



Orientation to Trademark Law and its Context

Trademark & Unfair Competition
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Konomark
Most rights sharable

**unfair
competition**

“Unfair competition” subjects

Trademark adjacent subjects:

- Domain Names
- The Right of Publicity

More classically “unfair competition”:

- Trade Libel and Defamation
- False Advertising
- FTC and Unfair Competition
- State Unfair Competition Statutes
- Antitrust Law
- Geographic Protections

**intellectual
property**

**What is
intellectual
property?**

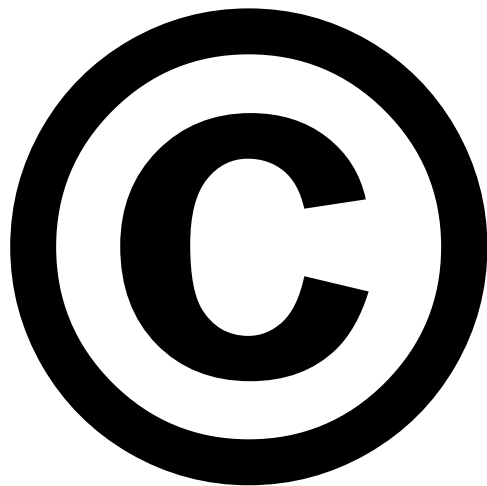
**the kinds
of IP**

—

**What is
“intellectual property”?**

**Copyrights
Trademarks
Patents
Trade Secrets
Rights of Publicity**

Copyrights





Copyrights

Copyrights “protect” (i.e., provide “exclusive rights” (i.e., the right to sue others to exclude them from)):

- Copying, publicly performing, publicly playing out loud, publicly displaying, or adapting into derivative works:
- Original works of authorship fixed in any tangible medium of expression (from which they can be perceived, either directly or with the aid of a machine)

Copyrights

Here are some things that can be the subject of copyright (i.e., works of authorship fixed in a tangible medium of expression):

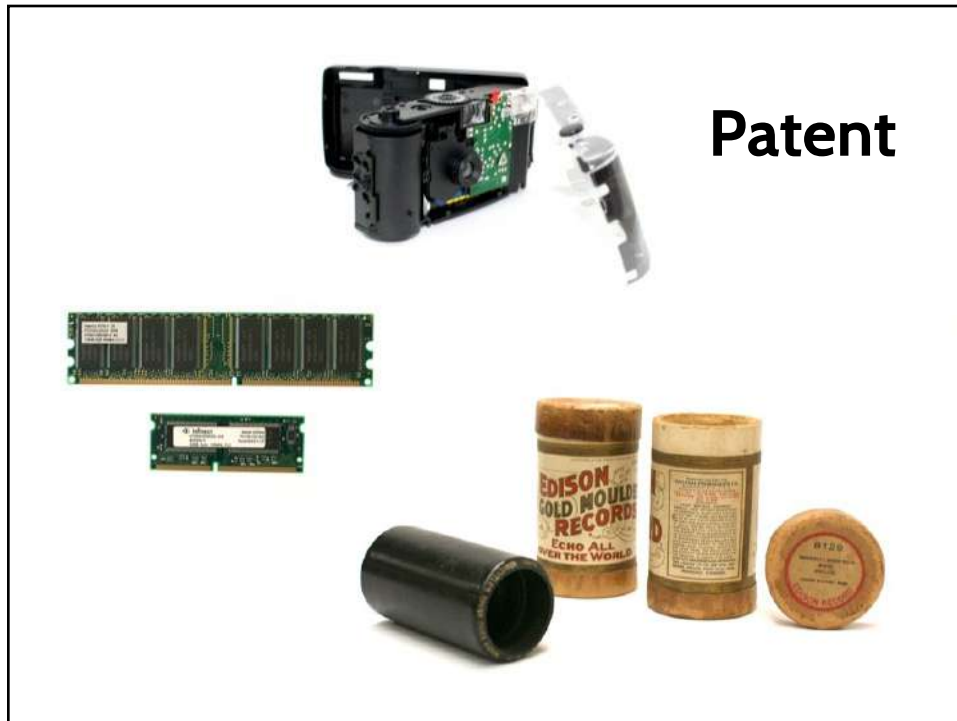
- Books
- Songs
- Movies
- Audio recordings
- Computer software
- Photographs
- Paintings, illustrations, sculptures

Copyright ©

Protects	expression (text, images, recordings) fixed in a tangible medium
Requires	a mere modicum of creativity
Vests	automatically upon creation
Sustained by	[nothing]
Lasts	lifetime + 70 years; or 95 years
Theory	incentive to create; public goods problem

Patents

PAT.



Patent

Patents


Patents “protect” (i.e., provide “exclusive rights” (i.e., the right to sue others to exclude them from)):

- Making, using, selling, or importing:
- Inventions

Patents

Patents “protect” (i.e., provide “exclusive rights” (i.e., the right to sue others to exclude them from)):

- Making, using, selling, or importing:
- Inventions as claimed in the claims of the patent document



US 6,302,230 B1

(12) **United States Patent** (31) Patent No.: **US 6,302,230 B1**
 Kamen et al. (41) Date of Patent: **Oct. 16, 2001**

(54) **PERSONAL MOBILITY VEHICLES AND METHODS**

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(73) **Assignee:** DEKA Products Limited Partnership, Manchester, NH (US)

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(d) by 0 days.

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(22) **Filed:** Jan. 4, 1999

(51) **Int. Cl.:** B60K 2/00; B60K 20/00; B60J 1/00; B60Q 1/00

(52) **U.S. Cl.:** 180/271, 180/276, 180/277, 180(2), 340(44)

(50) **Field of Search:** 180(2), 271, 180(276), 170, 171, 21, 41, 440, 340(43), 441, 440, 439, 360, 390, 310(6), 361, 391, 180(277), 240(455), 230(17), 5, 20 B

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(57) **ABSTRACT**

An automatically balancing vehicle having a headroom sensor. The headroom sensor determines the difference between the maximum velocity of the vehicle and the present velocity of the vehicle. An alarm receives a signal from the headroom sensor and produces a warning when the headroom falls below a specified limit.

7 Claims, 18 Drawing Sheets



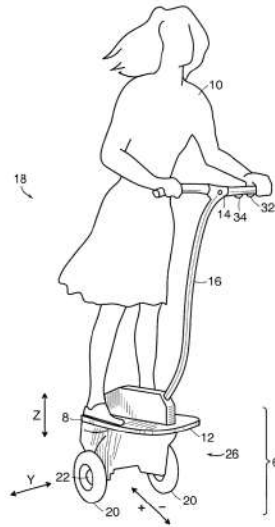


FIG. 1

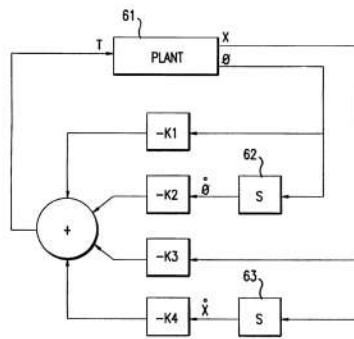


FIG. 3

1 PERSONAL MOBILITY VEHICLES AND METHODS

TECHNICAL FIELD

The present invention pertains to vehicles and methods for transporting individuals, and more particularly to balance, vehicles and methods for transporting individuals over ground having a surface that may be irregular.

BACKGROUND ART

A wide range of vehicles and methods are known for transporting human subjects. Typically, such vehicles rely upon a supporting surface, being designed so as to be able to carry all human conditions of placement of their ground-contacting members. Thus, for example, the gravity vector acting on the center of gravity of an automobile passes between the points of ground contact of the automobile's wheels, the suspension keeping all wheels on the ground at all times, and the automobile is thus stable. Another example of a naturally stable vehicle is the non-climbing vehicle described in U.S. Pat. No. 4,795,548 (Buckley et al.).

SUMMARY OF THE INVENTION

In one embodiment there is provided a vehicle for carrying a user. In this case, the user is a standing person. The vehicle of this embodiment includes:

- a. a ground-contacting module which supports a payload including the standing person, the ground-contacting module contacting an underlying surface substantially at a single region of contact; and
- b. a motorized drive arrangement, coupled to the ground-contacting module, the drive arrangement, ground-contacting module and payload constituting a system; the motorized drive arrangement causing, when powered, substantially balanced operation of the system.

In a related embodiment, the ground-contacting module includes a wheel.

In another embodiment, there is provided a vehicle for carrying a payload including a user. The vehicle of this embodiment includes:

- a. a ground-contacting module including two substantially opposed wheels;
- b. a platform supporting the user in a standing position substantially across both wheels; and
- c. a motorized drive arrangement, coupled to the ground-contacting module, the drive arrangement, ground-contacting module and payload constituting a system; the motorized drive arrangement causing, when powered, substantially balanced operation of the system.

In another embodiment, there is provided a vehicle for carrying a payload including a user, and the vehicle of this embodiment includes:

- a. a platform which supports the user;
- b. a ground-contacting module, to which the platform is mounted, which projects the user in a desired direction over an underlying surface;
- c. a proximity sensor for determining the presence of the user on the device; and
- d. a safety switch, coupled to the proximity detector, for halting operation of the ground-contacting module unless the proximity sensor has determined the presence of the user on the device.

2 The proximity sensor may be a member, mechanically coupled to the safety switch, having its operating position and a non-operating position, wherein the member is in the non-operating position in the absence of the user from the device and the member is moveable to the operating position when the user is on the device. The member may include a plate, disposed on the device, for receiving a foot of the user, wherein placement of the foot on the plate causes it to move into the operating position.

Alternatively, the proximity detector may be electronic and may include a sensor/switch device. In a further related embodiment, the device may include a motorized drive arrangement, coupled to the ground-contacting module; the motorized drive arrangement causing, when powered, substantially balanced and stationary operation of the device unless the proximity sensor has determined the presence of the user on the device.

In another embodiment, there is provided a vehicle for carrying a payload including a user. The vehicle of this embodiment includes:

- a. a platform which supports the user;
- b. a ground-contacting module, to which the platform is mounted, which projects the user in a desired direction over an underlying surface;
- c. a motorized drive arrangement, coupled to the ground-contacting module, the drive arrangement, ground-contacting module and payload constituting a system; the motorized drive arrangement causing, when powered, substantially balanced operation of the system wherein the motorized drive arrangement has a motor power output and a specified maximum power output and, in operation, has balancing ranges determined by the difference between the maximum power output and the present power output of the drive arrangement;
- d. a balancing margin monitor, coupled to the motorized drive arrangement, for generating a signal characterizing the balancing margin; and
- e. an alarm, coupled to the balancing margin monitor, for receiving the signal characterizing the balancing margin and for warning when the balancing margin falls below a specified limit.

The alarm may include a light modulation of the power output of the motorized drive arrangement, and alternatively, or in addition, may be audible.

In a still further embodiment there is provided a device for carrying a user, and the device includes:

- a. a platform which supports a payload including the user, the ground-contacting module, mounted to the platform, including at least one ground-contacting member and defining a first axis of travel;
 - b. a motorized drive arrangement, coupled to the ground-contacting module, the drive arrangement, ground-contacting module and payload constituting a system; the motorized drive arrangement causing, when powered, substantially balanced operation of the system in an operating position that is unstable with respect to tipping in at least a first axis of travel when the motorized drive arrangement is not powered; and
 - d. a user input control that receives an indication from the user of a specified pitch of the device under conditions of motion in uniform velocity.
- The user input control may include a thumb-wheel disposed upon a handle that is part of the device. A related method:

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such as means members and elements of wheels are described in the prior applications incorporated herein by reference, and the term "wheel" is used herein to refer to any such ground-contacting element without limitation. The single wheel 14 of vehicle embodiments of FIGS. 8 and 9 may be supplemented, as shown in FIG. 10, by a second wheel providing a pair of adjacent and opposed wheels 20. It can be seen that the vehicle of FIG. 10, the vehicle of various other embodiments disclosed in this description, when being used for commuting the ground, is inherently unstable in the fore-and-aft direction with respect to a vertical Z. While the vehicle of FIG. 10 is relatively stable in the lateral direction, vehicles of some other embodiments are unstable in both lateral and fore-and-aft directions. The vehicle of vehicle 10 may be controlled by output 10 shifting its weight, and then the center of mass (COM) of the loaded vehicle, in accordance with teachings described above.

Also, as described above, in addition to the direct effect of subject leaning, on the variables governing the torque applied to motor for steering the vehicle, or as an alternate control strategy, user input may be separately incorporated into the control loop in a manner equivalent to variation of one or more of the input variables. Thus, for example, the user may provide an input, by one of a user interface of any type, the input being treated by the control system equivalently to a change, for example, in vehicle 10. Such an interface may include, for example, a hand-held or a joystick mounted on the grip 14.

Referring again to FIG. 10, steering of vehicle 10 may be provided by user 10 shifting his weight laterally in the Y-Z dimension with respect to wheel 20. The change in position of user 10 relative to the platform 12, and/or the consequential lateral shift of the COM of the combination of user 10 and vehicle 10 may be sensed using any suitable sensor. One example is the use of one or more inclinometers disposed on the upper surface of platform 14 to sense differential power exerted by a first leg 52 of user 10 with respect to a second leg 54 of the user. Alternatively, a user foot sensor may be provided on platform 12 for supporting user 10, and one or more inclinometers mounted on the user foot sensor may be used to sense the weight of the user and thus generate a signal for controlling the steering vector of the vehicle in response to user leaning.

As an alternate example, a tilt of platform 12 relative to the axis (Y-Z) of rotation of wheel 20 may be sensed using an inclinometer, or one or more gyrosensors. Correction may be applied to the assumed tilt of differential pressure to account for irregularities in the surface being traversed by vehicle 10, as determined by the measured tilt, with respect to a plane perpendicular to gravity, of the user (COM) of means of wheel 20. In accordance with yet further alternate embodiments of the invention, a force sensor may be provided within handle 18 or a position sensor may be provided at point 40, other strategies for sensing leaning by the user and applying the sensed leaning as a user input to the control loop for governing vehicle operation.

In accordance with other embodiments of the present invention, leaning by user 10 may be used solely for governing fore-and-aft motion of vehicle 10, or, alternatively, leaning may be used solely for governing steering of the vehicle, or, for both functions.

A top perspective view of an alternate embodiment of the invention is shown in FIG. 11 where vehicle 10 is a single wheel 24 and user 12 stands, during normal operation of the vehicle, on platform 14 inside wheel 24. An embodiment in which wheel 24 is a single wheel 24, is depicted in FIG. 11 in a slightly elevated position 14, in this case, via coupling 40.

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FIG. 11 shows an embodiment of the invention wherein a vehicle 20 is controlled by leaning, as described above with respect to other embodiments, and no handle is provided, such that the entire support of user 10 is for standing on platform 12. Within the scope of the present invention, as described above, and claimed in any appended claims, user 10 may be supported on platform 12 by standing with feet positioned along axis 56 of rotation of wheel 24, as shown in FIG. 11, or, alternatively, with feet positioned on wheel axis 52, rotation of wheel 24, as shown in FIG. 12 and FIG. 13. A handle 16 may also be provided in the case of a configuration of the invention in which wheel 24 is mounted non-rotatably to the device under control by user 10, with handle 16 coupled to platform 12 via coupling 40, as shown in FIG. 14.

FIG. 15 shows an embodiment of a vehicle wherein the ground-contacting member is a wheel 18, which shall may be separately driven in the X and Y directions and the vehicle stabilized in one or both of these directions in the manner described above.

In addition to the present mobility vehicles described and claimed above, in accordance with alternate embodiments of the invention, scaled-down versions of any of the embodiments, hereinafter described may be employed for recreational or educational purposes, whether or not human subjects are conceptual changes. Such toy versions may need over various features while maintaining balance in the fore-and-aft plane.

The above-described embodiments of the invention are intended to be merely exemplary and numerous variations and modifications will be apparent to those skilled in the art. All such variations and modifications are intended to be within the scope of the present invention as defined in the appended claims.

- What is claimed is:
1. A vehicle for carrying a payload including a user, the vehicle comprising:
 - a. a platform which supports the user;
 - b. a ground-contacting module, to which the platform is mounted, which projects the user in a desired direction over an underlying surface;
 - c. a motorized drive arrangement, coupled to the ground-contacting module, the drive arrangement, ground-contacting module and payload constituting a system being tunable with respect to tipping when the motorized drive is not powered; the motorized drive arrangement causing, when powered, substantially balanced operation of the system wherein the vehicle has a power output and a specified maximum power output, determined by a difference between the maximum power output and the present velocity of the vehicle;
 - d. a balancing margin monitor, coupled to the ground-contacting module, for generating a signal characterizing the balancing margin; and
 - e. an alarm, coupled to the balancing margin monitor, for receiving the signal characterizing the balancing margin and for warning when the balancing margin falls below a specified limit.
 2. A device according to claim 1, wherein the alarm includes a light modulation of the power output of the motorized drive arrangement.
 3. A device according to claim 1, wherein the alarm is audible.

Patent PAT.

Protects	machines, inventions
Requires	novelty, some level of cleverness (nonobviousness, inventive step), and some other things
Vests	after application, upon issuance by government
Sustained by	escalating maintenance fees
Lasts	up to 20 years
Theory	incentive to invent and disclose; public goods problem

**Trade
Secrets**

Trade Secret

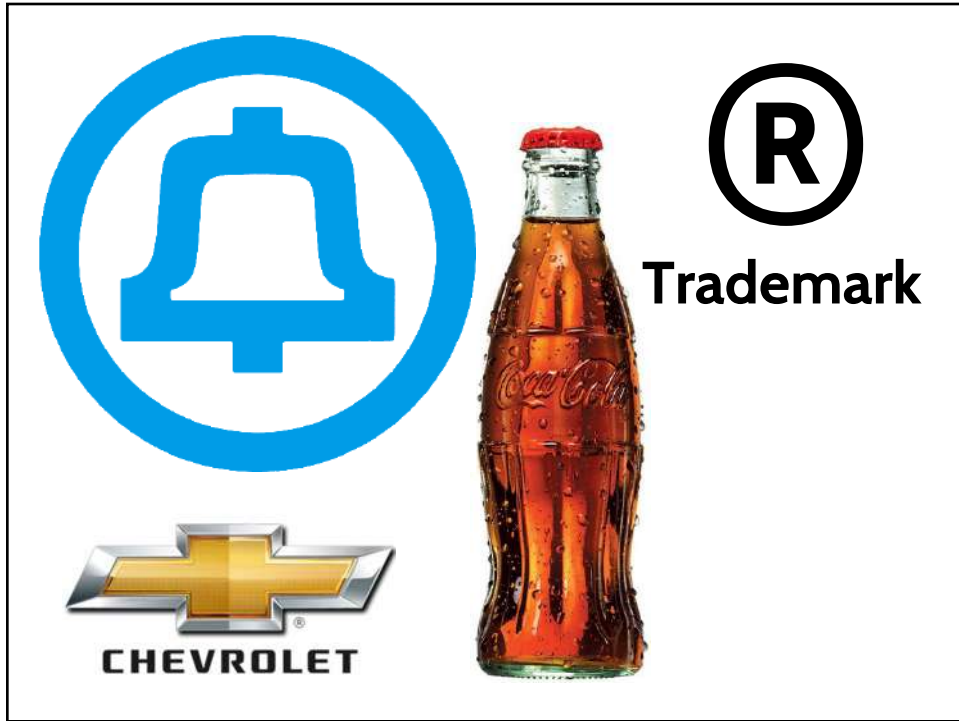


Trade Secret

Protects	formulas, recipes, manufacturing techniques, and other intangibles with independent economic value
Requires	secrecy and reasonable efforts to keep secret
Vests	automatically
Sustained by	continuing secrecy and efforts to keep secret
Lasts	potentially forever
Theory	????

And now for
something
completely
different ...

Trademarks



T M

source

source

source

source

source

Trademark ® TM

Protects	names, logos, slogans, other indications of commercial source
Requires	distinctiveness (can identify a commercial source)
Vests	common law: upon use federal: after use, upon registration
Sustained by	continued use
Lasts	as long as used, potentially forever
Theory	provides information to consumers, which helps the market function better, increasing economic efficiency



Right of Publicity



Right of Publicity

Protects	name, voice, image, other indicia of identity of a real person
Requires	nothing; fame in a few jurisdictions maybe
Vests	automatically
Sustained by	[nothing]
Lasts	lifetime; post-mortem in some states
Theory	????



You

own intellectual property

Comparisons

What is protected?

©	Expression (text, images, recordings)
Pat.	Inventions
TM ®	Indications of commercial source
Trade Secret	Transferrable commercial secrets
Right of Publicity	Indications of personal identity

What does it take to get it?

©	Fixation (immediate)
Pat.	Application, gov' t review
TM ®	Use in commerce, creating meaning
Trade Secret	Nothing
Right of Publicity	Nothing (fame, some places maybe)

What does it take to keep it?

©	Nothing
Pat.	Payment of maintenance fees
TM ®	Continued use in business
Trade Secret	Keeping it secret
Right of Publicity	Nothing

How long does it last?

©	on the order of 100 years
Pat.	on the order of 20 years
TM ®	forever (if used)
Trade Secret	forever (if kept secret)
Right of Publicity	life + extra sometimes

How is it lost?

©	Very difficult
Pat.	Unpaid fees; successful challenge
TM ®	Failure to keep exclusive control
Trade Secret	The secret gets out
Right of Publicity	Very difficult (?)

Defenses include ...

©	Fair use, first-sale
Pat.	Invalidity, first-sale
TM ®	Non-trademark uses, fair uses, first-sale
Trade Secret	Reverse engineering
Right of Publicity	News, free speech, non-commercial

Remedies include ...

©	Injunctions; restitution (of D's wrongful gains); statutory damages up to \$150K per infringement
Pat.	Injunctions; royalties; treble damages
TM ®	Injunctions; punitive damages; treble damages
Trade Secret	Injunctions; restitution (of D's wrongful gains); punitive damages; royalties
Right of Publicity	Injunctions; punitive damages

Let's talk about terms

- “**trademark**” in general usage (very broad) vs. “**trademark**” under the Lanham Act (specific statutory meaning of a mark for goods in the context of federal registration)
 - You have to think about which sense is meant when reading something.
- Lanham Act is picky with terms, recognizes four marks, which it talks about in the context of registration:
 - “**trademark**” mark for goods
 - “**service mark**” mark for services
 - “**certification mark**” mark certifying things in commerce by a neutral third-party
 - “**collective mark**” mark for belonging to a collective/organization
- “trade dress” is just a term that means a particular kind of **trademark** that's not a logo or word mark, but is product packaging, product configuration