陈星、Razor 平衡车美国专利概况

平衡车专利信息第十二期（总第三十一期）

在之前的推送中，我们介绍了纳恩博、Segway 与 Deka 等企业的平衡车美国专利整体相关概况。本期我们对陈星、Razor 平衡车美国专利概况进行介绍。陈星作为 Solowheel 品牌所属的 Inventist 的创始人，其与 Razor 是除了纳恩博、Segway 与 Deka 等企业外，发起美国 337 调查案的主要一方，陈星与 Razor 之间更存在专利许可的情况，因此，了解陈星、Razor 的平衡车美国专利概况对于国内平衡车企业实行“走出去”的战略有参考意义。

一、整体情况

1、平衡车专利申请量情况

目前陈星、Razor 平衡车美国专利约为二十余件，申请趋势可见下图。

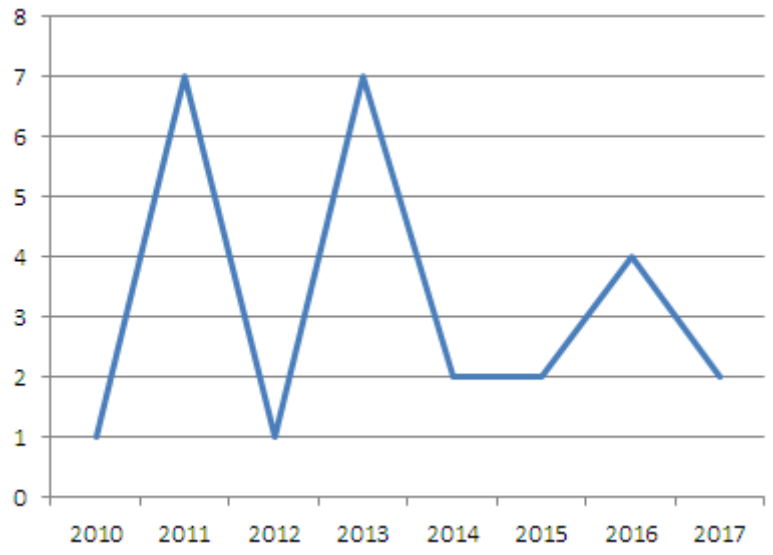


图 1.1　陈星、Razor 平衡车美国专利申请趋势图

从图 1.1 可以看出，陈星、Razor 平衡车美国专利的申请量波动较大，但未呈现明显的上升或下降趋势。

2、 技术分布

对陈星、Razor 平衡车美国专利按主要技术领域划分为 14 组，各组技术领域数量见图 1.2，IPC 主分类号分布见图 1.3。

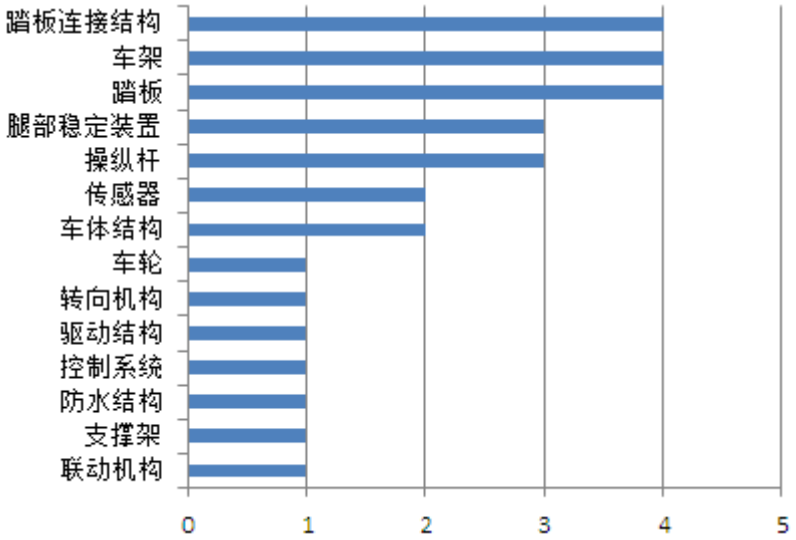


图 1.2　陈星、Razor 平衡车美国专利技术领域数量图

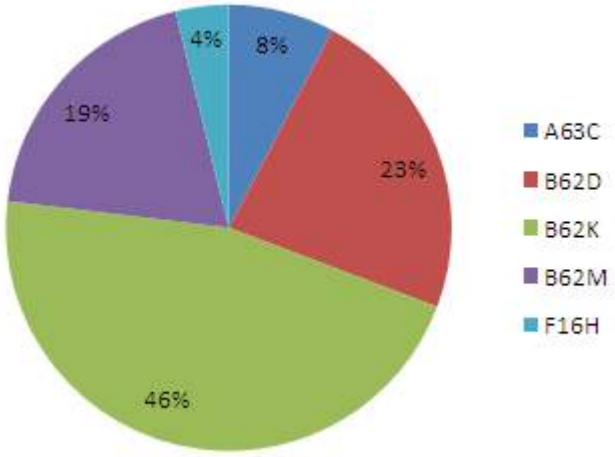


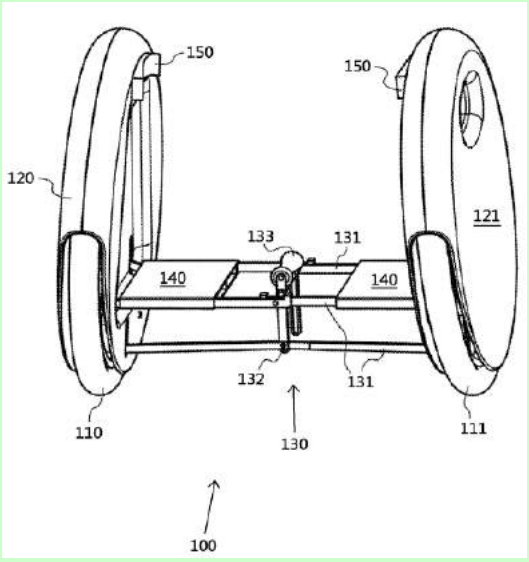
图 1.3　陈星、Razor 平衡车美国专利 IPC 主分类号分布图

从图 1.2 及图 1.3 可以看出，陈星、Razor 平衡车美国专利主要集中于机械结构方面，对于软件控制方面涉及较少，于近年来讨论较广的电源领域亦无涉及。国内出口企业可通过在软件控制、电源等领域适当布局专利，以期与陈星、Razor 达成相互专利许可，从而避免深陷耗时耗财的侵权诉讼。

二、 陈星、Razor 平衡车部分美国代表专利简介

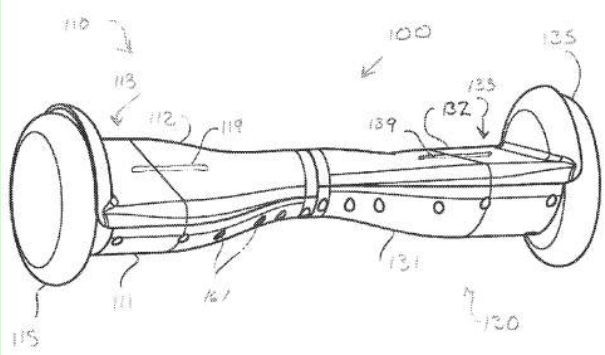
1、US9045190B2

名称：Two-Wheeled Self-Balancing Motorized Personal Vehicle With Tilting Wheels
具有倾斜车轮的双轮自平衡电动个人运输车

相关要点	**A personal vehicle comprising:** **a first wheel (110) and a second wheel (111), independently rotatable, positioned opposite from each other, and separated by a distance;** **a first motor for driving said first wheel and a second motor for driving said second wheel;** **a first frame (120) attached to said first wheel and a second frame (121) attached to said second wheel;** **a linking structure (130) coupled to both said first frame and said second frame;** **at least one electronic control means for controlling said first and second motors; and** **at least one leg contact surface (150) on each of said first and second frames for contacting said person's legs, said leg contact surfaces being fabricated of a yielding material;** **wherein each of said first and second wheels are capable of tilting side-to-side in unison about a respective wheel tilting axis, relative to the riding surface; and** **wherein said at least one electronic control means enacts fore-and-aft balancing of said vehicle.**
相关图示	
备注	两个车轮能够左右一致地摆动来执行转弯操作，骑乘者通过向前、向后或侧身倾斜来操纵车辆以沿着倾斜方向行驶，车轮能够倾斜在执行转弯操作时具有更好的稳定性和舒适性。

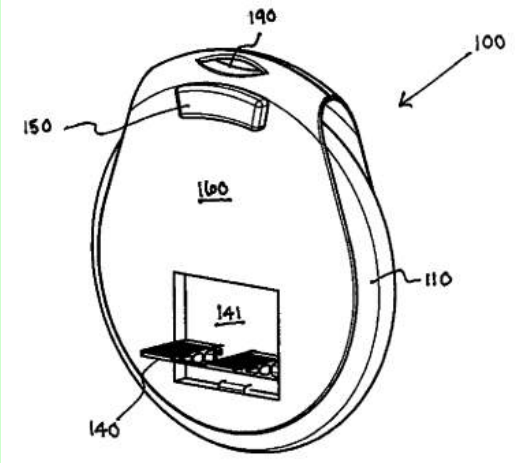
2、US8738278B2

名称：Two-wheel, self-balancing vehicle with independently movable foot placement sections 具有可独立运动足部放置部件的双轮自平衡车

相关要点	**A two-wheel, self-balancing vehicle device, comprising:** **a first foot placement section (110) and a second foot placement section (130) that are coupled to one another and are independently movable with respect to one another;** **a first wheel (115) associated with the first foot placement section and a second wheel (135) associated with the second foot placement section, the first and second wheels being spaced apart and substantially parallel to one another;** **a first position sensor (120) and a first drive motor (117) configured to drive the first wheel (115), a second position sensor (140) and a second drive motor (137) configured to drive the second wheel (135); and** **control logic that drives the first wheel toward self-balancing the first foot placement section in response to position data from the first sensor and that drives the second wheel toward self-balancing the second foot placement section in response to position data from the second foot placement section.**
相关图示	
备注	第一位置传感器和第一驱动电机用来驱动第一轮，第二位置传感器和第二驱动电机用来驱动第二轮。通过利用两个独立的可移动的足部放置部件，来独立控制相应的车轮。

3、US8807250B2

名称：Powered single-wheeled self-balancing vehicle for standing user 供骑乘者站立的电动单轮自平衡车

相关要点	**A powered unicycle device, comprising:** **a single wheel (110) having an axis of rotation and defining a central vertical plane in the line of direction of travel that is rotatably coupled to a seatless frame;** **a motor (130) which drives the wheel;** **an electronic fore-and-aft balance control system which controls said motor;** **first and second foot platforms (140) coupled to the frame and each having a standing surface that is below the axis of rotation of the wheel;** **a first leg contact surface (150) that in its entirety extends substantially longitudinally in the line of travel of the device and is configured to be readily contactable by the side of a user's leg, at or below the knee, when that user is standing on the first foot platform; and** **a second leg contact surface that in its entirety extends substantially longitudinally in the line of travel of the device and is configured to be readily contactable by the side of a user's leg, at or below the knee, when that user is standing on the second foot platform;** **wherein the first and second foot platforms extend in a direction perpendicular to the central vertical plane of the wheel further than the contact surfaces extend perpendicular to the central vertical plane, and further wherein the leg contact surfaces are configured so as to not substantially encircle a user's leg.**
相关图示	
备注	独轮车具有腿部接触部分，其表面由柔软的材料制成，柔性材料轻微地摩擦骑乘者的腿部，从而稳定且精确地控制独轮车。另外，脚踏板能够折叠，便于携带。

本文的专利未包括外观专利，除非特别说明，统计数据均来源于互联网并截止于 2018 年 4 月。

后续我们将陆续推送更多平衡车专利相关内容，敬请关注，谢谢。

未完待续，请持续关注！

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