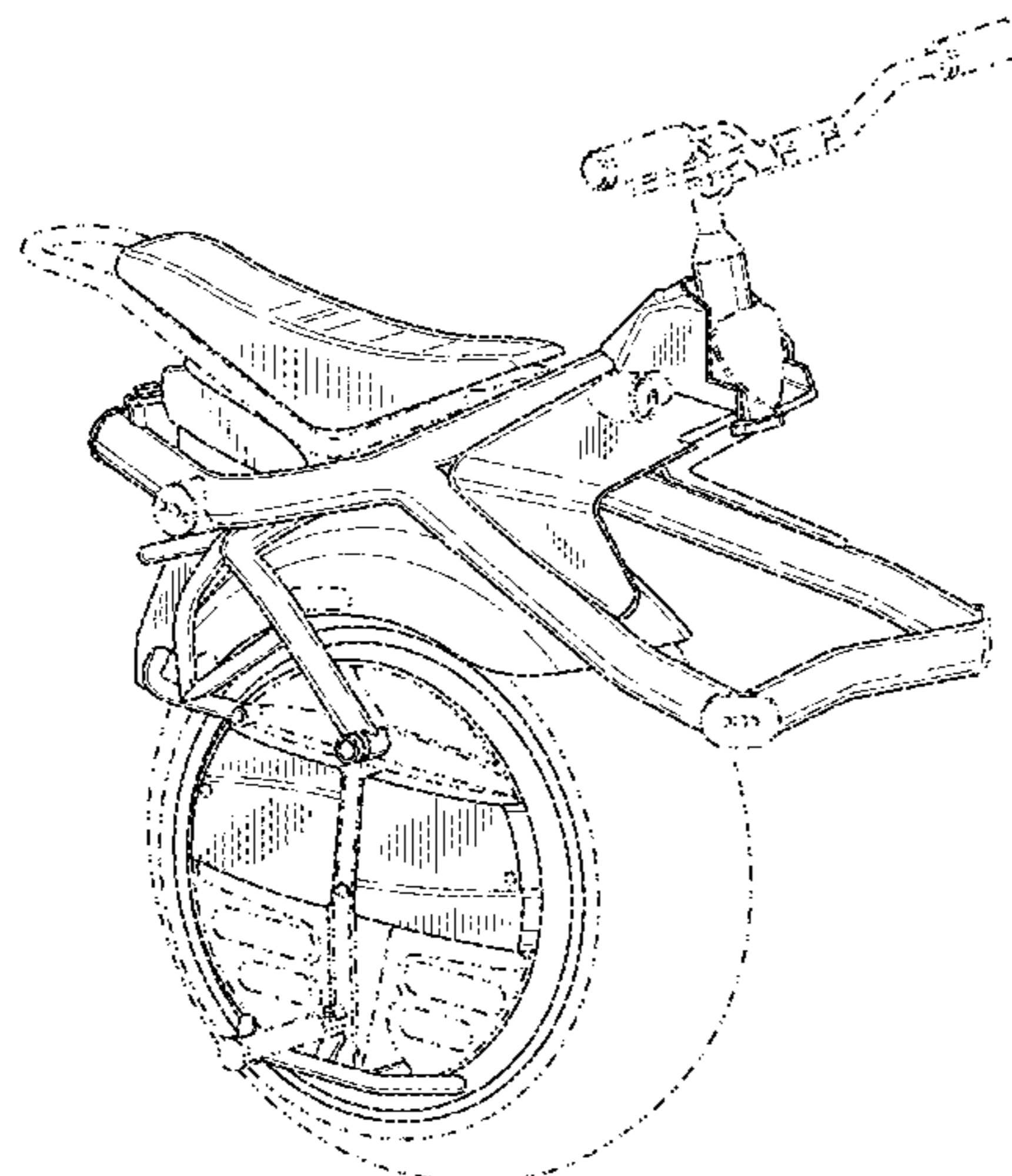
FIG. 5 is a front view thereof; and,

FIG. 6 is a rear view thereof.

Any stippling and shading lines shown in the drawings represent the approximate three-dimensional contour of the design, and are not intended to indicate surface decoration.

The dash-dot-dot-dash lines in the drawings represent unclaimed subject matter and form no part of the claimed design.

1 Claim, 6 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

4,324,413	A *	4/1982	Bensette et al.	.....	280/205
D273,287	S	4/1984	Evans		
4,657,272	A	4/1987	Davenport		
5,002,931	A	3/1991	Rivier et al.		
6,302,230	B1	10/2001	Kamen et al.		
6,367,817	B1	4/2002	Kamen et al.		
6,561,294	B1	5/2003	Kamen et al.		
D489,027	S	4/2004	Waters		
D489,029	S	4/2004	Waters		
D489,300	S	5/2004	Chang et al.		
D493,127	S	7/2004	Waters et al.		
D493,128	S	7/2004	Waters et al.		
D493,129	S	7/2004	Waters et al.		
D493,392	S	7/2004	Waters et al.		
D493,747	S	8/2004	Chang et al.		
7,004,271	B1	2/2006	Kamen et al.		
D528,468	S	9/2006	Arling et al.		
D551,592	S	9/2007	Chang et al.		
D551,722	S	9/2007	Chang et al.		
7,537,228	B2	5/2009	Shimizu et al.		
D626,892	S *	11/2010	Shin	.....	D12/107
7,963,352	B2	6/2011	Alexander		
8,381,847	B2	2/2013	Polutnik		
D685,295	S *	7/2013	Mori et al.	.....	D12/107
8,800,697	B2 *	8/2014	Hoffmann et al.	.....	180/21
2006/0279057	A1 *	12/2006	Shimizu et al.	.....	280/205
2011/0056757	A1 *	3/2011	Polutnik	.....	180/65.51
2011/0220427	A1 *	9/2011	Chen	.....	180/21
2012/0217072	A1 *	8/2012	Hoffmann et al.	.....	180/21
2014/0058600	A1 *	2/2014	Hoffmann et al.	.....	701/22
2014/0196962	A1 *	7/2014	Hoffmann et al.	.....	180/21

FOREIGN PATENT DOCUMENTS

CN	102139733	B	11/2012
DE	97326		10/1897
DE	202008010306	U1	10/2008
EP	1174334	A2	1/2002
EP	2105376	A1	9/2009
JP	48033485	U	4/1973
JP	56089788	U	7/1981
JP	2001-030972		2/2001
TW	M403480		5/2011
TW	M424290		3/2012
TW	201213188	A1	4/2012
WO	0115962	A1	3/2001

OTHER PUBLICATIONS

Author Unknown, "Motor Wheel", photograph, circa 1931.

Author Unknown, Motor Unicycle, photograph, circa before Aug. 31, 2009.

Author Unknown, one-wheeled-motorcycle, photograph, circa before Aug. 31, 2009.

Syd Mead Unicycle, circa before Aug. 31, 2009.

Ryno Motors, Inc., various views of uncicycles, obtained at <http://web.archive.org/web/20120423041316/http://rynomotors.com/gallery/>, circa Apr. 23, 2012.

Professor Klaus Hofer from the University of Applied Sciences in Bielefeld, Germany, "Electric Vehicle on one Wheel", research paper published by Vehicle Power and Propulsion, pp. 517-521, presented Sep. 7-9, 2005, at the 2005 IEEE Conference.

Professor Klaus Hofer from the University of Applied Sciences in Bielefeld, Germany, "Observer-Based Drive-Control for Self-Balanced Vehicles", research paper published by IEEE Industrial Electronics, IECON 2006—32nd Annual Conference, pp. 3951-3956, presented Nov. 10, 2006, at the 2006 IEEE Conference.

Klaus Hofer, "Electric Drive System for Self-Balanced Vehicles", research paper published by Industry Applications, 2010 9th IEEE/IAS International Conference, presented Nov. 8-10, 2010, at the 2010 IEEE Conference.

Huang et al., "The Development of Self-Balancing Controller for One-Wheeled Vehicles", article published online at <http://www.scirp.org/journal/eng/> by Scientific Research, Apr. 2010, pp. 212-219.

Kadis et al. of The University of Adelaide, Australia, "Modelling, simulation and control of an electric unicycle", research paper published by ARAA, 2010, presented Dec. 1-3, 2010, at the 2010 ACRA Conference on Robotics & Automation in Brisbane, Australia.

Lauwers et al. from the Robotics Institute of Carnegie Mellon University, Pittsburgh, Pennsylvania, "A Dynamically Stable Single-Wheeled Mobile Robot with Inverse Mouse-Ball Drive", research paper published by Robotics and Automation, 2006, pp. 2884-2889, presented May 2006, at the IEEE Conference on Robotics and Automation in Orlando, Florida, USA.

Nagarajan et al., "State Transition, Balancing, Station Keeping, and Yaw Control for a Dynamically Stable Single Spherical Wheel Mobile Robot", research paper published by Robotics and Automation, May 2009, pp. 998-1003, presented May 12-17, 2009, at the 2009 IEEE International Conference on Robotics & Automation in Kobe, Japan.

Nakajima et al. from the Intelligent Robot Laboratory, Institute of Information Science and Electronics, University of Tsukuba, Kanagawa, Japan, "A Development of a New Mechanism of an Autonomous Vehicle", research paper published by Intelligent Robots and Systems, 1997, pp. 906-912, presented Sep. 7-11, 1997, at the IEE/RSJ International Conference.

Sheng et al., "Postural Stability of a Human Riding a Unicycle and Its Emulation by a Robot", published by Robotics and Automation, Oct. 1997, vol. 13, No. 5, pp. 709-720.

Caldecott et al., "Micycle", Final Report for Mech Eng 4135: Honours Project 980 at The University of Adelaide, Faculty of Engineering, Computer and Mathematical Sciences, School of Mechanical Engineering, Oct. 22, 2010, 387 pages, Australia.

* cited by examiner

Fig. 1

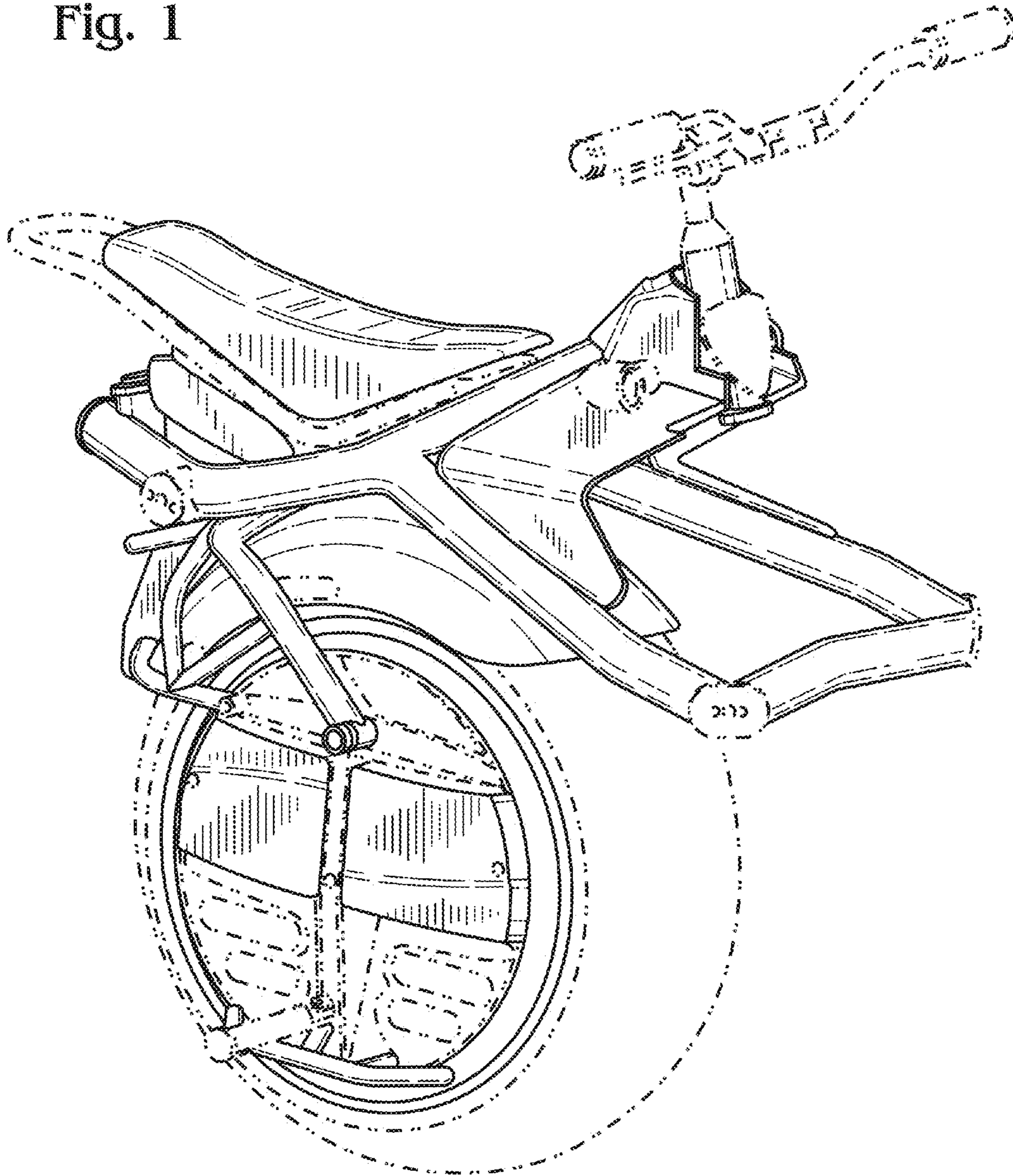
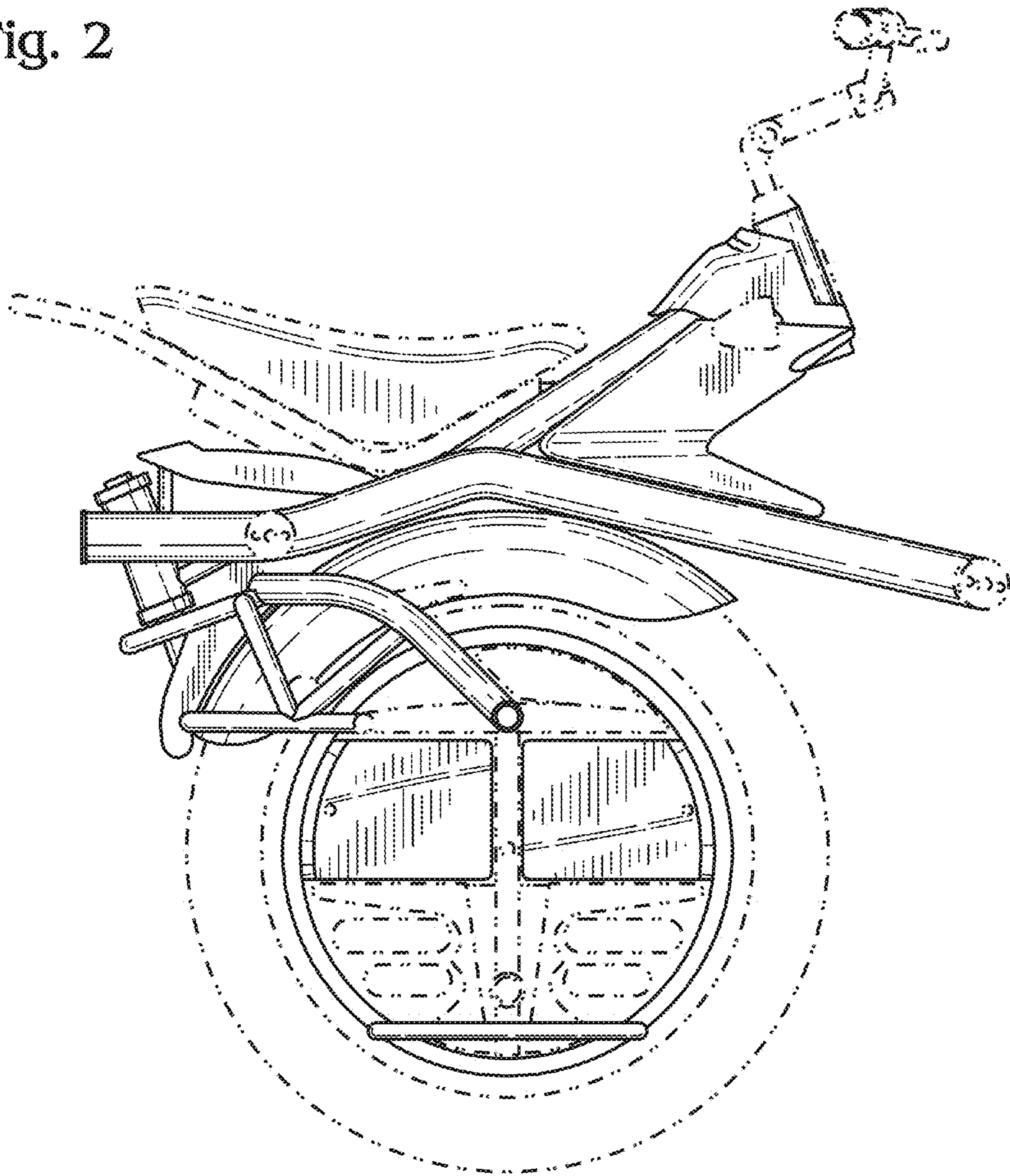


Fig. 2



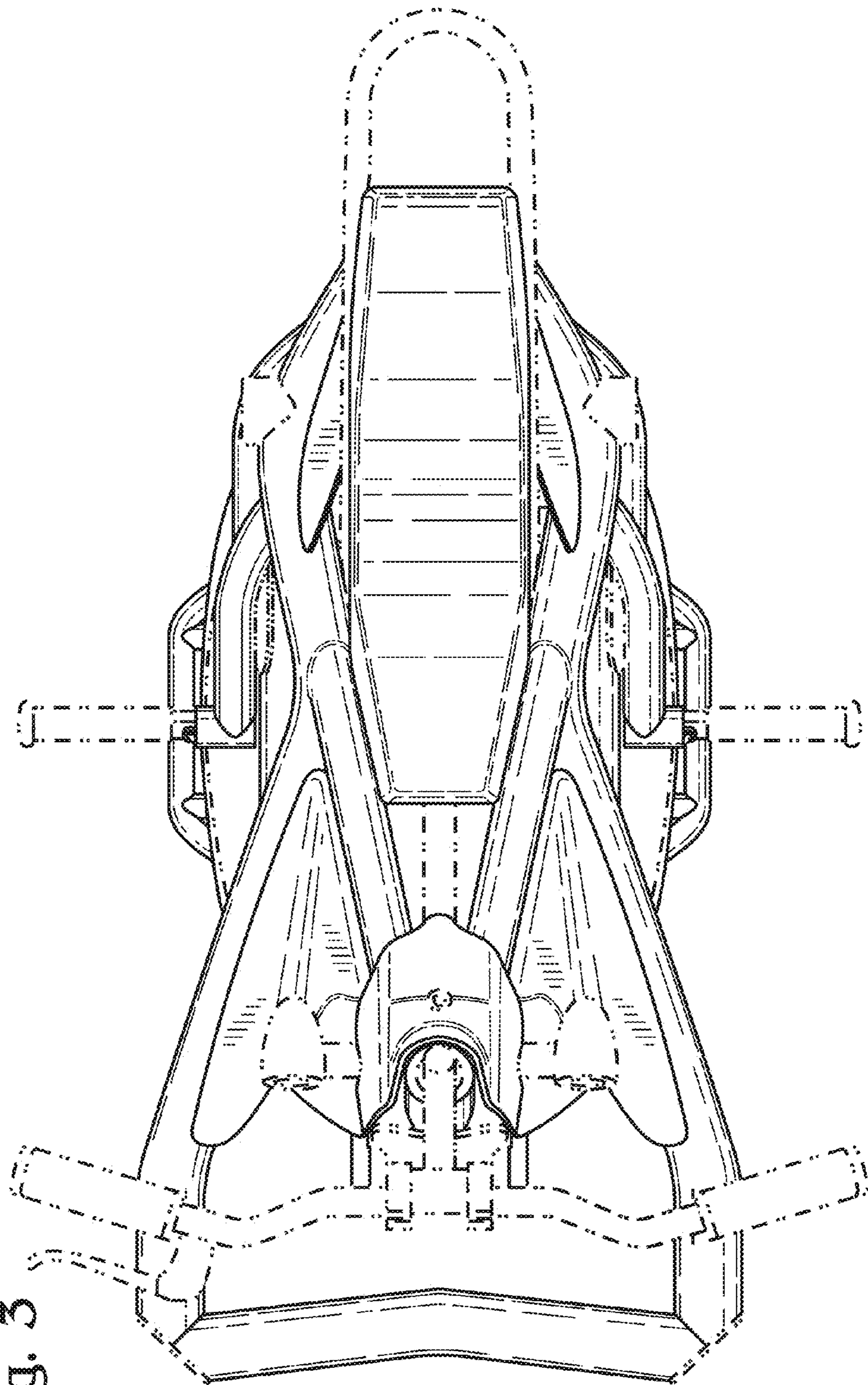


Fig. 3

Fig. 4

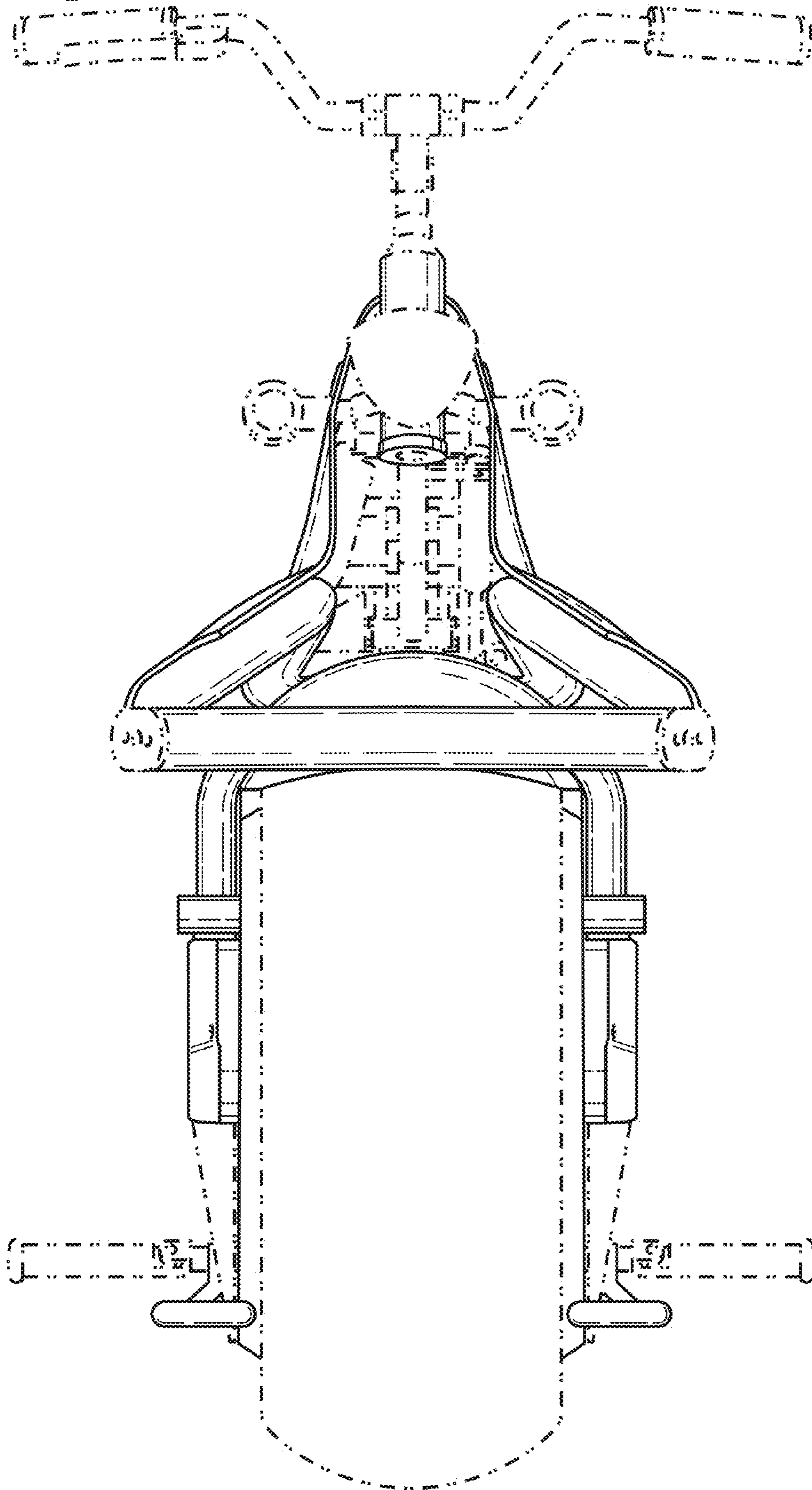


Fig. 5

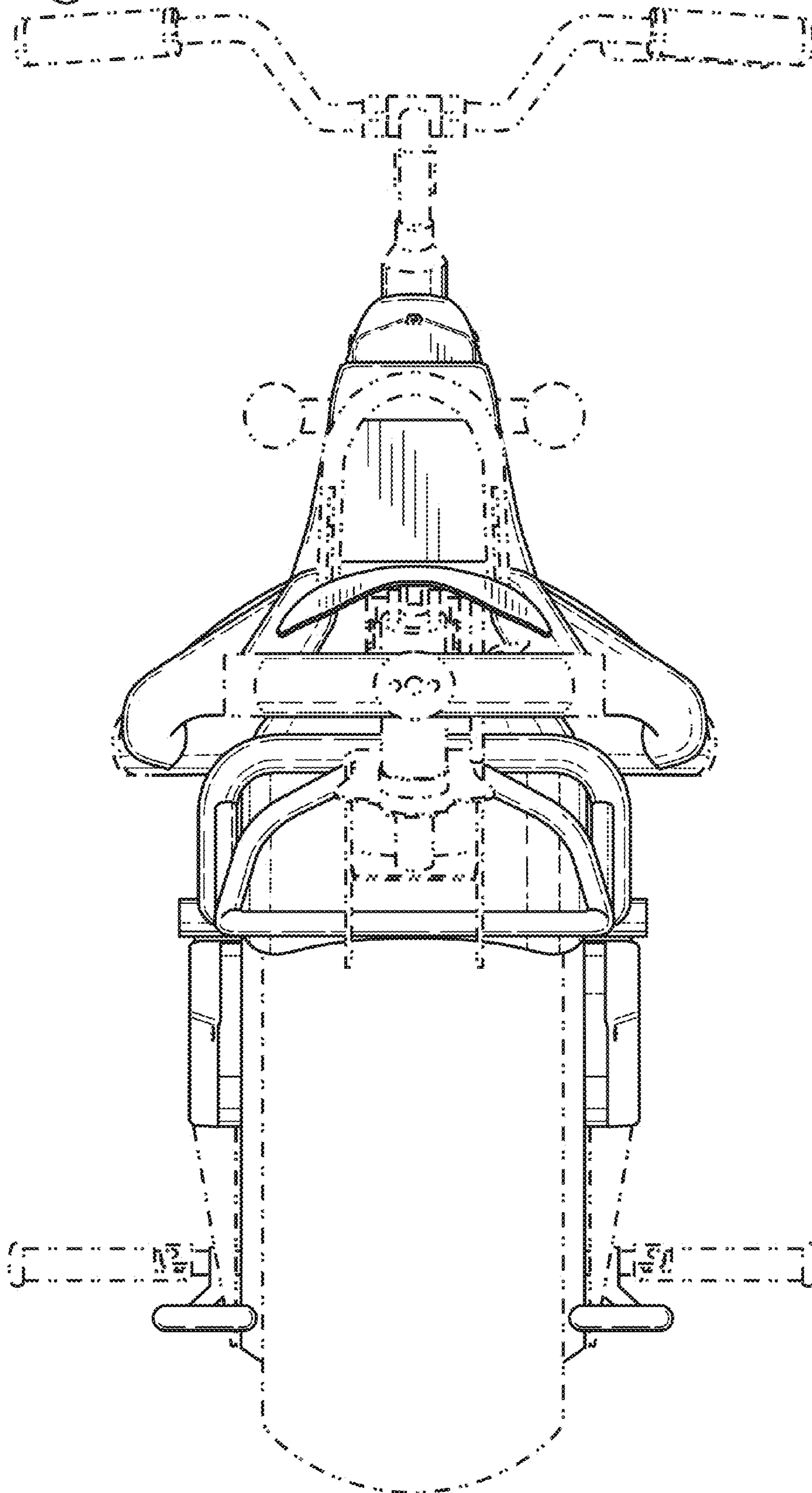


Fig. 6

